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교육학석사학위논문

Korean EFL Learners' Processing of English Caused-Motion Construction

한국인 영어 학습자의
영어 사역이동구문 처리 양상

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성 하 경

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by

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ABSTRACT

The present study explores how Korean English learners process English caused-motion constructions (CMC) through online and offline experimental studies.

As has been widely observed since Talmy (1995), the lexicalization patterns of motion events show considerable variations across languages. For instance, English, an S-framed language, builds verbs of motion by bundling motion with the accompanying manner and indicating path with a satellite, whereas Korean, a V-framed language, bundles motion with the accompanying path in a verb position. Based on this typological difference, the present study hypothesizes that Korean English learners will show different patterns in processing English CMCs with manner verbs due to their typological differences.

Of the 82 volunteer participants recruited, 19 were native English speakers and 63 were Korean EFL learners. The Korean learners were divided into two groups according to their English proficiency: an advanced group (A group) and a low-intermediate group (L group). Two types of experimental studies were conducted to investigate Korean English learners' processing of the construction. The first online processing study was comprised of a self-paced reading (SPR) and a sentence completion task (SCT). The offline processing study included an acceptability judgment task (AJT) and a translation task.

The results of the online study showed that the Korean learners were insensitive to the satellite, but showed similar time-processing patterns with path and transitive manner verbs in the SPR. They showed further difficulty in combining a process event

and a result event with intransitive manner verbs in the SCT.

In the offline study of the AJT, the Korean learners rarely accepted the CMCs with intransitive manner verbs, but, conversely, easily accepted the ‘causative verb + *by*-phrase’ structures with the same verb type. When the sentences employed in the AJT were asked to be translated into Korean, the low-intermediate Korean learners were likely to drop the result meaning and interpret the preposition phrase as a location rather than a goal.

In sum, Korean learners showed similar patterns to native English speakers in processing path verbs (Type 1, e.g., *put*, *take*), and transitive manner verbs (Type 2, e.g., *pull*, *push*). However, they showed different pattern in processing intransitive manner verbs (Type 3, e.g., *sneeze*, *dance*).

In conclusion, the CMCs in English and Korean differ syntactically and semantically, and Korean learners’ processing of English CMC was heavily influenced by their L1 when the construction accompanied intransitive manner verbs, implying a limitation of their constructional knowledge.

Key words: English Caused-Motion Construction, Caused-Motion Event, Typology, Construction Grammar, Sentence Processing,

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CHAPTER 1

INTRODUCTION

This chapter introduces the motivation and purpose of the present study, and presents the research questions and the experimental hypotheses. The chapter closes with an outline of the organization of the thesis.

1.1. The Motivation and Purpose of the Study

Motion events have been extensively studied in the area of cognitive linguistics, with many studies focusing on the importance of motion expression in relation to the development of cognition and language. The researchers have focused on the relationship between motion and cognition, pointing out humans develop cognitive capacity along with recognizing motions around them (Lim, 2000; Radden, 1996).

Meanwhile, the researchers in the linguistic exploration of motion expressions have focused on three main themes. First, they emphasized that these expressions should be understood within a whole frame instead of focusing on individual components of the expressions (Jackendoff, 1990; Talmy, 1985, 1991, 1996; Ungerer & Schmid, 1996). Second, they investigated the lexicalization patterns¹ of the motion expressions and compared languages

¹ The “lexicalization” refers to “the encoding of conceptual components in a lexical unit,

in order to learn how languages are different in terms of typology (Beavers, Levin, & Tham, 2010; Levin & Rappaport Hovav, 2016; Talmy 1985, 1991; Slobin, 1996). Third, patterns and processes of learning motion expressions have been explored, mainly focusing on the influences of the typological differences in L1 and L2 acquisition (Choi & Bowerman, 1991; H-Y. Choi, 2010; Hendriks, Hickmann, & Demagny, 2008; Jung, 2005; J-E. Lee, 2007; N-Y. Lee, 2009).

Talmy (1985, 2000a, 2000b) suggests that every language has a universal cognitive system of motion events which include four major components – ground, motion, path, and co-event (manner or cause). Such components are “sketched” differently across different languages, but they are only defined in terms of a cluster of the distinct frame, or an “idealized cognitive model” (Lakoff, 1987, p. 68). Similarly, construction grammar asserts that lexical items are associated with frame-semantic knowledge, and basic sentence-level constructions indicate scenes, which are in some sense basic to human experience (Goldberg, 1995). The set of basic constructions are used to encode general event types such as the events of ‘something moved’ or ‘someone caused something to change location.’

Goldberg (1995) suggests several argument structure constructions as “a special subclass that provides the basic means of clausal expression” (p. 3).

whether a word or a morpheme, and then the term “lexicalization pattern” means “the regularities in the way such components are encoded in lexical items and hence distributed across the constituents of the clause in particular languages,” so most work on the lexicalization patterns discuss “the conceptual components of event descriptions” including the descriptions of the motion events (Levin & Rappaport Hovav, 2016, p. 2).

Among them, the two constructions presented below represent motion events.

(1) Intransitive motion construction

Example: *The fly buzzed into the room.*

(2) Caused-motion construction

Example: *Pat sneezed the napkin off the table.*

Recently, a great deal of attention has been paid to the question of how Korean learners of English acquire English motion structures, not only in the typological perspective (Y-H. Choi, 2010; Jung, 2005; J-E. Lee, 2007; N-Y. Lee, 2009), but also in the usage-based perspective of construction grammar (J-Y. Choi, 2015; S-H. Kim, 2017; Kim, Choi & Yang, 2013; Lee & Kim, 2011; Shin, 2013, 2017; Rah, 2014). However, these studies present some potential limitations with regard to English caused-motion constructions (CMCs)². First, the acquisition of English CMCs by Korean EFL learners was not examined separately from those of the intransitive-motion constructions by the researchers from a typological perspective (Y-H. Choi, 2010; Jung, 2005; J-E. Lee, 2007; N-Y. Lee, 2009). In other words, they grouped two different motion constructions into one motion expressions while focusing on how Koreans acquire typologically different motion expressions. Second, the previous studies, based on construction grammar, provided mixed evidence as to the

² The prior research have made a compelling case for the Korean EFL learners' early acquisition of the intransitive-motion constructions (e.g., Kim, Choi, & Yang, 2013; Lee & Kim, 2011).

learnability of the English CMC for Korean EFL learners. Some researchers revealed that the English CMC was difficult for Korean learners (J-Y. Choi, 2015; Kim, 2017; Lee & Kim, 2011; Shin, 2017), but others suggested that the construction is relatively easy for them (Kim, Choi & Yang, 2013; Rah, 2014; Shin, 2013). In addition, these researchers disregarded the semantic influence of verbs in the constructions while emphasizing the importance of the constructions.

Taking these previous limitations into consideration, the present study has two main goals. First, it aims to categorize English CMCs according to verb types by considering the typological differences and the semantic influence of the verbs³. Second, based on this categorization, the study aims to explore how Korean EFL learners process English CMCs.

The participants' processing of English CMCs was examined through both online and offline experiments. Second language acquisition studies have mainly investigated the linguistic knowledge of L2 speakers via offline methods, such as with grammaticality judgment tasks. Recently, however, there has been more interest in the question of how L2 speakers process target language input in real time and whether their processing strategies reflect their abstract linguistic knowledge in the target language (Dinçtopal-Deniz, 2010). Therefore, the present study employs both online and offline experiments in order to compare Korean EFL learners' processing of the constructions with

³ The role of the verb has been highlighted by the previous researchers (Beavers et al., 2010; Levin & Rappaport Hovav, 2016; Talmy, 2000a, 2000b) because of the two following properties (Beavers et al., 2010, p. 334): (a) Verb is the only clause-obligatory lexical category. (2) A verb may lexicalize only one manner and path.

that of native English speakers in both ways of processing. The first study consists of a self-paced reading (SPR) and a sentence completion task (SCT) to explore the participants' online processing of English CMCs. The second study addresses the participants' offline processing of the constructions by means of an acceptability judgment task (AJT) and a translation / correction task.

1.2. Research Questions and Hypothesis

The present study was guided by the following questions:

1. Do Korean EFL learners process English CMCs in a native-like way in online processing tasks?
 - How similar is Korean learners' processing of English CMC to that of native English speakers?
 - How different is Korean learners' processing of English CMC to that of native English speakers?
2. Do Korean EFL learners process English CMCs in a native-like way in offline processing tasks?
 - How similar is Korean learners' processing of English CMC to that of native English speakers?
 - How different is Korean learners' processing of English CMC to that of native English speakers?

Given the typological differences between Korean and English, the hypothesis of the present study is that Korean L2 learners' acquisition of English CMCs will be affected by their L1, as formulated in the two specific hypotheses below:

1. Korean EFL learners will process English CMC sentences with path verbs in similar ways as native speakers.
2. Korean EFL learners will process English CMC sentences with manner verbs in different ways from native speakers.

1.3. Organization of the Thesis

This thesis is organized into five chapters. Chapter 1 introduces the purpose of the present study with research questions and hypotheses. Chapter 2 provides a review of the literature on theoretical background of typology, construction grammar, syntactic and semantic nature of English and Korean caused-motion construction. Chapter 3 describes the research methods, including participants, test items, tasks, procedures of the experiments, and coding and analysis of the data. Chapter 4 reports the results of the experimental studies and discusses the central issues exploring the research questions. Chapter 5 summarizes major findings of the study and concludes the study with pedagogical implications, limitations, and suggestions for future research.

CHAPTER 2.

LITERATURE REVIEWS

As the present study focuses on the caused-motion construction (CMC) from the perspectives of typology (Talmy, 1975, 1985, 2000a, 2000b) and construction grammar (Goldberg, 1995, 1999, 2006), the chapter begins with typological analyses of the CMC with regard to English and Korean. The next section overviews English CMC with the framework of construction grammar. The last section deals with syntactic and semantic nature of the construction and its interface by comparing both English and Korean.

2.1. Motion Event and Typology

2.1.1. Dichotomy between S-framed and V-framed language

Talmy (2000a, 2000b) defines a motion event as being constituted of a *framing event* and a *co-event*. The framing event is a main event which provides the four universal components of the motion: (1) a moving *figure*, (2) a physical *ground* which the figure moves against, (3) a dynamic process of *motion*, and (4) *a path*, the trajectory of the figure. The co-event – an external and optional components of the event – provides a supportive relation to the framing event by elaborating it. Talmy (2000a, 2000b) distinguishes the co-

event into two most common forms as *manner* and *cause*⁴.

Among the four basic components of the framing event, Talmy (2000a) establishes *path* of motion as the fundamental feature in conflating motion events. In terms of how a language conflates path information in its motion expressions, languages are categorized into two groups: *V-framed* languages (i.e., Korean) typically encode path of motion in the main verb (e.g., *ka-ta*, ‘go’, *o-ta*, ‘come’), whereas *S-framed* languages (e.g., English) incline to express path in a satellite⁵ associated with the main verb (e.g., *blow out*, *kick into*).

Universal Cognitive System	agent	figure	ground	path	motion	manner (cause)
	Korean (V-framed language)					
Language Variation	subject	adverb	object	(serial) verb		
	agent (<i>Na-nun</i>)	ground (<i>se-lap-ey</i>)	figure (<i>mwul-ken-ul</i>)	verb 1 manner (<i>mil-e</i>)	verb 2 motion & path (<i>neh-ess-ta</i>)	
	English (S-framed language)					
	subject	verb		object	satellite	oblique
	agent (<i>I</i>)	motion & manner (<i>pushed</i>)		figure (<i>the stuff</i>)	path (<i>into</i>)	ground (<i>the drawer</i>)

Figure 2.1 Typological Differences between Korean and English

⁴ The present study does not differentiate between manner and cause for two reasons. First, Talmy’s original classification (1975, 1985) of the semantic components integrates two forms into manner, which means the manner of motion by the figure mandatorily has to move along the path. Second, a majority of studies which adapted Talmy’s (2000a, 2000b) classification does not strictly separate between manner and cause (e.g., Aske, 1989; Beavers et al., 2010).

⁵ Satellite is defined as “the grammatical category of any constituent other than a nominal complement that is in a sister relation to the verb root” (Talmy, 1991, p. 486) and particle and suffix are included in the satellite.

The different lexicalized pattern of path component consequently yields the different patterns for conflating *manner* in two language types as illustrated in Figure 2.1 with the cases of English and Korean. For S-framed languages, the fact that path is encoded by the satellite gives the speakers a more “accessible and easily codable linguistic option” to show the manner of motion in the main verb position (Özçalışkan, 2004, p. 75). As a result, it leads to richer lexicon of manner verbs in S-framed languages as they habitually encode manner within the verb (Slobin, 2000, 2004). In contrast, without an equipment to encode path independently and efficiently, V-framed languages conflate path information in the main verb. For conflating manner information, V-framed language speakers show two basic options: (1) to conflate both path and manner components in the verb slot with serialization or (2) to rely on subordinate adverbial clause to express manner components. According to Slobin (2004), such patterns for incorporating manner information give a processing burden to V-framed language speakers, which in turn, they tend to drop out manner information unless it is salient in the context.

2.1.2. Beyond the Two-way Typology

After Talmy (1975, 1985, 1991, 2000a, 2000b) introduced the influential two-way typology, various studies have revealed possible options for encoding motion events beyond Talmy’s categorization (Slobin, 2004; Zlatev &

Yangklang, 2004)⁶. Of the studies, Beavers et al. (2010) accommodate the growing exceptions of the previous distinctions, and posit an eclectic approach: A language may show both V and S-framed patterns. Instead of separating languages dichotomically, they suggest a different set of possibilities for incorporating both manner and path in a clause like below (p. 360).

(1) (a) *Path* as V: If path is expressed in V for a given expression, then

- if the language has monoclausal multiverb constructions (or serial verb construction)⁷, manner may also be expressed as a V
- if the language has manner adverbials (ideophones, subordinate clauses, adverbs), these may encode manner.

(b) *Manner* as V: If manner is expressed in V for a given expression, then

- if the language has monoclausal multiverb constructions (or serial verb construction), path may also be expressed as a V.
- if the language has appropriate result satellites (e.g., affixes, particles), these may encode path.

⁶ They suggested a third-class of equipollently-framed language (E-language). Such languages (e.g., Thai) show that manner and path are both encoded as main verbs, and these verbs share tense and aspect.

⁷ In case of Korean, monoclausal multiverb construction does not mean they are an E-framed language type, because a manner verb is combined in *e-* participial form before a path verb to convey both manner and path in a single clause (e.g., *Ku salam-i cip-ulo ttwui-e tul-e kassta*. 'That person ran into the house') (Slobin & Hoiting, 1994). Thus, the rightmost verb bears tense, which is a mark of the main verb. On the other hand, the others are followed by the connective morpheme *-e* and lack tense. According to Beavers et al. (2010, p. 356), there are different names for this construction, as Choi and Bowerman (1991, p. 88) calling it a compound, Kim (1997, p. 45) a complex predicate, and Im (2000, p. 255), Jo (1990), and Zubizarreta and Oh (2007) stress it as a serial verb construction.

- if the language has *until*-markers, these may be used to encode path.

Therefore, it is not the language itself that determines typological patterns, but it is the available language-specific resources that determine a pattern for encoding and combining manner and path. The resources affect the available set of lexicalization patterns for the motion events as suggested in the Table 2.1.

Table 2.1 Available Lexicalization Patterns for Motion Events

Lexicalization Pattern	Example Language
Serial Verbs (e.g., $V_{\text{manner}} V_{\text{path}}$)	Mandarin
Compound / Multi Verbs (e.g., $V_{\text{manner}} + V_{\text{path}}$)	Japanese, Korean
Complementation (e.g., $V_{\text{manner}} + \text{PP/DP}_{\text{path}}$)	English
Subordination (e.g., $V_{\text{path}} V_{\text{manner-participle}}$)	Possible in all languages
Adjunction (e.g., $V_{\text{path}} \text{Adv/PP}_{\text{manner}}$)	Possible in all languages

(Adapted from Beavers et al., 2010, p. 361)

Most importantly, the several options of the lexicalization do not mean that the language users evenly avail them. Instead, they tend to resort to more preferred option, which is a “morphosyntactically less complex pattern” (Beavers et al., 2010, p. 366). Consider the example of (2), which involves possible descriptions of ‘John running to the station’ in which both manner and path are depicted in Japanese.

(2) (a) *John-wa eki-ni itta.*

John-TOP station-to went

‘John went to the station.’

(b) *John-wa eki-ni hashitta-itta.*

John-TOP station-to running-went

‘John went running to the station.’

(c) *John-wa eki-made hashitta.*

John-TOP station-until ran

‘John ran to the station.’

(d) *John-wa hashitte eki-ni itta.*

John-TOP running station-to went

‘John went to the station running.’

(Yoneyama, 1986, p. 2, as cited in Beavers et al., 2010, p. 366)

Of the possible options listed above, the researchers concluded that (2a) is the most preferable in terms of complexity, while (2d) is the least preferable. At the same time, the other two options, (2b) and (2c) are the next-bests as they are less complex than (2d). Therefore, the preference among the possible lexicalization patterns leads to Japanese’ favors of V-framing, which is (2a), with the tendency towards serial-verb framings, which is (2b).

2.2. Construction Grammar

2.2.1. English Argument Structure Construction

Cognitive linguistics posit learning language as a simple process of domain-general mechanism (Ambridge et al., 2006; Ellis, 2002, 2006; Elman, 1993, 2005; Goldberg, 1999, 2006; Hawkins, 2004; MacWhinney, 1987; O'Grady, 2005; Tomasello, 2003). With this perspective, language acquisition becomes more of a way to create mapping of various types – between sound waves and phonemes, between morphemes and concepts, and between forms and meanings (O'Grady, Lee, & Kwak, 2009).

In the area of cognitive linguistics, the problem of learning language is reduced to acquiring symbolic linguistic units of form-meaning pairings. These linguistic units have been defined as *constructions* (Bencini & Goldberg, 2000; Boyd & Goldberg, 2009; Bybee, 2008, 2010; Croft & Cruse, 2004; Dabrowska, 2004; Ellis & Ferreira-junior, 2009; Goldberg 1995, 1999, 2003, 2006; Goldberg & Casenhiser, 2008; Tomasello, 2003). The followings are the major characteristics of constructions: (1) the correspondences of forms and meanings that exist independently of particular verbs, (2) the basic units of language from morphemes to sentence structures, and (3) a facilitator to basic experiences of human beings.

One important type of construction is the argument structure constructions (ASC), which have been the focus of attention in usage-based theory and

construction grammar (Bencini & Goldberg, 2000; Boyd & Goldberg, 2009; Chang & Maia, 2001; Gries & Wulff, 2005; Holme, 2010; Liang, 2002; Martínez Vázquez, 2004). Goldberg (1995) states that they “provide basic means of clausal expression in a language” (p. 3). Table 2.2 lists some representative ASCs in English.

Table 2.2 Basic English Argument Structure Constructions

Types	Meaning and Form	Example
Intransitive Motion	X moves Y Subj V Obl	<i>The fly buzzed into the room.</i>
Intransitive Resultative	X becomes Y Subj V Xcomp	<i>She felt happy.</i>
Transitive	X acts on Y Subj V Obj	<i>Pat hit the wall.</i>
Ditransitive	X causes Y to receive Z Subj V Obj ₁ Obj ₂	<i>Pat faxed Bill the letter.</i>
Caused- Motion	X causes Y to move Z Subj V Obj Obl	<i>Pat sneezed the napkin off the table.</i>
Resultative	X causes Y to become Z Subj V Obj Xcomp	<i>She kissed him unconscious.</i>

2.2.2. English Caused-Motion Construction

The English caused-motion construction (CMC) has a syntactic structure which consists of a subject, a verb, an object, and a prepositional phrase, e.g., [Pat] – [sneezed] – [the napkin] – [off the table]. This syntactic structure is associated with a constructional meaning, ‘X causes Y to move Z_{location}.’ The construction attributes to formulating causative meaning, which works independently from the meaning of the main verb.

The following two sentences in (3) show how the English CMC makes the causative meaning beyond the lexical aspect of the main verb.

- (3) (a) John swept the floor.
(b) John swept the dirt into the corner.

In (3a) and (3b), the main verb is identical, but only (3b) implies the causative meaning from the action, which can be paraphrased as ‘John caused the dirt to move into the corner by sweeping it.’

In order to explain the postulated causative meaning from the CMC as in (3b), a number of researchers have proposed accounts from the lexical semantic framework (Gawron, 1986; Hoekstra, 1992; Pustejovsky, 1991; Rappaport Hovav & Levin, 1991). On the one hand, some researchers called attention to the lexical polysemy of the verb (Pustejovsky, 1991). On the other hand, others viewed that the causative meaning came from the composition

between the verb and the preposition (Rappaport Hovav & Levin, 1991). Even though the compositional accounts of the latter perspective partly admitted the influence of the structure to the lexical meaning of the verb, they could not exactly explain why they have to combine the verb and the preposition in order to elicit the causative meaning (Goldberg, 1995).

Instead of focusing on the verb, construction grammar contends that the construction itself yields causative meaning extending the lexical sense of the verb. By admitting the role of the construction, the theory explains some cases of the CMCs with intransitive verbs (e.g., The audience *laughed* the poor guy off of the stage). In such cases, the original verb does not independently license direct object complements and cannot occur with transitive meaning, which is the reason why the compositional accounts (Gawron, 1986; Pustejovsky, 1991) could not explain why the intransitive verbs are available in the CMC (Goldberg, 1995). In short, extending the focus from lexical items to the construction could give satisfactory explanations for exceptional cases and yield a conventionalized interpretation of the caused-motion to the construction.

2.3. Syntactic and Semantic Nature of Caused-Motion Construction

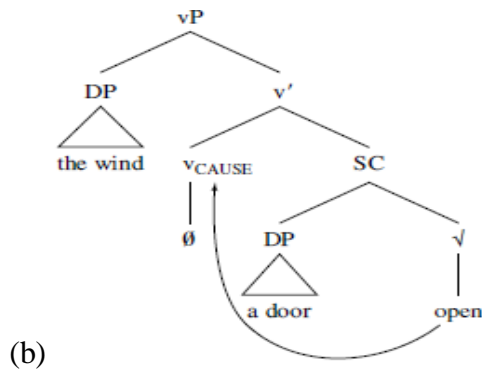
2.3.1. Syntactic Nature of the Caused-Motion Construction

2.3.1.1. English Caused-Motion Construction

The English CMC is syntactically uniform regardless of the types of the verbs attached into the construction. The uniformity comes from the internal VP-shell structure which the previous researchers have proposed as the complex structure on the causative meaning (Baker, 1997; Bowers, 1993; Hale & Keyser, 1993, 1996; Harley, 1995; Folli & Harley, 2007; Kratzer, 1996). At the beginning, the research on the VP-shell structure focused on the analysis of causational affix in languages such as Japanese, Turkish, and Persian. The analyses of affixal causatives suggested that since additional agent argument of a causativized verb appears, the syntactic structure needed the addition of an extra vP. The similar logic applied to the analysis of nonaffixal languages such as English. The researchers posited a causative little-v head, thus a verb with the causative meaning (v_{CAUSE}) assigns a causer interpretation to its specifier and regards a small clause of its object and preposition as a complement (Folli & Harley, 2007).

For example, Folli and Harley (2007, p. 229) suggested a VP-shell structure of a sentence describing a change of state (4a) like the following tree structure (4b).

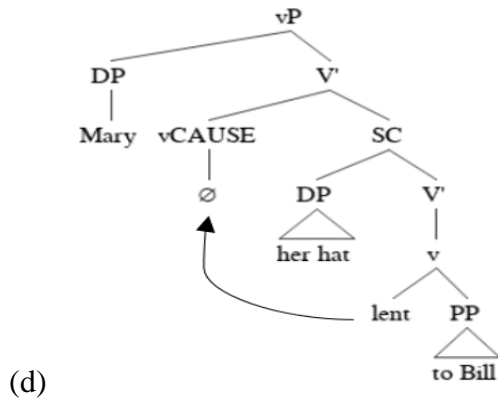
(4) (a) The wind opens a door.



The tree structure (4b) shows that the lexical content of a verb, *open*, that describes a change of state in the VP-shell (shown as SC, i.e., small clause) enters the higher v' structure as the predicate of the result-state of v_{CAUSE} .

The similar structure (4d) applies to a change of location statement of the CMC (4c).

(4) (c) Mary lent her hat to Bill.



Similar to (4b), the lexical content of a verb, *lend*, describes a change of location of *her hat* in the VP-shell (SC), and moves up to the higher v' to become the predicate of the clause. The similarity between two structures is

supported by the Goldberg's (1995) analysis of the networks among constructions, in that CMC (4d) has a metaphorical extension relationship with the resultative construction (4b).

2.3.1.2. Korean Caused-Motion Construction

Verbal serialization is a typical lexicalization pattern for Korean (Beavers et al., 2010). By the definition, it is a construction where more than two verbs appear in a clause without an explicit marker of coordination or subordination (Ko & Sohn, 2015, p. 79). While a number of previous research have generalized the condition for Korean serial verb construction (SVC) (Chung, 1993; Kang, 1997; S-H. Lee, 1992; Y-J. Lee, 2003; C-H. Lee, 2006; Zubizarreta & Oh, 2007), Ko and Sohn (2015) highlighted the role of derivational suffix – causation⁸ or passivization – in the formation of the SVCs. Depending on where the deflectional suffix merges, there are two possible SVCs that can express causative meaning: H-SVC and L-SVC (Table 2.3).

⁸ Korean has seven allomorphs for the causative morpheme /i/: [i], [hi], [li], [ki], [wu], [ku], and [chu]. In other way, the causative meaning can be specified through a causative phrase, -*key hata*, 'make (someone) do (something)' (S-W. Lee, S-H. Lee, & Jung, 2015).

Table 2.3 Two Types of Korean SVC of Causativization

	H-SVC	L-SVC
Structure		
Example Sentence	<i>John-i kaymi-lul palp-a cwuk-i-ess-ta.</i> ‘John tramped an ant to death.’	<i>John-i Mary-lul kkwulh-e anchi-ess-ta.</i> ‘John made Mary keel down.’
Morphological Complex	The derivational suffix scopes over the V ₂ , but not over V ₁ .	The derivational suffix scopes over the entire serialized complex.
Separability Test ⁹	V ₁ and V ₂ are separable.	V ₁ and V ₂ are inseparable.
Connection	Relatively weak	Relatively strong

(adapted from Ko & Sohn, 2015, p. 88)

Most importantly, the majority of the English CMCs correspond to Korean H-SVCs because the manner of the verb only describes the process before the causativization, and does not directly constitute caused events. For example, ‘cut something into (*cal-la noh-ta*)’ can describe a caused-motion event (e.g., my mom cut the apples into the plate), and ‘cut’ (*cal-la*) only depicts the

⁹ Ko and Sohn (2015) suggests three tests to test whether V₁ and V₂ are separable: (1) *-se* insertion test between the two verbs (e.g., *cal-la-se noh-ta*) (2) adverb insertion test (e.g., *cal-la yey-ppu-key noh-ta*), and (3) scrambling test. When the English CMC are matched into the corresponding Korean SVCs, they are likely to pass the tests, which means that they tend to be H-SVCs.

process of the event. The analysis is in good concert with Ko and Sohn's (2015) explanation of the H-SVC in that "the causative morpheme is merged directly with V₂, (so) only V₂ belongs to the caused sub-event" (p. 83). In the same example (*cal-la noh-ta*) above, thus only *noh-ta* belongs to the caused event.

The H-SVC structure yields two characteristics for Korean CMC structure. First, it implies that the Korean composition is weaker than the English counterpart. In contrast to the complement structure between the verb and the VP-shell of the English CMCs, two verbs in the H-SVC constitute independent domains from each other as V₂ regards V₁ as its adjunction. The evidence could be found in that *se*-insertion – an explicit adjunction marker (S-H. Lee, 1992; Y-J. Lee, 2003; Kang, 1993) – is possible in structure. Second, it refines the Baker's (1989) previous assumption that object sharing is an essential property of SVC to subject-sharing of Korean SVC (Ko & Sohn, 2015, p. 80). Therefore, an unergative V₁ (*ttwi-ta*, 'jump') and transitive V₂ (*nem-ta*, 'go over') may form a legitimate SVC with the permission of the subject-sharing like the following example (5).

(5) *John-i wultali-llul ttwi-e nem-ess-ta.*

'John jumped over a fence.'

Meanwhile, one important question often overlooked in the literature is that some Korean verbs are found to appear alone in a caused-motion event

without conflation as the SVC. Nam (2003) defined them as *theme-movement verbs* which indicate an event of location change of the theme. Commonly, they do not have salient co-event (process) frame with the event. Instead, the verbs focus on describing the path or the movement of the theme (Levin, 1993). In addition, the verbs mandatorily require three arguments – agent, theme, and goal/source/direction/path (i.e. a “ternary predicate,” Nam, 2003, p. 112). These are the examples of the theme-movement verbs: *ka-cye-o-ta* ‘bring’, *ka-cye-ka-ta* ‘take’, *noh-ta* ‘put’, *ppay-nay-ta* ‘take out’, and *olm-ki-ta* ‘move’.

In sum, English CMC is a structurally uniform construction regardless of the verb type. The verb includes a VP-shell as its complement, thus the structure has a strong connection between the process event (V_{CAUSE}) and the result state (VP-shell). In contrast, Korean CMC is expected to show two structures depending on the verb type. First, when the caused-motion event accompanies a salient co-event (process), the SVC is expected. In that case, there is a relatively weak connection between the process event (V_1) and the result state (V_2). Second, when the event does not accompany salient co-event (process) and focuses on the path of the motion, a single verb of the ternary predicate is expected (e.g., *ka-cye-ka-ta*, ‘take’).

2.3.2. Semantic Nature of the Caused-Motion Construction

2.3.2.1. English Caused-Motion Construction

A certain syntactic structure has a particular semantic correlation (Fillmore, Kay, & O'connor, 1988; Lakoff, 1987; Langacker, 1999). Goldberg (1995) notes that the basic semantics of the caused-motion construction is that the causer argument directly causes the theme argument to move along a path designated by the directional phrase. The prior research proposed that the construction involves complex events – process and result (Comrie, 1976; Croft, 1998; Dahl, 1985; Dowty, 1979; Jackendoff, 1976, 1983; Van Valin & LaPolla, 1997). Therefore, the semantic structure of the CMC can be separated into following events (6).

(6) (a) process: an agent performs an action

(b) result: an object undergoes motion in a certain direction

First, the result events of the changed location of the object as in (6b) is expressed by a satellite structure because the satellite (e.g., *to*, *into*, *out of*) can head goal PPs that add or specify a result state (i.e., telicity) for the action expressed by the main verb (Aske, 1989; Hoekstra & Mulder, 1990; Levin & Rappaport Hovav, 1995; Talmy, 1985, 2000a, b). For example in (7), the unergative manner-of-motion verbs generally do not take a direct object (Folli & Harley, 2006, p. 124).

(7) (a) John waltzed (*Matilda).

(b) John walked (*Matilda).

- (c) John ran (*the dog).
- (d) John jumped (*the horse).

However, when the goal PPs are added as in (8), the verbs accept direct objects as well as denoting telicity. The aspect of only accepting the modifying *in-* adverbials shows that the events denote endpoint (Vendler, 1957). Overall, denoting the result state of the event is an important feature of the English CMC.

- (8) (a) John waltzed Matilda into the bedroom in 5/#for 5 minutes.
- (b) John walked Matilda to his new flat in 20/#for 20 minutes.
- (c) John ran the dog over the bridge in 20/#for 20 seconds.
- (d) John jumped the horse across the ditch in a flash/#for 2 seconds.

Another key point of the semantic nature of the CMC is that the first event as in (6a) – the process event of the agent’s action – is described by the matrix verb, and the verb can be categorized into several types depending on its semantic properties concerning path and manner. On the one hand, there are several verbs with salient path (i.e., deictic) meaning without pinpointing the manner of the agent’s action. Levin (1993) defined them as the “verbs of continuous causation of accompanied motion in a deictically specified motion” (p. 46), and *bring* and *take* are included. These verbs generally overlap with the Korean ternary predicates (Nam, 2003), which are the prototypical verbs in the

caused-motion event and mandatorily require three arguments of agent, theme, and goal/source. On the other hand, some verbs stand out the manner focusing on the agent's action with the movement of the object. The manner of motion verbs are again categorized into two depending on whether they imply a direct external cause (Levin & Rappaport Hovav, 1992). The verbs such as *roll*, *spin*, *push*, and *pull* are classified into the verbs denoting the existence of direct external cause and transitivity. In contrast, the verbs such as *walk*, *run*, *swim*, and *jog* are categorized into the verbs denoting indirect external cause and without transitivity. Table 2.4 below summarized the different types of the verbs that are available in English CMC.

Table 2.4 Categorization of the Verbs in English CMC

Types	Path (+), Manner (-)	Path (-), Manner (+)	
Examples	<i>bring, take, send</i>	Direct Cause (+)	<i>roll, spin,</i>
	(Levin, 1993)	(transitive)	<i>pull, push</i>
	<i>put, kick, throw</i>	Direct Cause (-)	<i>walk, run,</i>
	(Nam, 2003)	(intransitive)	<i>swim, jog</i>
Reference	Levin (1993)	Levin & Rappaport Hovav (1992)	
	Nam (2003)		

2.3.2.2. Korean Caused-Motion Construction

The syntactic structure of Korean caused-motion construction is also cue

for its semantic property. Firstly, the possibility of inserting *-se* between two verbs of the SVC verifies that the syntactic structure implies a temporal relationship rather than a causative meaning. The prior research revealed that a connection *se-* means ‘and then’ (S-H. Lee, 1992; Y-J. Lee, 2003; Sohn, 1976) and makes it explicit that the verbs in the SVC have temporal relationship (Kang, 1993). Li (1993) supported the relationship with *Temporal Iconicity Condition*, which suggests that the linear order of two verbs reflects the time sequence.

Meanwhile, Korean, as a V-framed language, does not have the secondary predication of the satellite, which does not imply the sense of result within the structure itself (Aske 1989; Beavers et al., 2010; Talmy 1991, 2000a, b; Washio, 1997). When a clause involves a manner verb in the matrix position, it is particularly difficult to imply the telicity. According to Levin and Rappaport Hovav (2016), “manner (process) and result meaning components are in complementary distribution (Manner/Result Complementarity)” (p. 26), thus, a verb lexicalizes either process or result. Even though Korean speakers are able to employ additional linguistic resources such as completive adverbs¹⁰ or aspectual serial verbs¹¹ to mark the telicity (Im, 2003), there are chances for

¹⁰ For example, Korean native speakers use completive adverbs such as *ta* and *kkuth-kka-ci* (‘completely’) to mark the end point of the event.

a. Chel-swu-nun pap-ul (*ta) mek-ess-u-na, a-cik-to nam-ass-ta.
Chel-swu ate his meal (*completely), but it’s left.

¹¹ For example, Korean native speakers use aspectual serial verbs in the head position (V₂) such as *-pe-li-ta* and *cwu-ta* to mark the end point of the event.

a. Chel-swu-ka pap-ul mek-ess-ci-man (*mek-e pe-lyess-ci-man), a-cik-to pap-i nam-a-iss-ta.
Chel-swu ate the meal (*ate the meal over), but it’s left.

the Korean native speakers to drop the result unless it is salient information when they describe an event with a manner verb (Slobin, 2004).

In a similar vein, the lack of the satellite leads to the oddity when manner verb occurs with goal PP. The following (9) is an example from Japanese.

(9) (a) *John-wa kishi-ni itta.*

John-TOP shore-to went.

‘John went to the shore.’

(b) ?? *John-wa kishi-ni oyoida/tadayotta/hatta.*

John-TOP shore-to swam/drifted/crawled.

‘John swam/drifted/crawled to the shore.’

(adapted from Beavers et al., 2010, p. 342)

When the goal PP is attached to a path verb as in (9a), the verb contributes to the directional interpretation. In contrast, when it is attached to a manner verb as in (9b), the goal PP failed to imply result location.

In brief, given the different syntactic structures between English and Korean CMCs, they are semantically different in terms of encoding causative meanings. English CMC shows both the process and result events in the causative relationship with the telicity. In contrast, Korean CMC combines the process and the result events in the temporal relationship with the lack of telicity. In other words, the Korean EFL learners may process the two events of the English CMC independently. Furthermore, they may experience difficulty

in processing the goal PP and end up interpreting it as a location when manner verbs are involved in the construction.

CHAPTER 3.

METHODS

This chapter presents the methodology employed for the experimental studies. Section 3.1 presents the details of the participants. Section 3.2 and 3.3 provides the methodologies of the online and offline processing studies.

3.1. Participants

A total of 82 volunteer participants were recruited for the study, 19 of whom were native English speakers and 63 of whom were Korean-speaking L2 English learners. Most of the English native speakers (NSs) were students at Language Institution at Seoul National University and Ewha Womans University. In the present study, only the participants whose first language is English and had grown up in the English-speaking country until puberty were considered as the NSs (Kim, 2016); therefore, two volunteers who were later found as disqualified were excluded, as they were bilinguals whose mother tongue is Korean. Ages of the remaining 17 native speakers (Male = 10, Female = 7), ranged from 20 to 39 with an average of 26.2. Their nationalities were American (American = 12, British=3, Canadian = 1, Singaporean = 1). The periods of their residence in Korea ranged from a month to 8 years with an average of 2.3 years approximately.

Details of the native speakers are given in the Table 3.1.

Table 3.1 Native English Speaker Participants

Gender	Age	Nationality	Period of Residence in Korea (years)
Female	24	Canadian	3
Male	25	British	2
Male	24	British	0.3
Male	39	American	1
Male	27	American	5
Female	24	American	2.5
Female	20	American	0.5
Male	31	British	6
Female	24	American	2.5
Male	32	American	8
Female	20	American	0.2
Male	34	American	0.5
Male	29	American	3
Male	22	American	0.1
Male	22	Singaporean	0.1
Female	26	American	2
Female	35	American	2

The 63 Korean participants, the 11th graders at Seoul Global High school, volunteered, but three of them were excluded from the analysis because they failed to complete the tasks.

At the beginning of the study, all the participants were asked to complete a C-test, adapted from Wen, Miyao, Takeda, Chu, and Schwartz (2010) (see Appendix 2). The test scores were used to divide the Korean EFL students into two groups. Those who scored 25 and above out of 40 were grouped as advanced (A group); those who scored less than 25 constituted the low-intermediate group (L group). An independent-sample *t* test showed that the C-test scores of the A group were significantly higher than those of the L group ($t(58) = 12, p < .001$).

Table 3.2 Mean C-test Scores

Group	n	C-test score (max = 40)		
		<i>M</i>	<i>SD</i>	Range
Native English Speakers	17	36	3.7	27-40
Advanced L2ers of English (A group)	31	30.7	3.9	25-39
Low-intermediate L2ers of English (L group)	29	17.8	4.5	10-24

Some of the Korean participants in the A group and few of the participants in the L group said that they have an experience of living in English-speaking countries. An independent-sample *t* test showed that the period of residence in English-speaking countries was significant when it comes to comparing two learner groups ($t(58) = 3.61, p = .001$).

Table 3.3 Period of Residence in English-speaking Countries

Group	Period of residence in English-speaking countries (years)		
	<i>M</i>	<i>SD</i>	Range
A group	2.2	2.4	0-8
L group	0.5	1.3	0-4

3.2. Online Processing Study

In online processing study, the experiments measured the participants' unconscious and automatic response to language stimuli. The Korean learners' spontaneous use of the English CMCs was investigated by a self-paced reading task and a sentence-completion task. The self-paced reading task (SPR) was used to look into the online comprehension of the constructions and the sentence completion task (SCT) was to investigate the online production of the constructions (Hoshino, Dussias, & Kroll, 2010).

3.2.1. Self-paced Reading (SPR)

The SPR task was introduced by Just, Carpenter, and Woolley (1982), and has been widely used to explore a number of topics in psycholinguistics: agreement on number (Hopp, 2010; Jiang, 2007), parsing of structurally ambiguous sentence (Roberts & Felser, 2011), wh-gap filling (Marnis, Roberts, Felser, & Clahsen, 2005), coreference processing (Cho, 2010), and

constructing situation model (Zwaan, Magliano, & Graesser, 1995). The task is expected to provide information on the moment-by-moment mental processes in comprehending the constructions.

3.2.1.1. Materials

The SPR used four types of verbs as a matrix verb in the CMC. The first type (Path type) consists of the verbs which show deictically specified motion (*take*, *send*) or have little information on manner of the motion (*put*, *get*). The second and third types consist of the verbs which primarily mean manner. The two types are different from each other in the presence of *direct cause* and *transitivity* of the manner. To be specific, the verbs in the second type (Transitive type) – *push*, *pull*, *help*, and *urge* – are associated with direct cause to the motion, while the verbs in the third type (Intransitive type) – *shout*, *run*, *laugh*, and *dance* – have no direct causation to the motion. The last type is a novel verb, which does not carry any information about path or manner.

Table 3.4 Types of the Verbs Used in the Self-paced Reading

Type	Verb	Example Sentence	Source
I (Path)	<i>take</i>	Lee <i>took</i> the rose into the house.	Bencini & Goldberg (2000)
	<i>send</i>	Sam <i>sent</i> him to the market.	Goldberg (1995)
	<i>put</i>	He <i>put</i> the jacket on the table.	Goldberg, Casenhiser, & Sethuraman (2004)

2 (Transitive)	<i>get</i>	Lura <i>got</i> the ball into the net.	Bencini & Goldberg (2000)
	<i>push</i>	Frank <i>pushed</i> it into the box.	Goldberg (1995)
	<i>pull</i>	John <i>pulled</i> the cart to the station.	Kallmeyer & Osswald (2012)
	<i>help</i>	Sam <i>helped</i> him into the car.	Goldberg (1995)
	<i>urge</i>	Sam <i>urged</i> Bill outside of the house.	Goldberg (1995)
3 (Intransitive)	<i>shout</i>	He <i>shouted</i> her out of the room.	Xia (2012)
	<i>run</i>	Kim <i>ran</i> Pat off the street.	Boas (2010)
	<i>laugh</i>	They <i>laughed</i> the guy out of the room.	Goldberg (1995)
	<i>dance</i>	John <i>danced</i> (<i>waltzed</i>) Matilda into the room.	Folli & Harley (2006, modified)
4 (Novel)	<i>prin</i>	Mike <i>prinned</i> the book into the room.	Kim, Choi, & Yang (2013)
	<i>doak</i>	Sarah <i>doaked</i> Kim over the book.	Kim, Choi, & Yang (2013)
	<i>tam</i>	Tony <i>tammed</i> the ball across the river.	Abbot-Smith, Lieven, & Tomasello (2004)
	<i>pug</i>	John <i>pugged</i> Mary along the road.	Abbot-Smith, Lieven, & Tomasello (2004)

The experiment involved 16 sets of experimental stimuli including the four types of the verbs listed in Table 3.4. The sets of experimental stimuli were distributed in a Latin square design across four lists, randomly assigned to participants so that they each saw only one condition of each experimental item. The design of the lists is illustrated in Table 3.5.

Table 3.5 The Latin Square Design of the Sentences

Sentence	List1	List2	List3	List4	# of items
Gary ____ Hyunsoo into the house.	Type 1	Type 4	Type 3	Type 2	4
David ____ Jiho onto the track.	Type 2	Type 1	Type 4	Type 3	4
Soyoung ____ Harry out of the truck.	Type 3	Type 2	Type 1	Type 4	4
Hanah ____ Frank off the chair.	Type 4	Type 3	Type 2	Type 1	4

Each stimulus contained six regions (i.e., words) as illustrated in Table 3.6. The regions of primary interest were V, O, and P, where participants are likely to slow down if they detect a mismatch between the verb and the construction. Each list also contained 16 grammatical fillers.

Table 3.6 Reading Regions of the Sample Items

Type	Regions					
	Subject	Verb	Object	Preposition	Determiner	Final
	(S)	(V)	(O)	(P)	(D)	(F)
1 (P)	Gary	took	Hyunsoo	into	the	house
2 (T)	David	pushed	Jiho	onto	the	track
3 (I)	Soyoung	shouted	Harry	out_of	the	truck
4 (N)	Sohee	prinned	Frank	off	the	chair

3.2.1.2. Procedures

At the beginning of the session, the participants were given instructions on the procedure. They were told that they would read English sentences on screen in a word-by-word order individually, and at the end, they had to answer a comprehension question.

The SPR task was administered and controlled using a PC running the experimental design software LINGER (Rohde, 2001). The presentation of the items followed the moving window paradigm, in which the sentences are presented one word at a time in a non-cumulative fashion, so that the participants never saw the complete sentence on the screen at one time. The words in the sentence were basically covered with a row of dashes, and each time a participant pressed the “F” key on the keyboard, a new word appeared and the previous one simultaneously disappeared from the screen. At the end of the sentence, in order to prevent distorting of the reading time while the participants spent time processing the whole sentence, the researcher disguised a period as a hidden word. Hence, the duration for the reading finished at the time when the period appeared on the screen.

After each sentence was read in the task, participants were presented with a yes/no comprehension question. The participants were told to answer the question as fast and accurately as possible. This was done to keep the participants focused on the meaning of each sentence and to avoid an unconscious pass over the words in order to finish the task quickly.

The order of test items was random. Including the brief explanation of the computer program and practice session, the entire experiment lasted about 10 minutes.

3.2.2. Sentence Completion Task (SCT)

The SCT was mostly employed in the research field to explore the consequence of grammatical and conceptual mismatches in the production of subject-verb agreement in online processing (Hoshino et al., 2010). In order to promote the immediate production of the sentences, the subjects were asked to repeat the given part of the sentence orally, and then produce a possible completion. The task is expected to provide information on the moment-by-moment mental processes in producing the constructions.

3.2.2.1. Materials

The grouping of verbs in the SCT was not much different from that in the SPR, and verbs were grouped into three different categories. However, the novel verbs were not used in the SCT again because the participants may feel difficult in combining the clauses if they do not have semantic information about the verb. As listed in Table 3.7, the first group consists of Path type verbs (*throw, kick, put, send*), and the second Transitive type verbs (*roll, slice, shot, push*), and the third Intransitive manner type verbs (*dance, laugh, sneeze, jump*) were tested. The

experiment involved 12 sets of experimental stimuli and 12 sets of grammatical fillers.

Table 3.7 Types of the Verbs Used in the Sentence Completion Task

Type	Verb	Given Sentence (→ Expected Completion)
1 (Path)	throw	<i>She threw the ball, and the ball was on the roof.</i> → She <u>threw the ball on(to) the roof.</u>
	kick	<i>He kicked the ball, and the ball was in the net.</i> → He <u>kicked the ball in(to) the net.</u>
	put	<i>She put the jacket, and the jacket was on the table.</i> → She <u>put the jacket on the table.</u>
	send	<i>He sent a package, and Mary received it.</i> → He <u>sent a package to Mary /sent Mary a package.</u>
2 (Transitive)	roll	<i>She rolled the ball, and the ball went out of the room.</i> → She <u>rolled the ball out of the room.</u>
	slice	<i>She sliced the ham, and the ham was on the plate.</i> → She <u>sliced the ham on the plate.</u>
	shot	<i>She shot the ball, and the ball went across the field.</i> → She <u>shot the ball across the field.</u>
	push	<i>She pushed him, and he went out of the room.</i> → She <u>pushed him out of the room.</u>
(Intransi	dance	<i>He danced with Matilda, and Matilda went into the room.</i> → He <u>danced Matilda into the room.</u>

laugh *He laughed at the guy, and the guy went out of the house.*
 → He laughed the guy out of the house.

sneeze *He sneezed at the tissue, and the tissue fell off the table.*
 → He sneezed the tissue off the table.

jump *She jumped to the horse, and the horse went over the fence.*
 → She jumped the horse over the fence.

3.2.2.2. Procedures

In the experiment, the subjects had to read a sentence that consisted of two clauses of process and result events, combined by a conjunction, *and* (e.g., She threw the ball, *and* the ball is on the roof). Subsequently, they were asked to provide a complete sentence of one clause that combines the meanings of the previously given sentences. All test items contained a blank after the given subject (e.g., She _____). The test items were given in a random order. With the explanation of the task, the entire experiment lasted about 10 minutes per participant.

3.3. Offline Processing Study

In offline processing study, the experiment measured how participants interpret a sentence after they took time to think over the meaning of the sentence with their metalinguistic knowledge. In other words, they could make a

conscious and controlled decision about the meaning of the sentence (Marinis, Blom, & Unsworth, 2010). The Korean learners' metalinguistic knowledge on the English CMCs was investigated by an acceptability judgement task and a translation task. The acceptability judgment task (AJT) was used to look into the offline comprehension of the construction (Kim, 2016) and the translation task was to deeply investigate L1 influence to the AJT (Kim, 2016; Park & Lakshmanan, 2007). For the NSs, a correction task was used instead of the translation task.

3.3.1. Acceptability Judgment Task (AJT)

The AJT required the participants to judge the acceptability of the given sentences. In addition, the task was designed to compare how the NSs and the Korean participants react to the different lexicalization patterns of the caused-motion events.

3.3.1.1. Materials

The same categorization of the verbs in the online study were employed in the AJT: Path type (*take, send, get, put*), Transitive type (*help, urge, push, pull*), and Intransitive type (*dance, laugh, shout, run*). In addition, the task added the sentence types that were intended to test how Korean learners are influenced by their L1. In this type, a causative verb (e.g., *make*) was placed in the matrix verb

position, and the manner information was conveyed on the adverbial *by*-phrase (e.g., *I made him go out by shouting*). This design was inspired by Inagaki (2001) which proposed that Japanese English learners often show the similar lexicalization pattern as they try to conflate the information based on the lexicalization patterns of their V-framed language (i.e., Japanese). Therefore, a total of 26 sentences were presented: 12 CM sentences, 6 *by*-phrase sentences, and 8 fillers. The examples are given in Table 3.8.

Table 3.8 Sentences Used in the Acceptability Judgment Task

Type	Verb (<i>by</i> -phrase)	Sentences
1 (Path)	<i>take</i>	I <i>took</i> the cat into the house.
	<i>send</i>	I <i>sent</i> the package to her this morning.
	<i>get</i>	I <i>got</i> him out of the car.
	<i>put</i>	I <i>put</i> a memo on the table.
2 (Transitive)	<i>help</i>	I <i>helped</i> him into the hospital yesterday.
	<i>urge</i>	I <i>urged</i> Josh into the room.
	<i>push</i>	I <i>pushed</i> them out of the room.
	<i>pull</i>	I <i>pulled</i> the handkerchief out of my pocket.
3 (Intransitive)	<i>dance</i>	I <i>danced</i> Matilda into the room.
	<i>laugh</i>	I <i>laughed</i> the guy out of the room.
	<i>shout</i>	I <i>shouted</i> him into the house.
	<i>run</i>	I <i>ran</i> him off the street.

4 (by-phrase)	(shout)	I made him go out by <i>shouting</i> .
	(roll)	I put it next to my room by <i>rolling</i> it.
	(slicing)	I put them on the plate by <i>slicing</i> them.
	(cough)	I made the dust fall down by <i>coughing</i> .
	(blow)	I made the dust go out by <i>blowing</i> it.
	(swim)	I made the boys get off the water by <i>swimming</i> .

3.3.1.2. Procedures

The participants judged the acceptability of the target sentences after they read the information on the preceding contexts. They rated the sentence on a five-point Likert scale (c.f., 1 = *totally unacceptable*, 2 = *probably unacceptable*, 3 = *unable to decide*, 4 = *probably acceptable*, 5 = *totally acceptable*). The four types of the experimental sentences were given in a random order. There was no time limit completing the task because the goal of the AJT was to assess participants' use of the metalinguistic knowledge. Without the limitation of the time, however, most of the participants completed the AJT within 5 to 10 minutes.

3.3.2. Translation / Correction

The Korean learners were asked to translate the target sentences of the AJT from English to Korean after they rated the acceptability. Meanwhile, the NSs

were asked to correct the sentences of the AJT that they had judged ‘unacceptable (2 points)’ or ‘totally unacceptable (1 point)’, and provide a reason for their corrections. After the NSs finished correcting the sentences, some of them were given a short interview about the usage of the CMCs.

Including the translation (correction for the NSs), the whole experiment lasted about 40 minutes for each participant. Table 3.9 provides the general flow of the individual experiment.

Table 3.9 General Procedure of the Experiment

	Stage	Time (min)	Content
Introduction	Guidelines / Consent	5	IRB consent form
Online	Self-paced reading	10	Reading 32 sentences
processing	Sentence completion	10	Writing 24 sentences
	Acceptability		
Offline	judgment	5-10	Judging 26 sentences
processing	Translation /		
	Correction	5-10	26 sentences of the AJT

3.4. Data Coding and Analysis

The processes of collecting and analyzing the experimental data are described in this section. Specifically, the first section details coding the data,

and the second section deals with how the coded data were analyzed through qualitative and quantitative methods.

3.4.1. Data Coding

First of all, the data of the SPR task was about the participants' reading time for each sentence. As the participants received one of the four lists of the Latin square design, the researcher primarily categorized the participants in terms of the type of the list that they had received. Based on the list type, the reading times of the participants were recorded and averaged. If a participant made an error on the comprehension question, the reading time of that sentence was omitted. Additionally, the researcher trimmed the outliers which showed reading times longer or shorter than ± 3 standard deviations (Britt, 1994).

Second, for the SCT, each sentence completed by the participants was coded in terms of (1) whether it had a target CMC, and (2) under which error types the sentence is categorized into. Responses using the target structure of the CMC received 1 point, and the other forms were given 0 point (Kim, 2016; Rah, 2014). Consequently, a participant could get four points if s/he gets a perfect score in one of the CMC types. Meanwhile, the misuse of articles, the third-person-singular present -s, tense and aspect errors, and similar minor errors were not evaluated since those errors were not the main concern. The total scores were calculated and compared between the groups.

Third, the data of the AJT was recorded from a five-point Likert scale

ranging from 1 to 5, with 3 indicating the neutral point of the acceptability. The total scores for each type were averaged and compared between the groups.

Last, the data from translation (correction) was transcribed. The transcribed and corrected data were grouped together in terms of its frequency.

3.4.2. Data Analysis

For the quantitative analyses, four individual statistical measures were employed. First, descriptive statistics were provided for the SPR, SCT, and AJT to compare the differences in the reading time of the SPR, and the scores of the SCT and AJT.

Second, one-way ANOVA was computed to compare mean values among the groups in the reading times of SPR. When the variance homogeneity was checked by Levene statistics at 5% level of significance, Bonferroni analyses were implemented to identify the differences. However, in case of the unequal variance, Tamhane T2 analyses were taken instead to verify the differences.

Third, a non-parametric test was computed to compare the SCT scores of the groups. A non-parametric test was employed because the sample sizes were too small, and the normality assumption was grossly violated. The test converted raw values of the scores into ranks and then they were analyzed. At first, Kruskal-Wallis test was done to compare three groups, and if any significant difference was found between the groups, Mann Whitney U Test was done to track where the difference came from.

Fourth, a repeated-measures ANOVA was implemented to analyze the results of the AJT. The repeated-measures ANOVA was used to corroborate the differences in learners' acceptability by their groups. The interaction between the groups and four types of the CMCs were tested as well. Table 3.10 further displays the statistical procedures adapted in the current study.

Table 3.10 Statistical Procedures and Purposes

Types of Statistics	Task	Independent Variables	Dependent Variables	Purpose
Descriptive statistics	SPR	—	Reading time	To compare the differences in mean reading times/ scores/ points of the groups
	SCT	—	Scores	
	AJT	—	Points	
Parametric test				
One-way ANOVA	SPR	Groups	Reading time (milliseconds)	To compare mean values among groups
Post-hoc test				
Non-parametric test				
Kruskal-Wallis	SCT	Groups	Scores	To compare the median ranks among groups
Mann Whitney U				
Repeated-measures	AJT	Groups	Points	To verify the differences among groups and check

ANOVA	the interaction between the groups and the types of the stimuli
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For the qualitative analyses of translation (correction) and short interview of the last offline processing study, all the participants' responses were transcribed and categorized. To investigate group influence on the preferences among the competing forms, the patterns and frequency of the data were analyzed by groups.

CHAPTER 4.

RESULTS AND DISCUSSION

This chapter reports and the results of the main study and discusses the major findings.

4.1. Online Processing Study

This section presents the findings of two tasks in online processing study.

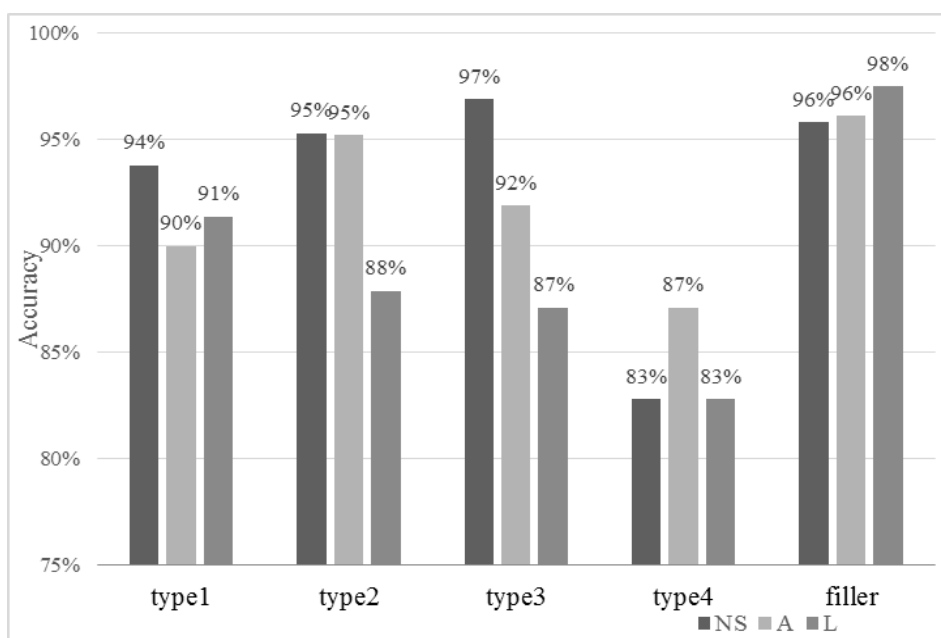
4.1.1. Self-Paced Reading (SPR)

First, the accuracy rates of the comprehension questions were compared across groups. As shown in Table 4.1, the accuracy rates of the items were more than 90% in all groups, indicating that all the participants accurately comprehended the meanings of the sentences.

Table 4.1 SPR: Mean Comprehension Accuracy Rates

Group	Accuracy Rates (%)
Native English Speakers ($n = 17$)	94.5
Advanced L2ers of English (A group) ($n = 31$)	94.1
Low-intermediate L2ers of English (L group) ($n = 29$)	92.9

Additionally, the accuracy rates of each type of item were calculated. The results show that the L group showed difficulty in understanding Types 2, 3, and 4 test items, while the other two groups only showed difficulty with Type 4 verbs. The gap among the groups was the greatest in Type 3.



NS = Native speaker group, A = Advanced group, L = Low-intermediate group
 / Type 1 = Path type verb, Type 2 = Transitive Type verb, Type 3 = Intransitive Type verb, Type 4 = Novel type verb

Figure 4.1 SPR: Accuracy Rates of the Comprehension Questions

Second, the word-by-word reading times (RTs) were compared. Table 4.2 shows the mean RTs recorded by each region.

Table 4.2 Mean Reading Times by Regions (ms)

Type	Group	R1 (S)	R2 (V)	R3 (O)	R4 (P)	R5 (D)	R6 (F)
1 (P)	NS	392	405	480	485	426	477
	A	471	462	514	450	429	566
	L	455	465	533	523	426	470
2 (T)	NS	469	496	522	495	375	532
	A	451	499	610	463	428	529
	L	504	527	559	507	423	461
3 (I)	NS	422	462	447	501	374	477
	A	494	513	504	487	435	517
	L	499	585	578	532	470	456
4 (N)	NS	459	739	739	476	437	457
	A	458	579	694	487	429	457
	L	460	655	732	489	420	467

Figures 4.2 (Type 1), 4.3 (Type 2), 4.4 (Type 3), and 4.5 (Type 4) present the mean RTs for the four types of verbs.

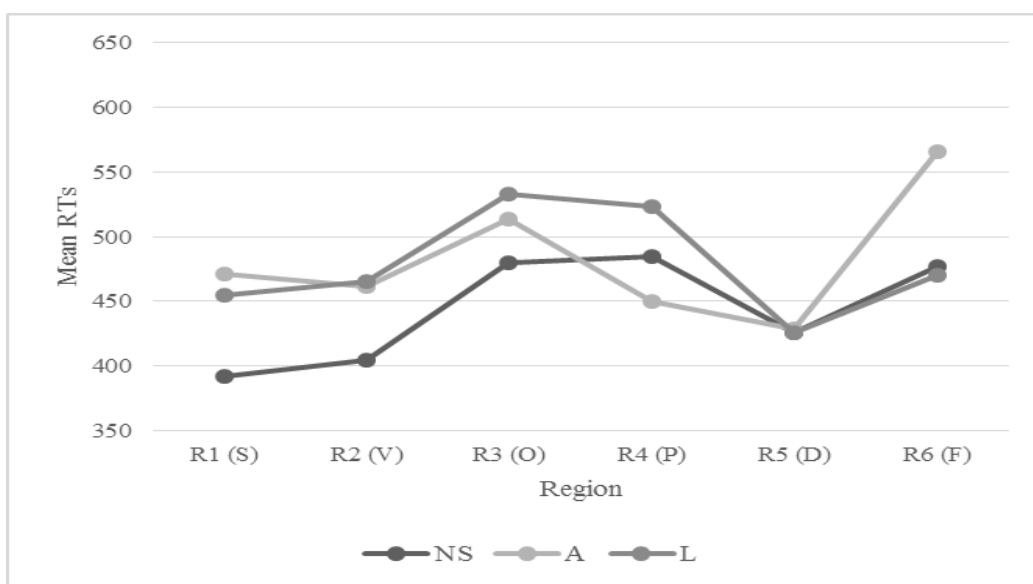


Figure 4.2 SPR: Mean Reading Times of Type 1 (Path Type)

Figure 4.2 describes the participants' mean RTs of the CMCs with path type verbs. Overall, the NSs showed the fastest RTs, but the pattern was similar among all three groups. In general, the groups took more time from Region 2 to 3 while processing objects, and the RTs increased in the final region. The only difference between the NSs and the Korean learners was that the NSs took a relatively longer time at Region 4 compared to other regions.

A one-way ANOVA for the three groups supported the observation that the patterns of the RTs among the groups were similar. The RTs were only seen to be statistically different at Regions 1 and 6 ($F(2, 270) = 5.63, p < .01$ for Region 1, $F(2, 263) = 4.75, p < .01$ for Region 6). The post-hoc analysis indicated that the difference at Region 1 came from the gap between the NS and A groups ($p < .01$), and the difference at Region 6 came from the gap

between the A and L groups ($p = .01$).

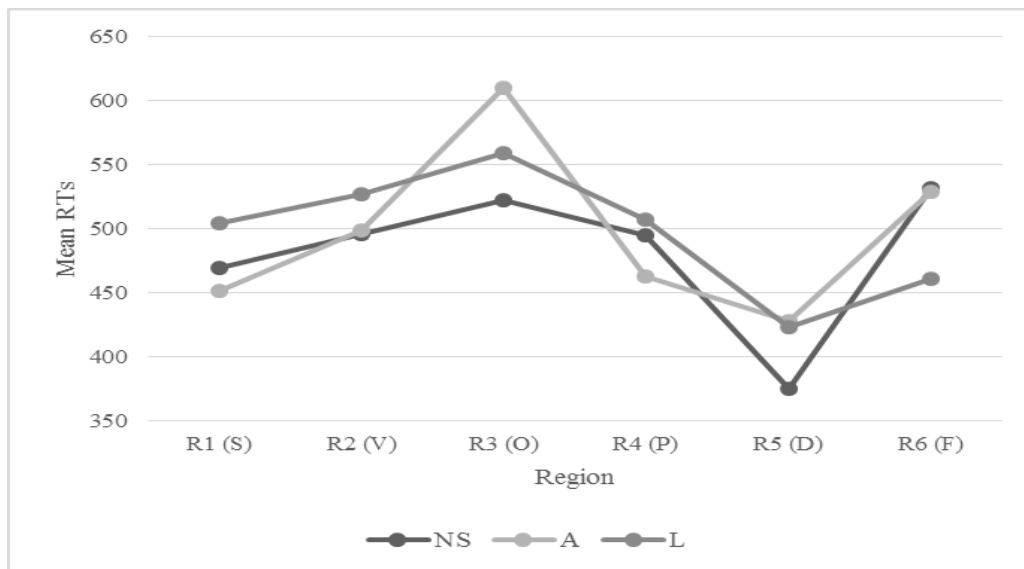


Figure 4.3 SPR: Mean Reading times of Type 2 (Transitive Manner Type)

Figure 4.3 presents the participants' mean RTs of the CMCs with transitive manner type verbs. The participants showed similar patterns of having a longer duration in reading as they moved from Region 1 to 3, and shorter duration as they read from Regions 3 to 5.

A one-way ANOVA for the three groups verified the observation that the RT patterns were similar. The participants' RTs only differed significantly at Region 5 ($F(2, 217) = 4.76, p < .01$). The post-hoc analysis showed that the difference at Region 5 came from the gap between the NS and A groups ($p < .01$).

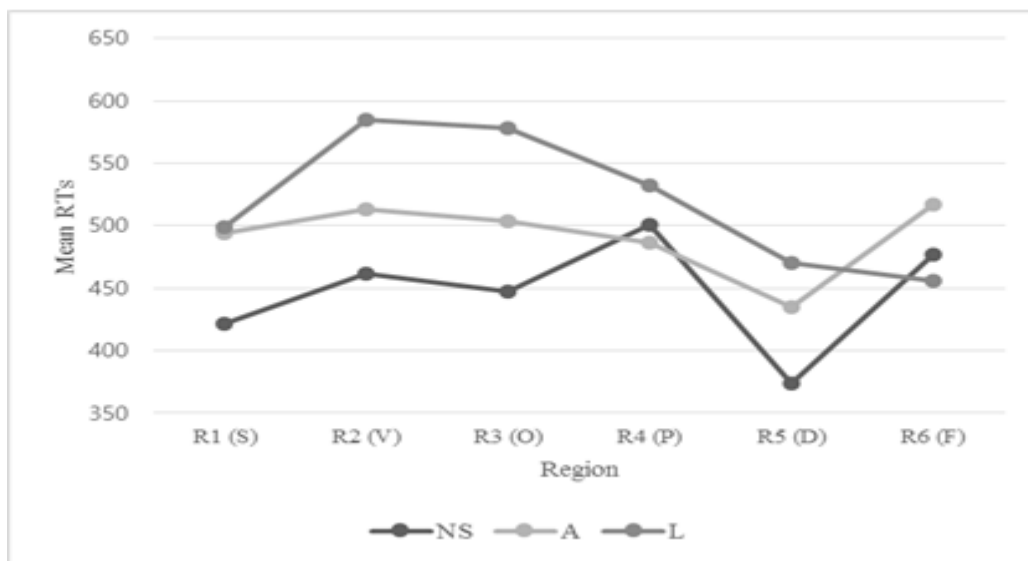


Figure 4.4 SPR: Mean Reading times of Type 3 (Intransitive Manner Type)

Figure 4.4 shows the participants' mean RTs of the CMCs with intransitive manner type verbs. In contrast to the previous two types, the NS and the Korean groups showed the most different patterns in RTs. The Korean learners, both the A and L groups, showed decreasing RTs from Region 2 to 5, whereas the NSs' RTs increased at Region 4.

A one-way ANOVA supported the different RTs in Regions 2 and 3. The participants' RTs differed statistically at Region 2 ($F(2, 273) = 6.18, p < .01$), and at Region 3 ($F(2, 268) = 5.71, p < .01$). The post-hoc analysis revealed that the differences at both Regions 2 and 3 came from the gap between the NS and the L groups ($p < .01$).

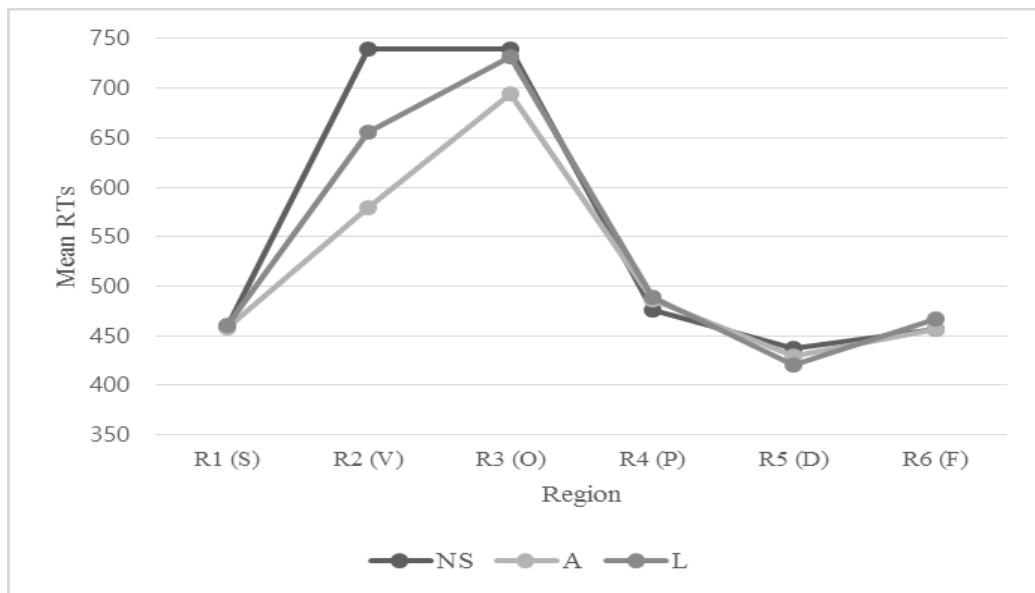


Figure 4.5 SPR: Mean Reading times of Type 4 (Novel Type)

Figure 4.5 shows the participants' mean RTs on the CMCs with novel verbs. Except for Region 2, the RTs were similar among the groups. For the NSs, the novel verbs took the longest time to process, while the Korean learners took relatively shorter time. However, the gap was not statistically significant at Region 2 ($F(2, 250) = 2.46, p = .09$).

4.1.2. Sentence Completion Task (SCT)

Firstly, the scores for each type of CMC were calculated and averaged. The mean scores were compared across the groups in Table 4.3 and additionally presented graphically in Figure 4.6.

Table 4.3 SCT: Descriptive Statistics

Type	Group	<i>M</i>	<i>SD</i>
Type 1 (P)	NS	3.65	.49
	A	3.56	.72
	L	3.19	.93
Type 2 (T)	NS	3.71	.47
	A	3.81	.59
	L	3.31	1.18
Type 3 (I)	NS	2.00	.94
	A	1.28	1.42
	L	.16	.37

In terms of mean (*M*) and standard deviation (*SD*), the L group showed the lowest mean score and standard deviation with Type 3 items. Meanwhile, the group recorded comparatively higher scores with Type 1 and Type 2 items with higher standard deviation, which means that the mean scores are not uniformly high among the participants in the group.

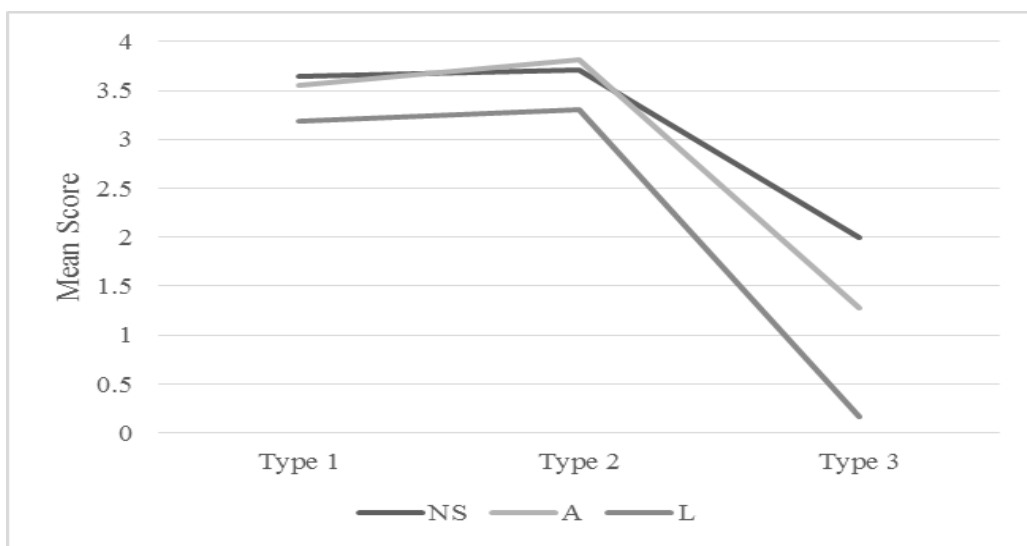


Figure 4.6 SCT: Mean Sentence Completion Scores

To analyze the results statistically, the three groups' scores were first compared in a Kruskal-Wallis test. The differences between the groups were only significant ($p < .001$) with Type 3 items. In order to identify the cause of this difference, the groups were categorized into two (e.g., NS & A; NS & L; A & L), and a Mann Whitney U test was conducted separately for each combination. The tests showed that the gaps between the NS and L groups, and the A and L groups were statistically significant ($p < .001$).

Second, due to these results, an additional question was raised concerning the types of alternative lexicalization patterns that the participants made when they failed to combine two clauses into the target CMCs. To answer this question, the alternative patterns were grouped into the following categories: (1) causative verb, (2) redundant preposition (RP), (3) RP with *to*-infinitive, (4) RP with infinitive verb, (5) relative clause, (6) serial verb, (7) serial noun, (8)

coordination conjunction, (9) other manner verb, and (10) no answer. Table 4.4 shows the frequencies of each pattern by the groups.

Table 4.4 SCT: Frequency of the Alternative Patterns

Error Type	NS	A	L
Causative Verb	6% (2/33)	52.9% (37/70)	45.4% (49/108)
Only Redundant Preposition	12.1% (4/33)	27.1% (19/70)	23.1% (25/108)
Redundant Preposition (RP) + <i>To</i> -infinitive Verb	0% (0/33)	4.2% (4/70)	9.3% (10/108)
Redundant Preposition (RP) + Infinitive Verb	0% (0/33)	2.8% (2/70)	12% (13/107)
Relative clause	33.3% (11/33)	7.1% (5/70)	7.4% (8/108)
Serial Verb	18.2% (6/33)	0% (0/70)	0% (0/108)
Serial Noun	6% (2/33)	0% (0/70)	0% (0/108)
Coordination Conjunction	9% (3/33)	4.3% (3/70)	2.8% (3/108)
Other Manner Verb	6% (2/33)	0% (0/70)	0% (0/108)

No Answer	9%	0%	0%
	(3/33)	(0/70)	(0/108)
Total	100%	100%	100%
	(33/33)	(70/70)	(108/108)

The sentences from (1) to (9) are examples of each pattern observed in the experiment.

[Causative Verb]

(1) *He made Matilda to go into the room by dancing with her.*

(Target Structure: He danced Matilda into the room.)

[Only Redundant Preposition]

(2) *He sneezed at the tissue off the table.*

(Target Structure: He sneezed the tissue off the table.)

[Redundant Preposition (RP) + *to*-infinitive Verb]

(3) *She jumped to the horse to go over the fence.*

(Target Structure: She jumped the horse over the fence.)

[Redundant Preposition (RP) + Infinitive Verb]

(4) *He laughed at the guy go out of the house.*

(Target Structure: He laughed the guy out of the house.)

[Relative Clause]

(5) *He sneezed that the tissue which blow off the table.*

(Target Structure: He sneezed the tissue off the table.)

[Serial Verb]

(6) *She jumped and scared the horse over the fence.*

(Target Structure: She jumped the horse over the fence.)

[Serial Noun]

(7) *He and Matilda danced into the room.*

(Target Structure: He danced Matilda into the room.)

[Coordination Conjunction]

(8) *He laughed at the guy, and he went out of the house.*

(Target Structure: He laughed the guy out of the house.)

[Other Manner Verb]

(9) *She startled the horse over the fence.*

(Target Structure: She jumped the horse over the fence.)

The alternative lexicalization patterns of the NSs and the Korean learners show different frequencies. In the NS group, the *wh-clause* type was the most frequent pattern, followed by the *serial verb* and *redundant preposition*. In contrast, the Korean learners produced the *causative verb* patterns most frequently regardless of their proficiency. Including the correct answers, the overall lexicalization patterns for the Type 3 items, including the answers for the target CMCs, are presented graphically in Figure 4.7.

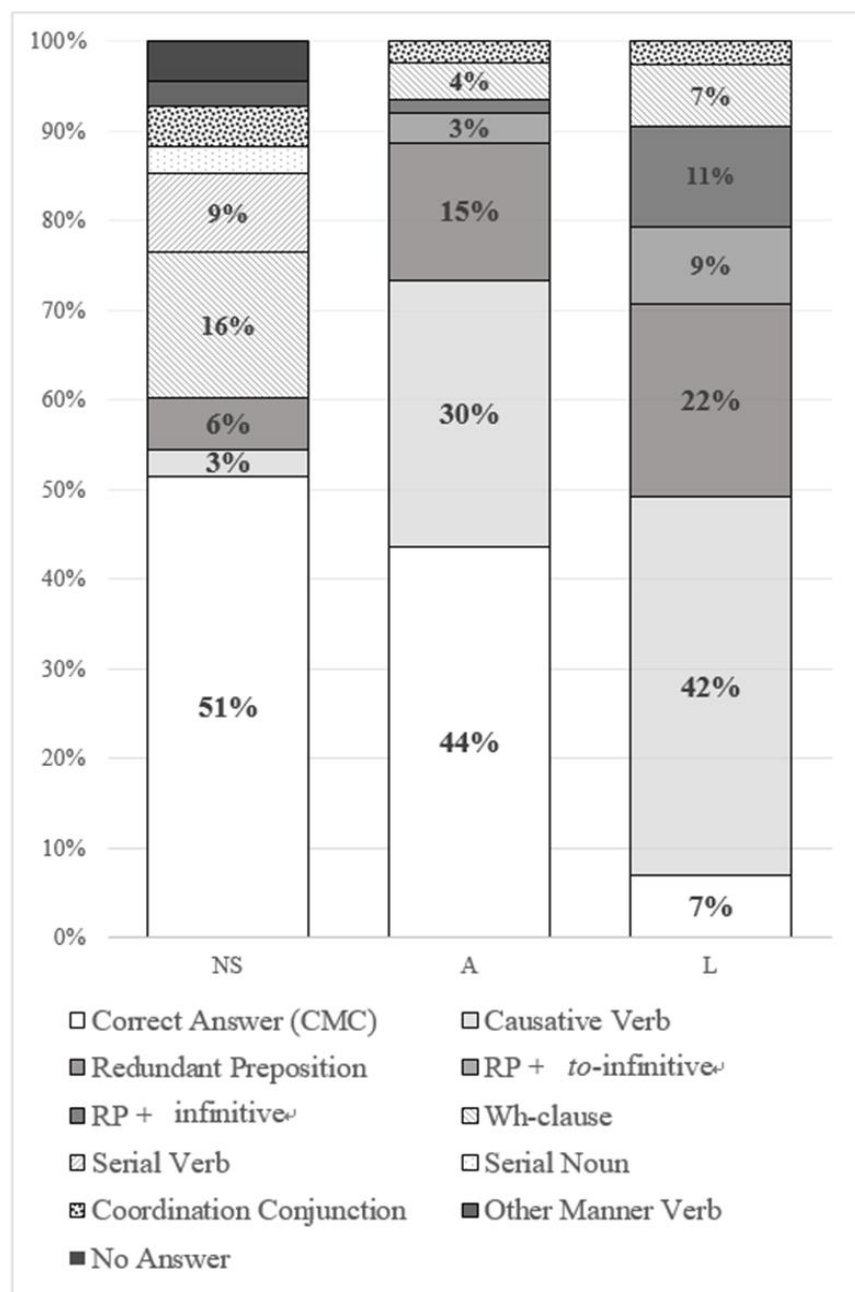


Figure 4.7 SCT: Lexicalization Patterns for Type 3

4.1.3. Discussion: SPR & SCT

The first research question of the present study investigated how proficient Korean learners' online processing of English CMCs was compared to that of native English speakers. The analysis of the results in the comprehension task (SPR) indicates that the Korean learners were less sensitive toward the satellite but processed the CMCs with path and transitive manner verbs similar to NSs. The analysis of the results in the production task (SCT) confirms that the Korean learners dispreferred producing CMCs with intransitive manner verbs.

In the SPR, the previous study revealed that the lingering RTs imply the reader's sensitivity toward that region as discussed by the previous study (Tokowicz & Warren, 2010; Wen et al., 2010). In the present study, the Korean learners did not show any lingering of RTs on the preposition while reading the sentences, which indicates their insensitivity toward the satellite, in contrast to the NSs. Specifically with the Type 3 verbs, the NSs processed verbs and objects faster than the Korean learners, but took comparatively longer at the preposition region (see Figure 4.4). Even with Type 1, the NSs showed increased RTs from the object to preposition regions, while the both Korean groups showed a decrease in the same section (see Figure 4.2). Similarly with Type 2, the NSs showed the smallest gap in the section, even with a slight decrease, which contrasts the sharp decline of the Korean learner groups (see Figure 4.3). These findings attest to the importance of utilizing the satellite to process path information in S-framed languages (Levin, 1993). However, the

sensitivity to the satellite was not detected from the NSs when there was no semantic information of the verb like the novel verbs in Type 4 (see Figure 4.5).

Setting aside the sensitivity toward the satellite, the Korean learners overall showed similar RT patterns to the NSs for Type 1 and 2, which implies that the semantic property of the verbs influenced the Korean learners' online processing. First, the Korean learners were able to process the path verbs without difficulty. As was seen in the previous studies, the corresponding ternary predicates of the Korean verbs (e.g., *ka-cye-ka-ta* 'take', *noh-ta* 'put') are equipped with transitivity to their themes and the following paths (Nam 2003), so it may have promoted the processing of the English path verbs.

Second, the Korean learners were expected to process Type 2 verbs with difficulty considering the typological viewpoint that V-framed language speakers would not easily process manner verbs in CMCs. In the experiment, however, Korean learners showed no significant differences in processing transitive manner verbs compared to the NSs. This result implies that the semantic property related to the transitivity of the verbs facilitated the processing of the CMCs for the Korean learners. As transitive manner verbs imply direct causation to the result event, Korean learners may have built limited constructional knowledge of the CMC by resorting to the transitivity of the verbs, even if those verbs inherently describe the manner of the motions.

Meanwhile, the Korean learners dispreferred producing CMCs with intransitive manner verb in the SCT. When Type 3 verbs (e.g., *dance*, *sneeze*) were used, they could not combine the process and the result events of the two

independent clauses. In this case, the intransitive manner verbs lacked direct causation to the result event and did not imply transitivity. Therefore, Korean learners may have not been able to extend their constructional knowledge to these verb types.

The alternative lexicalization patterns in producing the Type 3 CMCs (see Table 4.4 and Figure 4.7) present further key evidence to the investigation. Most importantly, the Korean learners could not conflate manner into the verbs, but instead conflated the causative verbs into the matrix verb positions. This results of Type 3 is in contrast with those of Type 1 and Type 2, as the Korean learners were able to conflate the path and the transitive manner verbs into the matrix verb positions respectively. This finding primarily shows how the Korean learners changed their preferences based on the verb types, and additionally proves the complementary distribution of manner and result (i.e., causative) verbs (Levin & Rappaport Hovav, 2016). To be specific, the Korean learners had to choose the most suitable verb between manner and result denoting verbs when combining the process and result clauses of the caused-motion event. A critical finding for the investigation was that when the process event was described with a transitive manner verb (Type 2), the Korean learner kept the same verb while combining the sentences, whereas when the event was described with an intransitive manner verb (Type 3), the learners changed the manner verb into a causative verb.

In sum, the typological differences and the semantic properties of the verbs are two possible causes that influence Korean learners' online processing

of English CMCs. While comprehending the constructions in the SPR, the Korean learners were relatively insensitive to the satellites because Korean is typologically different from English. This typological difference was also expected to interfere with the Korean learners' processing of the CMCs with all types of manner verbs. However, contrary to these expectations, the Korean learners processed the CMCs with transitive manner verbs similarly to the NSs. Beyond the typological differences, the semantic aspects of the transitive manner verbs positively influenced the Korean learners' processing of the CMCs. On the other hand, the Korean learners could not process intransitive manner verbs when they produced the constructions in the SCT. The Korean learners generally could not produce CMCs with the intransitive manner verbs, as these verbs semantically lack direct causation and transitivity. Overall, with the influence of the different typological frames, the semantic properties of the verbs positively or negatively affected the processing of the CMCs for the Korean learners in online processing.

4.2. Offline Processing Study

This section presents the findings of the two tasks in offline processing study.

4.2.1. Acceptability Judgment Task (AJT)

First, the acceptability rates on the AJT were compared across groups. As

shown in Table 4.5 and Figure 4.8, the NSs and Korean learners responded differently especially with Type 3 and *by*-phrase test items.

Table 4.5 AJT: Descriptive Statistics

Type	Group	<i>n</i>	<i>M</i>	<i>SD</i>
1 (Path)	NS	68	4.76	.46
	A	124	4.76	.56
	L	116	4.41	.89
2 (Transitive)	NS	68	4.43	.97
	A	124	4.22	1.20
	L	116	3.89	1.24
3 (Intransitive)	NS	68	3.40	1.44
	A	124	2.81	1.39
	L	116	2.87	1.27
4 (<i>by</i> -phrase)	NS	102	1.75	.92
	A	186	3.42	1.30
	L	174	3.62	1.17

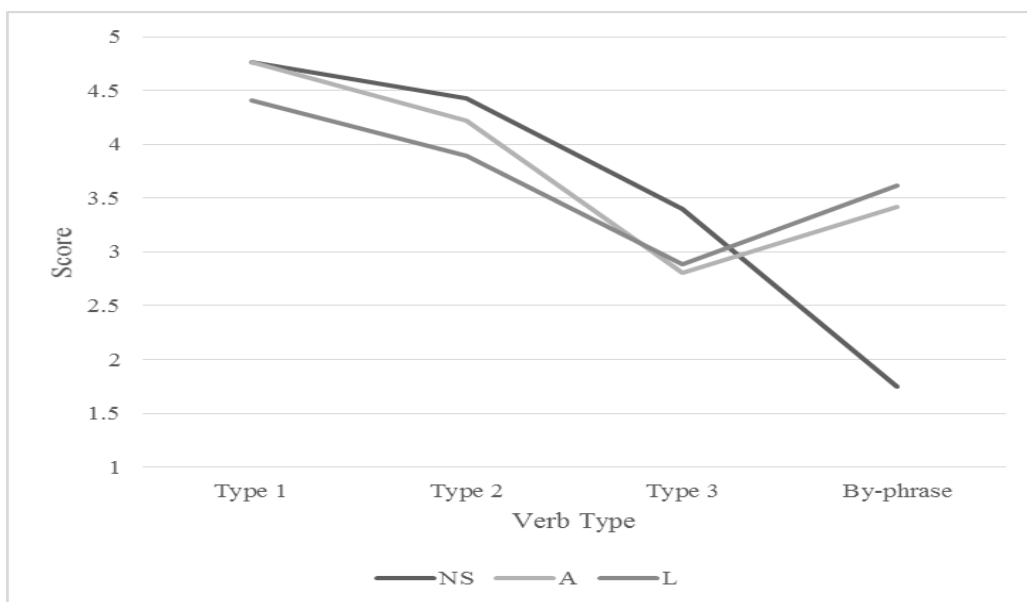


Figure 4.8 AJT: Mean Acceptability Rates

The result above shows the different acceptability rates between the NSs and the Korean groups. However, no significant difference was found between the A and L groups, which suggests that the English proficiency of the Korean learners was not a significant factor in this task. Second, the gap between the NS and Korean groups is prominent in Type 3 and *by*-phrase items. Third, given that the score of Type 3 items were higher than that of *by*-phrase items in the NS, and vice versa in the Korean groups, a negative correlation was found between Type 3 and *by*-phrase items.

A repeated measures ANOVA was conducted to analyze the results of the AJT. Because of the small sample size, the assumption of sphericity did not meet. Thus, a correction of Greenhouse-Geisser was used to test the overall main effects and the interaction effects (Howell, 2002). Above all, the

statistical analysis indicates that the differences between the acceptability ratings of the three groups were statistically significant ($p < .01$). Post-hoc tests were then conducted in order to check where these differences arose. The differences between groups were not statistically significant in Types 1, 2, and 3 ($p > .01$). However, for *by*-phrase items, the difference between the NSs and the Korean learners was statistically significant ($p < .001$), but the gap between the A and L groups was not significant ($p = .30$). Within the groups, the differences in the ratings for the four types of stimuli were also statistically significant ($p < .001$).

Table 4.6 AJT: Mean (*SD*) Acceptability Rates (Verb Items)

Group	Type 1			
	<i>take</i>	<i>send</i>	<i>get</i>	<i>put</i>
NS	4.6 (0.5)	4.9 (0.2)	4.6 (0.6)	4.9 (0.3)
A	4.8 (0.6)	4.8 (0.6)	4.6 (0.6)	4.9 (0.3)
L	4.6 (0.7)	4.5 (0.9)	4.0 (1.1)	4.6 (0.6)
Group	Type 2			
	<i>help</i>	<i>urge</i>	<i>push</i>	<i>pull</i>
NS	4.1 (1.1)	3.9 (1.2)	4.8 (0.4)	4.9 (0.5)
A	3.5 (1.4)	3.9 (1.3)	4.7 (0.8)	4.8 (0.6)
L	2.9 (1.3)	3.9 (1.2)	4.5 (0.8)	4.3 (0.9)
Group	Type 3			
	<i>dance</i>	<i>ran</i>	<i>laugh</i>	<i>shout</i>

NS	3.3 (1.2)	4.1 (1.4)	3.6 (1.4)	2.6 (1.3)
A	2.8 (1.3)	3.4 (1.3)	2.3 (1.3)	2.8 (1.4)
L	2.4 (1.3)	3.3 (1.1)	3.1 (1.4)	2.7 (1.2)

Group	<i>by-phrase</i>					
	<i>shout</i>	<i>roll</i>	<i>slice</i>	<i>cough</i>	<i>blow</i>	<i>swim</i>
NS	1.5 (0.8)	2.0 (0.8)	2.4 (0.9)	1.4 (0.9)	1.6 (0.9)	1.6 (1.0)
A	4.2 (0.9)	3.2 (1.2)	3.2 (1.1)	4.1 (1.0)	3.3 (1.5)	2.5 (1.3)
L	4.0 (0.9)	3.4 (1.3)	3.4 (1.2)	4.2 (0.7)	3.8 (1.0)	2.9 (1.3)

Table 4.6 additionally shows the acceptability rates of each verb items. With Type 1, the verb *get* received the lowest rates of the four verbs. With Type 2, both *help* and *urge* were the most rejected. In Type 3, the verb *run* was generally accepted, and particularly, the Korean learners gave low acceptability rates for the verbs in Type 3 except for *run*. With *by-phrase* items, the NSs showed particularly low rates of acceptability for the verbs. Only two verbs, *roll* and *slice*, were recorded as being higher than 2 points. For the Korean learners, the verb *swim* was the least accepted within the *by-phrase* structure.

4.2.2. Discussion: AJT

The second research question of the present study investigated how proficient the Korean learners' processing of English CMCs was compared to that of the NSs in offline acceptability judgment tasks. The first analysis of the

results in the offline judgement task (AJT) indicated that the Korean learners showed less acceptance for CMCs with intransitive manner verbs, but conversely, showed higher acceptance for *by*-phrase constructions.

Given that point 3 is a neutral acceptability number in the five-point Likert scale, the acceptability rate of the Korean learners was below the neutral point in the case of the intransitive manner (Type 3) verbs (A group: 2.81; L group: 2.87). In contrast, the NSs recorded 3.40, which is above the Korean learners. Meanwhile, the scores for the *by*-phrase sentences were negatively correlated to the scores of Type 3. The Korean learners scored over 3 (A group: 3.43; L group: 3.62), while the score of the NSs dropped to 1.75. Overall, the English proficiency of the Korean learners did not affect this judgment.

The results demonstrate that Korean learners prefer the ‘causative verb + *by*-phrase’ option to the CMC when they conflate the caused-motion events. Moreover, such preference was prominent with intransitive manner verbs. To be specific, the ‘causative verb + *by*-phrase’ option consisted of six items: three intransitive manner verbs (*shout*, *cough*, *swim*) and three transitive manner verbs (*roll*, *slice*, *blow*), and the Korean learners gave higher acceptability rates for the *by*-phrase sentences with intransitive manner verbs, especially *shout* and *cough*.

At the same time, the participants’ pragmatic knowledge may have been a factor in the process of acceptability judgment (Kudrnáčová, 2008; Slobin, 2004). Evidence supporting this claim is that all participants, including the NSs, partly showed low acceptability rates for CMCs with Type 3 verbs, compared

to those of Type 1 and 2. In essence, intransitive manner verbs with indirect causation are sometimes difficult even for NSs to comprehend within CMCs, as the construction requires “direct causation” within “a single event” situation (Goldberg, 1995, p. 152). A short interview with one of the NSs supported this reasoning. The participant said that he would not use CMCs with Type 3 verbs before ensuring the movement of the object was caused by the action, such as *dance* or *sneeze*, which are unfamiliar and infrequent situations in real life. Similarly, the verb *swim* of the *by*-phrase sentences showed the lowest score even with the Korean learners. Even though the *by*-phrase structure strongly implies caused-motions event for Korean learners, the verb *swim* – a motion that hardly causes someone or something to move – is difficult to be understood in such a situation.

Additionally, the results imply that the lexical meanings of the individual verbs notably affected the scores of the AJT. For example, the verb *get* of Type 1 showed the lowest score. The general meaning of the light verb¹² may have prevented the participants from accepting the construction. Of Type 2, *help* and *urge* showed relatively low scores. Although these two verbs bear transitivity (e.g., *I will help you do your homework*, *we urge you to save the environment*), the lack of direct causation (i.e., it is difficult to cause someone to move somewhere by the action of *helping*) may have caused interference in the participants’ verb processing in the construction. Similarly, the verb *run* in

¹² A light verb is a verb that has little semantic content of its own and forms a predicate with some additional expressions (e.g., *do*, *give*, *have*, *make*, and *take*).

Type 3 showed relatively high scores among other verbs. As the lexical meaning of the verb usually denotes motion with direction (i.e., it is difficult to imagine the motion of *running* without a certain direction), the directional meaning might have facilitated in the processing of the CMC.

In conclusion, the offline processing experiment revealed that the semantic property of the verbs influenced the Korean learners' processing of the CMCs. The Korean learners could not extend their constructional knowledge to the Type 3 verbs, and therefore did not accept them. Instead of using the CMCs with intransitive manner verbs, Korean learners preferred the 'causative verb + *by*-phrase' lexicalized pattern as an alternative option. Meanwhile, the metalinguistic data of the offline processing study revealed that world knowledge and lexical knowledge notably intervened in the processing of the CMCs, even for NSs. Nevertheless, the NSs showed higher acceptability rates for the Type 3 CMCs compared to the Korean learners, as their constructional knowledge could be extended to those verbs.

4.2.3. Translation & Correction

As an extension of the offline processing study, both translation and correction tasks were given to the Korean learners and the NSs, respectively, in order to examine their preferred lexicalization patterns for each verb type.

4.2.3.1. Translation (Korean Participants)

First, the translated data was examined to determine whether the Korean participants accurately interpreted the English CMCs. Given that the constructions have a dual structure of *result* and *process* in their semantic property, the researcher employed the following criteria to examine each translation: (1) Does the translation include the meaning of *result* from the construction? (2) Does the translation include the meaning of *process* from the manner verb? (3) Are the two semantic structures of *result* and *process* closely related with the causative meaning?

With regard to the above criteria, the researcher first calculated the percentage of correct translations. In the case of Type 1 verbs, however, the percentage was not calculated because nearly every participant showed perfect performance in translating the sentences.

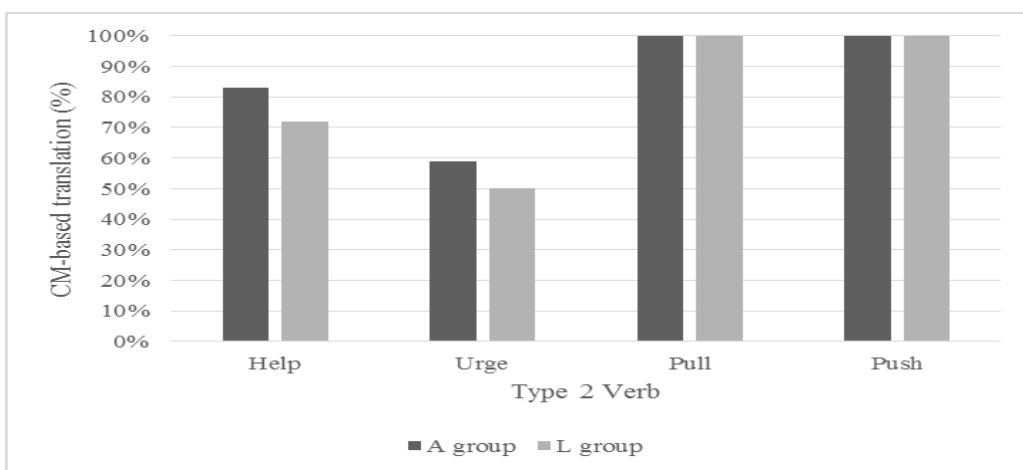


Figure 4.9 Translation: Type 2 (Transitive Manner Type)

Figure 4.9 shows that the Korean students experienced difficulty in translating the Type 2 CMCs with *help* and *urge*. In particular, only half of the L group was able to accurately translate the CMCs with *urge*.

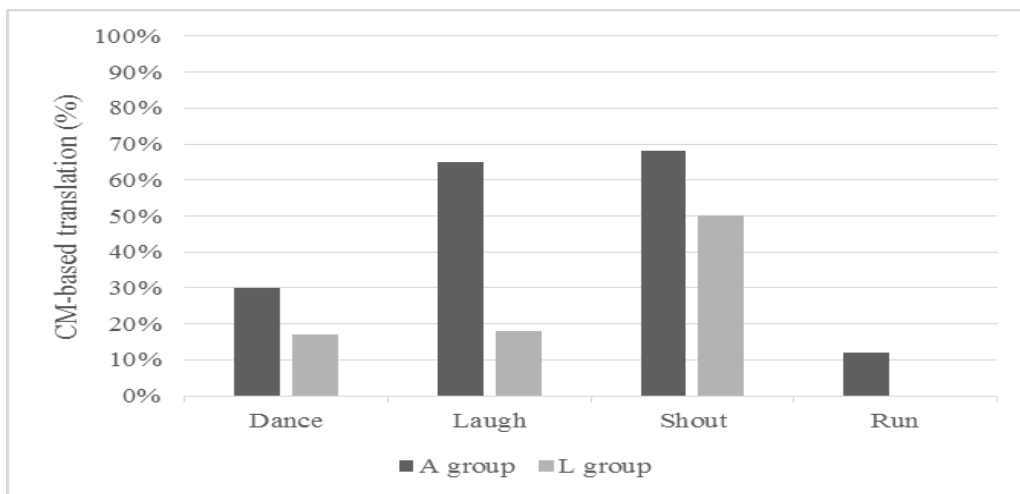


Figure 4.10 Translation: Type 3 (Intransitive Manner Type)

Figure 4.10 shows that the Korean learners struggled in interpreting the CMCs with Type 3 verbs as the correction rates fell compared to the previous figures. Even the A group showed low performance in translating the CMCs with *dance* and *run*, and the correction rates dropped under 30%. The L group showed more difficulty with the same type of items. Meanwhile, the Korean learners showed relatively higher score with the verb *shout* among the Type 3 verbs.

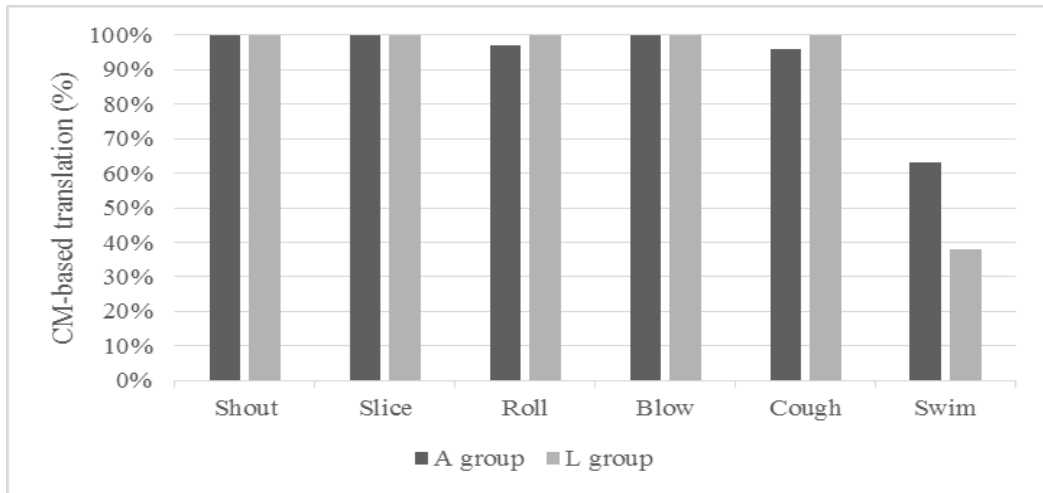


Figure 4.11 Translation: *by*-phrase patterns

On the other hand, the Korean learners produced better results in translating the *by*-phrase patterns as is presented in Figure 4.11. The transitivity of the inserted verb did not seem to affect the translation as the learners generally received high scores for both transitive verbs (i.e., *slice*, *roll*, and *blow*) and intransitive verbs (i.e., *shout* and *cough*). However, the Korean learners were unable to translate the sentence with the verb *swim* into the corresponding caused-motion event.

Another key point of the translation task was to look into the Korean learners' problems in interpreting the CMCs. To answer this question, the researcher sorted the problematic interpretations into four cases: (1) Does the translation drop the meaning of *result* in the VP-shell? (2) Does the translation drop the meaning of *process* of the manner verb? (3) Are the two semantic structures of *result* and *process* not closely related with the causative meaning?

(4) Is the sentence translated with a completely different meaning from the original sentence?

Two independent raters grouped the error patterns into the following categories: (1) dropping *result*, (2) dropping *process*, (3) misconnection between *result* and *process*, and (4) total misinterpretation. The raters almost invariably agreed to each other, and disagreements were resolved through discussion.

With the Type 2 verbs, only the translated sentences of the verbs *help* and *urge* were analyzed because the Korean learners specifically showed lower performance with these two items. Figures 4.12 and 4.13 indicate the results of the categorized errors with *help* and *urge*.

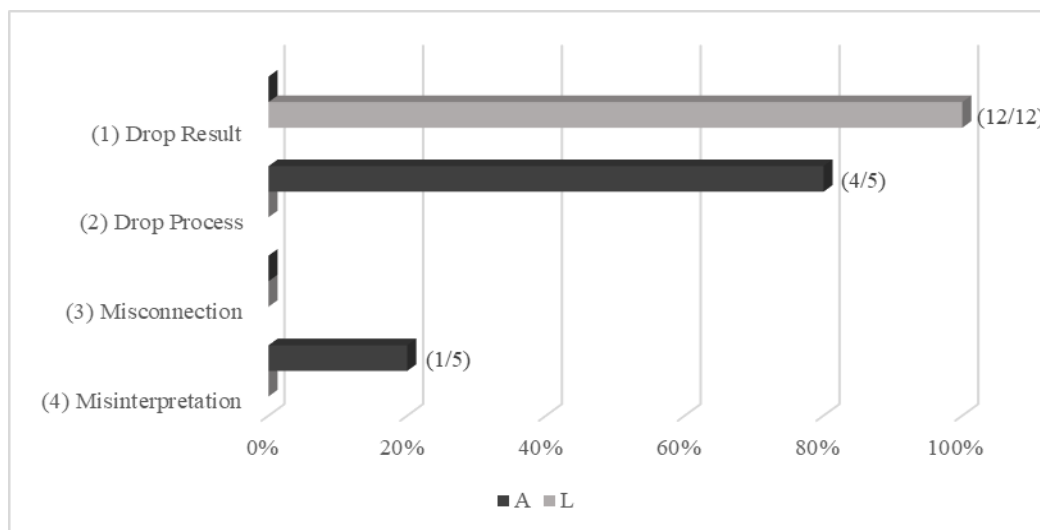


Figure 4.12 Translation: Error Distribution for Type 2 Verb (*help*)

The target sentence was *I helped him into the hospital* for the verb *help*. The results were different between the two Korean learners' groups. The advanced

learners were likely to drop the *process*, whereas the low-intermediate learners mostly failed in incorporating the *result*. The sentences from (1) to (3) are the examples of the observed errors.

[Drop Result]

(1) *Na-nun ku-lul pyeng-wen-ey-se to-wass-ta.*

‘I helped him in the hospital.’

[Drop Process]

(2) *Na-nun ku-lul pyeng-wen-u-lo tey-lye kass-ta.*

‘I brought him to the hospital.’

[Misinterpretation]

(3) *Na-nun ku-lul pyeng-wen-ey-se ma-cwung-hayss-ta.*

‘I met him in the hospital.’

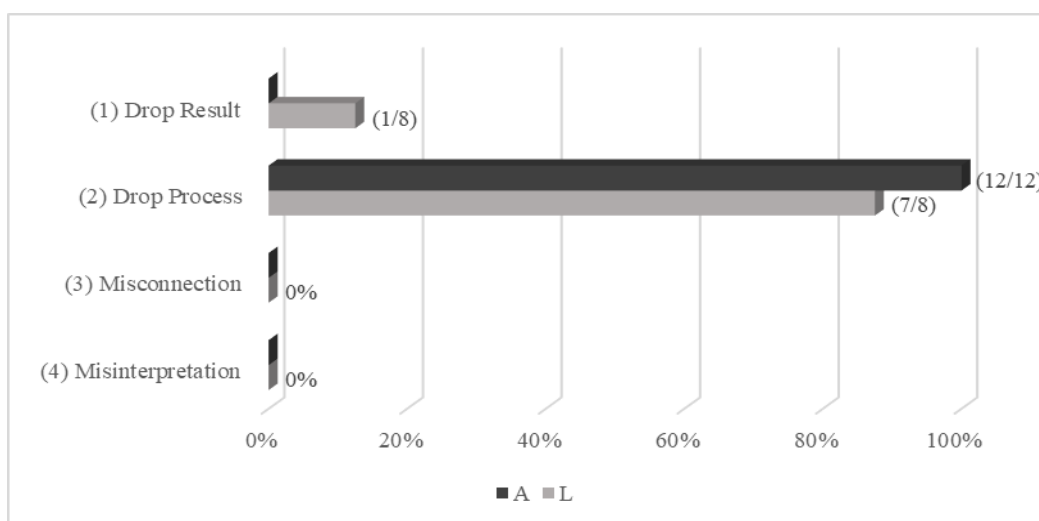


Figure 4.13 Translation: Error Distribution for Type 2 Verb (*urge*)

The target sentence was *I urged Josh into the room* for the verb *urge*. As Figure 4.13 indicates, both groups predominantly dropped the *process*, and several of the low-intermediate learners dropped the *result*. The sentences (4) and (5) are the examples of the observed errors.

[Drop Result]

(4) *Nay-ka Josh-wa en-cayng-ha-ta pang-u-lo tul-e-wass-ta.*

‘I went into the room while urging Josh.’

[Drop Process]

(5) *Na-nun Josh-lul pang-u-lo tul-e-ka-key hayss-ta.*

‘I made Josh go into the room.’

Meanwhile, all the test items of Type 3 were examined as the Korean learners showed an increase of errors in number and type. Figures 4.14 to 4.17 are graphic representations of the error types.

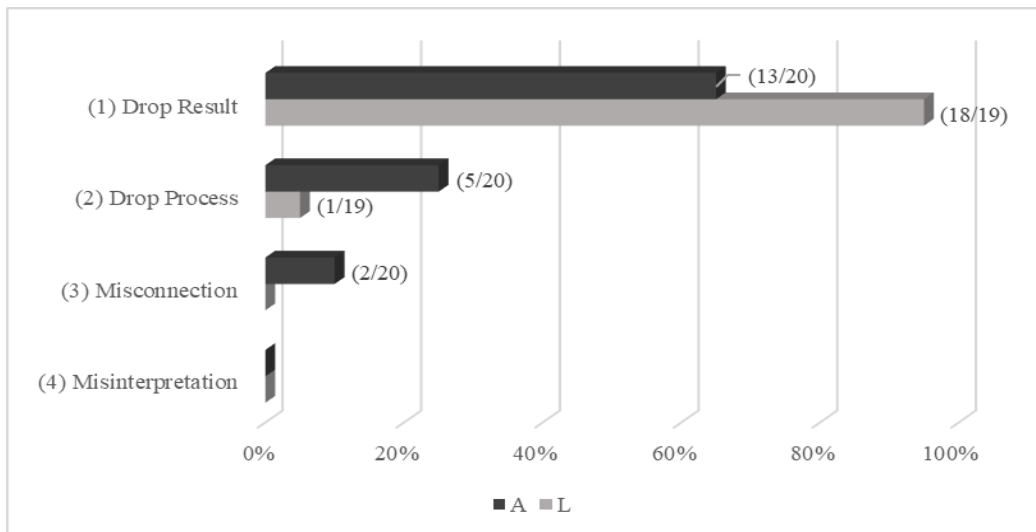


Figure 4.14 Translation: Error Distribution for Type 3 Verb (*dance*)

First, the target sentence *I danced Matilda into the room* was given for the Type 3 verb *dance* (Figure 4.14). Different from the previous Type 2 verbs, the Korean learners frequently failed to incorporate the *result*. The tendency of dropping *result* was particularly noticeable in the L group. Some of the A group learners dropped *process* and often misconnected *result* and *process* even though they correctly translated them. The examples of the translation are given from (6) to (10).

[Drop Result]

(6) *Na-nun Matilda-wa pang-an-ey-se chwum-chwess-ta.*

‘I danced with Matilda in the room.’

(7) *Na-nun Matilda-wa chwum-chwu-mye pang-an-u-lo tul-e-wass-ta.*

‘I danced with Matilda and entered the room.’

[Drop Process]

(8) *Na-nun Matilda-lul pang-an-u-lo tul-e-ka-key hayss-ta.*

‘I made Matilda go into the room.’

(9) *Na-nun Matilda-lul pang-an-ey-se chwum-chwu-to-lok hayss-ta.*

‘I made Matilda dance in the room.’

[Misconnection (into simultaneous event)]

(10) *Na-nun Matilda-wa chwum-ul chwu-myen-se ku-nye-lul pang-u-lo tey-lye-kass-ta.*

‘I danced with Matilda and took her to the room.’

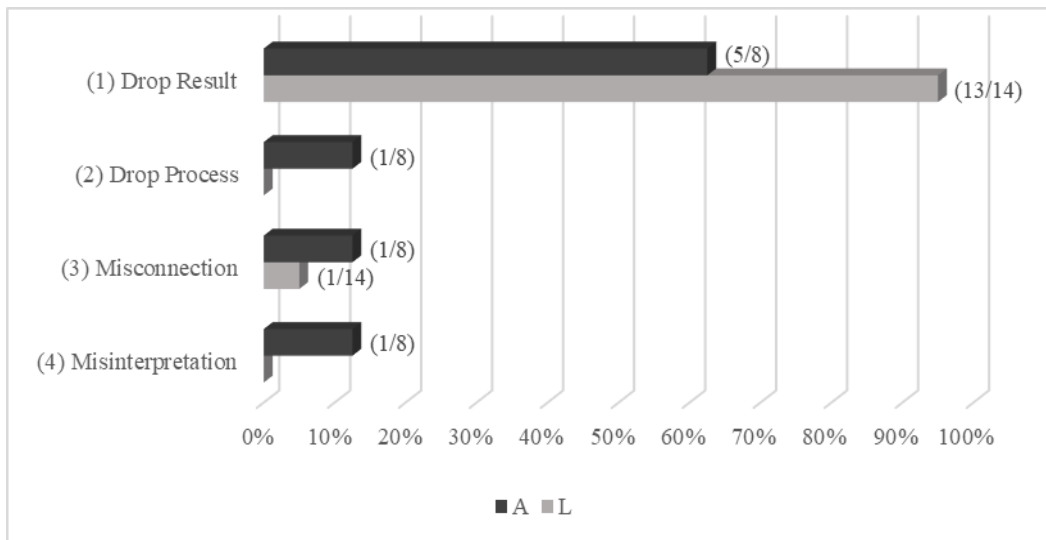


Figure 4.15 Translation: Error Distribution for Type 3 Verb (*laugh*)

With the verb *laugh*, the target sentence was *I laughed the guy out of the room* (Figure 4.15). Dropping the *result* was the most frequent error, similar to

the verb *dance*. The following sentences (11-15) are the examples of the errors.

[Drop Result]

(11) *Na-nun ku-ka pang pakk-u-lo na-ka-nun kes-ul po-ko wus-ess-ta.*

‘I laughed when I saw him go out of the room.’

(12) *Na-nun pang pakk-uy ku-lul pi-wus-ess-ta.*

‘I laughed at him outside of the room.’

[Drop Process]

(13) *Na-nun ku-ka pang-ey-se na-ka-key hayss-ta.*

‘I made him go out of the room.’

[Misconnection (into temporal event)]

(14) *Na-nun ku-lul wus-kye hay-se pang pakk-u-lo nay-po-nayss-ta.*

‘I made him laugh and sent him out of the room.’

[Misinterpretation]

(15) *Na-nun pang an-ey-se ku a-i-tul-ul hyang-hay wus-ess-ta.*

‘I laughed at the children in the room.’

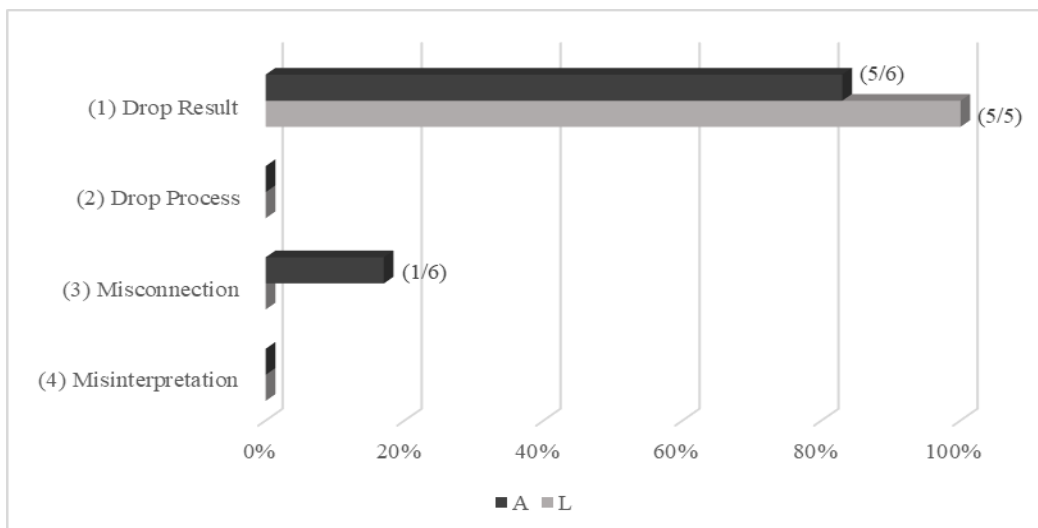


Figure 4.16 Translation: Error Distribution for Type 3 Verb (*shout*)

For the verb *shout*, the target sentence was *I shouted him into the house* (Figure 4.16). Both groups found to have dropped the *result*. The following (16-17) is the examples of the observed errors.

[Drop Result]

(16) *Nay-ka ku-ey-key cip-an-ey-se so-li-chyess-ta.*

‘I shouted at him in the house.’

[Misconnection]

(17) *Nay-ka so-li-lul ci-lu-myen-se ku-lul cip-an-u-lo tey-lye-wass-ta.*

‘I shouted at him and brought him home.’

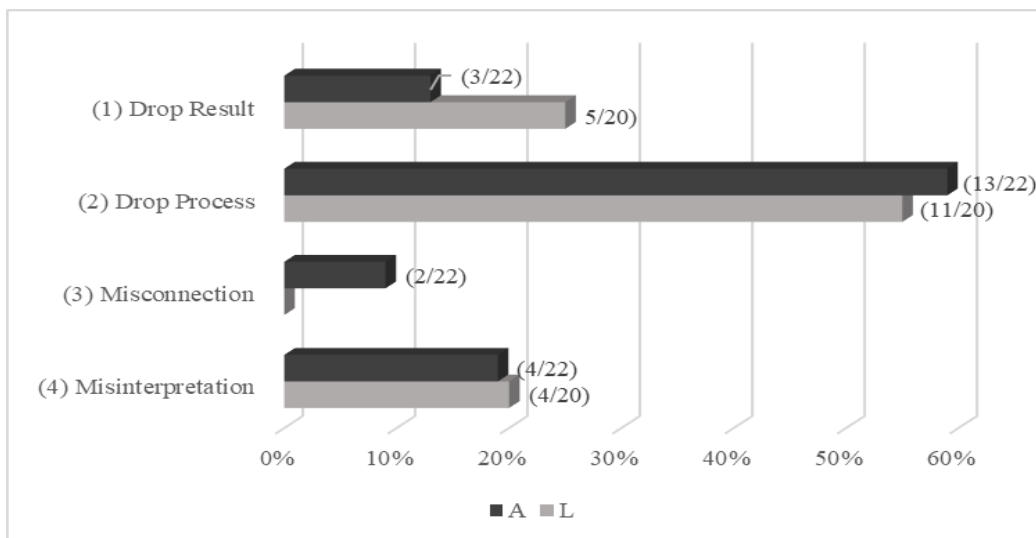


Figure 4.17 Translation: Error Distribution for Type 3 Verb (*run*)

The target sentence *I ran him off the street* was provided for the Type 3 verb *run* (Figure 4.17). Given that the Korean learners were less competent in judging the verb *run* in the AJT, the error types of the verb were expected to show different patterns. As was expected, the Korean learners were found to have dropped the *process* more frequently than the *result* with this item. In addition, errors related to misconnection and misinterpretation increased slightly. The sentences from (18) to (21) are the examples of the observed errors.

[Drop Result]

(18) *Nay-ka ku-lul ci-na-chye ttwi-e-kass-ta.*

‘I ran past him.’

[Drop Process]

(19) *Nay-ka ku-lul kil-ey-se na-ka-key hayss-ta.*

‘I made him go out of the street.’

[Misconnection]

(20) *Nay-ka twi-myen-se ku-lul ke-li pakk-u-lo ccoch-a-nayss-ta.*

‘I drove him out of the street while I ran.’

[Misinterpretation]

(21) *Na-nun ku-wa kil-ey-se ma-cwu-chyess-ta.*

‘I ran into him on the street.’

4.2.3.2. Correction (NS Participants)

While Korean participants were asked to translate the AJT items, the NSs were directed to correct the items that they had judged totally unacceptable (1 point) or unacceptable (2 points) in the AJT.

Above all, none of the NSs corrected the Type 1 items. In Type 2, five participants provided corrections for the test items with the verbs *help* and *urge*, respectively. They suggested a similar correction for the two items: add *to*-infinitive in order to specify the path of the theme argument (22-23). They observed that *urge* or *help* do not describe action, and can only be used with “verb someone to do something.”

(22) [help]

I helped him to go to the hospital yesterday.

(23)[urge]

I urged Josh to get into the room.

With the Type 3 items, the NSs generally mentioned that the preposition should be placed next to the verb and the transitive use of the intransitive verbs was odd. Sometimes, the participants also separated the clauses by adding *to*-infinitive or different arguments. Among the four verbs in Type 3, *dance* and *shout* were corrected by seven participants, while *run* and *laugh* were rarely modified. The following is the examples of their corrections (24-27).

(24)[dance: I danced Matilda into the room]

I danced into the room with Matilda.

I danced with Matilda into the room.

(25)[shout: I shouted him into the house]

I shouted at him to get/come into the house.

I shouted at him until he came into the house.

(26)[run: I ran him off the street]

He saw me and ran away from me.

(27)[laugh: I laughed the guy out of the room]

Because of my laugh, the guy left the room.

I laughed at him until he left.

Most notably, the corrections of the *by*-phrase sentences were nearly

identical, and the NSs erased the causative verbs and replaced them with manner verbs. The primary reason for the rejection of the causative verbs was that “it is too ambiguous/ indirect/ awkward to use such an expression.” The examples of the corrected sentences are listed below (28-33).

(28)[by shouting: I made him go out by shouting]

I shouted at him to leave the room.

I shout him out of the room.

I chased him out by shouting.

(29)[by slicing: I put them on the plate by slicing them]

I sliced them onto the plate.

I sliced them and put them on the plate.

(30)[by rolling: I put it next to my room by rolling it]

I rolled it next to my room.

(31)[by blowing: I made the dust go out by blowing it]

I blew the dust off.

I blew the dust out of the window.

(32)[by coughing: I made the dust fall down by coughing]

As I coughed the dust fell onto the floor.

I coughed and the dust blew to the floor.

I coughed and blew the dust off onto the floor.

(33)[by swimming: I made the boys get off the water by swimming]

I swam to rescue the boys.

I swam to the boys and saved them.

4.2.4. Discussion: Translation & Correction

As an extension of the second research question of the present study, a qualitative analysis was made of the translation task to explore Korean learners' metalinguistic knowledge of English CMCs. The analysis showed that the low-proficiency Korean learners were more likely to drop the result information and comprehend the preposition as a location rather than a goal.

With the Type 2 verbs, some of the Korean learners mistranslated the sentences with *help* and *urge*. For both of these verbs, the L group more frequently dropped the result information. Similarly in Type 3, the analyzed graphs showed that the mistranslation and dropping of the result information occurred more often in the L group than in the A group.

The learners' difficulty in processing result information is correlated to their difficulty in processing the preposition as a goal. As V-framed languages do not have the satellite structure to express the result state of an object (i.e., the changed location of the object, in the case of CMCs), the prepositional phrases merely deliver locational meaning and indicate the location of the object for V-framed language speakers (Beavers et al., 2010). Undoubtedly, the translated data shows that the Korean learners were likely to interpret the preposition as a location, especially with the Type 3 verbs (34).

(34)[dance: I danced Matilda into the room]

Mistranslation: *I danced with Matilda in the room.*

[laugh: I laughed him out of the room]

Mistranslation: *I laughed at him outside of the room.*

[shout: I shouted him into the house]

Mistranslation: *I shouted at him in the house.*

The translated data give insight as to why the Korean learners could not extend their constructional knowledge to the Type 3 verbs. In order to properly understand the caused-motion events, the learners needed to be able to interpret the process and result events properly. However, they had difficulty with satellites, and misunderstood them as locations, which led the learners to drop the result information. As this error was seen more frequently with the low-intermediate learners, it may be argued that the understanding of the preposition as a goal PP is achieved at a more advanced level of acquisition.

The translated data also revealed that Korean learners were influenced by their prior linguistic knowledge and L1 in their interpretations of the constructions. First, the translations of the CMC with the verb *run* show that some of the Korean learners used their idiomatic knowledge about the phrase *run into*. Despite the high scores in the AJT, some learners tended to mistranslate the sentences with the meaning of ‘accidentally meeting someone’, from the idiomatic interpretation of *run into someone*. Given that this is a commonly learned verb particle construction in Korean secondary school, it is

hypothesized that the Korean students may have memorized the idiomatic meaning of the expression and used their prior linguistic knowledge while completing the translation task.

Second, some Korean learners were influenced by their L1 and produced interlanguage errors of connecting the process and the result: *I danced with Matilda and took her to the room; I drove him out of the street while I ran*. As is proposed in the previous study, the Korean connective marker, *-se*, shows a temporal relationship between V₁ and V₂ in Korean SVC (Ko & Sohn, 2015), and this allowed the learners to combine two events as a causal relationship.

As a further development of the research question, a correction task was administered to explore the NSs' metalinguistic knowledge of English CMCs. The analysis of the correction task indicates that the NSs prefer conflating manner verbs in CMCs, while at the same time have alternative lexicalization patterns for caused-motion events.

In the correction task, the NSs mainly focused on replacing the manner verbs of the *by*-phrase with the matrix verbs. They sometimes skipped the goal information and used the verb particle construction (e.g., *I blew the dust off* for *I blew the dust out of the window*). In addition, they often separated the process events and the result events into two clauses (e.g., *I coughed and blew the dust off onto the floor*). A critical finding is that they notably preferred to express the events with manner verbs, even if they did not employ the expected construction. This finding is harmonious with the results of previous studies stating that S-framed language speakers prefer to use manner verbs to express

events. (Beavers et al., 2010; Berman & Slobin, 1994; Slobin, 1998, 2004).

In addition, they often expressed the caused-motion events with their own lexicalization patterns instead the CMC. For instance, they used deictic verbs to express the object's direction – *go*, *come* – with *to*-infinitive clause (e.g., help: *I helped him to go to the hospital yesterday*) or with independent clauses (e.g., laugh: *Because of my laugh, the guy left the room*).

CHAPTER 5.

CONCLUSION

This chapter draws the conclusion to the current research and discusses the major findings in Section 5.1. Section 5.2. suggests the pedagogical implications, and Section 5.3. concludes the study with limitations and suggestions for the future research.

5.1. Major Findings

The present study investigated the Korean EFL learners' processing of the English CMCs through online and offline experiments. In addressing this issue, the main focus was based on how Korean learners' processing of English CMC is affected by the typological difference between English and Korean.

In brief, the availability of the satellite structure leads to the typological difference between the two languages, and affects the lexicalization patterns of the caused-motion events. The caused-motion event basically consists of both process (the agent's action) and result events (the changed location of the object). Native English speakers have a concrete caused-motion construction to conflate the process event into either a path or a manner verb and the result event with a satellite structure. On the other hand, Korean native speakers conflate every information into a verb. When the process event is related to path, the event is often expressed with a single verb. However, when the

process event is related to manner, the event is described with a serial verb construction attaching the process information as an adjunction.

Considering the different lexicalization patterns by the different verb types, the researcher hypothesized that the type of verbs would affect the processing of the English CMCs for the Korean learners. Therefore, the present study categorized the verbs into three types: path, transitive manner, and intransitive manner. Based on the categorization, the experimental studies included both online and offline processing tasks in order to explore the participants' real time and metalinguistic processing of the construction. The major findings of the study are summarized as follows:

First, the Korean learners showed the similar processing compared to the NSs when it comes to the path verbs. Without salient manner information in the caused-motion events, Korean native speakers can express the event with a single verb. Therefore, the similar structure in L1 may have facilitated the processing of the construction.

Second, the Korean learners showed the similar processing compared to the NSs when it comes to the transitive manner verbs. Considering the typological difference, the Korean learners were not expected to easily process the CMCs with all manner verbs. However, the results indicated that the Korean learners generally showed high performance in processing the transitive manner verbs. The findings imply that the semantic information – a direct causation to the object – of the verbs facilitated the processing.

Third, the Korean learners showed different processing compared to the

NSs when it comes to the intransitive manner verbs. Different from the transitive manner verbs, these verbs did not imply the direct causation for the movement of the object. While the NSs compensate the lack of information from the verbs by processing the satellite as a goal PP, Korean learners could not process this type due to the insensitivity to the structure and the misunderstanding of it as a locational PP. Instead of resorting to the CMC, the Korean learners often used the ‘causative verb + *by*-phrase’ pattern to express the caused-motion events.

In sum, the major findings conclude that the Korean learners show the limited constructional knowledge on the CMC with the influence of the typological difference and the semantic property of the verbs. Their constructional knowledge covers the path and transitive manner verbs, but is not extended to intransitive manner verbs.

5.2. Pedagogical Implications

The findings of the present study have pedagogical implications concerning how to help Korean EFL learners extend their constructional knowledge to the intransitive manner verbs.

The first possible solution is an explicit instruction of the construction. Educational Grammar Hypothesis proposed by Yang (2003, 2008, 2010) and Yang, Kim, and Sung (2014) adopts Construction Grammar (Goldberg, 1995, 1999, 2006) into the language instruction and suggests teaching English basic

constructions to Korean EFL learners. A sentence is understood as a linguistic unit of form and meaning pairing, as illustrated in Table 5.1.

Table 5.1 Form-Meaning Pairing of the Caused-Motion Construction

Form	SUBJ	VERB	OBJ	OBL _{PP}
	↑	↑	↑	↑
Meaning	agent	predicate	theme	Location-goal
Example	<i>He</i>	<i>laughed</i>	<i>the poor guy</i>	<i>out of the room</i>

The learning the construction may help the Korean EFL learners processing the caused-motion events more efficiently. As Beavers et al. (2010) pointed out, a language user prefers a less complex lexicalization pattern as possible. Once they get the construction as a linguistic form to convey their propositional meaning, there is no doubt that they would employ the construction as a lexicalization tool.

The second possible solution is the refinement of the input of the CMCs. To date, Kim (2017) revealed the effects of input in learning ASCs and English reading performance. The result implies that an adequate input is important to learn the construction. With this in mind, the Korean school textbooks need to be improved in terms of including more constructions with various types of verbs such as intransitive manner verbs, so the learners can implicitly extend and strengthen their caused-motion constructional knowledge.

5.3. Limitations and Suggestions for Future Research

The current study provides baseline data on how Korean EFL learners process English CMCs with different verb types. Identifying the factors of the processing variables will help a great deal in specifying why and how the Korean EFL learners show difficult processing in some English constructions.

However, the issues related to sample size, task type, and the involvement of the instruction with the processing of the CMCs of the Korean EFL learners have not yet been fully addressed in the present study. Further research that would contribute to a fuller understanding of the processing of the CMCs is warranted, and several possibilities are presented below.

First, further research incorporating a similar design, and a larger sample size, would be value. The present study was limited to a small number of participants, and it was not, therefore, possible to generalize its findings to an L2 population.

Second, further research that considers the production of the CMCs with spoken data would be of benefit. The advantage of looking the orally produced constructions would be the capturing of the more natural data in relation to processing the constructions. Additionally, this information could be useful to assist teachers and curriculum developers to consider the processing of the construction in terms of communication.

Additional research is also needed to combine the instruction and check whether the instruction change the Korean EFL learners' processing of the

CMCs. The research of comparing pre-test and post-test of the CMC instruction to the Korean EFL learners could be expected to provide insightful pedagogical results.

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APPENDICES

APPENDIX 1. Recruitment Poster

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APPENDIX 1.1

Recruitment Poster: Native Speaker Participant

Looking for the participants (Native English speakers)

Research Title

Korean EFL Learners' Processing of English Caused-Motion Construction
Hakyung Sung (a graduate student majored in English education, SNU)

- Purpose: This study aims to explore how Korean EFL learners process English CMCs compared to Native English speakers in both online and offline processing experiments.
- Participants: a native speaker of English (whose first language is English and had grown up in the English-speaking country until puberty)
- Procedure:
 0. You will be guided the procedure of the experiments and asked to sign a consent for the study (about 5 mins).
 1. You will be asked to complete a C-test to measure your English proficiency (about 5 mins).
 2. You will be asked to read 32 English sentences (with following comprehension questions) on the computer screen (about 10 mins).
 3. You will be asked to complete 24 English simple sentences after reading two English sentences (about 10 mins).
 4. You will be asked to judge the acceptability of 26 English sentences (about 5 mins).
 5. You will be asked to correct some of the items of the previous judgment task (about 5 mins).

** It takes a total of 30 minutes. The first task is done via computer, and the rest of the tasks are presented on paper.

** Time and Place

- 1) Time: one day among July 1st - 20th
- 2) Place: Building 9, Rm. 426 (the library of English education)

When you participate in your research, you will be paid 10,000 KRW for the actual expenses such as transportation expenses.

Please contact heyhakyung@gmail.com or text to 010-6809-6669.

APPENDIX 1.2

Recruitment Poster: Korean Participant

연구참여자 모집 문건

연구 과제명:

Korean EFL Learners' Processing of
English Caused-Motion Construction

한국인 영어 학습자의 영어 사역이동구문 처리 양상

연구 책임자명: 성하경 (서울대학교 사범대학 영어교육과 석사과정)

- 연구 목적: 이 연구는 영어를 학습하는 한국인들의 영어 사역이동구문의 처리 양상을 실시간으로 측정하는 온라인 방법 (online techniques)과 언어 처리가 끝난 후의 결과물을 보는 오프라인 방법 (offline techniques)을 통해 알아보고자 합니다.
 - 참여자 선정 조건: 영어를 학습한 경험이 있고, 현재도 학습하고 있는 한국어를 모국어로 하는 고등학생 영어 학습자
 - 참여 내용은 다음과 같습니다.
 - 0. 실험에 대한 설명을 듣고 동의서를 작성합니다. (약 5 분)
 - 1. 영어 능숙도 (English proficiency)를 측정하기 위하여, C-test 를 실시합니다. (약 5 분)
 - 2. 모니터를 보고 32 개의 영어 문장을 눈으로 읽는 과업 (self-paced reading)을 진행합니다. (약 10 분) (comprehension questions 이 추가로 제시됨)
 - 3. 종이에 제시된 24 개의 영어 문장을 읽고, 시작 부분이 제시된 문장을 완성하는 과업 (sentence completion task)을 진행합니다. (약 10 분)
 - 4. 종이에 제시된 26 개의 영어 문장을 읽고, 주어진 문장이 얼마나 수용가능한지 판단하는 과업 (acceptability judgment task)을 진행합니다. (약 5 분)
 - 5. 4 번에서 판단한 문장들을 해석해보는 과업 (translation)을 진행합니다. (약 10 분)
- ** 총 40 -45 분 정도가 소요되며, Self-paced reading(1번) 과제는 컴퓨터로, 그 외의 과제는 서면으로 진행됩니다.
- ** 참여기간 및 장소
- 기간 : 7 월 1 일 - 20 일 중 하루
 - 장소 : 학교 컴퓨터실
 - 참여 시 사례 : 귀하의 연구 참여시 귀하에게 5,000 원이 지급됩니다.
 - 참여 방법 : heyhakyung@gmail.com 혹은 010-6809-6669 로 연락주세요.

APPENDIX 2.1

Information Survey & C-test: Native Speaker Participant

● Information Survey

- a. Name:

b. Age:

c. Nationality:

d. Period of Residence in Korea (years):

● English Proficiency Test (C-test): Please fill each blank by writing the word that you suppose is missing from the context.

Text 1:

We all live with other people's expectations of us. These are a refle_____ of
th_____ trying to under_____ us; th_____ are predic_____ of
wh_____ they th_____ we will think, d_____ and feel.
Gene_____ we acc_____ the sta_____ quo, but these
expec_____ can be ha_____ to han_____ when they co_____
from our fami_____ and can be diff_____ to ign_____, especially
wh_____ they come from our par_____.

Text 2

The decision to remove soft drinks from elementary and junior high school vending machines is a
step in the right direction to helping children make better choices when it comes to what they eat
and drink. Childhood obe_____ has bec_____ a ser_____ problem in
th_____ country a_____ children cons_____ more sugar-based
fo_____ and sp_____ less ti_____ getting the nece_____
exercise. Many par_____ have quest_____ schools' deci_____ to
al_____ vending machines which disp_____ candy and so_____
drinks. Many schools, tho_____, have co_____ to re_____ on the
mo_____ these machines generate through agreements with the companies which makes
soft drinks and junk food.

APPENDIX 2.2

Information Survey & C-test: Korean Participant

● 실험 전 설문조사

1. 당신은 언제부터 처음 영어를 배우기 시작하셧습니까?
 - a. 학년/나이
 - b. 사설 영어교육 (학원 또는 학습지, 과외 등)의 경험이 있다면 간략히 써주세요.
예) 영어 학원을 3년정도 꾸준히 다녔, or 영어과외 경험을 합하면 약 2년정도 과외로 공부함.

2. 당신은 영어를 모국어로 사용하는 나라(예. 미국)에서 거주하신 적이 있습니까? 있다면 얼마나 거주하셧습니까?
 - e. 있다 () 없다 ()
 - f. 국가: _____ 기간: _____ (년/달)

● 영어 능숙도 (English proficiency) C-TEST: 문맥에 알맞은 영어 단어를 생각하여 빈칸을 완성하세요.

Text 1:

We all live with other people's expectations of us. These are a refle_____ of th_____ trying to under_____ us; th_____ are predic_____ of wh_____ they th_____ we will think, d_____ and feel. Gene_____ we acc_____ the sta_____ quo, but these expec_____ can be ha_____ to han_____ when they co_____ from our fami_____ and can be diff_____ to ign_____, especially wh_____ they come from our par_____.

Text 2

The decision to remove soft drinks from elementary and junior high school vending machines is a step in the right direction to helping children make better choices when it comes to what they eat and drink. Childhood obe_____ has bec_____ a ser_____ problem in th_____ country a_____ children cons_____ more sugar-based fo_____ and sp_____ less ti_____ getting the nece_____ exercise. Many par_____ have quest_____ schools' deci_____ to al_____ vending machines which disp_____ candy and so_____ drinks. Many schools, tho_____, have co_____ to re_____ on the mo_____ these machines generate through agreements with the companies which makes soft drinks and junk food.

APPENDIX 3

Self-paced Reading

[List 1: following 16 items + fillers]

Num.	Type	Sentence & Comprehension Question (Answer)
1	1	Gary took Hyunsoo into the house. Did Gary take Hyunsoo into the house? (Y)
2	1	Gary sent Hyunsoo into the house. Did Gary send Hyunsoo into the bathroom? (N)
3	1	Gary put Hyunsoo into the house. Did Gary put Hyunsoo into the garage? (N)
4	1	Gary got Hyunsoo into the house. Did Gary get Hyunsoo into the house? (Y)
5	2	David pushed Jiho onto the track. Did Jiho push David onto the track? (N)
6	2	David pulled Jiho onto the track. Did David pull Jiho onto the track? (Y)
7	2	David helped Jiho onto the track. Did Dan help Jiho onto the track? (N)
8	2	David urged Jiho onto the track. Did David urge Jiho onto the track? (Y)
9	3	Soyoung shouted Harry out_of the truck. Did Soyoung shout Harry out of the truck? (Y)
10	3	Soyoung ran Harry out_of the truck. Did Somi ran Harry out of the truck? (N)
11	3	Soyoung laughed Harry out_of the truck. Did Soyoung laugh Harry out of the tree? (N)
12	3	Soyoung danced Harry out_of the truck. Did Soyoung dance Harry out of the truck? (Y)
13	4	Sohee prinned Frank off the chair. Did Sohee prin Frank off the chair? (Y)
14	4	Sohee doaked Frank off the chair. Did Sohee doak Frank off the desk? (N)
15	4	Sohee tammed Frank off the chair. Did Sohee tam Frank off the chair? (Y)
16	4	Sohee pugged Frank off the chair. Did Sohee pug Frank off the sofa? (N)

[List 2: following 16 items + fillers]

Num.	Type	Sentence & Comprehension Question (Answer)
1	4	Gary prinned Hyunsoo into the house. Did Gary prin Hyunsoo into the house? (Y)
2	4	Gary doaked Hyunsoo into the house. Did Gary doak Hyunsoo into the bathroom? (N)
3	4	Gary tammed Hyunsoo into the house. Did Gary tam Hyunsoo into the garage? (N)
4	4	Gary pugged Hyunsoo into the house. Did Gary pug Hyunsoo into the house? (Y)
5	1	David took Jiho onto the track. Did Jiho take David onto the track? (N)
6	1	David sent Jiho onto the track. Did David send Jiho onto the track? (Y)
7	1	David put Jiho onto the track. Did Dan put Jiho onto the track? (N)
8	1	David got Jiho onto the track. Did David get Jiho onto the track? (Y)
9	2	Soyoung pushed Harry out_of the truck. Did Soyoung push Harry out of the truck? (Y)
10	2	Soyoung pulled Harry out_of the truck. Did Somi pull Harry out of the truck? (N)
11	2	Soyoung helped Harry out_of the truck. Did Soyoung help Harry out of the tree? (N)
12	2	Soyoung urged Harry out_of the truck. Did Soyoung urge Harry out of the truck? (Y)
13	3	Sohee shouted Frank off the chair. Did Sohee shout Frank off the chair? (Y)
14	3	Sohee ran Frank off the chair. Did Sohee run Frank off the desk? (N)
15	3	Sohee laughed Frank off the chair. Did Sohee laugh Frank off the chair? (Y)
16	3	Sohee danced Frank off the chair. Did Sohee dance Frank off the sofa? (N)

[List 3: following 16 items + fillers]

Num.	Type	Sentence & Comprehension Question (Answer)
1	3	Gary shouted Hyunsoo into the house. Did Gary shout Hyunsoo into the house? (Y)
2	3	Gary ran Hyunsoo into the house. Did Gary run Hyunsoo into the bathroom? (N)
3	3	Gary laughed Hyunsoo into the house. Did Gary laugh Hyunsoo into the garage? (N)
4	3	Gary danced Hyunsoo into the house. Did Gary dance Hyunsoo into the house? (Y)
5	4	David prinned Jiho onto the track. Did Jiho prin David onto the track? (N)
6	4	David doaked Jiho onto the track. Did David doak Jiho onto the track? (Y)
7	4	David tammed Jiho onto the track. Did Dan tam Jiho onto the track? (N)
8	4	David pugged Jiho onto the track. Did David pug Jiho onto the track? (Y)
9	1	Soyoung took Harry out_of the truck. Did Soyoung take Harry out of the truck? (Y)
10	1	Soyoung sent Harry out_of the truck. Did Somi send Harry out of the truck? (N)
11	1	Soyoung put Harry out_of the truck. Did Soyoung put Harry out of the tree? (N)
12	1	Soyoung got Harry out_of the truck. Did Soyoung get Harry out of the truck? (Y)
13	2	Sohee pushed Frank off the chair. Did Sohee push Frank off the chair? (Y)
14	2	Sohee pulled Frank off the chair. Did Sohee pull Frank off the desk? (N)
15	2	Sohee helped Frank off the chair. Did Sohee help Frank off the chair? (Y)
16	2	Sohee urged Frank off the chair. Did Sohee urge Frank off the sofa? (N)

[List 4: following 16 items + fillers]

Num.	Type	Sentence & Comprehension Question (Answer)
1	2	Gary pushed Hyunsoo into the house. Did Gary push Hyunsoo into the house? (Y)
2	2	Gary pulled Hyunsoo into the house. Did Gary pull Hyunsoo into the bathroom? (N)
3	2	Gary helped Hyunsoo into the house. Did Gary help Hyunsoo into the garage? (N)
4	2	Gary urged Hyunsoo into the house. Did Gary urge Hyunsoo into the house? (Y)
5	3	David shouted Jiho onto the track. Did Jiho shout David onto the track? (N)
6	3	David ran Jiho onto the track. Did David run Jiho onto the track? (Y)
7	3	David laughed Jiho onto the track. Did Dan laugh Jiho onto the track? (N)
8	3	David danced Jiho onto the track. Did David dance Jiho onto the track? (Y)
9	4	Soyoung prinned Harry out_of the truck. Did Soyoung prin Harry out of the truck? (Y)
10	4	Soyoung doaked Harry out_of the truck. Did Somi doak Harry out of the truck? (N)
11	4	Soyoung tammed Harry out_of the truck. Did Soyoung tam Harry out of the tree? (N)
12	4	Soyoung pugged Harry out_of the truck. Did Soyoung pug Harry out of the truck? (Y)
13	1	Sohee took Frank off the chair. Did Sohee take Frank off the chair? (Y)
14	1	Sohee sent Frank off the chair. Did Sohee send Frank off the desk? (N)
15	1	Sohee put Frank off the chair. Did Sohee put Frank off the chair? (Y)
16	1	Sohee got Frank off the chair. Did Sohee get Frank off the sofa? (N)

[Fillers]

Num.	Sentence & Comprehension Question (Answer)
1	Sohee pulled the door open. Did Sohee pull the door closed? (N)
2	Jiyoung hammered the metal flat. Did Jiyoung hammer the metal flat? (Y)
3	Jiyoung combed her hair smooth. Did Jiyoung comb her hair smooth? (Y)
4	David painted the wall red. Did David paint the wall blue? (N)
5	Gary pushed Hyunsoo at the station. Did Gary push Hyunsoo at the school? (N)
6	Gary rolled the ball with his friend. Did Gary roll the ball with his friend? (Y)
7	Jiho helped David in the hospital. Did Jiho help David at the school? (N)
8	Jiho urged David at the station. Did Jiho urge David at the station? (Y)
9	Sohee sent Gary an email. Did Sohee send Gary an email? (Y)
10	Frank gave Sohee a present. Did Frank give Sohee some money? (N)
11	Hyunsoo made Gary a pizza. Did Hyunsoo make Gary some bread? (N)
12	David told Jiho a secret. Did David tell Jiho a secret? (Y)
13	Gary made Hyunsoo angry. Did Gary made Hyunsoo sad? (N)
14	Sohee thought Frank honest. Did Sohee think Frank honest? (Y)
15	David felt Jiho nice. Did David feel Jiho nice? (Y)
16	Soyoung considered Harry serious. Did Soyoung consider Harry serious? (Y)

APPENDIX 4

Sentence Completion Task

- After reading a given sentence, complete the blank below with a new sentence that has the same meaning as the given sentence.
- A new sentence has to be started with the given subject.
- When you write a new sentence, it would be better to be a simple clause (not mandatory).
- HINT: The two separate clauses of the given sentence imply a *cause* and a *result* respectively of a certain event.

- 1) She threw the ball, and the ball was on the roof.
→ She _____.
- 2) She laughed at her brother, and she shouted at him.
→ She _____.
- 3) She rolled the ball, and the ball was out of the room.
→ She _____.
- 4) He pulled the door, and the door was open.
→ He _____.
- 5) He danced with Matilda, and Matilda went into the room.
→ He _____.
- 6) He went into the house, and his mother went into the house.
→ He _____.
- 7) She kicked the ball, and the ball was in the net.
→ She _____.
- 8) She gave me a cake, and she gave me a fork.
→ She _____.
- 9) She pushed him, and he went out of the room.
→ She _____.
- 10) She made a cake, and she gave it to Jim.
→ She _____.
- 11) He laughed at the guy, and the guy went out of the house.
→ He _____.
- 12) He drove to the school, and his father drove with him.
→ He _____.
- 13) He put the jacket, and the jacket was on the table.
→ He _____.
- 14) She smiled at the baby, and she laughed at the baby.
→ She _____.
- 15) She sliced the ham, and the ham was on the plate.
→ She _____.

- 16) She mopped the floor, and the floor was clean.
→ She_____.
- 17) He sneezed at the tissue, and the tissue fell off the table.
→ He_____.
- 18) He made a juice, and he made a cake.
→ He_____.
- 19) He sent a package, and Mary received it.
→ He_____.
- 20) She ran to the park, and her dog ran with her.
→ She_____.
- 21) She shot the ball, and the ball went across the field.
→ She_____.
- 22) She talked with her mom, and she talked with her sister.
→ She_____.
- 23) She jumped to the horse, and the horse went over the fence.
→ She_____.
- 24) She bought flowers, and she sent them to Jiang.
→ She_____.

APPENDIX 5

Acceptability Judgment Task

1. Please mark your acceptability of the underlined sentences.
(1: Totally unacceptable 2: Unacceptable somehow 3: I don't know 4: Acceptable somehow 5: Totally acceptable)
- 2-1. [Korean participant] Please translate each sentence below the test items.
- 2-2. [Native speaker participant] Please correct the sentences that you gave one or two points, and tell me the reason why you think they are unacceptable.

Sentences		<div style="display: flex; justify-content: space-between;"> 15 </div> <div style="display: flex; justify-content: space-between;"> Totally UnacceptableTotally Acceptable </div>				
		1	2	3	4	5
1	There was a stray cat in my backyard <u>I took the cat into the house.</u>					
2	I heated the metal until it was red. <u>I hammered it flat.</u>					
3	Matilda and I had a wonderful evening party. <u>I danced Matilda into the room.</u>					
4	If a potato slice is too thick, it may not crisp like a chip. <u>I slice the potato thinly.</u>					
5	He always irritates me with his bud voice. <u>I made him go out by shouting.</u>					
6	Did you hear the gunfight last night? Actually, <u>I shot the tiger dead.</u>					
7	My grandfather had broken his leg because of the car accident last week. <u>I helped him into the hospital yesterday.</u>					
8	I usually listen to the radio preparing for a mid-term exam. I like the music because <u>it sounds greatly.</u>					
9	Gray was roaming around the street, and I was jogging last night. <u>I ran him off the street.</u>					
10	A girl got locked in the bathroom and no one					

	could find the key. <u>I kicked the door open.</u>					
11	Mary told me that she needed her winter clothes. <u>I sent the package to her this morning.</u>					
12	There was a box next to the Christmas tree in the morning. It was too heavy, so <u>I put it next to my room by rolling it.</u>					
13	I knew that it was time to start the class. Josh was out of the classroom. <u>I urged Josh into the room.</u>					
14	My friend said that he started to feel sick in my car. <u>I got him out of my car.</u>					
15	Many guest were going to visit my house tonight. I bought some apples and oranges, and <u>I put them on the plate by slicing them.</u>					
16	There was a guy who hated a sound of laughter in the room. <u>I laughed the guy out of the room.</u>					
17	It was freezing this winter. <u>The river froze solidly.</u>					
18	The children started to shout and mess up my room. <u>I pushed them out of the room.</u>					
19	In the old house, the cups were covered with dust. <u>I made the dust fall down by coughing.</u>					
20	My eyes got watery, and I began to sneeze a bt. <u>I pulled a handkerchief out of my pocket.</u>					
21	The living room was dusty, because my mom opened the window before she left. <u>I put the dust out by blowing them.</u>					
22	My brother did not come into the house at night. He was standing outside when I went out boking for him. <u>I shouted him into the house.</u>					
23	The pot is too dirty. <u>Let's scrub the pot shiny.</u>					

24	Before leaving the house, I found that I had an important message for my mom. <u>I put a memo on the table.</u>					
25	I heard that he made the same mistakes again and again. <u>I think him stupidly.</u>					
26	The boys have just been rescued from drowning. <u>I make the boys get off the water by swimming.</u>					

국 문 초 록

본 연구는 한국인 영어 학습자들의 영어 사역이동구문의 처리 양상을 온라인(online) 실험과 오프라인(offline) 실험을 통하여 살펴보았다.

Talmy(1995)의 언어 유형론을 토대로 살펴볼 때, 이동 사건을 어휘화하는 패턴은 언어들을 분류하는 기준 중 하나이다. 예를 들어, 영어는 이동의 방법(manner)을 동사를 통해 나타내고, 위성어를 통하여 경로(path)를 나타내므로 ‘위성어틀 언어(Satellite-framed language)’로 분류된다. 반면, 한국어는 이동의 방법과 경로가 모두 동사를 통해 나타나기 때문에, ‘동사 틀 언어(Verb-framed language)’로 분류된다. 두 언어의 유형론적 차이는 사역이동 사건(caused-motion event)을 표현하는 영어와 한국어의 통사 및 의미 구조의 차이와 연결된다. 이러한 이론적 배경을 바탕으로, 한국인 영어 학습자는 영어의 사역이동구문에 이동의 방법을 나타내는 동사(manner verb)가 쓰일 때, 영어를 모국어로 하는 화자와는 다른 처리 양상을 보일 것이라 가정하였다. 가설 검증을 위해, 영어 사역이동구문에 나타날 수 있는 동사의 유형을 경로 동사(path verb), 타동사적 방법 동사(transitive manner verb), 자동사적 방법 동사(intransitive manner verb)로 분류한 뒤 실험을 실시하였다.

실험에는 영어를 모국어로 하는 참여자 19 명과, 영어를 외국어로 학습하는 한국인 고등학생 63 명이 참여하였다. 한국인 영어 학습자는 영어 능숙도 테스트(c-test) 점수를 바탕으로 두 집단으로 분류하였다(A

group & L group). 집단 간의 영어 사역이동구문에 대한 이해와 산출을 비교하기 위하여 문장 처리와 관련된 네 가지 실험 연구가 차례대로 실시되었다. 온라인 실험은 실시간 이해도를 알아보는 자기조절 읽기(self-paced reading)와 실시간 산출을 알아보는 문장완성 과업(sentence completion task)을 포함하였다. 오프라인 실험은 시차를 두고 이해도를 살펴보는 수용성 판단 과업(acceptability judgment task)과 해석 및 수정 (translation / correction)을 포함하였다.

온라인 실험의 자기조절 읽기 과업에서 한국인 학습자들은 위성어에 대하여 영어를 모국어로 하는 화자들보다 덜 민감하게 반응하였지만, 경로(path)와 타동사적 방법(transitive manner) 유형의 동사가 쓰인 문장들은 영어 모국어 화자들과 유사하게 목표 구문으로 처리하였다. 한편, 문장완성 과업에서는 영어 모국어 화자들보다 자동사적 방법(intransitive manner) 유형의 동사가 쓰인 문장들을 목표 구문으로 산출하지 못했다.

오프라인 실험의 수용성 판단 과업에서 한국인 학습자들은 자동사적 방법 유형의 동사들이 쓰인 문장들에 대하여 영어 모국어 화자들보다 수용 정도가 낮았다. 그러나 같은 유형의 동사들이 ‘사역동사 + *by* 구’의 구조로 제시되었을 때는 수용 정도가 높아졌다. 이어서 수용성 판단 과업에서 쓰인 문장들을 해석하도록 한 결과, 영어 능숙도가 더 낮은 한국인 학습자일수록, 사역이동구문의 복합 사건 중 결과의 의미를 해석하는 데 실패하거나, 전치사구를 목표지(goal)로 해석하지 못하고 장소(location)로 해석하는 경향이 강했다.

결과를 종합해보면, 한국인 영어 학습자들은 경로(path), 타동사적 방법(transitive manner) 유형의 동사들이 목표 구문에 쓰였을 때는 영어 모국어 화자들과 비슷한 처리 양상을 보였지만, 자동사적 방법(intransitive manner) 유형의 동사들이 목표 구문에 쓰였을 때는 영어 모국어 화자들과 다른 처리 양상을 보였다.

결론적으로, 영어와 한국어의 사역이동구문은 통사 및 의미상으로 차이가 있는 구문이며, 한국인 영어 학습자들의 영어 사역이동구문의 이해와 산출은 구문이 자동사적 방법 동사를 수반할 때, 모국어의 간섭을 받았다. 따라서 한국인 영어 학습자들의 사역이동구문에 대한 처리는 경로 및 타동사적 방법 유형의 동사로 제한된 것으로 보인다.

주요어: 영어 사역이동구문, 사역이동 사건, 유형론, 구문 문법, 문장 처리

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