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The Role of Plausibility and Structural Information in L2 Learners' Acceptability Judgments of English Verbs*

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[Abstract]

This study investigates the role of plausibility and structural information in L2 learners' acceptability judgments of English sentences with verbs differing in transitivity. Results showed that both structural information and semantic plausibility significantly affected acceptability ratings. L2 learners showed a tendency to give higher ratings to sentences with NP-V-NP constructions when the verb was a transitive verb. Higher ratings were also given to sentences in which the NP following the main verb was a plausible object, or semantically associated with the subject. The results also showed an interaction between structural information and plausibility, with greater effects of plausibility for the transitive verb conditions. The current results suggest that L2 learners are sensitive to both structural and plausibility factors when judging the acceptability of English sentences. However, L2 learners with lower proficiency may rely more on plausibility information for intransitive verbs. These results are consistent with previous studies suggesting that intransitive verbs are a common source of difficulty in both acquisition and processing for L2

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learners, and are also compatible with theories that claim L2 learners are more reliant on semantic/plausibility information than native speakers.

Key Words: Verb transitivity, verb bias, plausibility, acceptability judgment task, L2 learners

1. Introduction

The acquisition of verb knowledge may be one of the most difficult areas of the L2 acquisition process for L2 learners of English. In order to master the correct use of verbs, L2 learners must not only learn the form-meaning mapping for each word, but also verb subcategorization and verb bias information. Verb subcategorization refers to constraints on a verb's argument structure, including whether or not a verb takes a complement, and also the number and type of complements that are required (Chomsky 1965). Verb bias information pertains to the relative frequencies of various grammatical structures in which a particular verb appears: How often an optionally transitive verb appears with or without a complement, or how often a verb takes an NP or sentence complement (Jennings, Randall and Tyler 1997).

A wide range of research in the fields of first language acquisition and adult first language processing have investigated how this information is acquired by children and used by adult native speakers in real-time processing (Bowerman 1988; Garnsey, Pearlmutter, Mylers and Lotocky 1997; Traxler 2005).

In addition, several psycholinguistic studies have investigated how plausibility affects native speakers' processing of transitive and intransitive verbs. In a series of sentence processing experiments, an NP directly following an optionally transitive

verb is an implausible direct object resulted in processing difficulty, as shown by increased reading times on the NP (Pickering & Traxler 2003; Traxler & Pickering 1996). In contrast, when the NP followed an intransitive verb, there was no evidence for difficulty, implying that English native speakers were able to use verb subcategorization information during processing, and that plausibility and structural information interact during comprehension. These results were consistent with other studies, also showing that native speakers of English use both plausibility and structural information during processing (Garnsey et al. 1997; Trueswell, Tanenhaus, and Kello 1993; Staub 2007).

Based on these findings from L1 research, several experimental studies have been conducted to examine the acquisition and use of English verb properties by L2 learners of English (Chung 2014; Dussias, Marful, Gerfen, and Molina 2010; Ju 2000; Montrul 2001; Yip 1995). However, few studies have investigated whether L2 learners use semantic/plausibility information to process verbs in addition to verb subcategorization and verb bias information, and whether or not these factors interact. When taking into account theories of second language acquisition (SLA) that propose that the structural representations constructed by L2 learners during reading are qualitatively different from those of native speakers (Shallow Structure Hypothesis, Clashen & Felser 2006), the question of how L2 learners are affected by plausibility and structural information is a topic that merits investigation.

This study aims to investigate how Korean L2 learners of English use plausibility and structural information when judging the grammatical acceptability of English sentences, and whether these two factors interact. The results of this study are expected to shed light on the topic of how L2 learners use syntactic, lexical and semantic information during processing, and whether L2 proficiency may be a factor affecting L2 learners' sensitivity to plausibility and structural information.

The following section provides an overview of the typology of English verbs and a review of the existing literature on L1 and L2 experimental studies on verb acquisition and processing.

2. Literature Review

2.1. English Verb Typology

In English, verbs are largely divided into transitive and intransitive verbs, based on whether they allow a complement or not. For example, the verb *find* is categorized as a transitive verb, as it is always used with a direct object. In contrast, the verb *appear* is an intransitive verb, as it may not be accompanied by a direct object. The intransitive verb category may further be divided into two subtypes. Verbs such as *laugh*, in which the grammatical subject assumes the role of Agent, are classified as unergative verbs, while verbs such as *die* and *appear*, in which the grammatical subject takes on the role of Theme, are categorized as unaccusative verbs (Levin and Rappaport Hovav 1995). The acquisition of different verb categories has been the topic of numerous studies in both L1 and L2 acquisition, and several studies have reported results suggesting that for both L1 and L2 children alike, the intransitive verb construction seems to pose more difficulties than the transitive verb construction (Balcom 1997; Brooks, Tomasello, Dodson and Lewis 1999; Hwang 2006).

More recently, experimental psycholinguistic studies have started to focus on the relative frequencies in which verbs appear in different structures. For example, not all transitive verbs always appear with a direct object. Verbs such as e*at* may or may not take a direct object : *John is eating (lunch).* Based on datasets collected from

numerous psycholinguistic studies or corpus data, Gahl, Jurafsky, and Roland (2004) classified transitive verbs in English into three subcategories, depending on the frequency with which they are used with a complement. Examples of high-transitive verbs include *cook* and *study,* verbs with mid-transitivity include *hunt* and *drink*, and low-transitive verbs include verbs such as *fight* and *fly.*

Transitive verbs do not only differ in the frequency with which they are accompanied by a complement, they also differ in the type of complement they prefer. Classifying subtypes of transitive verbs based on the relative frequency with which they appear with different types of complements is referred to as verb bias information.

For example, some verbs prefer an NP complement and are called NP-bias verb: *The magician revealed the rabbit.* Other types of transitive verbs are accompanied by a sentential complement (SC) with higher frequency: *The doctor implied that the operation was risky.* Other verbs, such as *fear,* which take NP complements and SC complements with equal probability, are called equi-bias verbs (Garnsey et al. 1997; Traxler 2005). Experimental studies have shown that native speakers of English use their knowledge of verb bias during real-time processing and production, showing signs of difficulty if an NP-bias verb is followed by a SC complement, and vice versa (Ferreira & Schotter 2013; Trueswell 1996; Wilson & Garnsey 2006). For automatic and efficient processing of information during reading, it is imperative that both L1 and L2 readers acquire and utilize verb subcategorization information (whether a verb is transitive or intransitive) and verb bias information (the relative frequencies with which a verb appears with a certain type of complement).

2.2. Experimental Studies on English Verbs

Previous studies examining the acquisition of verb subcategorization information by L1 and L2 learners have found similarities in the acquisition process of the two groups. Observation of errors in verb usage produced by children learning English as their first language revealed that in general, L1 child learners showed a tendency to use intransitive verbs incorrectly in a transitive construction: *"I'm gonna ... disappear something under the washrag"* (Bowerman 1988). This type of production error greatly outnumbered errors in which an obligatorily transitive verb was used in an intransitive construction without a direct object (Brooks, Tomasello, Dodson, and Lewis 1999; Bowerman 1988). Similar results were found for acceptability judgment tasks, with children judging intransitive verbs followed by direct objects as grammatically more acceptable than obligatorily transitive verbs which were not accompanied by a direct object (Hochberg 1986). Similarly, studies aiming to uncover differences in the acquisition of different verb types by L2 learners have also found that intransitive verbs seem to pose more difficulty for L2 learners compared to transitive verbs, in both production and grammaticality judgment tasks (Balcom 1997; Hwang 2006; Oshita 1997). Yang and Kim (2018) showed that the difficulty that L2 learners experience with intransitive verbs holds for even high proficiency learners. In an acceptability judgment task, L2 learners with high proficiency patterned with the acceptability ratings of the native English control group for high-transitive and mid-transitive verbs, but differed from the native speaker group for intransitive verbs, and showed similar patterns to the low proficiency L2 learner group instead.

In addition to comparing verbs across the transitive vs. intransitive dichotomy, several studies have investigated whether a difference is observed in the acquisition

of different subtypes of intransitive verbs. L1 studies have found that native English-speaking children tend to use unaccusative verbs more frequently in ungrammatical transitive constructions compared to unergative verbs, suggesting that the unaccusative verb type poses the greatest challenge in L1 verb acquisition (Brooks et al. 1999; Pinker 1989). Research in L2 acquisition reports similar results, with studies showing L2 learners have greater difficulty with unaccusative verbs when compared to unergative verbs (Balcom 1997; Yip 1995).

Studies in first and second language acquisition have thus mainly been focused on the question of how language learners acquire the information required to understand and produce sentences with different types of verbs. In contrast, recent studies in the psycholinguistic domain have investigated how knowledge of verb subcategorization and verb bias information is used during language processing. Research has found that native speakers of English make use of verb bias information rapidly during on-line processing and are able to predict whether an NP directly following the main verb is more likely to be a direct object or subject to an embedded sentential complement (Garnsey et al. 1997; Osterhout, Holcomb, & Swinney 1994; Trueswell & Kim 1998; Wilson & Garnsey 2009).

The question of whether L1 readers' knowledge of verb bias interacts with semantic factors such as plausibility to guide processing has also been investigated. In two experiments examining how verb bias information and plausibility contributed to the comprehension of temporarily ambiguous sentences, Garnsey et al. (1997) found that for native English speakers, verb bias information plays a larger role than plausibility. In their study, plausibility of the NP following the verb as the direct object was manipulated, as shown in (1).

(1a) *The senator regretted the decision ...*
(1b) *The senator regretted the reporter ...*

In terms of verb bias, three types of verbs were used, depending on whether they preferred a direct object complement (DO-bias), a sentential complement (SC-bias), or were observed with equal frequencies for both types of complements (Equi-bias).

Results showed that when native English speakers read sentences with verbs that did not prefer one type of complement over the other (Equi-bias), processing of the NP following the verb was affected by plausibility: slower reading times were observed for implausible NP objects. However, when the main verb was biased toward a DO or SC complement, reading times on the NP were not affected by plausibility. Similar results, where native speakers were not affected by plausibility when structural information was present, have also been found with the main clause/reduced relative clause temporary ambiguity, as in *The room searched by the police contained the missing weapon* (Trueswell 1996).

In L2 psycholinguistic research, the findings from native speakers of English have led to the question of whether L2 learners are also able to learn and use verb bias information for English verbs during on-line processing. Several studies have reported results suggesting that highly proficient L2 learners with substantial exposure to English are indeed capable of acquiring verb bias information and using it to guide parsing (Dussias & Cramer Scaltz 2008; Frenck-Mestre & Pynte 1997). Previous studies show that L2 learners were more strongly affected by plausibility information that native speaker controls (Roberts & Felser 2011), but few studies have investigated how L2 learners use plausibility information when verb bias information is not available.

The Shallow Structure Hypothesis (Clashen & Felser 2006) claims that L2 processing is qualitatively different from L1 processing in that L2 learners' syntactic

structures are 'shallow,' and to compensate for this underuse of syntactic information, they rely more heavily on lexical/semantic information. Evidence supporting the Shallow Structure Hypothesis has been reported in various studies (Dussias & Piñar 2010; Felser & Roberts 2007; Papadopoulou & Clahsen 2003).

Verb subcategorization and verb bias information have properties pertaining to both syntactic and lexical cues. On one hand, verb subcategorization information is lexically associated as information regarding a verb's transitivity is stored in the lexicon. On the other hand, the interaction between a verb's subcategorization restrictions and verb bias are also more structural, as they pertain to how a verb is used in various syntactic constructions. Plausibility information, however, is a lexical-semantic cue. Therefore, the predictions of the Shallow Structure Hypothesis suggest that L2 processing of verbs may be qualitatively different from that of native English speakers, for which verb bias played a larger role than plausibility. If L2 speakers rely more heavily on lexical-semantic information, as predicted by the Shallow Structure Hypothesis, effects of plausibility may be observed even when clear structural cues are present.

This study investigates how L2 learners' acceptability judgments on the grammaticality of English sentences containing highly transitive and intransitive verbs are affected by plausibility and structural information. While native English speakers have been shown to be affected by plausibility only in the absence of structural information, L2 learners are predicted to show effects of plausibility, giving higher ratings for the plausible conditions, even when structural information cues clearly indicate that a sentence is grammatically unacceptable.

The research questions for this study are presented in (2):

(2a) Are Korean L2 learners of English affected by plausibility and structural information in judging the acceptability of English sentences with transitive and intransitive verbs? If so, is there an interaction between the factors of plausibility and structural information?

(2b) Does L2 proficiency play a role in L2 learners' degree of reliance on plausibility and structural factors in making acceptability judgments?

3. Research Method and Design

3.1. Participants

The participants for this study were thirty-nine L2 learners of English recruited from a university in Korea. Based on the data from a language background questionnaire that the participants filled out, those who did not meet the following requirements were excluded from the main experiment (acceptability judgment task). Two students were excluded because they had a first language other than Korean. Five students that reported having lived in an English-speaking country for a period exceeding twelve months were also excluded. Demographic information of the remaining thirty-two participants is presented below in Table 1.

Table 1. Summary of the Participants

	Age	L2 proficiency[1)]	Self-rated proficiency				
			R	W	S	L	O
Mean	22.55	22.38	3.43	3.00	2.56	3.38	3.13
SD	2.29	3.63	0.83	0.80	0.84	0.87	0.71
Range	21-26	15-29	2-5	2-5	1-5	2-5	2-5

In the language background questionnaire, participants were asked to self-rate their overall English proficiency (O) and their proficiency in four sub-areas: Reading (R), Writing (W), Speaking (S), and Listening (L). In order to provide a more objective measure of L2 proficiency, a comprehensive English proficiency test with a total of 30 questions was also administered before the main task.

3.2. Materials

Twenty-four transitive verbs and twenty-four intransitive verbs were selected for the experimental stimuli. The two verb types were selected from opposite ends of the transitivity bias continuum, so that the transitive verbs fell into the highly transitive category and the intransitive verbs were obligatorily intransitive. The transitive verbs were selected based on the verb list in Gahl et al. (2004) and the intransitive verbs were selected from the list of unaccusative non-alternating verbs in Levin and Rappaport Hovav (1995).[2] The experimental stimuli are shown in Table 2.

Table 2. List of Verb Stimuli

Verb Type	Verbs
Transitive	study, understand, drink, call, choose, attack, investigate, confirm, check, entertain, draw, bake, paint, visit, perform, propose, imitate, chase, cheat, criticize, order, phone, wash, kill
Intransitive	exit, arrive, stand, appear, fall, evolve, wait, stay, advance, emerge, vanish, awaken, prosper, depart, succeed, disappear, escape, flee, perish, faint, linger, die, remain, live

The verbs in Table 2 were used to make two sentence versions, differing in plausibility. For the transitive verb conditions, the NP following the main verb was either a plausible or implausible direct object. For the sentences in the intransitive

verb conditions, the NP directly following the verb was either a semantically plausible object (when disregarding verb subcategorization) or semantically related to the subject NP in the plausible conditions, and semantically unrelated to the verb and subject NP in the implausible conditions. All test sentences followed a transitive structure sequence, *NP-V-NP*. A sample test item for each of the four conditions is presented below in (2).

(2a) The judge criticized the lawyer. (*Transitive Plausible Condition*)
(2b) The judge criticized the wood. (*Transitive Implausible Condition*)
(2c) The judge fainted the lawyer. (*Intransitive Plausible Condition*)
(2d) The judge fainted the wood. (*Intransitive Implausible Condition*)

Twenty-four sets of experimental items similar to (2) were constructed by crossing the factors of verb transitivity (*transitive* vs. *intransitive*) and plausibility (*plausible* vs. *implausible*) using a Latin square design. Thirty-one filler sentences with various types of syntactic structures, including the double object construction and the passive construction were randomly interspersed with the test items to make four different lists, with a total of fifty-five sentences per list. To avoid repetition priming effects, none of the filler sentences contained a verb that was included in the test sentences. The thirty-two L2 learners participating in the main experiment were randomly assigned to one of the four lists, with eight participants per list. Each participant was exposed to each of the twenty-four test sentences, but did not see the same item in more than one condition. The four lists were pseudo-randomized so that two items in the same condition would not be adjacent to each other, and at least one filler intervened between two test sentences.

3.2. Experiment Procedure

Participants first completed a language background questionnaire and English proficiency test. The acceptability judgment task was a paper-and pencil task consisting of one of the four lists of fifty-five sentences Participants were asked to read each English sentence once at a normal pace, and judge the grammatical acceptability of the sentence on a scale of 1 to 5 (1=very unacceptable, 5=very acceptable). The participants were not given a time limit to complete the task, and the entire procedure took less than thirty minutes.

3. Results

The mean acceptability ratings obtained for each of the four conditions across participants are shown below in Table 3.

Table 3. Mean Acceptability Rating by Condition

Condition	Mean Acceptability Rating
Transitive Plausible	4.43
Transitive Implausible	2.76
Intransitive Plausible	2.53
Intransitive Implausible	2.37

The mean ratings for each participant and item across conditions were entered into a two-way repeated-measures ANOVA, with the main factors of transitivity (*transitive* vs. *intransitive*) and plausibility (*plausible* vs. *implausible*). Results showed a

significant effect of transitivity on acceptability ratings ($F_1(1,31)=118.35$, $p<.0005$; $F_2(1,23)=64.78$, $p<.0005$), with a higher mean rating for transitive conditions (M=3.61) compared to in transitive conditions (M=2.45). The factor of plausibility was also significant ($F_1(1,31)=93.09$, $p<.0005$; $F_2(1,23)=42.64$, $p<.0005$), with higher ratings obtained for the plausible conditions (M=3.48) compared to the implausible conditions (M=2.57). The interaction between transitivity and plausibility was significant ($F_1(1,31)=111.61$, $p<.0005$; $F_2(1,23)=49.79$, $p<.0005$), driven by a larger effect of plausibility in the transitive conditions (Transitive Plausible-Transitive Implausible=1.49, t=12.44, $p<.0005$) compared to the intransitive conditions (Intransitive Plausible-Intransitive Implausible=0.16; t=0.99, p=0.32).

In order to investigate the interaction between verb transitivity and plausibility in more detail, further analysis was carried out by dividing the participants into two groups by performing a media split based on their L2 proficiency scores: the high proficiency group (M=25.19, SD=2.14) and the low proficiency group (M=19.56, SD=2.42). The two proficiency groups were significantly different as measured by their L2 proficiency scores (t=6.97, $p<.0001$).

Pairwise comparisons revealed that the difference in mean acceptability ratings between the Transitive Plausible and Transitive Implausible conditions was significant for both the low (t=9.99, $p<.0001$) and high proficiency groups (t=7.99, $p<.0001$), but the two groups differed in their pattern of results for the Intransitive conditions. The difference in mean ratings between the Intransitive Plausible and Intransitive Implausible condition was significant for the low proficiency group (t=2.39, p=0.02), but not significant for the high proficiency group (t=0.003, p=.99). Mean acceptability ratings for the four conditions by L2 proficiency are presented in Figure 1 and Figure 2.

Figure 1. Mean Acceptability Ratings (High Proficiency)

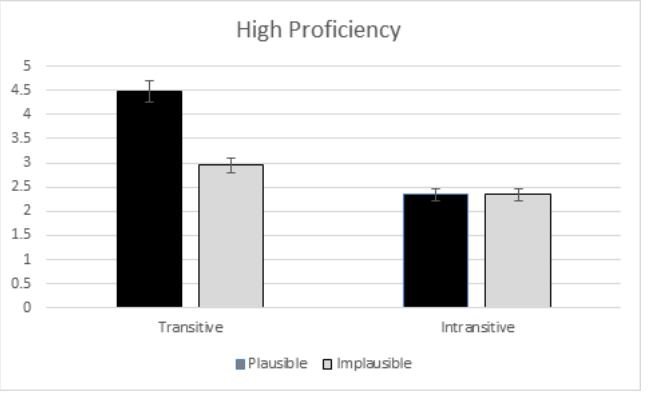
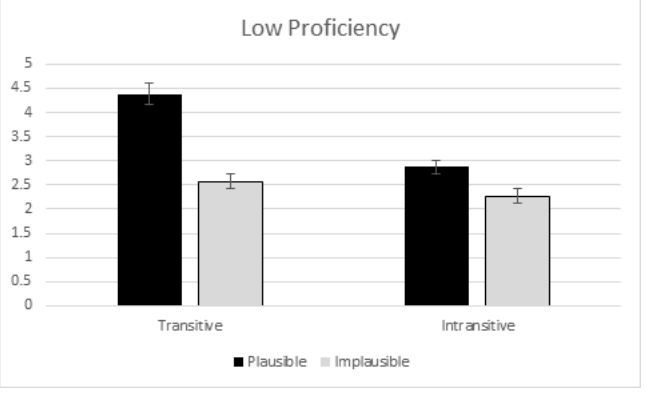


Figure 2. Mean Acceptability Ratings (Low Proficiency)



These results indicate that while the main interaction between verb transitivity and plausibility was driven by larger effects of plausibility in the transitive conditions for both proficiency groups, only the low proficiency group's acceptability ratings were significantly affected by plausibility in the intransitive conditions.

4. Discussion

This study investigated whether L2 learners of English were affected by the lexical-semantic factor of plausibility and structural factor of verb transitivity in judging the grammatical acceptability of sentences with highly transitive and obligatorily intransitive verbs, and whether interaction was observed between these two factors.

The results of the acceptability judgment task show that L2 learners are indeed affected by both plausibility and structural information. The Korean L2 learner participants showed a general tendency to give higher ratings regarding a sentence's acceptability when a transitive verb was followed by an NP, and lower ratings when an intransitive verb was followed by an NP. These results suggest that the L2 learners in this experiment had knowledge of the verb bias and subcategorization information of the English verbs used in this study and were capable of using that knowledge to perform judgments regarding grammatical acceptability. These results are consistent with previous studies showing that L2 learners are able to use verb bias information to guide parsing (Dussias & Cramer Scaltz 2008; Frenck-Mestre & Pynte 1997).

The results showing significant effects of plausibility suggest that the L2 learners were also capable of using lexical-semantic information such as plausibility to judge the acceptability of the English sentences. The role of plausibility was greater in the transitive constructions compared to the intransitive constructions, with higher ratings given when the NP directly following the main verb was a plausible direct object (*paint the wall*), and lower ratings when a transitive verb was followed by an NP that was not a plausible direct object (*paint the clue*).

The factors of plausibility and verb transitivity showed a significant interaction,

which was mainly driven by the larger effect of plausibility in the transitive constructions. These results are predictable, as in the intransitive conditions, the sentences were grammatically unacceptable regardless of whether the NP following verb was semantically/pragmatically related to the subject and verb or not (*The judge fainted the lawyer* vs. *The judge fainted the wood*), thus accounting for the relatively smaller difference between the plausible and implausible conditions for the intransitive sentences.

The main point of interest in the results of this study lies in how plausibility effects on transitive and intransitive constructions differed depending on L2 proficiency, which is related to research question (1b). The two groups of L2 learners patterned similarly in that the interaction between transitivity and plausibility was mainly driven by a larger difference due to plausibility in the transitive conditions compared to the intransitive conditions.

However, the two L2 proficiency groups differed in patterns observed for the effects of plausibility on acceptability ratings in the intransitive conditions. When strictly considering grammatical acceptability, sentences in both the Plausible Intransitive condition (*The judge fainted the lawyer*) and the Implausible Intransitive condition (*The judge fainted the wood*) should be judged as unacceptable, as *faint* is an obligatorily intransitive verb that cannot be used with a direct object. The high proficiency L2 group's acceptability ratings suggest that they used this knowledge of verb subcategorization to guide their acceptability judgments, but plausiblity did not play a role, as can be seen in Figure 1. For this group, plausibility of the NP as a direct object resulted in a significant difference in ratings for the transitive conditions, but the two intransitive conditions received equally low ratings regardless of whether the post-V NP was semantically related to the subject NP and verb or not.

In contrast, the low proficiency group showed a tendency to be affected by

semantic plausibility even in the intransitive conditions, as shown in Figure 2. Although the difference in acceptability ratings due to plausibility were smaller in the intransitive conditions compared to the transitive conditions, the Intransitive Plausible condition still received a significantly higher mean rating than the Intransitive Implausible condition.

These results are consistent with the main claims of the Shallow Structure Hypothesis (Clahsen & Felser 2006), and contrast with the previous studies on the interaction of plausibility and structural information for native English speakers, which found that in L1 parsing, plausibility plays a role only in the absence of clear structural information, such as verb bias or subcategorization (Garnsey et al. 1997; Trueswell 1996; Wilson & Garnsey 2009). The low proficiency L2 learners in this study showed evidence of using plausibility as a cue to guide their acceptability judgments even when clear structural information should have provided sufficient information to the ungrammatical structures.

The predictions for the L2 learners in the present study, based on the claims of the Shallow Structure Hypothesis (Clahsen & Felser 2006), were that L2 learners might attempt to compensate for their lack of ability to use structural information by relying more heavily on lexical/semantic information. These predictions were correctly borne out by the results for the low proficiency L2 learner group in this study. The low proficiency L2 learners were significantly affected by plausibility information even in the intransitive conditions, where verb subcategorization information should have been sufficient to signal that the sentences were ungrammatical. Compared to the L2 learners in the high proficiency group, who used their knowledge of verb transitivity information to correctly judge intransitive verbs used in a transitive construction as unacceptable, regardless of plausibility, this pattern of results suggests that the low proficiency L2 learners were not as confident

in their use of structural information as the high proficiency learners and compensated for this difficulty by relying on plausibility information.

The difficulty displayed by the low proficiency group when judging the acceptability of intransitive constructions is consistent with the results of numerous studies in L1 (Brooks et al. 1999; Bowerman 1988; Hochberg 1986) and L2 acquisition (Balcom 1997; Hwang 2006; Oshita 1997). Furthermore, the difficulties experienced by the low proficiency L2 learners in this experiment may have been exacerbated due to the fact that all verbs in the intransitive condition were nonalternating unaccusative verbs. Previous studies have found that both L1 and L2 learners tend to use unaccusative verbs more frequently in ungrammatical transitive constructions compared to unergative verbs, and therefore suggest that within the intransitive verb category, the unaccusative verb type poses the most difficulty (Balcom 1997; Brooks et al. 1999; Pinker 1989; Yip 1995).

5. Conclusion

This study investigated the role of plausibility and structural information on Korean L2 learners' acceptability judgments on the acceptability of English sentences using highly transitive and obligatorily intransitive verbs. The results revealed that the L2 participants were sensitive to both plausibility and structural cues, and were able to use these cues to guide their judgments of grammatical acceptability.

L2 proficiency was found to significantly affect L2 learners' acceptability ratings. Whereas both high and low L2 proficiency groups used plausibility of the NP as a direct object to guide their acceptability judgments with transitive verbs, only the low proficiency L2 learners used plausibility as a cue when intransitive verbs were used

ungrammatically in transitive constructions.

These results suggest that L2 learners with relatively lower proficiency levels show a tendency to rely more on semantic information such as plausibility, compared to L2 learners with higher proficiency even in cases where clear structural cues, such as an intransitive verb followed by a direct object NP, should have been sufficient to indicate that a sentence is grammatically unacceptable. The effects of L2 proficiency on use of plausibility cues even in ungrammatical sentences support the predictions of the Shallow Structure Hypothesis (Clahsen & Felser 2006), but also suggest that as L2 proficiency levels increase, L2 learners may be able to transition into more native-like use of plausibility and structural information.

Future studies investigating how the interaction of plausibility and structural information may differ for the various subtypes of intransitive verbs, and how L2 learners use these cues in real time processing are expected to contribute greatly to our understanding of L2 processing mechanisms.

Notes

1) The proficiency test examined vocabulary, grammar, reading and writing, and was obtained from the University of New Hamsphire. Due to length restrictions, the full version of the proficiency test was not included in this paper. A copy of the test will be provided upon request to the author.

2) Only unaccusative non-alternating verbs (*die, disappear*) were selected in the intransitive condition, as unaccusative alternating (*melt, open*) and unergative verbs (*jump, dream)* may also appear in transitive constructions, and cannot be viewed as 'obligatorily intransitive'.

Works Cited

Balcom, Patricia. "Why is This Happened? Passive Morphology and Unaccusativity." *Second Language Research* 13.1 (1997): 1-9. Print.

Bowerman, Melissa. "The 'No Negative Evidence' Problem: How Do Children Avoid Constructing an Overly General Grammar?" *Explaining Language Universals*. Ed. John Hawkins. Oxford: Basil Blackwell. 1988. 73-101. Print.

Brooks, Patricia, Michael Tomasello, Kelly Dodson, and Laurence Lewis. "Young Children's Overgeneralizations with Fixed Transitivity Verbs." *Child Development* 70.6 (1999): 1326-1337. Print.

Clashen, Harald, and Claudia Felser. "Grammatical Processing in Language Learners." Applied Psycholinguistics 27.1 (2006): 3-42. Print.

Chomsky, Noam. *Aspects of the Theory of Syntax*. Cambridge, MA: MIT P. 1965. Print.

Chung, Taegoo. "Multiple Factors in the L2 Acquisition of English Unaccusative Verbs." *International Review of Applied Linguistics in Language Teaching* 52.1 (2014): 59-87. Print.

Dussias, Paola and Tracy Cramer Scaltz. "Spanish-English L2 Speakers' Use of Subcategorization Bias Information in the Resolution of Temporary Ambiguity during Second Language Reading." *Acta Psychologica* 128.3 (2008): 501-13. Print.

Dussias, Paola, Alejandra Marful, Chip Gerfen, and Maria Teresa Bajo Molina. "Usage Frequencies of Complement-Taking Verbs in Spanish and English: Data from Spanish Monolinguals and Spanish-English Bilinguals." *Behavior Research Methods* 42.4 (2010): 1004-11. Print.

Dussias, Paola, and Pilar Piñar. "Effects of Reading Span and Plausibility in the

Reanalysis of Wh-Gaps by Chinese-English Second Language Speakers." *Second Language Research* 26.4 (2010): 443-72. Print.

Felser, Claudia, and Leah Roberts. "Processing wh-Dependencies in a Second Language: a Cross-Modal Priming Study." *Second Language Research* 23.1 (2007): 9-36. Print.

Ferreira, Victor, and Elizabeth Schotter. "Do Verb Bias Effects on Sentence Production Reflect Sensitivity to Comprehension or Production Factors?" *The Quarterly Journal of Experimental Psychology* 66.8 (2013): 1548-71. Print.

Frenck-Mestre, Cheryl, and Joel Pynte. "Syntactic Ambiguity Resolution While Reading in Second and Native Languages." *The Quarterly Journal of Experimental Psychology* 30.1 (1997): 119-48. Print.

Gahl, Susanne, Dan Jurafsky, and Douglas Roland. "Verb Subcategorization Frequencies: American English Corpus Data, Methodological Studies, and Cross-Corpus Comparisons." *Behavior Research Methods, Instruments, and Computers* 36.3 (2004): 432-443. Print.

Garnsey, Susan, Neal Pearlmutter, Elizabeth Myers, and Melanie Lotocky. "The Contributions of Verb Bias and Plausibility to the Comprehension of Temporarily Ambiguous Sentences." *Journal of Memory and Language* 37 (1997): 58-93. Print.

Hochberg, Judith. "Children's Judgments of Transitivity Errors." *Journal of Child Language* 13 (1986): 317-34. Print.

Hwang, Jong-Bai. "Why do Korean EFL Learners Overpassivize English Unaccusative Verbs." *English Language Teaching* 18.1 (2006): 195-221. Print.

Jennings, Fabio, Bill Randall, and Loraine Tyler. "Graded Effects of Verb Subcategory Preferences on Parsing: Support for Constraint-Satisfaction

Models." *Language and Cognitive Processing* 12.4 (1997): 485-504. Print.

Ju, Min Kyoung. "Overpassivization Errors by Second Language Learners." *Studies in Second Language Acquisition* 22.1 (2000): 85-111. Print.

Levin, Beth, and Malka Rappaport Hovav. *Unaccsativity: At the Syntax-Lexical Semantics Interface*. Cambridge, MA: MIT P. 1995. Print.

Montrul, Silvina. "Transitivity Alternations in L2 Acquisition: Toward a Modular View of Transfer." *Studies in Second Language Acquisition* 22.2 (2001): 229-73. Print.

Oshita, Hiroyuki. "The Unaccusative Trap in Second Language Acquisition." *Studies in Second Language Acquisition* 23.2 (2001): 279-304. Print.

Lee, Osterhout, Philip Holcomb, and David Swinney. "Brain Potentials Elicited by Garden-Path Sentences: Evidence of the Application of Verb Information During Parsing." *Journal of Experimental Psychology: Learning, Memory, and Cognition* 20.4 (1994): 706-803. Print.

Despina Papadopoulou and Harald Clahsen. "Parsing Strategies in L1 and L2 Processing: A Study of Relative Processing in Greek." *Studies in Second Language Acquisition* 25.4 (2003): 501-28. Print.

Pickering, Martin, and Matthew Traxler. "Evidence Against the Use of Subcategorization Frequency in the Processing of Unbounded Dependencies." *Language and Cognitive Processes* 18.4 (2003): 469-503. Print.

Pinker, Steven. *Learnability and Cognition: The Acquisition of Argument Structure*. Cambridge, MA: MIT P. 1989. Print.

Traxler, Matthew. "Plausibility and Verb Subcategorization in Temporarily Ambiguous Sentences: Evidence from Self-Paced Reading." *Journal of Psycholinguistic Research* 34.1 (2005): 1-30. Print.

_____, and Martin Pickering. "Plausibility and Processing of Unbounded

Dependencies: An Eye-Tracking Study." *Journal of Memory and Language* 35 (1996): 454-75. Print.

Trueswell, John. "The Role of Lexical Frequency in Syntactic Ambiguity Resolution." *Journal of Memory and Language* 35.4 (1996): 566-85. Print.

_____, and Albert Kim. "How to Prune a Garden Path by Nipping it in the Bud." *Journal of Memory and Language* 39.1 (1998): 102-23. Print.

_____, Michael Tanenhaus, and Christopher Kello. "Verb-Specific Constraints in Lexical Preference from Garden-Paths." *Journal of Experimental Psychology: Learning, Memory, and Cognition* 19.3 (1993): 528-53. Print.

Roberts, Leah, and Claudia Felser. "Plausibility and Recovery from Garden Paths in Second Language Processing." *Applied Psycholinguistics* 32 (2011): 299-331. Print.

Staub, Adrian. "The Parser Doesn't Ignore Intransitivity, After All." *Journal of Experimental Psychology: Learning, Memory, and Cognition* 33.3 (2007): 550-569. Print.

Wilson, Michael, and Susan Garnsey. "Making Simple Sentences Hard: Verb Bias Effects in Simple Sentences." *Journal of Memory and Language* 60.3 (2006): 368-92. Print.

Yang, Jae Hee, and Ji Hyon Kim. "Testing L2 Learners' Sensitivity to Transitivity Bias in English Verbs." *Language and Linguistics* 79 (2018): 97-123. Print.

Yip, Virginia. *Interlanguage and Learnability: From Chinese to English*. Amsterdam, Netherlands: John Benjamins, 1995. Print.

국문초록

동사 유형과 개연성에 따른 제 2 언어 학습자의 영어 동사 구문 문법성 판단에 관한 연구

김 지 현 (한국외대)

본 연구는 제2언어 학습자들이 영어 문장을 읽고 문법성을 판단하는 과정에서 개연성과 구조적인 정보가 미치는 영향을 실험하였다. 실험 결과, 목적어의 개연성과 동사의 타동성, 즉 구조적인 정보 모두 피험자의 문법성 판단에 유의미한 영향을 미치는 것으로 측정되었다. 자동사와 비교했을 때, 타동사 뒤에 명사구가 오는 문장 유형에 더 높은 문법성 판단 점수를 부여하는 것으로 나타났다. 또한 주동사 뒤에 오는 명사구가 의미적으로 타동사의 타당한 목적어가 되거나, 주어와 의미적 연관성이 있는 경우에도 그렇지 않은 문장 유형보다 높은 문법성 판단 점수를 부여하는 것으로 관찰되었다. 개연성과 구조적 정보의 두 요인 사이에 유의미한 상호작용도 측정되었는데, 자동사 유형과 비교했을 때 개연성이 타동사 유형의 문법성 판단에 미치는 영향 큰 것으로 확인되었다. 반면, 개연성이 자동사 유형에 미치는 영향은 피험자의 영어 능숙도에 따라 달라지는 것으로 관찰되었는데, 능숙도가 낮은 피험자 집단만이 문법적으로 오류가 있는 자동사 구문의 문법성 판단에도 개연성을 하나의 판단 지침으로 사용하는 것으로 드러났다. 본 연구 결과는 자동사가 제2언어 학습자에게 특히 어려움을 느끼게 하는 요소이며, 목적어의 개연성의 도움을 받을 수 있음을 보여준다.

주제어: 동사 타동성, 동사 편향, 개연성, 문법성 판단, 제2언어학습자

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