



Sensitivity to Argument-Structure Asymmetries in Sluicing: Evidence from Korean Learners of English

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ABSTRACT

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This study investigates how L1-Korean learners of English interpret sluicing in English ditransitive constructions, with a focus on double-object constructions (DOCs) and prepositional dative constructions (PDCs). Sluicing provides a useful testing ground for examining learners' sensitivity to abstract argument-structure constraints, particularly when critical elements such as direct objects or prepositions are not overtly realized. Using an acceptability judgment task, we compared the responses of L1-Korean learners to those of native English speakers across grammatical and ungrammatical sluicing conditions, and we further examined whether learners' proficiency modulated their sensitivity to these constraints. The results revealed clear group differences. Native English speakers showed strong and categorical sensitivity to structural licensing constraints, assigning significantly higher ratings to grammatical sluices than to ungrammatical ones in both DOC and PDC conditions. In contrast, L1-Korean learners demonstrated significantly weaker and less consistent distinctions. While ungrammatical sentences were generally rated lower, learners' judgments often remained in a mid-range and varied across conditions, particularly in cases involving implicit arguments. Moreover, proficiency did not significantly enhance learners' ability to distinguish grammatical from ungrammatical structures. Importantly, the observed pattern cannot be explained by straightforward L1 transfer. If Korean-style argument omission had been transferred, uniformly permissive judgments for implicit structures would be expected. Instead, the learners' responses reflected neither a consistent L1-based strategy nor target-like structural sensitivity. These findings suggest that L2 learners rely more on surface patterns and semantic plausibility than on fully specified syntactic representations, providing further support for accounts of "shallow" processing in second language comprehension.

KEYWORDS

sluicing, ditransitive constructions, structural sensitivity

1. Introduction

Elipsis phenomena offer a crucial window into the interaction between syntax, semantics, and discourse. Among these, *sluicing*—where only a *wh*-phrase remains overt while the rest of the clause is elided—has been central to understanding the identity condition on ellipsis and the representation of unexpressed arguments (Merchant 2001, Ross 1969). Because sluicing requires a structural correlate for the *wh*-remnant (or survivor), it serves as a sensitive diagnostic for whether implicit arguments are syntactically represented (Chung et al. 1995). If an elided clause can refer to an unexpressed argument, that argument must exist in the syntax, not merely at the level of meaning.

Recent research has revealed that not all implicit arguments behave uniformly. Bruening (2021) demonstrates that in English double object constructions (DOCs), the first object (recipient) cannot license sluicing when implicit, whereas the second object (theme) can. In contrast, in prepositional dative constructions (PDCs), sluicing is grammatical only when the *wh*-remnant of the implicit recipient correlate comes with the preposition (to/for). These asymmetries suggest that sluicing is constrained not only by semantic recoverability but also by the syntactic realization of argument structure.

(1) Double Object Construction (DOC)

- a. Theme ellipsis: She is going to serve the guests now, but I don't know what.
- b. Recipient ellipsis: *They accidentally charged way too much, but we can't figure out who.

(2) Prepositional Dative Construction (PDC)

- a. P-inclusion: They're going to sell the house, but I don't know to whom.
- b. P-omission: *They're going to sell the house, but I don't know who. (Bruening 2021, pp. 4-5)

The contrast between DOCs and PDCs thus provides direct evidence that sluicing reflects fine-grained structural distinctions at the syntax–semantics interface—particularly whether an argument is verb-selected or introduced by a functional head such as Applicative (Appl) (Bruening 2001, 2010). In double object constructions (DOCs), the two objects exhibit a structural asymmetry: while the second object (theme) is directly selected by the verb, the first object (recipient) is introduced by a higher functional head, namely the Appl head. This structural difference is crucial because, as Bruening (2021) argues, only arguments directly selected by the lexical head (the verb) can be successfully elided or serve as implicit correlates in sluicing when they are not overtly realized.

While these findings have deepened our understanding of the structure of implicit arguments in native English, it remains unclear whether second-language (L2) grammars also encode such structure-dependent constraints. Previous work has primarily examined canonical cases of sluicing in L1-English speakers (e.g., Yoshida et al. 2013), demonstrating that speakers can reconstruct elided material and are sensitive to constraints on *wh*-movement and interpretation. However, these studies do not address whether L2 learners of English are similarly sensitive to abstract licensing conditions that lack overt morphological or lexical cues. In particular, the distinction between verb-selected and non-verb-selected arguments in ellipsis contexts is particularly informative, as it requires the representation of underlying functional structure (e.g., applicative heads) and structural relations that are not directly observable on the surface.

Investigating this question is crucial for understanding the nature of L2 syntactic representation. If L2 learners are sensitive to the same structural asymmetries observed in native grammars, this would suggest that interlanguage grammars encode abstract argument-structure representations. Conversely, if their judgments rely primarily on meaning-based recoverability, it would indicate that L2 processing of ellipsis remains more surface-

oriented. Addressing this issue therefore offers theoretical insight into how deeply L2 learners internalize constraints at the syntax–semantics interface.

The present study examines whether L1-Korean learners of English are sensitive to the structural licensing conditions on sluicing proposed by Bruening (2021). It tests whether they disallow sluicing when the first (recipient) object in a DOC is implicit, whether they require an overt preposition in PDC contexts, and whether proficiency modulates these patterns. By comparing L2 learners' judgments with those of native English speakers, the study seeks to determine whether interlanguage grammars represent abstract syntactic constraints on ellipsis—such as those associated with underlying functional (applicative) structure—or whether learner judgments are instead guided primarily by surface form and semantic plausibility.

2. Linguistic Background

2.1 English Double Object and Ditransitive Constructions

English verbs of transfer often allow two alternative structures, known as the double object construction (DOC) and the prepositional dative construction (PDC). In the DOC, the recipient and the theme both appear as NP objects of the verb, as in (3a). In the PDC, the theme appears as a direct object while the recipient is introduced by a preposition, as in (3b).

- (3) a. John gave Mary a book. [DOC]
b. John gave a book to Mary. [PDC]

A central theoretical question in the analysis of double object constructions concerns how the two internal arguments—the recipient and the theme—are syntactically projected. Competing accounts differ in whether both are introduced by the verb itself, by a small clause, or by a higher functional head. On lexical projection accounts (Larson 1988, Pesetsky 1995), both NPs are treated as arguments of the verb. Small clause analyses (Aoun and Li 1989, Harley 2008, Kayne 1984) propose instead that the two objects form a predication small clause, with neither directly selected by the verb. In contrast, applicative (ApplP) analyses (Bruening 2001, 2010, Marantz 1993) maintain that the theme is an argument of the verb, while the recipient is introduced by an applicative head (Appl). This structural asymmetry between the two objects has been argued to underlie many of the distributional and interpretive contrasts between the DOC and the PDC.

In contrast, this study adopts Bruening's (2001, 2010, 2021) applicative analysis. The primary motivation for this choice is that the applicative framework uniquely captures the formal distinction between verb-selected arguments and functional head-introduced arguments. This distinction is theoretically vital because it provides a principled basis for the asymmetric licensing of ellipsis: it is argued that only arguments in a direct selectional relationship with the lexical verb (the theme) can license an implicit correlate for sluicing. In contrast, arguments introduced by a functional head (the recipient in a DOC) lack this direct relationship, which leads to the licensing failure typically observed in such constructions. Under this analysis, the two internal arguments in (3a) and (3b) exhibit distinct syntactic relationships with the verb. In the DOC (3a), the theme (*a book*) is a direct complement selected by the lexical verb, while the recipient (*Mary*) is introduced by a higher functional head, the Applicative (Appl) head. In the PDC (3b), however, the theme remains verb-selected, but the recipient is realized within a prepositional phrase as a complement of the preposition *to*. This structural hierarchy clarifies why only the theme,

as a verb-selected argument, possesses the necessary syntactic status to serve as a correlate for sluicing, whereas the Appl-introduced recipient in a DOC does not.

2.2 Argument Optionality and Implicit Arguments

One key diagnostic for the internal structure of the double object construction (DOC) is argument optionality—that is, whether either of the two object arguments may be omitted without causing ungrammaticality. Pesetsky (1995) argued that both objects are selected by the lexical verb, because verbs systematically differ in whether each argument is obligatory or optional.

For instance, verbs like *wish*, *hand*, and *lend* require both objects: neither the first nor the second object can be omitted.

- (4) a. I wish you all the best.
- b. *I wish all the best.
- c. *I wish you.

By contrast, verbs like *assign*, *pass*, and *sell* require the second object but permit the first to be absent.

- (5) a. The teacher assigned the students the homework.
- b. The teacher assigned the homework.
- c. *The teacher assigned the students.

Conversely, verbs like *fine*, *feed*, and *spare* require the first object but allow the second to be omitted.

- (6) a. They fined the offender an astronomical amount.
- b. *They fined an astronomical amount.
- c. They fined the offender.

Some verbs, such as *teach*, *pay*, and *strike*, show an even higher degree of flexibility: either or both objects may be omitted without ungrammaticality.

- (7) a. The knight struck his enemy a killing blow.
- b. The knight struck a killing blow.
- c. The knight struck his enemy.
- d. The knight struck.

Finally, there are verbs like *charge*, *cost*, and *envy* that allow either object to drop, but require at least one of them to be present.

- (8) a. They charge visitors an entrance fee.
- b. They charge an entrance fee.
- c. They charge visitors.
- d. *They charge.

From such patterns, Pesetsky (1995) concluded that both the first and the second object are arguments of the lexical

verb, since the verb itself determines whether each argument is obligatory or optional.

Bruening (2021), however, re-examines this claim and demonstrates that the apparent symmetry in argument omission actually conceals a deeper structural asymmetry between the two object positions. He argues that argument omission is lexically constrained but interpretively asymmetric. Specifically, the second object (the theme or PP complement) behaves like a true verb-selected argument, whereas the first object (the recipient) does not. In particular, Bruening points out that there is a large and productive class of verbs that normally take only a single object, but can also appear in the double object construction.

- (9) a. She melted some ice cream.
b. She melted me some ice cream.
- (10) a. They built a time machine.
b. They built us a time machine. (Bruening 2021, pp. 2-3)

With this class of verb, there is no entailment of a recipient when the first object is absent, indicating that the recipient argument is not lexically selected by the verb. Instead, it appears to be introduced by an independent functional head, such as Appl(icative). This observation leads Bruening to conclude that the first object in the DOC is not an argument of the lexical verb, while the second object (and the PP in the corresponding PDC) is.

2.3 Sluicing and Implicit Argument Asymmetries

Sluicing refers to ellipsis constructions in which a *wh*-phrase remains overt while the rest of the clause is elided (Merchant 2001, Ross 1969). Crucially, sluicing is only licensed when the elided clause contains a syntactic correlate that can serve as the variable bound by the *wh*-remnant. When an argument is implicit, sluicing can still refer to it, as in (11).

- (11) The patient already ate, but we're not sure what.

Here, *what* refers to the implicit object of *ate*. Although the object is not expressed, it is still interpreted as part of the sentence's meaning, allowing sluicing to occur.

However, the two objects in the double object construction (DOC) do not behave alike with respect to sluicing. Bruening (2021) shows that only the second object (the theme) can license sluicing, whereas the first object (the recipient) cannot. This contrast reveals that the two object positions in the DOC differ not only in interpretation but also in their syntactic status.

- (12) a. She is going to serve the guests now, but I don't know what.
b. She is going to feed the dogs now, but didn't say what.
c. Ron has to pay the loan shark, but I don't know how much. (Bruening 2021, p. 4)

In these sentences, the omitted element corresponds to the second object (theme) of the verb (*serve, feed, pay*). Even though the theme is not overtly expressed, it remains syntactically represented, allowing it to be interpreted as an indefinite variable under sluicing.

In contrast, when the first object (recipient) is omitted, sluicing fails, as shown in (13).

- (13) a. They accidentally charged *(someone) way too much, but we can't figure out who.
 b. That guy once tipped *(a waitress) almost 300%, but I can't remember which waitress.
 c. The pope once forgave *(someone) blasphemy, but I don't know who.

(Bruening 2021, pp. 4-5)

In these examples, the first object must be overt; otherwise, the sentence becomes ungrammatical. When the recipient is unexpressed, it can only be interpreted as definite and discourse-recoverable (e.g., *the customer*, *the waitress*, *the sinner*), rather than as an indefinite variable needed for sluicing. This shows that the recipient is not verb-selected, but instead introduced by a higher functional head, such as Applicative (Appl). The correlation between implicit arguments and the Appl head lies in the licensing conditions of null arguments. While lexical verbs can directly license an implicit theme as a variable (e.g., *'She ate [something]'*), an implicit recipient in a DOC cannot function as a variable because it is not a direct complement of the verb. Instead, it is introduced by the Appl head, which, in the absence of overt realization, restricts the argument's interpretation to a specific, discourse-linked entity. Because sluicing requires an indefinite, non-presuppositional correlate to license the wh-remnant, the 'definite-only' status of an Appl-introduced implicit argument fails to provide a suitable syntactic or semantic anchor for the ellipsis.

Therefore, while the second object (theme) behaves as a true verb-selected argument that remains syntactically available under ellipsis, the first object (recipient) behaves as an Appl-introduced argument that lacks the necessary syntactic representation when implicit. This structural asymmetry explains why a grammatical sluice in a DOC is only possible when the first object is overtly realized.

2.4 Preposition Omission and Recoverability

In the DOC, both internal arguments—the recipient and the theme—are overtly realized, as in (14). Because the recipient argument (someone) is syntactically expressed, the wh-remnant *who* can be directly linked to it, making sluicing fully grammatical without a preposition.

- (14) They're going to sell someone the house, but I don't know who. (Bruening 2021, p. 5)

By contrast, in the PDC, the recipient argument is introduced by a preposition such as *to*. When this prepositional phrase is omitted, the recipient argument becomes implicit—it is semantically entailed by the verb but not syntactically realized. In such cases, sluicing is only possible if the preposition is retained, as shown in (15).

- (15) a. They're going to sell the house, but I don't know who to/to whom.¹
 b. *They're going to sell the house, but I don't know who.

In (15a), sluicing is grammatical only when the preposition *to* is present, either preceding (*to whom*) or following (*who to*) the wh-phrase. The preposition establishes a direct syntactic link between the wh-remnant and its implicit

¹ The order P NP (*to whom*) versus NP P (*who to*)—known as “swiping” (Culicover 1999, Merchant 2002, Rosen 1976)—is merely a matter of personal preference and is irrelevant here. While Bruening (2021) adopted the NP P order based on his own naturalness judgments, we use the P NP order (*to whom*) because it represents a more standard and formal option in English, which is more appropriate for a controlled acceptability-judgment task.

correlate (*to someone*), thereby satisfying the licensing requirement for sluicing.

When *to* is omitted, as in (15b), the *wh*-remnant *who* lacks a syntactic licensor, resulting in ungrammaticality.

These patterns indicate that sluicing is sensitive to the syntactic realization of argument structure. In the DOC, the recipient is overtly realized as an argument of the applicative head (*Appl*) and can correspond directly to the *wh*-remnant. In contrast, in the PDC, sluicing depends crucially on the presence of the preposition that introduces the recipient argument.

2.5 Previous Studies

Previous research on English sluicing has primarily examined how L1-English speakers process ellipsis in real time, focusing on the mechanisms by which the parser recovers missing material. Two major approaches have been proposed. The first is the cue-based memory retrieval approach (Martin and McElree 2008, Tanenhaus and Carlson 1990), which posits that the ellipsis site functions as a cue for the parser to search for a stored representation—often referred to as a *pointer*—in long-term memory and establish a connection to that antecedent. The second is the structure-copying approach (Frazier and Clifton 2001, Murphy 1985), which suggests that the parser replicates the syntactic structure of the antecedent and integrates it into the ellipsis site. Although these two approaches differ in how they model the recovery process, both assume that L1-English speakers rely on syntactic representations rather than purely semantic inference when interpreting ellipsis.

Nevertheless, despite extensive attention to how L1 speakers resolve ellipsis, previous studies have focused almost exclusively on canonical *wh*-remnants (e.g., *who*, *what*), without extending to configurations involving argument omission or complex argument structure, such as those found in double-object and ditransitive constructions. Only a few studies have indirectly addressed this issue. Nykiel (2017) conducted a corpus-based study of English and argued that the acceptability of preposition omission in sluicing depends on processing-based factors and semantic recoverability. She showed that P-omission occurs more frequently when the remnant and its correlate share rich semantic and syntactic information and when structural persistence between the antecedent and the sluice is maintained. Extending this line of research, Hassen and Abeillé (2025) examined whether P-omission under sluicing is possible in French, a non-P-stranding language. Through two experimental studies and a large corpus analysis, they showed that P-omission in French sluices is acceptable and sensitive to the remnant type. Their findings indicate that P-omission is the preferred option in French as in English and that it is affected by cognitive and information-based cues. However, no previous study has directly investigated how English speakers process sluicing under argument omission.

While these studies have emphasized processing-based and semantic factors affecting sluicing acceptability, another line of research has focused on syntactic and structural constraints on ellipsis resolution. Sato et al. (2018) proposed an *in-situ deletion* account, showing that sluicing can target syntactic positions that resist movement, such as the recipient argument in double object constructions (DOCs) or P+DP combinations that do not allow preposition stranding. This finding indicates that sluicing may apply to syntactically realized argument positions, even when movement is impossible. Bruening (2021) further demonstrated that sluicing asymmetries arise from differences in argument structure between DOCs and PDCs: in DOCs, the first object (the recipient) cannot license sluicing when implicit, whereas in PDCs, sluicing is grammatical only when the *wh*-remnant of the implicit recipient correlate comes with the preposition (*to/for*). Building on this line, Ohtaka (2025) revisited Fox and Lasnik's (2003) *Parallelism* account and provided new syntactic evidence for their analysis. Ohtaka argued that in sluicing constructions, *wh*-movement may proceed either locally or non-locally, depending on whether the resulting dependency satisfies Parallelism between the antecedent and the ellipsis site. Using evidence from

English double object constructions (DOCs) and Dutch R-pronouns, Ohtaka demonstrated that sluicing behaves differently from overt *wh*-movement in non-elliptical contexts. Specifically, sluicing is acceptable only when the structural correspondence between the antecedent and the elided clause is maintained. These findings reinforce the view that *wh*-movement under sluicing is constrained by syntactic Parallelism, rather than by surface or semantic recoverability.

Despite these advances, no study to date has investigated whether second-language (L2) learners are sensitive to such structure-dependent constraints—that is, whether they can detect unlicensed omissions of internal arguments in DOC and PDC. The present study addresses this gap by testing whether L1-Korean learners of English show native-like sensitivity to argument-based licensing conditions, as predicted by structural accounts such as Bruening (2021) and Ohtaka (2025). This investigation is particularly meaningful for understanding how L2 speakers with argument-omission languages, such as Korean, acquire sensitivity to argument-structure constraints in English sluicing, and whether their comprehension relies on syntactic representations or meaning-based heuristics.

3. Study

3.1 Hypotheses

Building on the theoretical distinctions outlined above, the present study tested how native and L2 speakers of English interpret and evaluate sluicing sentences involving implicit arguments. Three hypotheses were formulated, each addressing a different type of structural and interpretive contrast.

Hypothesis 1: L1-Korean learners of English would be less sensitive than native English speakers to the structural licensing asymmetry between the two objects in double object constructions (DOCs).

Specifically, L1-English speakers are expected to clearly distinguish grammatical sluices with an overt first object (e.g., *They accidentally charged someone way too much, but we can't figure out who*) from ungrammatical ones lacking the first object (e.g., *They accidentally charged way too much, but we can't figure out who*). In contrast, L1-Korean learners of English are predicted to show a weaker contrast between these forms. This reduced sensitivity is expected not only because Korean permits argument omission in discourse-recoverable contexts (Park 1997), but also because Korean lacks a systematic alternation comparable to English DOCs and PDCs (Park 2012). As a result, learners may have limited access to the functional mechanisms (e.g., applicative structure) that distinguish the two object positions in English and may therefore rely more on semantic plausibility than on structural correspondence when evaluating sluicing constructions.

Hypothesis 2: L1-Korean learners of English would be less sensitive than native English speakers to the structural licensing of prepositions in prepositional dative constructions (PDCs) (Bruening 2021).

Native speakers were expected to clearly distinguish grammatical sluices with an overt preposition (e.g., *I don't know to whom*) from ungrammatical omission forms (e.g., *I don't know who*), since the absence of the preposition violates structural correspondence between the remnant and its correlate. In contrast, L2 learners were predicted to show reduced differentiation between these forms, for the same reason discussed in Hypothesis 1.

Hypothesis 3: L1-Korean learners' sensitivity to sluicing constraints would increase with proficiency.

Specifically, higher-proficiency L1-Korean learners of English were expected to better distinguish syntactically licensed from semantically recoverable omissions, reflecting greater awareness that English—unlike Korean—does not freely permit argument omission and requires adherence to underlying structural constraints that are not always made explicit in instruction. In contrast, lower-proficiency learners were predicted to rely more on semantic plausibility and discourse recoverability, showing weaker contrasts across conditions.

3.2 Participants

A total of 50 L1-Korean learners of English and 35 native English speakers participated in the experiment. All L2 participants were undergraduate students enrolled at universities in South Korea ($M = 23.02$ years, $SD = 3.41$). Given the syntactic complexity of the target structures, participants were recruited from the upper range of English proficiency to ensure that any observed effects would not stem from insufficient linguistic competence. The participants had official proficiency test scores verified through internationally recognized standardized assessments, including TOEFL iBT, TOEIC, and IELTS. The overall scores indicated a uniformly high proficiency level: TOEFL iBT ($M = 104.3$, $SD = 10.0$, range = 91–117), TOEIC ($M = 958.1$, $SD = 36.6$, range = 840–990), and IELTS ($M = 6.93$, $SD = 0.52$, range = 6.0–7.5). Based on the Common European Framework of Reference (CEFR) scale, these correspond approximately to the upper-intermediate to advanced range (B2–C1), confirming that the participants possessed a sufficiently high command of English to reliably process the target constructions.

As a control group, 35 native English speakers ($M = 37.64$, $SD = 16.33$) were also tested. They were mostly from the United States or the United Kingdom. All native participants were volunteers recruited via Linguist List², an international online platform for linguistics research and academic communication.

3.3 Materials and Procedures

The experimental materials were adapted from Bruening (2021), who contrasted DOCs and PDCs in terms of the syntactic licensing of sluicing. To construct balanced stimulus sets for the present experiment, we used the seven DOC examples provided in Bruening and created one additional DOC sentence so that each condition contained eight items. For the PDC conditions, we selected eight sentences from the larger pool of PDC examples available in Bruening. In addition, several low-frequency or difficult lexical items were replaced with simpler alternatives to accommodate L2 learners' proficiency levels while preserving the original semantic and structural properties of the sentences.

Bruening demonstrated that sluicing is blocked when the first (recipient) object of a double object construction is implicit, but remains possible when the omitted argument is a PP complement in a ditransitive structure. Accordingly, the present experiment employed four conditions that crossed structure (double object vs. ditransitive) and grammaticality (grammatical vs. ungrammatical): (i) double object with an overt first object (DOC-G), (ii) double object with an implicit first object (DOC-U), (iii) prepositional dative with an overt PP complement (PDC-G), and (iv) prepositional dative with an implicit PP complement (PDC-U), as summarized in Table 1.

² Linguist List (<https://linguistlist.org>) is an international online platform widely used by linguists to share research-related announcements, including participant recruitment for experimental studies.

Table 1. Sluicing Conditions and Examples by Structural Type

Condition	Structure	Example	Sluicing judgment
(1) DOC-G	Double object construction	<i>They accidentally charged someone way too much, but we can't figure out who.</i>	Sluicing possible
(2) DOC-U		<i>They accidentally charged way too much, but we can't figure out who.</i>	Sluicing blocked
(3) PDC-G	Prepositional dative construction	<i>They're going to sell the house, but I don't know to whom.</i>	Sluicing possible
(4) PDC-U		<i>They're going to sell the house, but I don't know who.</i>	Sluicing blocked

In Condition 1, the first object (recipient) is introduced by an Appl head but is overtly realized as an indefinite argument, which allows it to function as a proper syntactic correlate for the *wh*-remnant. In Condition 2, although the recipient is likewise introduced by an Appl head, its status as an implicit argument restricts its interpretation to a definite entity, thereby blocking the licensing of sluicing. This condition tested whether participants are sensitive to this structural licensing failure—that is, whether they correctly reject sluicing when the first object is absent. In Condition 3, both the NP and PP arguments are directly selected by the lexical verb, which means that even when the PP argument (the recipient) is implicit, its presence is syntactically licensed in the verb's argument structure. When the elided clause in sluicing retains the preposition (*to whom*), the structure remains well-formed: the implicit PP correlate can be semantically recovered because it corresponds to a verb-selected argument. This condition tested whether participants recognize this structurally licensed pied-piping form as fully acceptable and distinguish it from preposition-omission cases where the licensing relation fails. Condition 4 is ungrammatical since the remnant *who* cannot be properly linked to an implicit PP correlate without the preposition. Therefore, we predicted that participants would judge these sentences as ungrammatical, reflecting their sensitivity to the syntactic licensing requirement for prepositions under sluicing.

To address the potential ambiguity between DOC and PDC interpretations, we assume that the word order in the antecedent (Theme before Recipient) biases the parser toward a PDC structure. The critical contrast lies in whether L2 learners recognize the formal necessity of the preposition *to* in the *wh*-remnant. While an explicit PP recipient condition (e.g., 'to someone') was not included to maintain a balanced design, the high acceptability of the pied-piping form in Condition 3 ('to whom') provides a sufficient benchmark for the participants' ability to license recipient arguments in PDC contexts. If L2 learners show reduced sensitivity in Condition 4, it would suggest that they rely more on the semantic recoverability of the recipient than on the formal syntactic requirements of prepositional licensing.

To counterbalance sentence presentation across participants, a Latin Square design was employed. Four counterbalanced lists were created so that each participant saw every sentence only once, and each experimental condition appeared equally often across participants. Each condition contained eight sentences, and two sentences per condition were included in each list, yielding eight experimental sentences per list. In addition, eight filler sentences unrelated to the target manipulation were added to prevent participants from focusing on a specific structure, resulting in 24 sentences per list in total.

Participants rated each sentence on a five-point scale (0–4) for grammaticality, where 0 indicated “completely ungrammatical” and 4 indicated “perfectly grammatical.” After completing the rating task, all participants filled out a brief background questionnaire that included items on age, gender, and native language. For the L2 group, additional questions were included to verify English proficiency scores. The entire experiment, including the

questionnaire, was conducted online using Qualtrics.

3.4 Statistical Analysis

All statistical analyses were conducted in R version 4.4.2 using the *lme4* and *lmerTest* packages. Acceptability ratings served as the dependent variable. For each hypothesis, a series of linear mixed-effects models (LMMs) were fitted to evaluate the effects of Construction (DOC vs. PDC), Grammaticality (G vs. U), and Group (L1 vs. L2) or Proficiency (standardized z-scores) on participants' judgments. All categorical predictors were sum-coded, and continuous predictors were centered and standardized.

For Hypotheses 1 and 2, separate models were fitted to the DOC and PDC subsets, respectively. Each model included Grammaticality, Group, and their interaction as fixed effects, with Participant and Item/Condition entered as random intercepts. These models tested (a) whether native speakers and L1-Korean learners differed in their sensitivity to the structural asymmetry between the two objects in DOCs (H1), and (b) whether the two groups differed in their sensitivity to preposition omission in PDCs (H2). For Hypothesis 3, which examined whether proficiency modulated L2 learners' structural sensitivity, an LMM was fitted to the combined dataset with Construction, Grammaticality, and Proficiency as fixed effects. The initial model included random intercepts for both Participant and Condition, but this structure produced convergence warnings. Following recommended model-simplification procedures, the random intercept for Condition was removed, retaining a by-participant random intercept. The simplified model converged successfully and was used for all subsequent interpretation.

4. Results and Discussion

4.1 General Results

Figure 1 summarizes the mean acceptability ratings across all experimental conditions for the two groups.

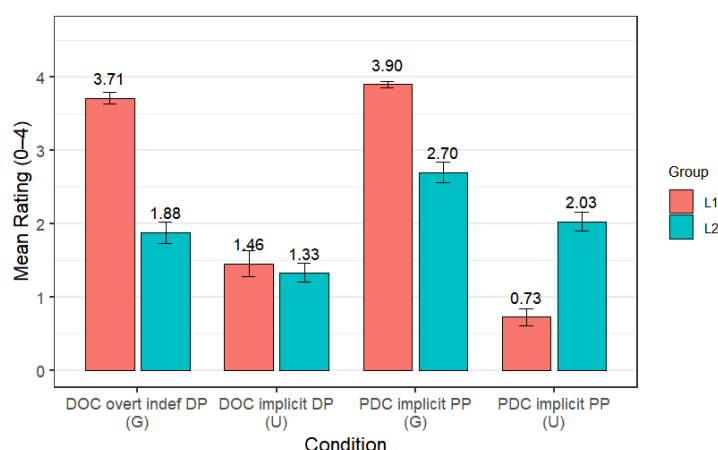


Figure 1. Mean Acceptability Ratings by Group, Construction, and Grammaticality

Overall, L1 group showed a clear grammaticality effect, assigning substantially higher ratings to grammatical sentences than to ungrammatical ones. L2 group showed the same overall direction of distinction, but the

differences were much smaller. Specifically, the grammatical *DO overt indef DP (G)* received a mean rating of 1.88, and the ungrammatical *DI implicit PP (U)* 2.03—both within the mid-scale “unsure” range rather than clearly acceptable or unacceptable levels. This pattern suggests that L2 learners did not form robust grammaticality distinctions and remained generally uncertain in their judgments, reflecting a lack of native-like sensitivity to the structural constraints underlying the target constructions.

Table 2. Summary of Fixed Effects in the Mixed-Effects Model

Fixed effect	Estimate	SE	<i>p</i>
Group (L1 vs. L2)	-1.812	0.181	< .001***
Construction (DOC vs. PDC)	0.186	0.195	.342
Grammaticality (G/U)	-2.257	0.195	< .001***
Group × Construction	0.634	0.254	.013*
Group × Grammaticality	1.707	0.254	< .001***
Construction × Grammaticality	-0.914	0.276	.001**
Group × Construction × Grammaticality	0.794	0.359	.028*

As shown in Table 2, a 2×2×2 mixed-effects analysis revealed a significant main effect of grammaticality ($\beta = -2.257, p < .001$), indicating that ungrammatical sentences were generally rated lower than grammatical ones across groups. This effect, however, was much stronger among native speakers than L2 learners, as shown by the significant Group × Grammaticality interaction ($\beta = 1.707, p < .001$). The Construction × Grammaticality interaction ($\beta = -0.914, p = .001$) further indicated that violations involving preposition omission in the PDC were judged particularly unacceptable. Finally, the three-way interaction among Group, Construction, and Grammaticality ($\beta = 0.794, p = .028$) suggests that L2 learners were less sensitive to this structural constraint than native speakers.

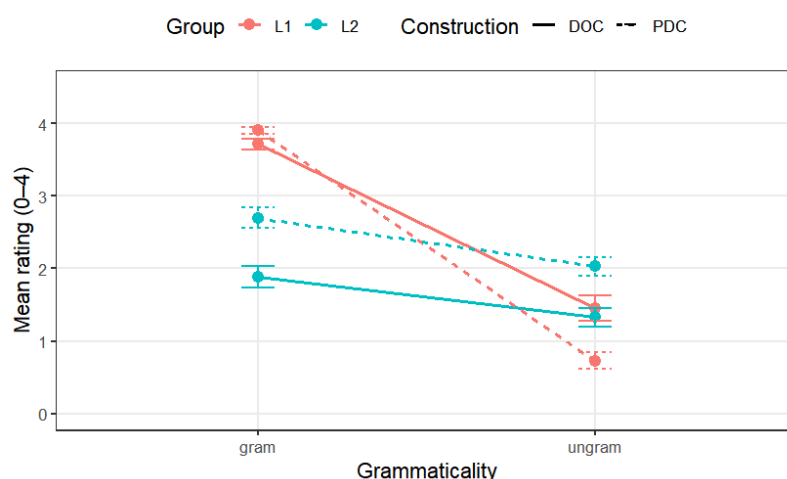


Figure 2. Three-way Interaction among Group, Construction, and Grammaticality

Figure 2 visualizes the three-way interaction among Group, Construction, and Grammaticality. The pattern shows a clear divergence between the L1 and L2 groups. For the L1 speakers, grammatical sentences received

substantially higher ratings than ungrammatical ones, with an especially sharp decline in the PDC condition where preposition omission triggered a pronounced drop in acceptability. In contrast, the L2 group displayed a much smaller grammaticality effect, with relatively compressed rating ranges across both DOC and PDC constructions. Their ratings for ungrammatical PDC remained noticeably higher than those of native speakers, indicating reduced sensitivity to the structural violation. Overall, while both groups distinguished grammatical from ungrammatical sentences, the distinction was categorical for L1 speakers but more gradient and uncertain for L2 learners.

This group difference aligns with the structural properties of PDCs. In PDCs, the PP functions as an obligatory structural marker, and its omission directly violates the argument-structure requirements of the verb. Prior work (Bruening 2021, Harley 2008, Larson 1988) has emphasized that PDCs encode the recipient argument through an explicit PP, making the preposition crucial for structural well-formedness and recoverability. Consequently, native speakers—who rely heavily on structural cues during sentence processing (Roberts 2012)—exhibit a strong penalty for ungrammatical PDC items. In contrast, L2 learners exhibited much weaker grammaticality contrasts and showed limited sensitivity to structural violations.

This pattern is consistent with the Shallow Structure Hypothesis (Clahsen and Felser 2006), which proposes that L2 learners rely less on abstract syntactic representations during processing. Importantly, however, the present findings cannot be straightforwardly attributed to L1 transfer. Korean is characterized as a discourse-oriented language that allows for productive ‘argument ellipsis’ (Kim 1999, Saito 2007). Unlike English, Korean permits both subjects and objects to be freely omitted in ditransitive contexts if they are recoverable from the discourse, without requiring specific syntactic licensing like sluicing. If this Korean-style argument omission had been directly transferred into English, learners would have been expected to show a uniformly permissive judgment pattern—assigning high acceptability to all implicit-argument conditions (DOC-U and PDC-U) regardless of the structural asymmetry. Contrary to this expectation, the L2 learners in this study did not show such consistency; instead, they exhibited significant variability and a general reduction in sensitivity that does not align with a simple L1-based strategy. This indicates that the observed L2 pattern reflects a lack of successful acquisition of the abstract functional mechanisms in English, rather than a direct application of L1 properties.

Consequently, these results suggest that the observed L2 pattern reflects neither straightforward L1 transfer nor successful acquisition of the abstract functional mechanisms that license English ditransitive structures. In particular, the learners appear not to have fully acquired the applicative-based organization of argument structure, including the constraints associated with PP recipients and R-dative-related configurations (Bruening 2010, 2018, 2021). Instead, they appear to rely primarily on surface-level patterns and semantic plausibility when interpreting ellipsis.

4.2 Hypothesis 1

To test Hypothesis 1, which predicted that L1-Korean learners of English would be less sensitive than native speakers to the structural asymmetry between the two objects in double-object constructions (DOCs) under sluicing, a linear mixed-effects model was fitted to the DOC conditions only.

Table 3. Linear Mixed-Effects Model Results for DOC

Effect	Estimate	SE	<i>p</i>
Grammaticality	-2.257	1.061	0.036*
Group	-1.822	0.197	< .001***
Grammaticality × Group	1.707	0.277	< .001***

As confirmed by the significant Grammaticality $\times$ Group interaction ($\beta = 1.707$, $p < .001$), L1-Korean learners displayed a markedly weaker grammaticality contrast in DOC sluicing compared to native speakers, supporting Hypothesis 1. This reduced contrast stems primarily from the learners' unexpectedly low acceptance of grammatical DOC forms ($M = 1.88$; see Figure 1). Importantly, this pattern suggests that the learners' difficulty may reflect unstable grammatical representations of the DOC itself, rather than a specialized failure to recognize argument-structural asymmetry. If learners have not fully stabilized the basic syntax of double object constructions, they would struggle to reliably distinguish between well-formed DOC sluices with an overt first object (e.g., ...*charged someone way too much, but we can't figure out who*) and ill-formed ones where this object is implicit (e.g., ...*charged way too much, but we can't figure out who*). This lack of a clear preference indicates that the inherent structural complexity of the DOC, combined with the additional computational demands of processing sluicing, may have exceeded the learners' processing capacity. Consequently, instead of relying on abstract syntactic licensing, L2 learners appear to exhibit a general reduction in sensitivity to the structural requirements of English ditransitives.

One possible reason for this difficulty is the structural complexity of English DOCs. Because these constructions involve two adjacent internal arguments, learners may not always correctly identify which argument is structurally licensed to be recovered under sluicing. As a result, the distinction between well-formed and ill-formed DOC sluices may be less salient for L2 learners than for native speakers.

Importantly, this pattern does not reflect straightforward L1 transfer. If a Korean-style argument omission strategy had been transferred, learners would be expected to accept both forms equally. Instead, while learners did fail to form a strong grammaticality contrast, they nonetheless showed variability in their judgments, suggesting that they relied neither on a consistent L1-based strategy nor on target-like structural representations. Rather, their responses appear to be guided primarily by surface form and semantic plausibility, leading to gradient and uncertain acceptability patterns.

4.3 Hypothesis 2

A linear mixed-effects model was conducted on the PDCs to test whether L1-Korean learners of English were less sensitive than native speakers to preposition omission in sluicing.

Table 4. Linear Mixed-Effects Model Results for PDC

Effect	Estimate	SE	<i>p</i>
Grammaticality	−3.171	1.289	.015*
Group	−1.200	0.177	< .001***
Grammaticality $\times$ Group	2.501	0.250	< .001***

As shown in Table 4, native English speakers showed a categorical distinction between grammatical and ungrammatical PDC sluices, assigning very high ratings to grammatical items ($M = 3.90$) and sharply rejecting those in which the preposition was omitted ($M = 0.73$). In contrast, L1-Korean learners displayed a much weaker grammaticality effect: although they rated grammatical PDC sluices higher ($M = 2.70$) than ungrammatical ones ($M = 2.03$), both means remained around the midscale range. These results support Hypothesis 2 by indicating that L2 learners are less sensitive to the structural requirement that the PP complement of a ditransitive verb must be overtly realized for sluicing to be licensed.

The native speakers' pattern aligns with prior analyses of PDCs, in which the preposition is treated as an obligatory structural marker encoding the recipient argument (Bruening 2021, Harley 2008, Larson 1988). When this marker is absent, the structural representation of the recipient becomes unrecoverable, yielding a severe syntactic violation. The low ratings for preposition-omission sentences thus reflect native speakers' reliance on precise structural correspondences in ellipsis licensing. L1-Korean learners, in contrast, did not impose the same degree of structure-based constraint. In Korean, recipient marking such as *-eykey* or *-hanthey* is not realized as an independent functional head involved in argument licensing in the same way as English prepositions. As a result, learners may not recognize that the English preposition plays a crucial role in syntactically licensing the recipient argument. This may have made them less sensitive to the structural consequences of preposition omission in PDC sluices.

Importantly, however, this pattern cannot be explained simply by assuming that learners treated the preposition as freely optional. If that had been the case, grammatical PDC sluices should have received much higher ratings. Instead, their acceptance of grammatical items remained only moderate ($M = 2.70$), once again yielding only a weak grammaticality contrast. This suggests a broader reduction in sensitivity to abstract structural representations rather than straightforward L1 transfer.

4.4 Hypothesis 3

To examine whether L2 learners' proficiency modulated their acceptability judgments, a linear mixed-effects model was fitted with Structure (DOC vs. PDC), Grammaticality (G vs. U), and Proficiency_z (standardized proficiency score) as fixed effects, and random intercepts for Participant and Condition.

Table 5. Linear Mixed-Effects Model Results for Proficiency Effects

Effect	Estimate	SE	<i>p</i>
Construction	0.613	0.193	.0019**
Grammaticality	-0.675	0.193	.0007***
Proficiency_z	-0.120	0.155	.442
Construction × Grammaticality	0.263	0.273	.338
Construction × Proficiency_z	0.147	0.195	.452
Grammaticality × Proficiency_z	0.014	0.195	.944
Construction × Grammaticality × Proficiency_z	-0.139	0.276	.615

As shown in Table 5, none of the effects involving proficiency were significant (all $ps > .44$). Proficiency did not interact with structure ($\beta = 0.15, p = .45$) or grammaticality ($\beta = 0.01, p = .94$), nor was the three-way interaction significant ($\beta = -0.14, p = .62$). These results indicate that higher proficiency did not predict a stronger distinction between DOC and PDC constructions, nor did it enhance learners' ability to differentiate between grammatical and ungrammatical items.

Figure 3 illustrates these patterns by plotting acceptability ratings against proficiency scores across construction and grammaticality conditions.

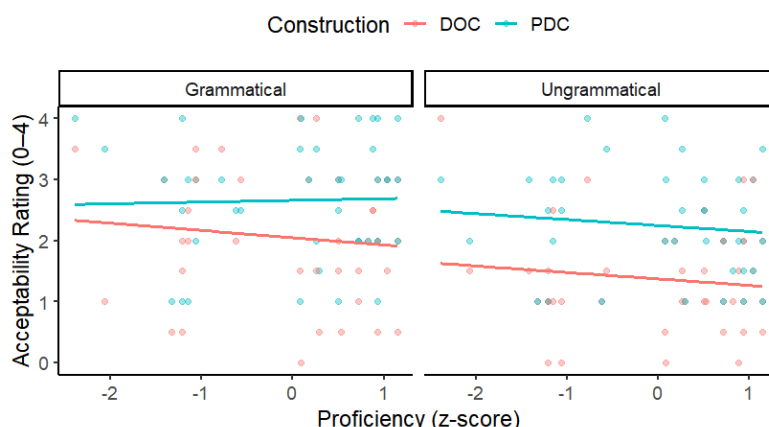


Figure 3. Effects of Proficiency on Acceptability Judgments across Constructions

The near-flat regression slopes show that judgments remained relatively stable regardless of proficiency level. Both grammatical and ungrammatical items were rated similarly by lower- and higher-proficiency learners, suggesting that the mechanisms underlying their acceptability judgments were not substantially modulated by general English proficiency as measured by standardized tests.

The absence of a proficiency effect suggests that the structural sensitivity required for successful ellipsis resolution—particularly constraints involving implicit arguments and argument-structure mapping—is not strongly tied to global language proficiency. Standardized measures such as TOEIC, TOEFL, and IELTS primarily index general comprehension and lexical knowledge, rather than access to fine-grained syntactic representations or structural rigidity. As a result, even higher-proficiency learners may rely on processing strategies similar to those of lower-proficiency learners when confronting complex licensing conditions, such as preposition omission in PDCs or argument asymmetry in DOCs.

This pattern is consistent with “shallow structure” or “good-enough” accounts of L2 processing (e.g., Clahsen and Felser 2006, Roberts 2012), which propose that learners prioritize semantic plausibility and surface cues over abstract syntactic representations even at advanced stages. Improvements in proficiency may facilitate lexical access or overall processing efficiency, but they do not necessarily entail the acquisition of the abstract functional mechanisms required for native-like structural judgments. Taken together, the present findings indicate that increased proficiency alone is insufficient to yield target-like sensitivity to ellipsis licensing constraints.³

In particular, the fact that the L2 group exhibited relatively low mean scores even in the DOC-G (grammatical) condition provides a crucial insight into their interlanguage grammar. This suggests that the participants’ performance may stem from unstable grammatical representations of the DOC itself, rather than a specialized failure to recognize argument-structural asymmetry. If learners have not fully stabilized the basic syntax of double object constructions, the observed contrast between DOC-G and DOC-U might reflect a general difficulty in processing the DOC structure as a whole. Therefore, the results can be interpreted as a manifestation of broader

³ It should be noted, however, that this interpretation is contingent upon the adoption of Bruening’s (2001, 2010, 2021) applicative analysis. If an alternative framework, such as a lexical projection account, were presupposed, the observed results might be interpreted differently. Furthermore, the lower performance in complex structures like DOCs may not necessarily reflect a representational deficit, but rather a processing-level constraint. The additional computational burden imposed by sluicing might prevent L2 learners from consistently accessing their underlying structural knowledge during real-time judgment tasks.

processing deficits, where the inherent complexity of the DOC is further compounded by the additional computational demands of sluicing.

5. Conclusion

This study investigated how L1-Korean learners of English interpret ellipsis in ditransitive constructions, focusing on structural asymmetries in double object constructions (DOCs) and prepositional dative constructions (PDCs). By comparing learners' judgments with those of native speakers across these two structures, and by examining the effects of grammatical condition (explicit vs. implicit) and proficiency, the study aimed to clarify the roles of L1 transfer and abstract syntactic knowledge in L2 ellipsis resolution.

The results revealed a clear and robust pattern among L1-English speakers: they showed strong sensitivity to structural violations across both DOCs and PDCs, assigning substantially lower acceptability ratings to ungrammatical forms. In contrast, L1-Korean learners exhibited significantly weaker and less consistent grammaticality contrasts. Although they differentiated between some conditions, their judgments were generally uncertain, and they often failed to clearly distinguish well-formed from ill-formed sluices.

Importantly, this pattern cannot be straightforwardly attributed to L1 transfer. If Korean-style argument omission had been transferred into English, learners would have been expected to display a more uniformly permissive pattern across implicit-argument conditions, with minimal differences between explicit and implicit forms. However, the learners' judgments did not show such consistency. Instead, differences persisted between explicit and implicit arguments in both DOC and PDC structures, and distinctions also emerged between the two implicit conditions themselves. This indicates that the observed L2 pattern does not reflect a direct application of Korean argument-omission strategies.

At the same time, the data suggest that the learners have not fully acquired the abstract structural representations that underlie English ditransitive constructions and ellipsis licensing. In particular, their performance indicates limited sensitivity to the argument-structural asymmetry in DOCs and to the structural role of the preposition in PDCs. This reduced reliance on abstract syntactic representations is consistent with the Shallow Structure Hypothesis (Clahsen and Felser 2006), according to which L2 learners tend to rely more on surface-level information and semantic plausibility than on deeply articulated syntactic structure during processing.

The absence of a significant proficiency effect further supports this interpretation. Higher proficiency learners did not display greater sensitivity to structural constraints than lower proficiency learners, suggesting that increased overall language ability does not necessarily entail the acquisition of fine-grained argument-structural knowledge required for native-like judgments in ellipsis. This finding implies that such abstract syntactic representations may be particularly difficult to acquire, and may remain persistently fragile even at advanced levels of L2 proficiency. Taken together, the present findings indicate that L1-Korean learners of English show neither systematic L1-based transfer patterns nor fully developed target-like structural sensitivity in their interpretation of sluicing in ditransitive constructions. Instead, their judgments appear to be guided primarily by surface patterns and semantic plausibility, resulting in gradient and unstable acceptability patterns where L1-English speakers show categorical distinctions. These results highlight the enduring challenge of acquiring abstract structural constraints in a second language, and contribute to a growing body of evidence that such constraints may resist full acquisition even among highly proficient L2 speakers.

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Examples in: English
Applicable Languages: English
Applicable Level: Tertiary