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Extraction from adjunct and relative clause islands in Korean*

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Kim, Ilkyu. 2026. Extraction from adjunct and relative clause islands in Korean. *Linguistic Research* 43(1): 61-103. This study investigates adjunct constraint (AC) and relative clause constraint (RCC) effects in Korean scrambling constructions using a factorial design that carefully controls relevant functional factors. Across two experiments, both AC- and RCC-violating sentences exhibited uniformly high acceptability, indicating that Korean permits extraction from these domains when functional well-formedness is ensured. Despite the overall high acceptability, RCC effects were still observed, whereas no AC effects emerged. Given previous reports of null RCC effects, the RCC effects found in this study may reflect residual functional influences—one possible source being a violation of the Backgrounded Constructions are Islands (BCI) constraint—though further research is required to determine their precise origin. Overall, the findings underscore the importance of controlling functional factors as rigorously as possible when applying the factorial definition of island effects. **(Kangwon National University)**

Keywords island effects, adjunct constraint, relative clause constraint, scrambling, experimental syntax, Korean

1. Introduction

The study of movement constraints has been a central theme in generative grammar since the seminal work of Ross (1967), which introduced the concept of *islands*—syntactic configurations that act as barriers, preventing elements contained within them from being extracted by movement operations such as *wh*-movement. While Ross's

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original framework provided a foundation for understanding locality, subsequent research has refined these constraints into two distinct categories: *strong islands* and *weak islands*, based on the range of elements from which extraction is permitted (Szabolcsi and Lohndal 2017).

Strong Islands refer to structures where extraction is categorically prohibited, regardless of the grammatical function of the extracted element. Common examples include the adjunct constraint (AC) and the relative clause constraint (RCC). As shown in (1), even a direct object (an argument) cannot be extracted from an adjunct clause without resulting in a severe unacceptability:

(1) a. AC violation
???What$_i$ did you get angry [because Mary read __$_i$]?[1]
b. RCC violation
???Which book$_i$ did you meet the author who wrote __$_i$]?

In contrast, weak islands exhibit a more selective opacity. These structures, such as *wh*-islands and negative islands, typically allow the extraction of arguments (e.g. subjects and objects) but block the extraction of adjuncts (e.g. *how* or *why*). This phenomenon, often referred to as the "Argument-Adjunct Asymmetry," is illustrated in the *wh*-island examples below:

(2) a. Argument extraction
What$_i$ do you wonder [whether to fix __$_i$]?
b. Adjunct extraction
???How$_i$ do you wonder [whether to fix the car __$_i$]?

Despite the widely held view that the AC and the RCC constitute strong islands, a growing body of cross-linguistic evidence has documented numerous counterexamples based on informal acceptability judgments provided by individual researchers (e.g., Erteschik-Shir 1973; Kuno 1976; Engdahl 1980; McCawley 1981;

1 Here and throughout, the acceptability mark '???' is used to indicate extreme unacceptability. The conventional asterisk '*', typically used to denote ungrammaticality, is intentionally avoided in order to reflect the uncertainty as to whether the observed unacceptability arises from syntactic ungrammaticality, semantic or pragmatic infelicity, or processing difficulty.

Taraldsen 1981, 1982; Chomsky 1982; Doron 1982; Chung and McCloskey 1983; Rubowitz-Mann 2000; Hawkins 2004; Kayne 2008; Cinque 2010). These findings have raised fundamental questions about the universality and rigidity of the constraints.

The recent emergence of experimental syntax has enabled the systematic investigation of such counterexamples. One of the most important insights from recent experimental work is that the island effects associated with the AC and the RCC are not uniform but instead exhibit considerable variation across and within languages (e.g. Sprouse et al. 2016; Kush et al. 2019; Müller 2019; Bondevik et al. 2021; Nyvad et al. 2022; Bondevik and Lohndal 2023 on the AC; Christensen and Nyvad 2022; Lindahl 2022; Vincent et al. 2022 on the RCC). Obtaining an accurate picture of the variation across a wide range of languages and identifying its source are essential for developing a more nuanced theory of AC and RCC effects.

This paper aims to contribute to this endeavor by investigating AC and RCC effects in Korean scrambling constructions, for which experimental research remains relatively scarce and the empirical properties are still poorly understood.[2] In particular, this study seeks to overcome the limitations of previous experimental studies that failed to sufficiently control for functional factors. By carefully controlling these factors, the results demonstrate that Korean AC and RCC violations exhibit relatively high acceptability once functional conditions are properly satisfied.

The structure of the paper is as follows. Section 2 introduces the seven functional factors controlled for in the present study and examines how earlier work failed to exercise sufficient control over them. These factors include framehood, coherence, referential processing cost, information structure, filler–gap distance, semantic complexity of the filler, and the long-before-short preference. Section 3 presents Experiment 1, which tested AC and RCC effects under conditions that carefully controlled for these factors. Building on previous observations of semantic variability in AC effects, Experiment 1 also compared four AC subtypes—*when*-, *although*-, *before*-, and *if*-clauses. Section 4 reports Experiment 2, which followed up on Experiment 1 by focusing on *if*-clauses, the subtype that exhibited substantial between-item variability in Experiment 1. In addition, Experiment 2 further refined

2 To the best of my knowledge, only two experimental studies have examined AC effects (Jung et al. 2017; Ko et al. 2019), and only one study has investigated RCC effects (Ko et al. 2019). Kim and Goodall (2016) and Lee (2018) also address island effects in scrambling constructions, but their experimental items do not involve overt extraction out of an island.

the investigation of RCC effects by employing extracted elements that were overtly marked for definiteness, thereby allowing us to assess whether definiteness modulates the magnitude of RCC effects. Section 5 offers a general discussion, and Section 6 concludes the paper.[3]

2. Functional factors

The factorial definition of island effects, on which the two experiments of this study are based, has been extensively adopted in experimental research on island phenomena (e.g. Sprouse 2007; Sprouse et al. 2016; Kush et al. 2019). Its appeal lies primarily in its ability to disentangle and quantify island effects by controlling for two important processing factors known to affect the acceptability of island-violating constructions: *dependency length* (short vs. long) and *structural configuration* (island vs. non-island).

As Kim (2021) notes, however, this approach is not without limitations. Most importantly, like any experimental design, it cannot control for all non-syntactic factors that may contribute to island effects. This limitation is often overlooked, resulting in partial or biased interpretations of experimental findings.[4] For this reason, it is crucial to control functional factors as rigorously as possible in order to maximize the utility of the factorial definition of island effects. This section introduces the functional factors that have been convincingly claimed to influence island effects and that are particularly relevant for investigating AC and RCC effects in Korean scrambling constructions. It also highlights cases in which these factors were not adequately controlled.

2.1 Framing effects

Frames refer to structured background knowledge about how related concepts typically co-occur, offering a standard representation of a particular situation and

3 This paper includes a variety of culturally sensitive terms in Vietnamese and English. These terms are used purely for academic research, to investigate the multidimensional nature of attitudinal components. Including these terms, or discussing their potentially offensive meanings, does not reflect the authors' personal or political views in any way.

4 See Kim (2021) for a more detailed discussion of the limitations of the factorial definition of island effects, with reference to actual cases.

shaping how we understand and interpret our surroundings (Goffman 1974; Minsky 1975; Fillmore 1977a, 1982; Langacker 1987). For example, in (3a), the combination of *post* and *a comment about the product* reflects a familiar communicative frame, where such expressions naturally co-occur.

(3) a. Kayla posted a comment about the product.
b. Kayla misread a comment about the product.

In contrast, (3b) pairs *misread* with *a comment about the product*, which is less conventional and does not evoke a well-established frame, resulting in weaker framehood.

It is important to note that framehood has been invoked to account for island effects (e.g. Deane 1991, 1992; Chaves and King 2019). In particular, drawing on Deane's (1991) framing account, Chaves and King (2019) argue that subextraction—namely, the extraction of an NP from within another NP—is acceptable to the extent that the extracted referent forms part of the frame evoked by the main verb of the sentence, that is, part of the conventionalized background knowledge associated with the described event.

In their experiment, Chaves and King first measured the plausibility of situations denoted by declarative sentences such as those in (4):

(4) a. The kids heard stories about pictures of this artist.
b. The farmers question the analysis of the impact of this pesticide.
c. The editor has strict control over the publication of this content.
d. The experts receive requests for articles about this topic.

They then measured the acceptability of corresponding interrogative sentences formed by extracting the innermost NP, as illustrated in (5):

(5) a. Who did the kids hear stories about pictures of?
b. Who did the farmers question the analysis of the impact of?
c. What does the editor have strict control over the publication of?
d. What did the experts receive requests for articles about?

Their results show that deeply embedded extractions are judged to be more acceptable

when the overall proposition is rated as more plausible, suggesting that such acceptability arises from chunked, coherent frames stored in usage-based memory. These findings underscore the importance of carefully controlling for the framehood of experimental stimuli when investigating the nature of island effects.

It should be noted that framing effects are not always properly controlled. For example, in their experimental work on island effects in Japanese scrambling constructions, Fukuda et al. (2002) employed a sentence violating the complex NP constraint (CNPC) as one of their stimuli, which can be translated into English as in (6).[5]

(6) [a large rectangular cardboard box]$_i$ a witness gave testimonythat one of the suspects had transported $\_\__i$ using a handcart.

In this example, the situation in which a suspect transports a large rectangular cardboard box with a handcart, while not impossible, is scarcely plausible enough to count as conventionalized knowledge in our minds. Rather, it would be far more plausible for a suspect to engage in an activity that is overtly illegal (e.g. to rob a person), especially when no prior context is provided. Consequently, the acceptability of the stimulus may be substantially affected by this lack of framehood.

2.2 Coherence

The notion of coherence was first invoked to explain island effects by Kim (2013), who examined CNPC and sentential subject constraint (SSC) effects in Korean relativization. The syntactic structures of the complex NP and the sentential subject are illustrated in (7) and (8), respectively.

(7) Relative clause with complex NP
a. Noun complements ([$_{S1}$ ... [$_{S2}$ ... $\_\__i$ ...] NP ... V] NP$_i$)
???[John-i [[Mary-ka $\_\__i$ hwumchi-n] cungke-ul
John-Nom Mary-Nom steal-Adn evidence-Acc
chac-un] posek$_i$
find-Adn jewel

5 Since the meaning of the stimulus is what matters here, the exact gloss is omitted for convenience.

'a jewel$_i$ which John heard [$_{CNP}$ the evidence that Mary stole __$_i$]

b. Double relatives ([$_{S1}$ ... [$_{S2}$ ... __$_i$ ... __$_j$ ...] NP$_i$ ... V] NP$_j$)

[[__$_i$ __$_j$ khiwu-ten] koyangi-ka$_j$ cwuk-un] ai$_i$

raise-Adn cat-Nom die-Adn child

'the child$_i$ who the cat$_j$ that __$_i$ was raising __$_j$ died'

(8) Relative clause with sentential subject ([$_{S1}$ [$_{S2}$ ... __$_i$ ... kes]-Nom ... V] NP$_i$)

[[John-i __$_i$ ssessta-nun kes]-i cal allyeci-n] chayk$_i$

John-Nom wrote-Adn FN]-Nom well known-Adn] book

'The book$_i$ which the fact that he wrote __$_i$ is well known'

According to Kim, CNPC and SSC effects in Korean relativization can be explained by a pragmatic constraint called the Characterization Constraint (CC), which is defined in terms of the notion of coherence (Hobbs 1990; Kehler 2002, 2004).[6] In essence, the CC requires that the upper clause (S1 in (7–8)) and the lower clause (S2 in (7–8)) stand in a coherent relation to each other, and/or that the upper clause be coherently related to the head NP in (7).

Note that it is not unreasonable to extend the applicability of the CC and assume that a coherence relation must hold between the matrix and embedded clauses in any sentence, including long-distance dependency constructions such as scrambling. After all, there is little communicative point in uttering a sentence whose matrix and embedded clauses are not coherently related, just as there is little point in producing multiple sentences that fail to form a coherent discourse.

In this sense, one of Ko et al.'s (2019) RCC-violating stimuli, shown in (9), can be considered insufficiently coherent between the matrix and embedded clauses.

(9) senkecakum-ul$_i$ Tahuy-nun [swunyen tongan yumyeng

campaignfund-Acc Tahuy-Top many.years during well-known

cwungsokieptul-lopwuthe __$_i$ pat-un] siuywen ilum-ul

6 Characterization Constraint (Kim 2013: 64)

What is denoted by a relative clause must be appropriate for characterizing a head NP referent. In order for a relative clause to properly characterize a head NP,

(1) the head NP referent and its situation must be directly related to each other, or

(2) the upper situation should be coherent with the lower situation, and/or

(3) the upper situation should be coherent with the head NP referent

small.businesses-from receive-Rel councilman name-Acc
kemchal-ey palkhyessta
prosecutor-to revealed
'Tahuy revealed to the prosecution the name of the common councilman who has received campaign funds from well-known small businesses for many years.

(Ko et al. 2019: 320)

In (9), Tahuy's revealing the name of the common councilman to the prosecution can hardly be taken to form a coherent relation to the event of the councilman's having received campaign funds for many years, unless the reader knows who Tahuy is and what relationship she has to the prosecution and/or the common councilman.

Given the possibility that a lack of coherence may lower the acceptability of island-violating constructions, maximizing the coherence relation between the matrix and embedded clauses is essential for determining the true nature of island effects, particularly for assessing whether such effects are purely syntactic.

2.3. Cost of referential processing

It has been observed that definite NPs and proper names impose greater processing difficulty than pronouns when they intervene in filler–gap dependencies. For instance, Warren and Gibson (2002) report reading-time evidence showing that such definite expressions cause longer retrieval times than intervening pronouns. They explain the difference in processing cost in terms of the relative accessibility of nominal referents, pointing out that first- and second-person pronouns represent established discourse referents.

In discussing the source of the island effects, Kluender (2004) also points out that the cost of referential processing "is especially acute and therefore critical at clause boundaries" (Kluender 2004: 105). One way to mitigate this processing cost is to render the NP non-definite, such as making it indefinite (e.g. someone) or indexical (e.g. *I*, *you*), since "the necessity of accessing the relevant discourse referent is drastically reduced relative to definite NPs" (Kluender 2004: 105).

The effect of definiteness is most easily demonstrated in center-embedding contexts like (10) below, and there have been numerous examples of improvements in

extractions out of relative clauses with indefinite head nouns, such as (11).

(10) a. The woman [the man [the host knew__] brought __] left early.
b. The woman [someone [I knew__] brought __] left early.
(Kluender 2004: 105)

(11) a. That's the campaign [that I finally thought of the aide [who could spearhead __]].
b. That's the campaign [that I finally thought of someone [who could spearhead __]].
(Kluender 2004: 106)

In (10a) and (11a), definite NPs such as *the man*, *the host*, and *the aide* appear at clause boundaries, increasing referential processing load and hindering filler-gap resolution. In contrast, (10b) and (11b) use less referentially demanding expressions like *someone* and *I*, thereby facilitating dependency processing. Again, stimuli like (9) above can be confounding in that a definite NP (i.e. *Tahuy*) intervenes between the filler and the gap at the clause boundary, thereby reducing acceptability due to the processing difficulty.

2.4. Information structure

The role of information structure in accounting for island effects has been emphasized since as long ago as Erteschik-Shir (1973). Building on previous information-structural accounts of island effects, Goldberg and her colleagues have proposed the *Backgrounded Constructions are Islands* (BCI) constraint. According to the BCI constraint, syntactic domains that are information-structurally backgrounded —that is, domains that are neither the *primary topic* nor part of the *potential focus domain*—are resistant to extraction. This information-structural account offers an explanatory framework for a range of island phenomena, and it has received empirical support through numerous experimental studies (e.g. Ambridge and Goldberg 2008; Namboodiripad et al. 2022; Cuneo and Goldberg 2023).

A related but distinct constraint is the *Focus–Background Conflict* (FBC) constraint, as proposed by Abeillé et al. (2020). According to this constraint, "a focused element

should not be part of a backgrounded constituent" (Abeillé et al. 2020: 3). Importantly, the FBC constraint predicts that a discourse clash arises only when a filler is focus—understood as *relationally new* (or "pragmatically asserted" in Lambrecht's (1994) sense) information, and its gap belongs to a backgrounded constituent. In other words, unlike the BCI constraint, the FBC constraint does not prohibit the extraction of (primary) topics from "islands."

It should be noted that the BCI constraint may be impossible to avoid in Korean scrambling constructions that involve AC or RCC violations, provided that two widely held assumptions are correct. First, a scrambled element in Korean has been argued to be sufficiently prominent to receive an interpretation as either a contrastive focus or a (contrastive) topic (e.g. Choi 1999, 2004; Hwang 2008).[7] Second, both adjunct and relative clauses have been argued to encode backgrounded information (at least in English) (e.g. Ambridge and Goldberg 2008; Cuneo and Goldberg 2023). If these two claims are on the right track—and in particular, if the second claim extends to Korean—then the BCI constraint predicts reduced acceptability for scrambling out of both adjunct clauses and relative clauses in Korean.[8] By contrast, the FBC constraint is satisfied as long as the scrambled filler is not interpreted as focus.

One example that fails to control for these information-structural constraints can be found in Jung et al. (2017), whose stimuli are given in (12).

(12) a. Context

[Situation: During the summer vacation, Chelswu and Yenghuy took a trip to Busan. Upon arrival, not paying any attention to the beach, they went directly to a famous seafood restaurant, and ordered sashimi as well as broiled shellfish and shrimps. Yenghuy loves shrimps, so she ate all of the shrimps they ordered. At that night, Chelswu brought Yenghuy to an emergency room because of her terrible pain in the stomach. Chelswu told the doctor that Yenghuy ate lots of shrimps.]

7 Non-contrastive (informational/plain) focus has been claimed to be less prominent than contrastive focus or (contrastive) topic (e.g. Choi 1996; Kim 2013, and references therein). Whether non-contrastive focus is prominent enough to induce island effects, as assumed by the BCI constraint, remains an empirical question.

8 In Section 3, it will be argued that Korean adjunct and relative clauses can contain topical (thus prominent) elements, and it will be explained how the stimuli in the present study were constructed so as not to violate the BCI constraint.

b. island|embedded|wh
mwues-ul$_i$ Chelswu-nun uysa-eykey [Yenghuy-ka __$_i$
what-Acc Chelswu-Top doctor-Dat Yenghuy-Nom
mek-ess-tanun sasil-ul] iyakiha-ess-ni
eat-Past-Adn fact-Acc tell Past-Int
'What did Chelswu tell the doctor the fact that Yenghuy ate?'

c. island|embedded|nonwh
saywu-lul$_i$ Chelswu-nun uysa-eykey [Yenghuy-ka __$_i$
shrimp-Acc Chelswu-Top doctor-Dat Yenghuy-Nom
mek-ess-tanun sasil-ul] iyakiha-ess-ni
eat-Past-Adns fact-Acc tell-Past-Int
'Did Chelswu tell the doctor the fact that Yenghuy ate?'

(Jung et al. 2017: 7)

As shown above, each of their stimuli consists of a context and two versions of a CNPC-violating sentence: a *wh*-filler version (the *wh* condition) and a non-*wh*-filler version (the *nonwh* condition). In the wh condition, the scrambled NP is necessarily an informational focus, as it is a *wh*-element. In contrast, in the nonwh condition, the scrambled filler (i.e. saywu 'shrimp') cannot be focusdue to the context provided in (8a). Note also that the complex NP out of which the filler is scrambled is head by the noun *sasil* 'fact', which requires its clausal complement to convey backgrounded information. Thus, it is clear that the wh condition violates the FBC constraint while the nonwh condition does not.

Meanwhile, as noted above, a scrambled element is assumed to be prominent enough to serve as a contrastive focus or (contrastive) topic. However, according to the context in (12a), *saywu* 'shrimp', the filler in the nonwh condition, should be interpreted as part of the backgrounded information (i.e. the "tail" in Vallduví & Endahl's (1996) terms), rather than as a (contrastive) focus/topic.[9] This mismatch between backgrounding and foregrounding constitutes a clear violation of the BCI constraint. To sum up, the wh condition violates both the BCI and FBC constraints, while the nonwh condition violates the BCI constraint.

9 Note that the topic of the sentence established by (12a) is likely to be Yenghuy or her stomachache.

2.5. Filler-gap distance

It is well established in the psycholinguistic literature that the processing of filler-gap dependencies is subject to limitations imposed by memory constraints. As the linear and structural distance between a filler and its associated gap increases, the cognitive effort required to maintain and retrieve the filler at the point of gap resolution also increases (Gibson 1998, 2000; Lewis and Vasishth 2005).

This interference effect is especially pronounced when the intervening material includes referential expressions that introduce or reactivate discourse entities, thereby increasing memory load (Gordon et al. 2001; Bartek et al. 2011). Notably, it has been observed that the presence of three intervening NPs is sufficient to significantly impair filler-gap processing (e.g. Makuuchi et al. 2013; Liu et al. 2022). Accordingly, limiting the number of intervening NPs (to two at most) is crucial in experimental designs that aim to isolate syntactic effects from extragrammatical processing constraints.

Note that both Jung et al. (2017) and Ko et al. (2019) have stimuli involving three referential expressions between the filler and its gap, as can be seen in (12) and (13).

(13) senkecakum-ul$_i$ Tahuy-nun [kwukhoyuywen hwupo-ka
campaignfund-Acc Tahuy-Top congressman candidate-Nom
kieptul-lopwuthe __$_i$ patki-ceney] ku sasil-ul
corporations-from receive-before that truth-Acc
kemchal-ey palkhyessta
prosecutor-to revealed
'Tahuy revealed the truth to the prosecution before a Congress candidate received campaign funds from corporations.'

(Ko et al. 2019: 318)

These considerations suggest that the observed acceptability degradation in previous experiments may partly reflect memory-based interference rather than purely grammatical constraints. The present study addresses this issue by restricting intervening material to at most two NPs, thereby enabling a more targeted assessment of grammatical constraints.

2.6. Semantic complexity of the filler

The processing difficulty of filler–gap dependencies depends not only on factors such as dependency length and the number or type of intervening elements, but also on properties of the filler itself. Hofmeister and Sag (2010) show that the extent of syntactic and semantic information encoded in the filler influences the processing of such dependencies across diverse sentence types. Specifically, fillers that are structurally and semantically richer facilitate comprehension at later retrieval sites, as evidenced by reading-time experiments. For instance, the definite NP in (14b), which contains greater syntactic and semantic detail than the one in (14a) (via a straightforward superset–subset contrast), yielded shorter reading times starting at the subcategorizing verb (*encouraged*).

(14) a. The diplomat contacted *the dictator* who the activist looking for more contributions encouraged to preserve natural habitats and resources.
b. The diplomat contacted *the ruthless military dictator* who the activist looking for more contributions encouraged to preserve natural habitats and resources.

(Hofmeister and Sag 2010: 384)

Comparable complexity effects are observed in clefts, relative clauses, and non-island *wh*-dependencies. Moreover, such effects emerge with *wh*-phrases and indefinite NPs, as well as definite NPs. To explain this pattern, Hofmeister (2007) argues that linguistic expressions carrying a larger set of syntactic and semantic features aid retrieval from memory by enhancing activation and reducing susceptibility to interference. For this reason, when adopting the factorial definition of island effects, the semantic complexity of the filler must be carefully controlled to ensure valid interpretations.

It is important to note that examples such as (9), (12), and (13), in which the fillers are made up of bare nouns (i.e. *senkecakum-ul* 'campaign fund-Acc' in (9) and (13) and *saywu-lul* 'shrimp-Acc' in (12c) clearly show that previous experimental work has not paid sufficient attention to this factor, thereby confounding the results of those experiments.

2.7. Long-before-short preference

It has been noted that in scrambling constructions, there is a general preference for scrambled NPs to be longer than the NPs they are scrambled over (Dryer 1980; Hawkins 1994; Yamashita and Chang 2001; Yamashita 2002; Yano 2019; Omaki et al. 2020; Fukuda et al. 2022). This preference is satisfied when the filler is made sufficiently semantically rich—thus meeting the requirement of "semantic complexity of the filler"—while the following NPs remain relatively semantically weak.

Note again that Jung et al. (2017) and Ko et al. (2019) fail to meet this requirement (cf. (9), (12), (13)), and Yano (2019) likewise shows a failure to conform to this preference, as illustrated in (15).

(15) [(sono) shousetsu-o]$_i$ hyouronka-wa kyonen
the novel-Acc commentator-Top last year
goosutoraita-ga __$_i$kaita-toiu hodo-o shinjiteiru
ghost.writer-Nom wrote-that news-Acc believe
'The commentator believes the news that the ghost writer wrote the novel last year.' (Yano 2019: 5)

In this section, seven functional factors that may influence AC and RCC effects in Korean scrambling constructions have been identified. It has also been observed that previous studies do not appear to have systematically controlled for these factors in their experimental designs. Moreover, these factors are not explicitly addressed in discussions of stimulus construction in earlier work, which suggests that their potential relevance may not have been fully considered. One of the central motivations of the present paper is therefore to highlight the importance of carefully identifying and controlling such functional factors in experimental investigations of island effects.

3. Experiment 1

3.1. Hypothesis

The hypothesis for Experiment 1 is that, if AC and RCC effects are truly (strong) syntactic islands, AC- and RCC-violating items should be judged unacceptable, and superadditivity should emerge under the factorial definition of island effects, even when all relevant functional factors are properly controlled.

3.2. Design and materials

The experiment was designed based on the factorial definition of island effects. The experimental stimuli followed a 2×2 factorial design, crossing two levels of dependency length (short vs. long) with two levels of syntactic structure (island vs. non-island). For each of the two island constraints tested (i.e. the AC and RCC), eight lexically matched item sets were constructed, yielding a total of 64 experimental items (4 conditions × 8 sets × 2 constraints). These 64 items were distributed across four experimental lists using a Latin Square design. Each list contained 16 experimental items: one item per condition from each lexically matched set. Crucially, no two items from the same lexically matched set appeared in the same list, ensuring that each participant was exposed to only one version of each item set. This design allowed for a fully crossed and counterbalanced presentation of conditions across participants while avoiding lexical repetition within lists.

The 16 experimental items in each list were interspersed with 49 filler sentences, which were identical across the four lists. The fillers included 16 fully grammatical sentences, 16 utterly ungrammatical sentences, and 17 sentences with varying degrees of acceptability degradation due to island violations unrelated to the AC or RCC conditions.[10] All test items were pseudo-randomized prior to presentation.

10 The reason that the number of island-violating filler items is 17 rather than 16 is that one additional item was included in the list—an AC-violating sentence that was judged acceptable in Phillips (2013) but considered unacceptable by the author, which is shown below.

(i) etten haksayng-hanthey$_i$ Quinn-un [manyak Virginia-ka __$_i$
which student-dat Quinn-top if Virginia-nom
senmwul-ul cwu-myen wul-ul-ka?

Additionally, each list began with six practice items to familiarize participants with the task. Lastly, to account for potential semantic variability in AC effects, the AC stimuli were further categorized into four semantic types: *before-*, *when-*, *although-*, and *if*-type adjuncts. Each semantic type was represented by two lexically matched sets of items.

Example (16) presents a lexically matched set of experimental stimuli for the RCC condition. Let us focus on (16a) to examine how the RCC-violating item satisfies the functional factors introduced above.

(16) Example stimuli for the RCC condition

a. island|long

[elyepki-lo somwunna-n nolay-lul]$_i$ ne-nun ___$_j$ ___$_i$ tan
difficult-as known-Adn song-Acc you-Top just
han pen-uy silswu-to eps-i pwulu-n
one Cl-Gen mistake-even without-Adv sing-Adn
kaswu-ka$_j$ nwukwu-i-nci al-a
singer-Nom who-Cop-Comp know-Int
'Do you know the singer who sang the song that is known to be difficult to sing without even a single mistake?'

b. island|short

ne-nun [elyepki-lo somwunna-n nolay-lul]$_i$ ___$_j$ ___$_i$ tan
you-Top difficult-as known-Adn song-Acc just
han pen-uy silswu-to eps-i pwulu-n
one Cl-Gen mistake-even without-Adv sing-Adn
kaswu-ka$_j$ nwukwu-i-nci al-a
singer-Nom who-Cop-Comp know-Int
'Do you know the singer who sang the song that is known to be difficult to sing without even a single mistake?'

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present-acc gave-cond cry-will-q
'*Which student will Quinn cry if Virginia gives a present to ___?'
(Phillips 2013: 77)

It should be noted that the sentence in (i) does not satisfy the majority of the functional factors discussed above. Rather than elaborating on each violation, interested readers are invited to determine for themselves which factors are violated and how.

c. non-island|long
[elyepki-lo somwunna-n nolay-lul]$_i$ ne-nun ku
difficult-as known-Adn song-Acc you-Top the
kaswu-ka__$_i$ tan han pen-uysilswu-to eps-i
singer-Nom just one Cl-Gen mistake-even without-Adv
pwulle-ss-ta-ko mit-ni
sing-Past-Dec-Comp believe-Int
'Do you believe that the singer sang the song that is known to be difficult to sing without even a single mistake?'

d. non-island|short
ne-nun [elyepki-lo somwunna-n nolay-lul]$_i$ ku
you-Top difficult-as known-Adn song-Acc the
kaswu-ka__$_i$ tan han pen-uysilswu-to eps-i
singer-Nom just one Cl-Gen mistake-even without-Adv
pwulle-ss-ta-ko mit-ni
sing-Past-Dec-Comp believe-Int
'Do you believe that the singer sang the song that is known to be difficult to sing without even a single mistake?'

First, the framehood requirement is satisfied by ensuring that the extracted NP forms a canonical frame with the clause from which it is extracted (i.e. a singer's singing a song).[11] In addition, framehood is also secured at the level of the matrix clause. Note that the matrix clause does not introduce a specific state of affairs related to the embedded situation; rather, its sole function is to inquire about the identity of the referent of the head NP of the embedded (relative) clause (i.e. *Do you know the singer who* ...?). Because this type of identity-inquiring question is highly conventionalized and frequently used in everyday discourse, it yields a high degree

11 A more rigorous way to guarantee the framehood of experimental stimuli would be to conduct an independent norming study that explicitly measures the degree of framehood for each item. In the present study, however, no separate norming test was conducted; instead, the stimuli were selected based on the author's intuition, with deliberate effort made to use only those event descriptions that would be judged as highly frame-evoking by virtually all native speakers of Korean. This choice was motivated by the need to control multiple functional factors simultaneously while keeping the experimental design within a manageable scope. Conducting an additional norming study for framehood—though ideal—would have required a substantial expansion of materials and participant recruitment, which was beyond the practical limits of the present study.

of framehood.

To satisfy the coherence requirement, the embedded clause contains an adverbial phrase whose meaning establishes a coherent relationship with the filler through a Violated Expectation relation[12]—a subtype of the Cause–effect Relation in Kehler's (2002) coherence theory (e.g. singing a very difficult song without even a single mistake). This coherence is expected to strengthen the connection between the filler and the embedded clause relative to what would be observed in the absence of such a relation. Furthermore, coherence between the embedded and matrix clauses is vacuously satisfied. As noted above, the matrix clause contributes no eventive content but simply queries the identity of the referent involved in the embedded event. If it did introduce an independent situation, coherence with the embedded situation would be required. Given its minimal semantic content, however, the matrix clause is not subject to any coherence relation with the embedded clause.

The cost of referential processing is reduced by using the indexical *ne* 'you' (rather than a definite NP) at the clause boundary. As discussed above, indexicals are processed more easily and more rapidly than definite descriptions because their referents can be identified directly from the discourse situation without requiring the construction or retrieval of a discourse model. Consequently, the use of *ne* minimizes the cognitive resources needed to link the clause-boundary element with the surrounding structure, thereby reducing processing load in comparison with a definite NP.

With respect to information structure, the FBC constraint is met by introducing an overt focused element in the matrix clause (i.e. … NP-*ka nwukwu-i-nci ani*?'(do you) know NP who …?'), which prevents the filler from being interpreted as focus. As for the BCI constraint, it is important to note that, given the assumption that scrambling serves to make the scrambled element prominent, the only way to avoid violating the constraint is to scramble an element that is already prominent in its base position so that no information-structural clash breaks out between backgrounding and foregrounding. First, the prominent status of the scrambled element was assumed to be secured by participants' prior experience with Korean scrambling constructions: unless a context forces a non-prominent interpretation, as in (12c) above, a scrambled element is expected to be interpreted as a prominent topic by default—just as the subject of a sentence is typically interpreted as a topic

12 Violated Expectation (Kehler 2002: 21)
Infer P from the assertion of S_1 and Q from the assertion of S_2, where normally P⌐Q.

(rather than as focus) unless the context explicitly blocks such an interpretation.[13] In addition, it was assumed that Korean allows prominent information to appear inside relative clauses. This assumption is supported by examples like (17) below.

(17) A: ku siktang yocum inki cengmal manh-a
the restaurant these.days popularity really much-Dec
'The restaurant is really popular these days.'
B: e. cengmal inki manh-a. [ku siktang-ul
right really popularity much-Dec the restaurant-Acc
pangmwun-ha-n] salam-i pelsse chen
visit-do-Adn person-Nom already thousand
myeng-i nem-ess-e
Class-Nom over-Past-Dec
'Right. (The restaurant) is really popular. More than a thousand people have already been to that restaurant.'

As shown in (17B), the sentence topic, *ku siktang* 'the restaurant', is located within the relative clause, and the sentence is fully acceptable. Moreover, previous experimental studies have reported high acceptability for CNPC-violating relative clauses (e.g., Kim 2016, 2017; Kim and Ji 2020), which would be difficult to explain if Korean relative clauses disallowed prominent information.

In terms of filler–gap dependency, only one intervening NP (i.e. *ne-nun* 'you-Top') separates the filler from the gap, thereby reducing the processing costs associated with maintaining an active dependency in working memory. By limiting the intervening material to a single, highly accessible NP, the design ensures that any additional difficulty observed in the RCC condition cannot be attributed to an unusually long filler-gap dependency.

Finally, the semantic complexity of the filler and the long-before-short preference are satisfied by making the filler relatively long (e.g. *elyepkilo somwunna-n nolay* 'the song famous for being hard to sing') and the matrix subject considerably shorter than the filler (i.e. *ku kaswu* 'the singer'). Note that all other experimental items were

13 There is also a practical reason for not providing any context. Presenting a context before every stimulus item would require participants to process a large number of additional sentences, thereby increasing the risk of fatigue effects.

constructed in the same manner, ensuring maximal control of the seven properties (i.e. framehood, coherence, referential processing cost, information structure, filler–gap distance, semantic complexity of the filler, and the long-before-short preference).

For the AC condition, satisfying the functional constraints proved more challenging than in the RCC condition. This can be seen by examining a lexically matched set of experimental stimuli for the AC condition, focusing on the AC-violating item in (18a).

(18) Example stimuli for the AC condition

a. island|long

[taythonglyeng-uy chininchek chayyong pili-lul]$_i$
president-Gen relative hiring corruption-Acc
kemchal-un tamtang kongmwuwen-i __$_i$ sinkoha-ca
prosecution-Top charge official-Nom report-when
cuksi ponkyeceki-n swusa-ey
immediately full.scale-Adn investigation-Dat
chakswu-ha-yess-ta
launch-do-Past-Dec
'When a government official in charge reported the hiring corruption involving the president's relatives, the prosecution immediately launched a full-scale investigation.'

b. island|short

kemchal-un [taythonglyeng-uy chininchek chayyong
prosecution-Top president-Gen relative hiring
pili-lul]$_i$ tamtang kongmwuwen-i __$_i$ sinkoha-ca
corruption-Acc charge official-Nom report-when
cuksi ponkyeceki-n swusa-ey
immediately full.scale-Adn investigation-Dat
chakswu-ha-yess-ta
launch-do-Past-Dec
'When a government official in charge reported the hiring corruption involving the president's relatives, the prosecution immediately launched a full-scale investigation.'

c. non-island|long

[taythonglyeng-uy chininchek chayong pili-lul]$_i$
president-Gen relative hiring corruption-Acc
kemchal-un tamtang kongmwuwen-i __$_i$ sinkoha-ci
prosecution-Top charge official-Nom report-Comp
mos-ha-tolok pimilliey appak-ha-yess-ta
cannot-do-so-that secretly pressure-do-Past-Dec
'The prosecution secretly pressured the official in charge so that they could not report the hiring corruption involving thepresident's relatives.'

d. non-island|short
kemchal-un [taythonglyeng-uy chininchek chayong
prosecution-Top president-Gen relative hiring
pili-lul]$_i$ tamtang kongmwuwen-i __$_i$ sinkoha-ci
corruption-Acc charge official-Nom report-Comp
mos-ha-tolok pimilliey appak-ha-yess-ta
cannot-do-so-that secretly pressure-do-Past-Dec
'The prosecution secretly pressured the official in charge so that they could not report the hiring corruption involving thepresident's relatives.'

First, the framehood and coherence requirements had to be satisfied not only for the adjunct clause itself but also for the sentence as a whole. In the RCC condition, recall that the identity-inquiring nature of the matrix clause guaranteed framehood and that the semantic paucity of the clause vacuously satisfied the coherence requirement at the level of the entire sentence. By contrast, adjunct clauses cannot be paired with such semantically "light" matrix clauses, because the matrix clause must convey a specific situation that is coherently modified by the meaning of the adjunct clause. For example, in (18a), the meaning of the adjunct clause—an official in charge reporting hiring corruption (involving the president's relatives)—and the meaning of the matrix clause—the prosecution's immediately launching a full-scale investigation into the case—are coherently connected via an Occasion relation[14], a

14 Occasion (i): Infer a change of state for a system of entities from S_1, inferring the final state for this system from S_2.
Occasion (ii):Infer a change of state for a system of entities from S_2, inferring the initial

subtype of the Contiguity class in Kehler's (2002) taxonomy of coherence relations. Moreover, this scenario is both plausible and well supported by our structured knowledge, particularly given our familiarity with typical press reports.

Regarding cost of referential processing, a pronoun is inappropriate because it is hard to make the adjunct and matrix clauses coherently related to each other without a prior context that provides information about how the referent of the indexical is related to the situations described by the adjunct and matrix clauses. Instead, a bare NP (e.g. *kemchal* 'prosecution' in (18a)) was used whose meaning is closely related to the situation denoted by the adjunct clause and does not require any prior context to recover its meaning.

In terms of the FBC constraint, it was not straightforward to introduce a *wh*-phrase into the matrix clause, as in the RCC condition, while simultaneously maintaining a coherent relation between the adjunct and matrix clauses. However, according to Choi (1996), one of the most detailed studies of Korean scrambling, a scrambled non-*wh* object can be interpreted as a contrastive focus only when it bears a high pitch accent, which serves as a prosodic cue signaling unexpectedness or emphasis. Because no such prosodic cues were present in our stimuli, the likelihood of a contrastive-focus interpretation is low. Thus, given the absence of prosodic cues and the fact that the filler appeared inside a subordinate clause—an environment in which (contrastive) focus is generally disfavored—the use of a non-*wh* phrase in the scrambling position was assumed to satisfy the FBC constraint. As in the RCC condition, the BCI constraint was assumed to be satisfied by the default interpretation of the filler as the prominent topic[15] and by the ability of adjunct clauses to accommodate prominent information, topic in particular, as shown in (19).

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state for this system from S_1.

(Kehler 2022: 22)

15 Nevertheless, as with framing effects, including a norming study on prominent topichood of the scrambled element would have rendered the experiment more reliable. The absence of such norming is a limitation of the present study. However, here we encounter a fundamental difficulty: a precise understanding of the information-structural properties of Korean scrambling constructions—an essential prerequisite for conducting rigorous norming—remains elusive. In particular, the exact information-structural status of scrambled elements has not been definitively established. We believe that this issue constitutes an important research topic in its own right and requires systematic investigation before such norming can be properly implemented.

(19) A: ku yenghwa yocum inki cengmal manh-a
the movie these.days popularity really much-Dec
'The movie is really popular these days.'
B: mac-a ku yenghwa-ka kaypong-ha-camaca,
right-Dec the movie-Nom release-do-as.soo.as
talun yenghwa-tul-un ta manghay-ss-e
other movie-Plu-Top all flop-Past-Dec
'Right. As soon as the movie was released, all the other movies flopped.'

With respect to filler–gap distance, instead of placing only one NP between the filler and its gap as in the RCC condition, two NPs were inserted: the subject of the matrix clause and the subject of the subordinate clause (e.g. *kemchal* 'prosecution' and *tamtang* kongmwuwen 'an official in charge' in (18a)). Although it is in principle possible to scramble the subject argument of the adjunct clause—rather than its object argument—thereby leaving only one NP between the filler and the gap, such a configuration introduces a temporary ambiguity in processing the adjunct clause, as two subject arguments would surface consecutively before the adjunct clause is fully parsed. Because this ambiguity is expected to impose a heavier processing burden, it was deemed preferable to include two intervening NPs.

Lastly, semantic complexity of the filler and the long-before-short preference were ensured by making the filler complex through multiple modifiers of the head noun, while the matrix subject was realized as a bare noun (e.g. *taythonglyeng-uy chininchek chayyong pili* 'the hiring corruption involving the president's relatives' corruption vs. *kemchal* 'prosecution').

The overall length of the stimuli across both constraints was held within a comparable range of 11–14 eojeols[16] with no differences exceeding three eojeols. Stricter length matching was not adopted, as maximizing the semantic and pragmatic coherence of the sentences was considered more important for the validity of the experimental design than formal uniformity.

With respect to filler–gap distance, in the AC items the distance was uniformly set at two eojeols, as only the subject of the main clause and the subject of the adjunct

16 *Eojeol* refers to a Korean spacing unit roughly corresponding to an orthographic word that may contain a stem plus one or more grammatical morphemes.

clause intervened between the filler and the gap. By contrast, in the RCC items, modifiers of the predicate in the relative clause had to intervene between the filler and the gap. Because these modifiers needed to be selected so as to fit naturally with the embedded predicate in both semantic and pragmatic terms, coherence was prioritized over strict formal uniformity, resulting in some variation in distance (3–5 eojeols). In addition, regarding the semantic complexity of the filler, filler length was carefully controlled to 3–4 eojeols across all conditions.

3.3. Participants and procedure

Participants were recruited through online advertisement. A total of 64 native Korean speakers participated in the experiment. They were paid 4,000 won (around $3) for their participation. The participants took part in the experiment online via a Google Forms survey, which took approximately 20 minutes to complete.

3.4. Results

Out of 64 participants, data from 5 participants were excluded due to a filler error rate of 20% or higher, resulting in a final dataset of 59 participants for analysis.

3.4.1. RCC effects

Given that the ratings were collected on a 7-point Likert scale, medians rather than means are reported, as they better capture the central tendency of ordinal data (Gravetter & Wallnau 2016). Figure 1 presents a boxplot summarizing the distribution of the raw acceptability ratings across the four conditions, with median values displayed.[17] The boxplot shows that all four conditions received relatively high acceptability scores.

17 The error bars represent the Interquartile Range (IQR).

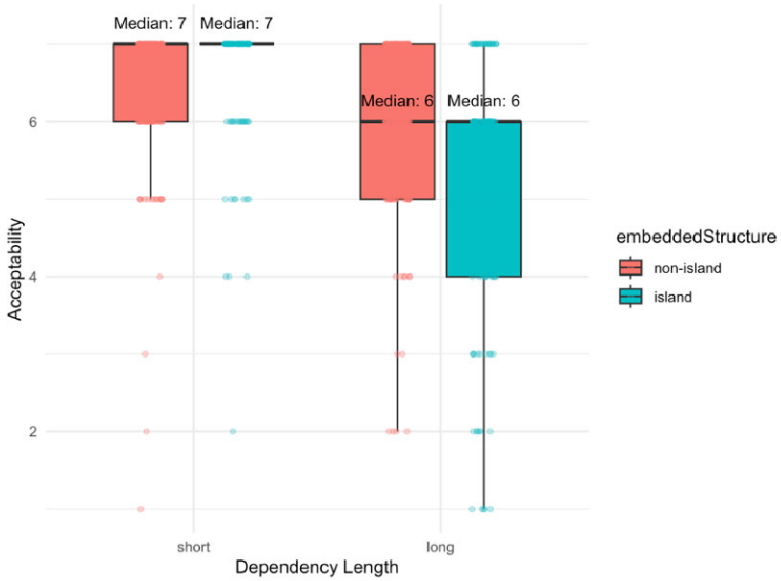

Figure 1. Boxplot for the RCC condition

Next, the interaction plot in Figure 2 shows the mean z-transformed scores, visualizing the interaction between embedded structure and dependency length.

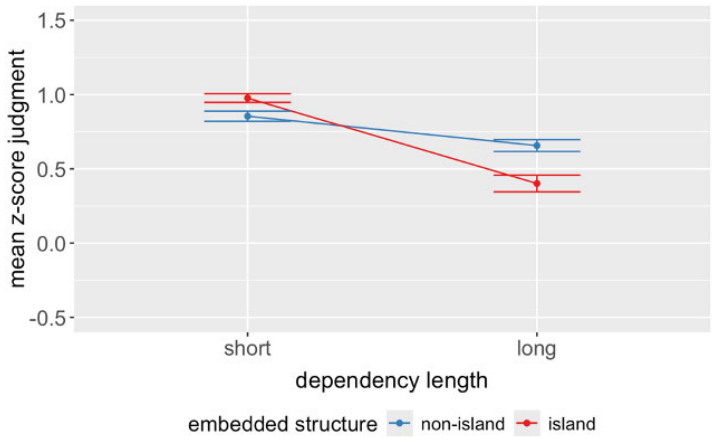

Figure 2. Interaction plot for the RCC condition

Notably, when the dependency length was short, the island condition was rated

more acceptable than the non-island condition, while the opposite pattern was observed when the dependency length was long. This crossover pattern suggests a possible interaction between the two factors.

To assess the statistical reliability of these patterns, a cumulative link mixed model (CLMM) was fitted to the raw ratings using a logit link function and flexible thresholds (Christensen 2025). The CLMM yielded a significant main effect of embedded structure ($\beta = 1.17$, SE = 0.40, $z = 2.91$, $p = .0036$), with island structures receiving higher ratings overall.[18] A significant main effect of dependency length was also found ($\beta = -1.26$, SE = 0.37, $z = -3.46$, $p < .001$), indicating that longer dependencies substantially decreased acceptability. Most importantly, a significant interaction effect was observed ($\beta = -2.18$, SE = 0.54, $z = -4.06$, $p < .001$), confirming that the effect of dependency length was strongly modulated by syntactic embedding. Variance estimates revealed substantially greater between-subject variability ($\sigma^2 = 2.89$) than item-level variability ($\sigma^2 = 0.22$), highlighting individual differences in acceptability judgments.

In terms of the size of the RCC effects, the superadditive penalty associated with the RCC configuration amounted to -0.82 points on the 7-point acceptability scale ($d \approx -0.62$). Although the effect size may appear small at first glance based on Figure 2, following Cohen's (1988) conventions (small = .2, medium = .5, large = .8), this corresponds to a medium-sized effect.

3.4.2. AC effects

The boxplot in Figure 3 displays the distribution of raw acceptability ratings with medians, while the interaction plot in Figure 4 shows mean z-scores across the four

18 One reviewer raised the concern that this result may be problematic because it appears to violate an assumption underlying the factorial definition of island effects, namely that the acceptability of the island condition should be lower than that of the non-island condition. The author likewise initially found this pattern puzzling; however, as will be shown below, the fact that the same pattern was replicated in Experiment 2 suggests that it is unlikely to be due to an experimental error or artifact. Crucially, under the factorial definition, an island effect is diagnosed not by the main effect of a single factor but by the super-additive interaction between two factors (i.e. structure and dependency length). The interaction observed here shows that long-distance extraction incurs a larger additional cost in island configurations than in non-island configurations, which is what matters for identifying an island effect. Nevertheless, future research is needed to understand why the baseline pattern departs from the standard factorial assumption.

conditions.

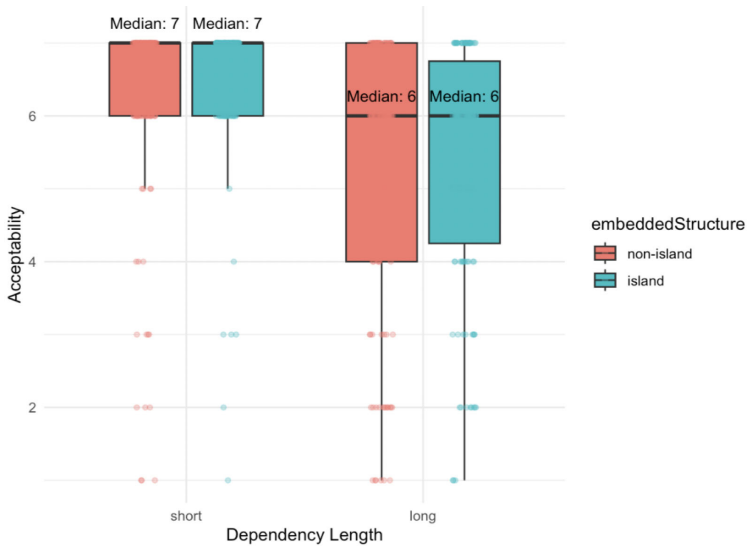

Figure 3. Boxplot for the AC condition

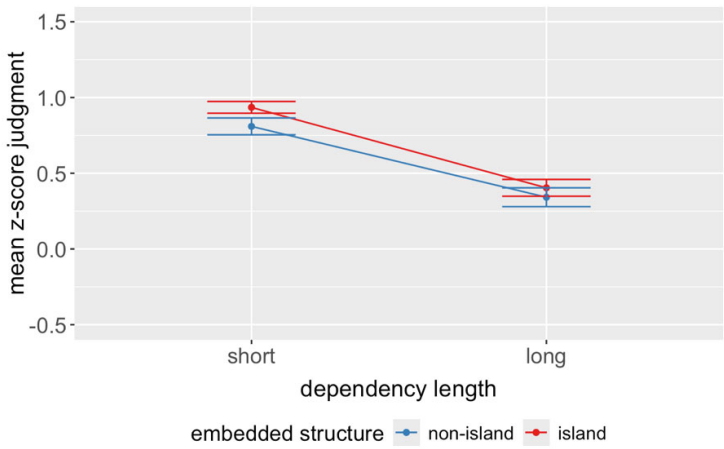

Figure 4. Interaction plot for the AC condition

The descriptive statistics show that the overall level of acceptability was high across all conditions. Interestingly, unlike the RCC condition, the island condition was rated slightly more acceptable than the non-island condition for both short and long

dependencies. No apparent crossover interaction was observed in the z-score plot.

Again, a CLMM was fitted to the raw ratings, employing a logit link and allowing the thresholds to vary. A significant main effect of dependency length was observed ($\beta = -2.12$, SE = 0.61, $z = -3.51$, $p < .001$), confirming that longer dependencies led to lower acceptability. However, neither the main effect of embedded structure ($\beta = 0.53$, $p = .392$) nor the interaction ($\beta = -0.46$, $p = .590$) reached significance. Variance components indicated substantial variability at both the participant ($\sigma^2 = 1.11$) and item ($\sigma^2 = 1.12$) levels.

Next, to examine how acceptability varies depending on the semantic type of adjunct clause in the AC condition, the central tendency of acceptability ratings was calculated for each semantic type. Each semantic type was represented by two items, and the median values of these items are reported below.

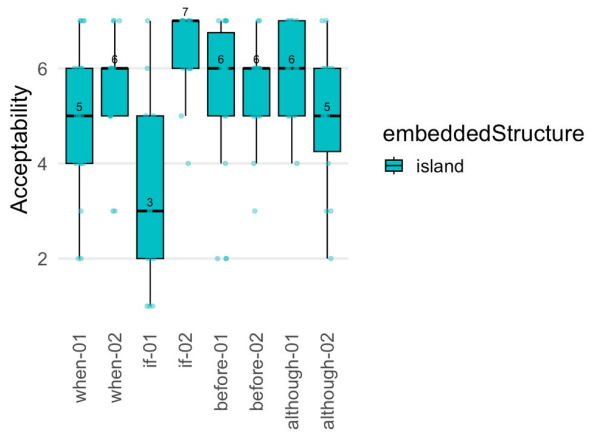

Figure 5. Median acceptability ratings by semantic type of adjunct clause

As shown in Figure 5, all types except for the *if*-type exhibited consistently high acceptability ratings. In the case of the *if*-type, while one item received a median rating of 7, another received a notably lower rating of 3. This suggests that conditional adjunct clauses are not inherently high in acceptability as the other types of adjunct clauses. However, the small number of stimuli limits generalizability.[19]

Lastly, to address potential concerns regarding length mismatches, sentence length

19 Note that the median rating of the AC-violating filler with the if-clause (footnote 10) was 1, which runs counter to the acceptability judgment reported in Phillips (2013: 77).

was included as a covariate in an additional cumulative link mixed-effects analysis. A likelihood ratio test revealed that adding sentence length did not significantly improve model fit ($\chi^2(1) = 1.25$, $p = .26$), and the interaction patterns observed in the main analyses remained fully stable.

3.5. Discussion

One of the most important findings in Experiment 1 is that controlling for functional factors makes the overall acceptability of both RCC- and AC-violating constructions, that is, the items of the long|island condition, quite high. Note that the median acceptability rating for these constructions was 6, which is high enough to be considered acceptable.

Despite their high acceptability, though, it is noteworthy that RCC effects were still observed, whereas AC effects were not. As to the source of the RCC effects, one possibility is that the RCC constitutes a syntactic island in Korean. If this is the case, however, the medium effect size remains puzzling, because so-called strong syntactic islands like the RCC are typically expected to yield a robust and substantial decrease in acceptability.[20] Another, and arguably more plausible, possibility is that certain functional factor(s) may have been overlooked. One such candidate for the RCC effects is the lack of definiteness in the fillers. Because definiteness encodes familiarity and overlaps with the d(iscourse)-linking property , its absence may have attenuated the discourse-anchoring effect that typically mitigates island violations, thereby yielding only a medium effect size. To evaluate this possibility, Experiment 2 further examined the role of definiteness by overtly marking the fillers for definiteness, allowing us to assess whether this factor modulates the magnitude of RCC effects.

As for the peculiarity of the *if*-type adjuncts in the AC condition, an important question is whether conditional clauses are genuinely distinct from other types of adjunct clauses. To answer this question properly, more items need to be tested, which

20 One reviewer correctly pointed out that the distinction between strong and weak islands is, in principle, not based on how severe the acceptability degradation is, but on the range of extraction types that the construction allows or disallows. Nevertheless, insofar as strong islands are standardly characterized as impenetrable domains that categorically block any type of extraction (i.e. absolute blockage), it is difficult to deny that their effects are expected to be robust in terms of magnitude as well.

was done in Experiment 2. In Experiment 2 eight newly constructed items for the AC condition consisted exclusively of *if*-type clauses.

4. Experiment 2

4.1. Hypothesis

The purpose of Experiment 2 is twofold: (1) to examine whether the RCC effects observed in Experiment 1 can be attributed to the lack of explicit definiteness marking, and (2) to determine whether the observed difference in acceptability between the conditional and the other types of adjunct clauses in the AC condition is genuine or merely spurious.

4.2. Design and materials

In the RCC condition, definiteness was introduced by inserting the determiner *ku* 'the' into the scrambled NP, as illustrated in (20).

(20) elyepki-lo somwunna-n ku nolay
difficult-as known-Adn the song
'the song that is known to be difficult (to sing)'

In addition, all experimental items in the AC condition were constructed as *if*-clauses, ensuring that the relevant functional constraints were maximally satisfied as in Experiment 1. Apart from these modifications, the remaining items (including fillers) and the overall experimental design were identical to those of Experiment 1.

4.3. Participants and procedure

As in Experiment 1, participants were recruited through online advertisements, and a total of 66 native speakers of Korean took part. The amount of compensation for their participation, as well as the online experiment format and duration of

participation, were all identical to those of Experiment 1.

4.4. Results

Out of a total of 66 participants, data from 6 participants with an error rate of 20% or higher were excluded, leaving data from 60 participants for analysis.

4.4.1. RCC effects

The boxplot in Figure 6 summarizes the distribution of raw acceptability ratings across the four conditions, with median values indicated. The interaction plot in Figure 7 displays the mean z-transformed scores, visualizing the interaction between embedded structure and dependency length.

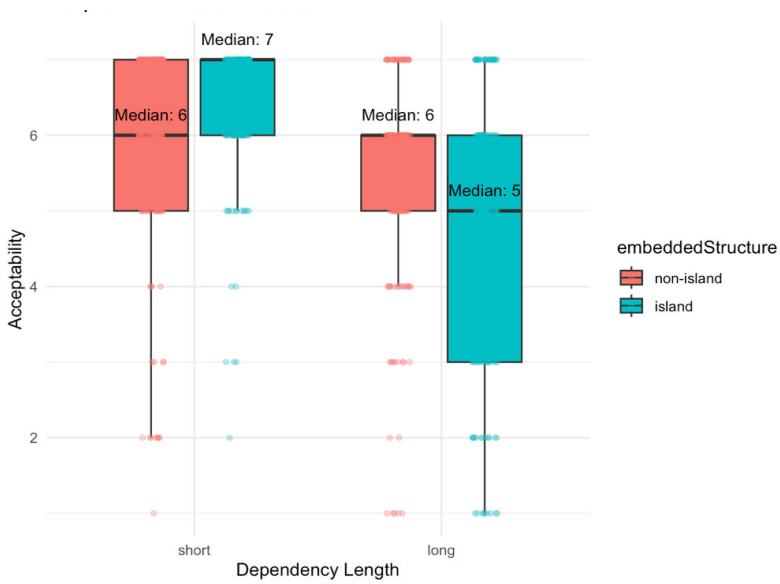

Figure 6. Boxplot for the RCC condition (Experiment 2)

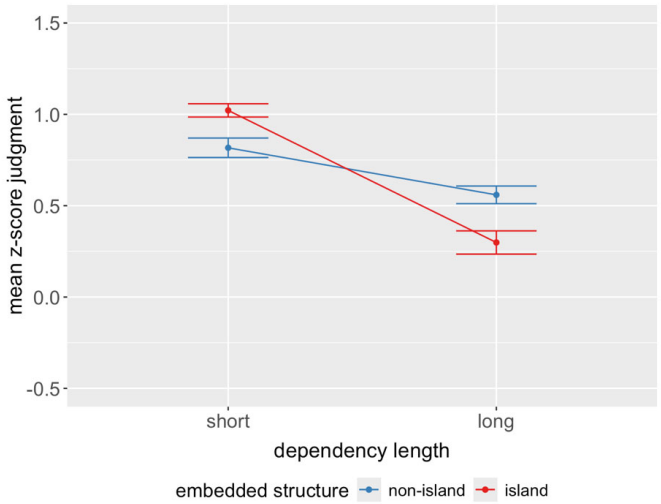

Figure 7. Interaction plot for the RCC condition (Experiment 2)

The boxplot indicates that all four conditions received relatively high acceptability scores. Note that, as in Experiment 1, the crossover pattern is evident in the interaction plot, suggesting a possible interaction between the two factors.[21]

To assess the statistical reliability of these observations, a CLMM was fitted to the raw ordinal ratings using a logit link and flexible thresholds. The results revealed a significant main effect of dependency length ($\beta = -1.19$, SE = 0.29, $z = -4.08$, $p < .0001$) and a significant main effect of embedded structure ($\beta = 0.84$, SE = 0.31, $z = 2.70$, $p = .0069$). A significant interaction effect was also found ($\beta = -1.50$, SE = 0.42, $z = -3.54$, $p < .001$), reinforcing the conclusion that longer dependencies reduced acceptability more severely in island structures. Variance estimates indicated considerable between-subject variability ($\sigma^2 = 2.34$) and modest item-level variability ($\sigma^2 = 0.08$).

As in Experiment 1, the size of the effect was far from substantial. The observed superadditive penalty was roughly –1.08 points ($d \approx -0.66$), which likewise falls in the small-to-medium range. Despite being numerically slightly larger than in Experiment 1, the effect remains modest when compared with the magnitude typically

21 The medians for the grammatical, ungrammatical, and island-violating filler items were 7, 1, and 2, respectively, in both Experiment 1 and Experiment 2. One slight difference is that the median for the grammatical interrogative fillers was 6.5 in Experiment 2, while it was 7 in Experiment 1.

associated with strong island effects.

4.4.2. AC effects

The boxplot in Figure 8 displays the distribution of raw acceptability ratings with medians, while the interaction plot in Figure 9 shows the mean z-scores across the four conditions.

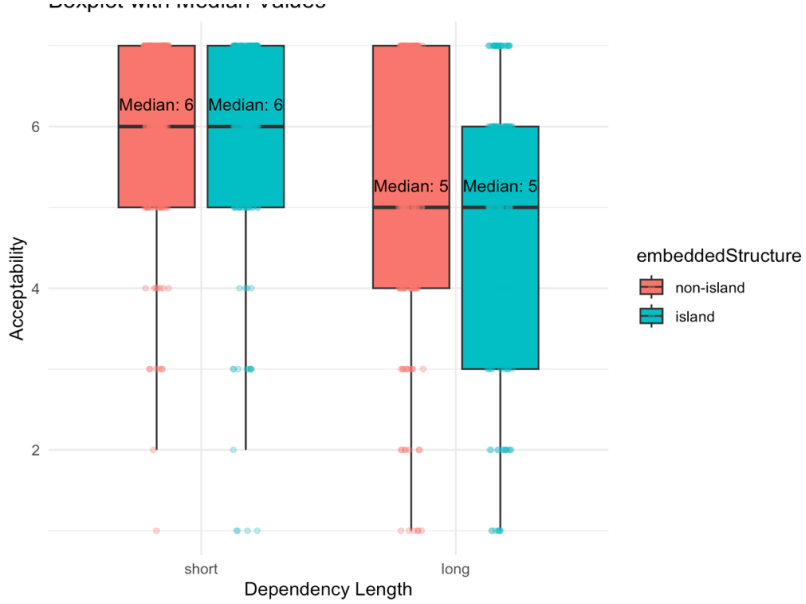

Figure 8. Boxplot for the AC condition

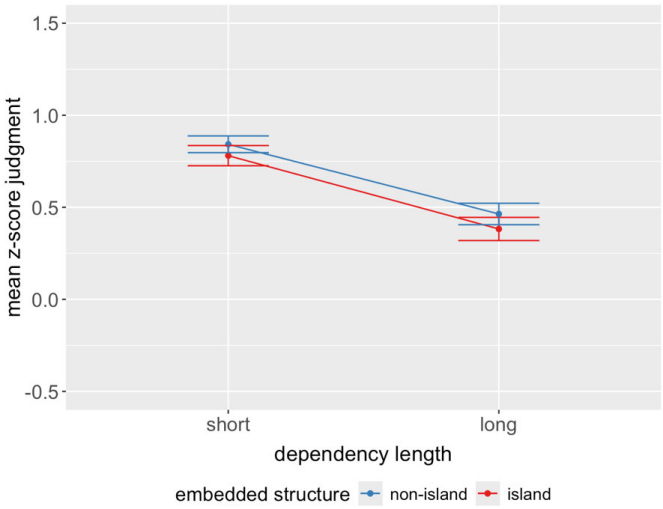

Figure 9. Interaction plot for the AC condition

The descriptive statistics reveal that overall acceptability was high across conditions. Unlike in Experiment 1, the island condition was rated slightly less acceptable than the non-island condition in both short and long dependency conditions. The interaction plot shows parallel lines, suggesting no interaction between embedding type and dependency length.

To statistically assess these patterns, a CLMM was fitted to the raw ordinal ratings. The analysis confirmed a significant main effect of dependency length (β = –1.23, SE = 0.37, z = –3.34, p = .0008), but no significant main effect of embedded structure (β = –0.10, p = .787) or interaction (β = –0.16, p = .757) was found. Variance estimates revealed substantial between-subject variability (σ^2 = 2.02) and moderate item-level variability (σ^2 = 0.28).

4.5. Discussion

The presence of RCC effects, together with their highly similar interaction pattern to that observed in Experiment 1, indicates that the use of an overt definite marker does not substantially influence the manifestation of RCC effects. A detailed discussion of the potential sources of the RCC effects in both experiments will be provided in Section 5.

With respect to the AC condition involving *if*-clauses, the consistently high acceptability supports the view that conditional adjuncts do not differ from other types of adjunct clauses in terms of islandhood in Korean scrambling constructions. The low acceptability of a single item in Experiment 1 appears to be an outlier, and it can be reasonably concluded that AC effects—if they exist at all—are non-syntactic in nature, at least for Korean scrambling constructions.

5. General discussion

The main findings of the present study are summarized below:

1. Both AC- and RCC-violating constructions yielded high acceptability when functional factors were carefully controlled.
2. Medium-sized RCC effects were observed, regardless of whether definiteness marking on the filler was overt or implicit.
3. No AC effects were observed.
4. No variation was found across different types of adjunct clauses.

The first finding confirms the crucial role of functional factors in shaping Korean island effects. It has been repeatedly observed that island-violating constructions in Korean can be judged acceptable (i.e. above 4 on a 7-point Likert scale) when relevant functional constraints are adequately satisfied, and unacceptable otherwise. For instance, Kim (2016, 2017) and Kim and Ji (2020), who investigated RCC effects in Korean relativization, reported high acceptability of RCC-violating items when functional factors were well controlled. In contrast, Jung et al. (2017) and Ko et al. (2019), where such factors were not relatively well managed as discussed in Section 2, reported relatively low acceptability of CNPC- (including RCC-) and AC-violating items (with z-transformed scores well below 0). Likewise, Kim and Ji (2023), who examined CNPC effects with complex NPs with a noun complement in Korean scrambling constructions, demonstrated that when functional appropriateness was ensured, CNPC-violating items not only received high acceptability scores but also exhibited no CNPC effects under the factorial definition of island effects. The findings of the present study are basically consistent with this pattern, underscoring the central

importance of functional factors in Korean island phenomena.

Next, the significant but non-robust RCC effects observed in the present study call for an explanation. First, it seems unreasonable to attribute these effects to a violation of a syntactic constraint, as such an account would have difficulty accommodating previous studies that reported no RCC effects (e.g. Kim 2016, 2017; Kim and Ji 2020; Ko et al. 2019). A more plausible explanation is that their source lies elsewhere. One possibility is that the experimental stimuli violate the BCI constraint. Although the present study assumed that the stimuli do not violate this constraint—based on the idea that a prominent topic can occur inside a relative clause—this may not accurately reflect actual language use. If prominent topics rarely appear in relative clauses and such clauses predominantly convey backgrounded information, the stimuli might have been perceived as less acceptable, thereby giving rise to the observed island effect. This possibility may also account for the small size of the effects, as prominent topics are not categorically prohibited within relative clauses, and it should be empirically examined in future research.

From a typological perspective, the non-robust RCC effects observed in the present study are consistent with Vincent et al.'s (2022) findings, which indicate that the RCC generally patterns as a weak island in English, except when the relative clause is headed by a presuppositional DP. In contrast, Christensen and Nyvad (2022) and Lindahl (2022) experimentally confirmed the strong islandhoodof the RCC in English and Icelandic. Further experimental research is required to obtain a deeper understanding of the cross-linguistic similarities and differences in the status of the RCC.

The absence of AC effects in the present study aligns with earlier findings (e.g. Jung et al. 2017; Ko et al. 2019). Unlike the present results, however, those studies reported relatively low acceptability (i.e. below 0 in z-transformed scores) for AC-violating items, a pattern that was likely attributable to insufficient control over functional factors. The current findings therefore provide strong, albeit indirect, evidence that the low acceptability observed in earlier work arose from violations of functional well-formedness rather than from syntactic constraints. Also note that Kim and Goodall (2016) also report an absence of adjunct island effects in Korean using a *wh*-in-situ design. Notably, the interaction patterns in their z-score–based plots closely mirror those in Figure 4 of the present study, providing further support for the conclusion that Korean lacks a robust adjunct island effect.

Finally, the absence of variation across adjunct clause types with respect to AC

effects in Korean contrasts with patterns reported for many Western languages. Recent experimental work corroborates earlier informal observations that finite adjuncts are not categorically islands; rather, their islandhood depends on semantic class (Sprouse et al. 2016; Kush et al. 2019; Müller 2019; Bondevik et al. 2021; Nyvad et al. 2022; Bondevik andLohndal 2023). For instance, Bondevik and Lohndal (2023) show in Norwegian relative-clause dependencies that *fordi* 'because' and *når* 'when' behave as strong islands, whereas *om* 'if' yields only intermediate effects. By contrast, Korean appears largely immune to AC violations across adjunct types when functional constraints are satisfied.

Focusing on *if*-clauses, our Experiment 2 found no AC effects, a result that fits broader typological tendencies: Phillips (2013: 76) notes that languages such as Japanese and Malayalam pattern with Korean in allowing extraction more freely, whereas Russian, Spanish, and Basque align with English in showing stronger adjunct island effects. This spectrum—from the apparent absence of AC effects with *if*-clauses in Korean (and Japanese), through intermediate effects in Norwegian, to strong effects in languages like Russian and English—points to genuine cross-linguistic variation. Future work should target tightly matched factorial designs that manipulate semantic type and rigorously control functional factors, enabling direct comparisons across languages and clarifying how semantic class and discourse/processing constraints jointly shape adjunct islandhood. Overall, the results underscore the need for island research—particularly in typologically diverse languages—to balance syntactic hypotheses with a careful consideration of discourse, processing, and construction-specific constraints.

6. Conclusion

The present study investigated adjunct constraint (AC) and relative clause constraint (RCC) effects in Korean scrambling constructions by integrating a rigorous set of functional factors into a factorial experimental design. Previous work employing the factorial definition of island effects has often overlooked non-syntactic factors—such as framehood, coherence, referential processing load, information structure, filler–gap distance, semantic complexity, and the long-before-short preference—thereby leaving open the possibility that experimentally observed "island effects" may have

arisen from violations of functional well-formedness rather than from syntactic constraints themselves. By systematically controlling these factors, the current study tried to offer a clearer picture of the extent to which AC and RCC effects in Korean reflect syntactic islandhood versus functional pressures arising from discourse, processing, and constructional constraints.

The study yielded two main findings. First, when functional factors were rigorously controlled, both AC- and RCC-violating constructions received consistently high acceptability, confirming that Korean allows extraction from these domains under functionally well-formed conditions. Second, whereas no AC effects emerged, non-robust but reliable RCC effects were observed. However, given the medium size of these effects and the absence of RCC effects in earlier studies, it is unlikely that they reflect a genuine syntactic island constraint. A more plausible explanation is that the experimental stimuli may have violated the BCI constraint.

Future research should pursue two promising directions. First, cross-linguistic studies employing comparably structured experimental designs will allow for deeper comparisons of how functional constraints modulate island effects across languages with different information-structural and clause-type systems. Second, finer-grained manipulations of functional factors may help identify the precise functional mechanisms underlying the residual RCC effects observed here. Together, these lines of research will contribute to a more comprehensive understanding of how syntactic and functional factors interact in shaping island effects.

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