How do Korean speakers receive internally headed relative clauses?*

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Lee, Jieun and Sanghoun Song. 2023. How do Korean speakers receive internally headed relative clauses?. *Linguistic Research* 40(3): 463-508. This study examines how Korean internally headed relative clauses (IHRCs) are received by native speakers. Although previous studies have greatly enhanced our understanding of IHRCs by proposing a theoretical framework with which to explain their constraints, no attempt has been made to provide an empirical study of how Korean speakers understand IHRCs with support from appropriate statistical methods. Accordingly, the current study conducted a Likert-scale task experiment and a question-and-answer survey whose results were thoroughly analyzed with multiple statistical tools. The findings are as follows. First, certain examples that have specific grammatical and aspectual features are judged as having higher acceptability. Based on this observation, we propose the possibility that the Korean IHRC is an example of a verb-class-specific construction in which innovative use spreads through semantic similarity. Second, Korean IHRCs are received in three different ways by native speakers: One group of speakers accepts the IHRCs with entity construal, another group with event construal, and a third group of speakers does not accept the IHRCs at all. It is argued that these split interpretations can be understood by observing constructions that are structurally similar to IHRCs. This study contributes to relevant areas by providing an empirical study of Korean IHRCs. **(Korea University)**

Keywords internally headed relative clauses, acceptability judgment tests, a verb-class-specific constructions, semantic contagion, statistical pre-emption

1. Introduction

This article is concerned with the acceptability of the internally headed relative clause (IHRC) construction in Korean, for which numerous long-standing theories have been proposed but for which data are scant and relatively recently adduced. As Culy (1990: 27) stated, an IHRC can be roughly defined as 'a nominalized sentence which modifies a nominal, overt or not, internal to the sentence', and has been reported to occur in various languages including Navaho, Dogon, Lakhota, Quechua, Tibetan, and Japanese (see Hiraiwa (2017) for a list of languages alleged to employ IHRCs). Korean, the target language of our study, is one of these languages where IHRCs are observed as in (1).

(1) kyengchal-i   totwuk-i   tomangka-nu-n   kes-ul
     policeman-NOM   thief-NOM   run.away-IMPF-REL   KES-ACC
     cap-ass-ta.
     catch-PST-DEC
     'The policeman caught the thief who was running away.'

In (1), the relative clause (RC) is marked by a nominalizer *-nun kes* and what is described in the RC provides information about the head noun *totwuk* 'thief'. As the head noun is marked by subject case marker *i*, we can see that it appears in the RC: The head noun takes a subject role in the RC and an object role in the main clause. We regard the example given in (1) as an IHRC by identifying IHRCs with the three features below.

(2) a. The underlying structures of the main and relative clauses share an
        argument, that is, a common argument.
     b. The relative clause functions as a syntactic modifier of the common
        argument in the main clause. At the semantic level, it will normally
        provide information about the common argument which assists in focusing
        - restricting - the reference of the common argument.
     c. The fullest statement of the common argument is in the relative clause.
        (cf. Dixon 2010: 314-318)

Though IHRCs like (1) do appear in Korean, they are used in a very restricted way. The IHRCs in (3), for instance, are unacceptable, contrary to the externally-headed RC

(EHRC) counterparts given in (4).

(3) a. *Mary-nun　　chinkwu-ka　　mikwukin-i-ø-n
　　　　Mary-TOP　　friend-NOM　　American-COP-PERF-REL
　　　　kes-ul　　　　manna-ass-ta.
　　　　KES-ACC　　meet-PST-DEC
　　　　'Mary met (her) friend who is American.'
　　b. *John-un　　Mary-ka　　kulim-ul　　kuli-ko iss-nu-n
　　　　John-TOP　　Mary-NOM　　drawing-ACC　draw-CONT-IMPF-REL
　　　　kes-ul　　　cohaha-ass-ta.
　　　　KES-ACC　　like-PST-DEC
　　　　'John likes Mary who is drawing a drawing.' or
　　　　'John likes the drawing that Mary is drawing.'

(4) a. Mary-nun　　mikwukin-i-ø-n　　　　　chinkwu-lul
　　　　Mary-TOP　　American-COP-PERF-REL　friend-ACC
　　　　manna-ass-ta.
　　　　meet-PST-DEC
　　　　'Mary met (her) friend who is American.'
　　b. John-un　　kulim-ul　　kuli-ko iss-nu-n　　　Mary-lul
　　　　John-TOP　　drawing-ACC　draw-CONT-IMPF-REL　Mary-ACC
　　　　cohaha-ass-ta.
　　　　like-PST-DEC
　　　　'John likes Mary who is drawing a drawing.'
　　b´. John-un　　Mary-ka　　kuli-ko iss-nu-n　　　kulim-ul
　　　　John-TOP　　Mary-NOM　draw-CONT-IMPF-REL　drawing-ACC
　　　　cohaha-ass-ta.
　　　　like-PST-DEC
　　　　'John likes the drawing that Mary is drawing.'

To deal with the severe restrictions on Korean IHRCs, previous studies take one of the three different approaches: 1) propose a theoretical frame work by which the constraints can be explained (Jhang 1991, 1994; Y.-B. Kim 2002; Chung and Kim 2003; J.-R. Lee 2006; M.-J. Kim 2007, 2008a, 2008b, 2009; Grosu and Landman 2012; Yeom 2015; J.-B. Kim 2016; J.-E. Lee 2017, 2021b and others), 2) describe how IHRCs are

used by observing naturally occurring data from the corpus (Cho 2014, 2016; J.-E. Lee 2020, 2021a; Song 2021), and 3) cast doubts on the idea that Korean uses IHRCs as an independent construction (Chung 1999; Cha 2005; Mun 2012, 2017; Y.-H. Kim 2013; H.-J. Park 2019, among others).

There are three major points on which we can improve the findings of the previous studies of IHRCs in Korean. First, in most of the previous studies, the grammatical judgements for IHRC examples were based on the intuition of individual researchers. As can be expected, formal stipulations of IHRCs based on individual researchers' grammatical judgement reflect innate arbitrariness and often do not hold true for other speakers (J.-E. Lee 2021b). Second, a set of rules falls short in explaining naturally occurring data of IHRCs (J.-E. Lee 2020, 2021a). Third, though corpus-based-descriptive studies of IHRCs provide valuable insights into how IHRCs are used in Korean, they give us limited information. For instance, they do not show the extent to which IHRCs can be used, what factors influence the acceptability judgment of individual examples, or how IHRCs are interpreted by native speakers. To fill this research gap, the current study explores how Korean speakers receive IHRCs by conducting an acceptability judgement test and a question-answer survey.

The rest of the paper is structured as follows. Section 2 reviews relevant studies of the restricted distribution of IHRCs. Section 3 provides the methodology of two experiments: a Likert-scale task experiment and a question-and-answer survey. Section 4 provides the results of each experiment. Section 5 discusses the findings of the two experiments. Section 6 summarizes the findings and notes the potential contribution of this paper.

2. The limited distribution of Korean IHRCs and relevant factors

In this section, Korean IHRCs are discussed, focusing on their limited distribution. By examining previous studies of the structural and semantic requirements relevant to Korean IHRCs, we will narrow down specific features that should be further investigated empirically.

To begin with, we examine four relevant factors affecting the well-formedness of IHRCs given in (5). It is worth noting that only one factor in (5) is relevant to EHRCs: the grammatical role of the head noun in an RC. That is, compared to EHRCs, the

primary type of RC in Korean, IHRCs are used in a highly limited way. To understand the nature of the heavy restriction in Korean IHRCs, we will examine these four factors in the following sections.

(5) a. The grammatical role of the head noun
   (i) The grammatical role of the head noun in an RC
   (ii) The grammatical role of the head noun in a main clause
  b. The type of predicates
   (i) The aspectual feature of the predicate in an RC
   (ii) The type of predicate in a main clause
  c. The semantic feature of the head noun
  d. Idiosyncrasies

2.1 The grammatical role of the head noun

In this section, we consider the grammatical role of the head noun in two respects: the grammatical roles of the head noun in an RC and in a main clause.

2.1.1 The grammatical role of the head noun in a relative clause

To begin with, the head nouns of IHRCs tend to take a subject or an object role in an RC. Cho (2016) and J.-E. Lee (2020), for instance, show this tendency by examining corpus data, as given in Tables 1 and 2.

Table 1: The result of analyzing IHRCs in spoken corpus in Cho (2016: 86)

Types of IHRCs (The grammatical role in an RC)	Frequency (number)	
Subject	30.3% (30/99)	100% (99/99)
Direct Object	69.7% (69/99)	
Indirect Object	0.0% (0/99)	0.0% (0/99)
Oblique	0.0% (0/99)	

Table 2: Analysis results for IHRCs in spoken and written corpora in J. - E. Lee (2020: 176)

Types of IHRCs (The grammatical role in an RC)	Type of corpus (%)	
	Spoken data	Written data
Subject	14(35.9)	26(44.8)
Direct Object	25(64.1)	32(55.2)
Total	39(100)	58(100)

Both Cho (2016) and J.-E. Lee (2020) show that in spoken data, there are more examples of IHRCs whose head noun take an object role in an RC than those whose head noun take a subject role in an RC. Interestingly, the difference between the two is smaller in written data, as Table 2 shows.

2.1.2 The grammatical role of the head noun in a main clause

Theoretically, the head noun of Korean IHRCs can take a subject, an object, and an oblique role in a main clause, as given in (6).

(6) a. ai-ka   cal   keleka-te-n   kes-i
       child-NOM well walk-IMPF-REL   KES-NOM
       kapcaki   nemeci-e peli-ess-ta.
       suddenly   fall.over-MDL-PST-DEC
       'The child who walked well suddenly fell over.'
    b. yeca-nun   namca-ka   nakalye-ko ha-nu-n
       woman-TOP   man-NOM   go.out-be.about.to-IMPF-REL
       kes-ul   mil-e peli-ess-ta.
       KES-ACC   push-MDL-PST-DEC
       'The woman pushed the man who was about to go out.'
    c. na-nun oskam-ul   sao-ø-n   kes-ulo
       I-TOP   fabric-ACC   buy-PERF-REL   KES-with
       khethun-ul   mantul-ess-ta.
       curtain-ACC   make-PST-DEC
       'I made a curtain with the fabric that I bought.'

When the head noun takes an object role in a main clause, there seem to be fewer constraints in IHRCs. When the head noun takes a subject role in a main clause, there is a heavy sematic restriction on the head noun, as it cannot refer to a human without a diminutive meaning (Y.-B. Kim 2002; Mun 2012; J.-E. Lee 2020; Kim and Song 2022). The example in (7) is a case in point. This restriction is lifted when the head noun takes an object role in a main clause as in (8).

(7) *han namca-ka   ssuleci-e iss-nu-n   kes-i
    one   man-NOM   fall.down-CONT-IMPF-REL   KES-NOM
    towum-ul   yochengha-ess-ta.
    help-ACC   request-PST-DEC
    'A man who fell down asked for help.'

(8) han namca-ka   ssuleci-e iss-nu-n   kes-ul
    one   man-NOM   fall.down-CONT-IMPF-REL   KES-ACC
    pyengwon-ey   teylyetacwu-ess-ta.
    hospital-to   bring-PST-DEC
    'I brought a man who fell down to a hospital.'

Pointing out the asymmetry between the IHRC whose head noun takes a subject role in a main clause and the one whose head noun takes an object role in a main clause, J.-E. Lee (2021: 63) proposes the possibility that these two IHRCs are being grammaticalized with different rates (see also Section 2.2.2 and Section 5.2 for further discussions).

2.2 The type of predicates

2.2.1 The aspectual feature of the predicate in an RC

Kuroda (1976) proposes the relevancy condition given in (9), which examine show the semantic relevance between an RC and a main clause affects the acceptability of Japanese internally-headed RCs.

(9) The relevancy condition
    For a headless relative clause to be acceptable, it is necessary that it be

interpreted pragmatically in such a way as to be directly relevant to the pragmatic content of its matrix clause (Kuroda 1976: 270).

Based on the insightful discussion given in Kuroda (1976), M.-J. Kim (2008b) refines the relevancy condition by including aspectual features, when she examines Korean IHRCs, arguing that Korean IHRCs are required to represent a temporary state. Identifying a temporary stateas an in-progress state and a target state, she shows that the former can be achieved by any sentence with a progressive aspect, regardless of the lexical aspect of a predicate, but the latter can be achieved only by a sentence with a perfective form of a telic predicate. The examples in (10) and (11) provide examples of a temporary state and a target state, respectively.

(10) John-un   Mary-ka   naka-nu-n   kes-ul
     John-TOP   Mary-NOM   go.out-IMPF-REL   KES-ACC
     pwuthcap-ass-ta.
     catch-PST-DEC
     'John caught Mary, who was going out.' (M.-J. Kim 2008b: 110)

(11) John-un   Mary-ka   ppang-ul   mantul-Ø-n
     John-TOP   Mary-NOM   bread-ACC   make-PERF-REL
     kes-ul   mek-ess-ta.
     KES-ACC   eat-PST-DEC
     'John ate the bread which Mary made.' (M.-J. Kim 2008b: 110)

Revisiting the discussion in M.-J. Kim (2008b), J.-E. Lee (2020, 2021a) notes two points. First, the aspectual restriction is required only when the head noun takes an object role in a main clause. In (12), for instance, the predicate in the IHRC is an adjective *pwutulep-* 'soft', but the example is not ungrammatical. Notably, in this case, the head noun takes an oblique role in the main clause.

(12) Mary-nun   oskam-i   pwutulep-ø-n   kes-ulo   aki
     Mary-TOP   cloth-NOM   soft-PERF-REL   KES-with   baby
     os-ul   cis-ess-ta.
     clothes-ACC   make-PST-DEC
     'Mary made baby's clothes with the cloth, which is soft.'

Second, a temporary state is also noted for the perception verb construction in which a nominal clause is used as its argument. As in (13), the perception verb construction is encoded in the same way as the IHRC in (13a). Both are marked by -(u)n/nun kes, which can be regarded as a pseudo-nominalizer in Korean.

(13) a. John-un   Mary-ka   cip-eyse   nao-nu-n
        John-TOP   Mary-NOM   house-from   come.out-IMPF-REL
        kes-ul   pwuthcap-ass-ta.
        KES-ACC   catch-PST-DEC
        'John caught Mary who was coming out of the house.'
     b. John-un   Mary-ka   cip-eyse   nao-nu-n
        John-TOP   Mary-NOM   house-from   come.out-IMPF-REL
        kes-ul   po-ass-ta.
        KES-ACC   see-PST-DEC
        'John saw Mary who was coming out of the house.'

When the embedded clause of the perception verb construction does not represent a temporary state, it is unacceptable. The examples in (14) are a case in point.

(14) a. *John-un   Mary-ka   Molly-lul   a-nu-n
        John-TOP   Mary-NOM   Molly-ACC   know-IMPF-REL
        kes-ul   po-ass-ta.
        KES-ACC   see-PST-DEC
        'John saw Mary knowing Molly.'
     b. *John-un   Mary-ka   yeppu-ø-n   kes-ul
        John-TOP   Mary-NOM   pretty-PERF-REL   KES-ACC
        po-ass-ta.
        saw-PST-DEC
        'John saw Mary being pretty.'
     c. *John-un   Mary-ka   haksayng-i-ø-n   kes-ul
        John-TOP   Mary-NOM   student-be-PERF-REL   KES-ACC
        saw-PST-DEC
        po-ass-ta.
        'John saw Mary being a student.'

(J.-E. Lee 2021a: 25)

Examining further examples of Korean IHRCs, J.-E. Lee (2021a) suggests that when IHRCs are structurally similar to the perception verb construction, these two constructions share the aspectual requirement as well (see also Section 5.2 for further discussion).

2.2.2 The type of predicate in a main clause

Examining the constraints in Korean IHRCs, Y.-B. Kim (2002: 554) points out that if an individual level predicate is used in an embedding clause in the IHRC, the sentence will be unacceptable, as in (15a) below.

(15) a. *kangaci-ka   pakk-ey   naka-nu-n   kes-ul
         puppy-NOM   outside-to   go-IMPF-REL   KES-ACC
         salangha-nta.
         love-DEC
         '(someone) loves his dog that (usually) goes out (for a walk with him).'
      b. kangaci-ka   pakk-ey   naka-nu-n   kes-ul
         puppy-NOM   outside-to   go-IMPF-REL   KES-ACC
         ttayly-ess-ta.
         hit-PST-DEC
         '(someone) hit the dog that is going out (for a walk).'
         (Y.-B. Kim 2002: 554)

In (15a), an individual level predicate *salangha-* 'love' is used in the main clause and the example is ungrammatical. When a stage level predicate *ttayly-* 'hit' is used as in (15b), however, it becomes acceptable.

Yeon and Park (2021: 137-139) refute this restriction on the predicate in the main clause by providing the examples in (16), in which either a copula as in (16a) or an adjective as in (16b) is used in the embedding clause.

(16) a. yeki   maykcwu   masi-ø-n   kes-i
         here   beer   drink-PERF-REL KES-NOM

        (cenpwu)   elma-yeyo?
        all   how much-be.DEC
        'How much is the beer that we drank?'
   b. wuli-ka   ecey   maykcwu-lul   masi-ø-n
        we-NOM   yesterday beer-ACC   drink-PERF-REL
        kes-i   acwu   pissa-ass-ta.
        KES-NOM   very   expensive-PST-DEC
        'The beer that we drank yesterday was very expensive.'

Considering the examples above, whether an individual level predicate can be used as an embedding predicate seems irregular. As J.-E. Lee (2021b) suggests, however, we can find a regular pattern by separating IHRCs whose head nouns take an object role from those whose heads take non-object grammatical roles. To be more specific, the constraint on the embedding predicate seems to be applied when its head noun takes an object role in the main clause. Observing naturally occurring IHRCs, J.-E. Lee (2021b: 61-63) suggests the possibility that Korean IHRCs are not homogenous in their degree of grammaticality. In her data, most were ones whose head nouns take an object role or a subject role in the main clause. She mentions that unlike the former, it is not easy to discover a pattern in the latter. This suggests two points. First, IHRCs whose head nouns take an object role in the main clause are more grammaticalized than those whose head nouns take a subject role. Second, the examples of IHRCs whose head nouns take a subject roleshow a greater degree of gradual heterogeneity.

2.3 The semantic feature of the head noun and the status of kes

The semantic restriction on the head noun depends on whether *kes* is interpreted as a noun with a lexical meaning referring to a thing or not. In turn, whether *kes* is interpreted as a noun with a lexical meaning seems to be affected by two factors: the grammatical role of the head noun in the main clause and the predicate in the main clause. Since the latter has been explored in 2.2, we will focus on the former. That is, in this section, we will review previous studies of *kes* and will show that *kes* is still in the process of grammaticalization in which *kes* with a lexical meaning and *kes* with no lexical meaning coexist, producing numerous borderline examples.

Providing the examples in (17), Mun (2012: 55) points out that *kes* shows a wide spectrum of meaning between a nominalizer and a lexical noun. We can examine the examples given in (17).

(17) a. Complementizer KES

   na-nun ku ai-ka imi kukes-ul
   I-NOM the kid-NOM already it-ACC
   mek-ess-ta-nu-n   kes-ul cal al-ko iss-ta.
   eat-PST-DEC-IMPF-REL KES-ACC well know-CONT-DEC
   'I know well that the kid already ate it.'

  b. Lexical KES

   ku namca-nun ku ai-ka   mek-ko iss-nu-n
   the man-TOP the kid-NOM eat-CONT-IMPF-REL
   kes-ul ppayas-ass-ta.
   KES-ACC snatch-PST-DEC
   'The man snatched the thing that the kid was eating.'

  c. Complementizer/nominalizer KES

   ce mellise pesu-ka o-nu-n   kes-ul
   that far bus-NOM come-IMPF-REL KES-ACC
   palkyenha-ess-ta.
   discover-PST-DEC
   '(I) found that the bus is coming from far.'

  d. Nominalizer KES

   na-nun kam-i   namwu-eyse tteleci-ø-n
   I-NOM persimmon-NOM tree-from fall-PERF-REL
   kes-ul cwup-e mek-ess-ta.
   KES-ACC pick.up-and eat-PST-DEC
   'I picked up the persimmon that fell from the tree and ate it.'
   (Mun 2012: 55)

Mun (2017) argues that clauses marked by *-(u)n/-(u)l kes* appearing in an argument place can be regarded as nominal clauses in the same way as those marked by a standard nominalizer like *-(u)m* as in (18a) and *-ki* as in (18b).

(18) a. John-un   Mary-ka   tolao-ass-um-ul   al-ko iss-ta.
        John-TOP   Mary-NOM   return-PST-NR-ACC   know-CONT-DEC
        'John knew that Mary has returned.'
     b. John-un   chayk ilk-ki-lul   cohaha-nta.
        John-TOP   book read-NR-ACC   like-DEC
        'John likes to read a book.'

Interestingly, she proposes that those examples that allow the interpretation as an IHRC seem to contribute to the development of nominal clauses marked by *-(u)n/-(u)l kes*. The example in (19) is a case in point.

(19) twuiiese   nacey   kamtok nom-i   singkulpengkul
     subsequently   daytime   director.NHON-NOM big.smile
     wus-te-n   kes-ul   tasikum   sayngkakha-ess-ta.
     smile-IMPF.PST-REL   KES-ACC   again   think-PST-DEC
     '(I) thought again that the director was smiling broadly daytime.' Or
     '(I) thought again of the director who was smiling broadly daytime.'

In (19), when *kes* refers to *kamtok* 'director' with adiminutive/insulting meaning, the example yields an IHRC construal. Simultaneously, *kes* can refer to the scene in which the director is smiling broadly. In this case, the example is interpreted as a complement clause.

   Regarding the discussion of *kes*, C.-W. Park (2021, 2022) and Yeon and Park (2021) should also be mentioned. As in Shibatani's (2017, 2018) cross-linguistics studies of IHRCs, they approach IHRCs in terms of metonymy and regard *kes* in Korean IHRCs as a schematic nominal devoid of semantic content. In (20) (repeated from (17)), for instance, *kes* in (20a,c,d) can be regarded as a schematic nominal and *kes* in (20b) as a dependent noun.

(20) a. *kes* as a schematic nominal
        na-nun   ku   ai-ka   imi   kukes-ul   mek-ess-ta-nu-n
        I-NOM   the kid-NOM   already it-ACC   eat-PST-DEC-IMPF-REL
        kes-ul   cal   al-ko iss-ta.
        KES-ACC   well   know-CONT-DEC

'I know well that the kid already ate it.'

b. *kes* as a dependent nominal

ku   namca-nun ku   ai-ka   mek-ko iss-nu-n
the man-TOP   the kid-NOM eat-CONT-IMPF-REL

kes-ul   ppayas-ass-ta.
KES-ACC   snatch-PST-DEC

'The man snatched the thing that the kid was eating.'

c. *kes* as a schematic nominal

ce   mellise pesu-ka   o-nu-n   kes-ul
that far   bus-NOM come-IMPF-REL KES-ACC

palkyenha-ess-ta.
discover-PST-DEC

'(I) found that the bus is coming from far.'

d. *kes* as a schematic nominal

na-nun   kam-i   namwu-eyse tteleci-ø-n
I-NOM   persimmon-NOM tree-from   fall-PERF-REL

kes-ul   cwup-e   mek-ess-ta.
KES-ACC   pick.up-and   eat-PST-DEC

'I picked up the persimmon that fell from the tree and ate it.'

(Mun 2012: 55)

The schematic nominal functions as a mediator between the embedded clause and the embedding clause. In the case of (20d), a certain part of the embedded clause is interpreted as an active zone. With *kes* functioning as a mediator between the two clauses, (20d) allows an IHRC construal.

In sum, *kes* may or may not have lexical meaning, and it is not always possible to draw a boundary between a lexical *kes* and a non-lexical *kes*. For instance, in (21a, b), *kes* may or may not have a lexical meaning as a thing. When we consider examples (21c), however, we cannot deny that *kes* in some IHRCs seems to be fully grammaticalized. That is, *kes* in (21c) refers to a human with an honorific property. Thus, in the case of (21c), it would be more plausible that *kes* forms a nominalizer, associated with relativizer *-n.*

(21) a. Mary-nun   namwuskaci-ka thwuienao-ø-n
          Mary-TOP   branch-NOM   spring.out-PERF-REL
          kes-ul   pwuthcap-ass-ta.
          KES-ACC   catch-PST-DEC
          'Mary caught the branch that sprang out.'
      b. Mary-nun   ai-ka   naka-lyeko ha-nu-n   kes-ul
          Mary-TOP   child-NOM   leave-be.about.to-IMPF-REL   KES-ACC
          pwuthcap-ass-ta.
          catch-PST-DEC
          'Mary caught the child that was about to leave.'
      c. Mary-nun   halmeni-kkeyse   naka-lye ko ha-si-nu-n
          Mary-TOP   grandmother-NOM.HON leave-be.about.to-HON-IMPF-REL
          kes-ul   pwuthcap-ass-ta.
          KES-ACC   catch-PST-DEC
          'Mary caught grandmother who was about to leave.'

    Lastly, in light of the examples in which *kes* carries a lexical meaning as an entity
we will briefly examine whether a doubly-headed RC (DHRC) exists in Korean. As the
name suggests, DHRCs exhibit the features of EHRCs and IHRCs by having both an
external head noun and a noun corresponding to the head noun inside the RC. The
example of Kombai in (22) is a case in point. In the example, the internal head noun
appears as a full noun *gana* 'bush knife' and the external head noun is given as a noun
with more general meaning *ro* 'thing', although both internal and external noun can
appear as a full noun.

(22) [[gana   gu   fali-kha]   ro]
      bush.knife   2SG   carry-go.2SG.NONFUT   thing
      na-gana-y-a
      my-bush.knife-TR-PRED
      'The bush knife that you took away, is my bush knife.'
      (de Vries 1993; Cinque 2011: 68)

The Korean IHRC in (23) looks very similar to the DHRC in (22). Regarding the
example in (23), Cinque (2011) mentions that "its internally headed RCs are followed

by what looks like an external Head in the form of the functional noun *kes* 'thing'" (see also Y.-B. Kim 1996: 405).

(23) [[John-i   Mary-ka   tol-ul   tenci-n]   kes]-ey   was-hit
           NOM   NOM   stone-ACC   threw-REL thing-by mac-ass-ta.
      'John was hit by the stone that Mary threw.'
      (Y.-B. Kim 1996: 406)

It looks more reasonable to regard the example in (23) as an IHRC for two reasons. First, when the head noun refers to a person a general noun such as *salam* 'person' should be able to be used instead of KES. However, replacing *kes* with *salam* 'person' will make an ungrammatical sentence in Korean. Second, the Korean correspondence of the Japanese DHRC in (24a) turns out to be ungrammatical as in (24b). Previous studies of Japanese DHRCs shows the similarities and differences between IHRCs and DHRCs in Japanese (Grosu and Hoshi 2019; Kitagawa 2022). Considering the example in (23) corresponds to an IHRC in Japanese, we can reserve our decision from regarding it as a DHRC until we get better evidence.

(24) a. [[Junya-wa   Ayaka-ga   ringo-o   mui-ta]
         Junya-TOP   Ayaka-NOM   apple-ACC   peel-PST
         sono   ringo]-o   tabe-ta.
         that   apple-ACC   eat-PST
         'Junya ate the apple(s) that Ayaka peeled.' or 'Ayaka peeled an apple/(some) apples and Junya ate them (= the peeled apples.).'
          (Grosu and Hoshi 2019: 12)
     b. [[Junya-nun   Ayaka-ka   sakwa-lul   kkakk-ø-un]
        Junya-TOP   Ayaka-NOM   apple-ACC   peel-PERF-REL
        ku   sakwa]-lul   mek-ess-ta.
        that apple-ACC   eat-PST-DEC

2.4 Idiosyncrasies

The (un)grammaticality of IHRCs is not explained by a set of rules rendering a clear-cut

judgement (Mun 2012, 2017; J.-E. Lee 2021a; C-.W. Park 2021). To begin with, in both IHRCs in (25), an adjective is used as a predicate in an IHRC. The example in (25a) is, however, less acceptable than that in (25b).[1]

(25) a. ?na-nun   kkoch-i   ppalka-Ø-n   kes-ul   kkekk-ess-ta.
          I-TOP   flower-NOM   red-PERF-REL   KES-ACC   pick-PST-DEC
          'I picked the flower that is red.'

      b. na-nun   tolmeyngi-ka   tantanha-Ø-n   kes-ul   cwup-ese
          I-TOP   stone-NOM   hard-PERF-REL   KES-ACC   pick.up-and
          tenci-ess-ta.
          throw-PST-DEC
          'I picked up the stone that is hard and threw it.'
          (Mun 2012: 47)

Considering that both *ppalka-* 'red' and *tantanha-* 'hard' are properties that are more stable regardless of time, that is, non-temporary, it is hard to explain why one is more acceptable. In the same vein, both head nouns in the IHRCs in (26) refer to an abstract noun, but the IHRC in (26a) is less acceptable than that in (26b).

(26) a. ?annaypangsong-i sikak-ul   al-li-nu-n
          announce-NOM   time-ACC   know-CAUS-IMPF-REL
          kes-i   wungsengkeli-nu-n   soum-ul
          KES-NOM   be noisy-IMPF-REL   noise-ACC
          mantul-e nay-ess-ta.
          make-MDL-PST-DEC
          'The announcement that notified the time made noisy sound.'
          (Mun 2012: 49)

      b. 2006 nyen-ey-nun   tyahanpyehosahyephoy-ka   sosong
          2006 year-in-TOP   Korea bar association-NOM   lawsuit

---

1   One anonymous reviewer pointed out that the color of an entity can influence the acceptability of an IHRC when the action of picking depends on the color as in (i) below.

    (i)   na-nun   yelmay-ka   ppalka-ø-n   kes-ul   tta-ass-ta.
          I-TOP   fruit-NOM   red-PERF-REL   KES-ACC   pick-PST-DEC
          'I picked the fruit that was red.'

      kel-n   kes-i   acik-to   cinhayng cwung-i-lako ha-ketunyo.
      sue-PERF KES-NOM   still-also ongoing-COP-say.that-DEC.MDL
      'It is said that the lawsuit that is made by Korea Bar Association is still
      going on in 2006.'
      (J.-E. Lee 2020: 180)

The examples in (25) and (26) suggest that there are idiosyncrasies in IHRCs. On the one hand, an idiosyncrasy can be regarded as a phenomenon common to every grammatical construction. On the other hand, however, it may indicate that Korean IHRCs show a cluster of exemplars of a few typical IHRCs whose use is extended based on semantic similarity. The latter aspect seems to be supported by the fact that, although Korean IHRCs show a highly restricted distribution, natural examples are found as well (see Section 5.1 for further discussions).

2.5 Interim conclusion

Thus far, we have considered four categories that may be relevant to the acceptability judgements of Korean IHRCs: the grammatical role of the head noun, the semantic feature of the head noun, the type of predicates, and idiosyncrasies. What has been discussed can be summarized as below.

   (27) a. The grammatical role of the head noun
        (i) The head noun tends to take a subject or an object role.
        (ii) There is less semantic restriction when the head noun takes an object
          role in a main clause.
      b. The semantic feature of the head noun
        The semantic restriction on the head noun depends on whether *kes* is
        interpreted as a noun with a lexical meaning or not.
      c. The type of predicates
        When the head noun takes an object role in a main clause, the predicate
        in an RC tends to represent a temporary state and the predicate in a
        main clause is required to be a stage-level predicate.
     d. Idiosyncrasies

The occurrence of IHRCs is not fully predicted by formal rules.

Based on these observations, we narrow down the target features that we will examine in this study as follows.

(28) The target features in the current study
    a. The grammatical role of the head noun in an RC
    b. Animacy of the head noun in an RC
    c. Aspectual feature of the predicate in an RC
    d. Interpretation of KES

First, we examine whether a head noun taking a subject role or an object role in an RC makes any difference in the acceptability judgements of IHRCs. Second, we explore whether the animacy of the head noun is relevant to the acceptability of IHRCs, and third, whether imperfective and perfective aspect results in a difference in acceptability judgment. Lastly, we will survey how *kes* in IHRCs is interpreted among Korean native speakers.

3. Methodology

3.1 Likert-scale experiment: Acceptability of IHRCs in Korean

3.1.1 Participants

In all, 83 native Korean speakers participated in the experiment. The mean age of the participants was 26.96 (SD = 7.53, range: 15-49), and the proportions of female and male participants were 64.35%-35.65%, respectively. They were recruited online, and most of them were university students in South Korea.

3.1.2 Task

A 7-point Likert scale acceptability judgment task (Fanselow and Weskott 2011; Sprouse

et al. 2013) was used in the experiment. The participants were presented with a target sentence on a computer screen, followed by numbers from 1 (very unnatural) to 7 (very natural). They were then instructed to decide the acceptability of the target sentences by clicking on one of the numbers (see Figure 1 below).
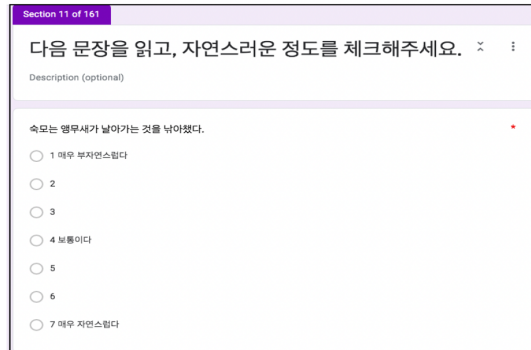

Figure 1. Screenshot of a test trial

3.1.3 Design and Materials

Each target sentence was embedded with an IHRC: the internal head of each IHRC was either a subject or an object and either animate or inanimate, and the embedded predicate within each IHRC involved either perfective or imperfective aspect. Three within-subjects factors were thus crossed to create eight conditions: GRAMMATICAL FUNCTION OF INTERNAL HEAD (Subject vs. Object), ANIMACY OF INTERNAL HEAD (Animate vs. Inanimate), and ASPECT OF EMBEDDED PREDICATE (Perfective vs. Imperfective). A sample set of test items is given in (29a)-(29h).[2]

   (29) a. SUBJECT-ANIMATE-IMPERFECTIVE (SAI) condition

         swukmo-nun   ayngmwusay-ka   nalaka-nu-n

---

2   Some examples in (29) describe situations that are unlikely to happen in real life, which can affect their acceptability judgement rate. The subject RC in (29a) or the object RC in (29f) are cases in point. Nevertheless, we used these examples to create target sentences reflecting the eight conditions without changing the main predicate in the same set of data. To be more specific, in all the examples in (29) *nakkachay*- 'snatch' is used as the main predicate, but each example reflects different conditions such as the grammatical role of the head noun in an RC, animacy of the head noun, and aspect of the embedded predicates.

aunt-TOP   parrot-NOM   fly.away-IMPF-REL

kes-ul   nakkachay-ess-ta.

KES-ACC   snatch-PST-DEC

'(My) aunt snatched the parrot that was flying away.'

b. SUBJECT-ANIMATE-PERF (SAP) condition

imo-nun   napi-ka   nalaka-ø-n

anut-TOP   butterfly-NOM   fly.away-PERF-REL

kes-ul   nakkachay-ess-ta.

KES-ACC   snatch-PST-DEC

'(My) aunt snatched the butterfly that flew away.'

c. SUBJECT-INANIMATE-IMPERFECTIVE (SAI) condition

samchon-un   phwungsen-i   nalaka-nu-n

uncle-TOP   balloon-NOM   fly.away-IMPF-REL

kes-ul   nakkachay-ess-ta.

KES-ACC   snatch-PST-DEC

'(My) uncle snatched the balloon that was flying away.'

d. SUBJECT-INANIMATE-PERF (SAP) condition

appa-nun   pangphayyeon-ka   nalaka-ø-n

dad-TOP   shield.kite-NOM   fly away-PERF-REL

kes-ul   nakkachay-ess-ta.

KES-ACC   snatch-PST-DEC

'(My) dad snatched the shield-kite that flew away.'

e. OBJECT-ANIMATE-IMPERF(OAI) condition

umma-nun Cheolsoo-ka   pitwulki-lul   nalli-nu-n

mom-TOP Cheolsoo-NOM   pigeon-ACC   fly-IMPF-REL

kes-ul   nakkachy-ess-ta.

KES-ACC   snatch-PST-DEC

'(My) mom snatched the pigeon that Cheolsoo was flying.'

f. OBJECT-ANIMATE-PERF (OAP) condition

komopwu-nun   Jinhee-ka   camcali-lul

aunt-TOP   Jinhee-NOM   dragonfly-ACC

nalli-ø-n   kes-ul   nakkachay-ess-ta.

fly-PERF-REL   KES-ACC   snatch-PST-DEC

'(My)uncle snatched the dragonfly that Jinsoo flew.'

g. OBJECT-INANIMATE-IMPERF (OII) condition

komopwu-nun   Mina-ka   pwumeylang-ul   nalli-nu-n

uncle-TOP   Mina-NOM   boomerang-ACC   fly-IMPF-REL

 kes-ul   nakkachay-ess-ta.

KES-ACC   snatch-PST-DEC

‘(My) uncle snatched the boomerang that Mina was flying.’

h. OBJECT-INANIMATE-PERF(OIP) condition

imopwu-nun   Minswu-ka   congipihayngki-ul

uncle-TOP   Minsoo-NOM   paper.airplane-ACC

nalli-ø-n   kes-ul   nakkachay-ess-ta.

fly-PERF-REL   KES-ACC   snatch-PST-DEC

‘(My) uncle snatched the paper airplane that Minsoo flew.’

In the SUBJECT conditions as in (29a)-(29d), the IHRCs embed an intransitive predicate (e.g. *nalaka*-‘fly’) and a subject that is intended to be the internal head, while in the OBJECT conditions as in (29e)-(29h), the IHRCs embed a transitive predicate (e.g. *nakkachay*- ‘snatch’), a subject, and an object that is intended to be the internal head. In the target sentences for the SUBJECT-ANIMATE-IMPERFECTIVE (SAI) and SUBJECT-ANIMATE-PERFECTIVE (SAP) conditions in (29a) and (29b), the IHRCs are both intended to have the animate subject internal head, *ayngmwusay* ‘parrot’ and *napi* ‘butterfly’, but the former involves the embedded predicate with imperfective aspect, *nalaka-nu-n* ‘fly-IMPF-REL’, while the latter involves the embedded predicate with perfective aspect, *nalaka-ø-n* ‘fly-PERF-REL’. In the target sentences for the SUBJECT-INANIMATE-IMPERFECTIVE (SII) and SUBJECT-INANIMATE-PERFECTIVE (SIP) conditions in (29c) and (29d), the only difference between the two SUBJECT conditions in (29a) and (29b) lies in the inanimate subject internal head, *phwungsen* ‘balloon’ and *pangphayyeon* ‘shield kite’. In the target sentences for the OBJECT-ANIMATE-IMPERFECTIVE (OAI) and OBJECT-ANIMATE-PERFECTIVE (OAP) conditions in (29e) and (29f), the IHRCs are both intended to take the animate object internal head, *Cheosoo* and *Jinhee*, but the former involves the embedded predicate with imperfective aspect *nalli-nu-n* ‘make something fly-IMPF-REL’, while the latter involves the embedded predicate with perfective aspect *nalli-ø-n* ‘make something fly-PERF-REL’. In the target sentences for the OBJECT-INANIMATE-IMPERFECTIVE (OII) and OBJECT-INANIMATE-PERFECTIVE (OIP) conditions in (29g) and (29h), the only

difference between the two OBJECT conditions in (29e) and (29f) lies in the inanimate object internal head, *pwumeylang* 'boomerang' and *congipihangki* 'paper airplane'.

Twenty-four sets of test items were constructed following the patterns illustrated in the sample set in (29a)-(29h). The resulting 192 test items were distributed into four distinct lists using a Latin Square design, and each participant saw only one version of each experimental item. The same 96 filler items of varying acceptability were then added to each list.

3.1.4 Procedure

The experiment was administered using a web-based platform, Google Survey.[3] Each participant started the experiment with six practice trials so that they could familiarize themselves with the task. After the training session, they were presented with 48 test trials (6 trials per condition) and 96 fillers in a uniquely generated random order. On average, they took approximately 20-25 minutes to complete the experiment and were paid $10 each as compensation for participation.

3.2 Survey: Possible interpretations of *kes* in IHRCs in Korean

Immediately after the 83 native Korean speakers completed the Likert-scale experiment discussed in Section 2, they were asked to fill out a brief question-and-answer survey. The participants were all presented with the IHRC sentence in (30), which has been widely cited in the Korean IHRC literature, and presented with the three follow-up questions translated in (31).

(30) kyengchal-i   totwuk-i   tomangka-nu-n   kes-ul
     police-NOM   thief-NOM   run away-IMPF-REL   KES-ACC
     cap-ass-ta.
     catch-PST-DEC
     'The police caught the thief who was running away.'

(31) a. Do you think that this sentence is acceptable? (Answer 'yes' or 'no'.)
     b. If 'yes', then what do you think *kes* in this sentence designates?
     c. If 'no', then why do you think this sentence is not acceptable?

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3 The current study used Google Survey for its easy accessibility and convenience. In this web-based platform, however, participants can control the order of tasks, going back and forth, which can affect the results.

If a participant answered 'yes' to (31a) and said in (31b) that *kes* designated *totwuk* 'thief', the participant was classified as having an 'entity' construal. If a participant answered 'yes' to (31a) and said in (31b) that *kes* designated the event (or situation) in which the thief was running away, the participant was classified as having an 'event' construal. If a participant answered 'no' to (31a) and said (31c) that the IHRC sentence was not acceptable because the *kes*-clause denoted an event, but the event could not be something that could be caught, the participant was classified as 'unacceptable'. Therefore, the survey served to reveal how Korean speakers accept IHRC sentences like (30) in a dichotomous fashion analogous to many linguists' reports in the literature using an asterisk, and how they interpret the IHRC sentences.

4. Results

4.1 Acceptability tests

Figure 2 summarizes the mean acceptability ratings by condition: 5.1 in the SAI condition, 3.6 in the SAP condition, 5.5 in the SII condition, 3.9 in the SIP condition, 4.0 in the OAI condition, 3.4 in the OAP condition, 4.2 in the OII condition, and 4.1 in the OIP condition.
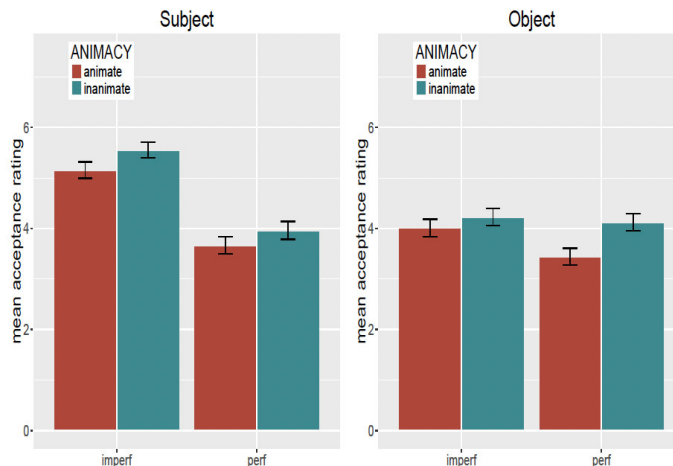

Figure 2. Mean rates of acceptance and standard errors in Experiment 1

A linear-mixed effects analysis was performed using the 'lmer' function of the lme4 and lmerTest packages (Bates et al. 2015) in R statistical software (R Development Core Team 2019) to analyze the participants' acceptability ratings, with the three experimental factors as fixed effects and participant and item as random effects. The analysis revealed a main effect of GRAMMATICAL FUNCTION OF INTERNAL HEAD (estimated coefficient = 1.14, SE = .24, t = 4.69, p< .001). This indicates that regardless of the animacy of the internal head and the aspect of the embedded predicate, speakers were likely to rate IHRC sentences with subject internal heads higher than those with object internal heads. The analysis also revealed a main effect of ASPECT OF EMBEDDED PREDICATE (estimated coefficient = −56, SE = .24, t = -2.32, p < .05). This indicates that regardless of the grammatical function and animacy of the internal head, speakers were likely to rate IHRC sentences with imperfective embedded predicates higher than those with perfective embedded predicates. The analysis revealed no main effect of ANIMACY OF INTERNAL HEAD, despite the fact that the mean acceptance rate of IHRC sentences with inanimate internal heads was numerically higher than that of those with animate internal heads, regardless of the grammatical function of the internal head and the aspect of the embedded predicate. In addition, an interaction between GRAMMATICAL FUNCTION OF INTERNAL HEAD and ASPECT OF EMBEDDED PREDICATE was found (estimated coefficient = −9, SE = .34, t = −.66, p < .05). That is, for the IHRC sentences with object internal heads, speakers were equally likely to accept the IHRCs with both imperfective and perfective embedded predicates, but for the IHRC sentences with subject internal heads, they were more likely to accept the IHRCs with imperfective embedded predicates than those with perfective embedded predicates.

To investigate how each participant performed across the eight experimental conditions, a cross-correlation analysis was conducted using the PerformanceAnalytics package (Peterson and Carl 2020) in R after the mean acceptance rate per participant in each of the eight conditions was calculated. The results are illustrated in Figure 3 below.
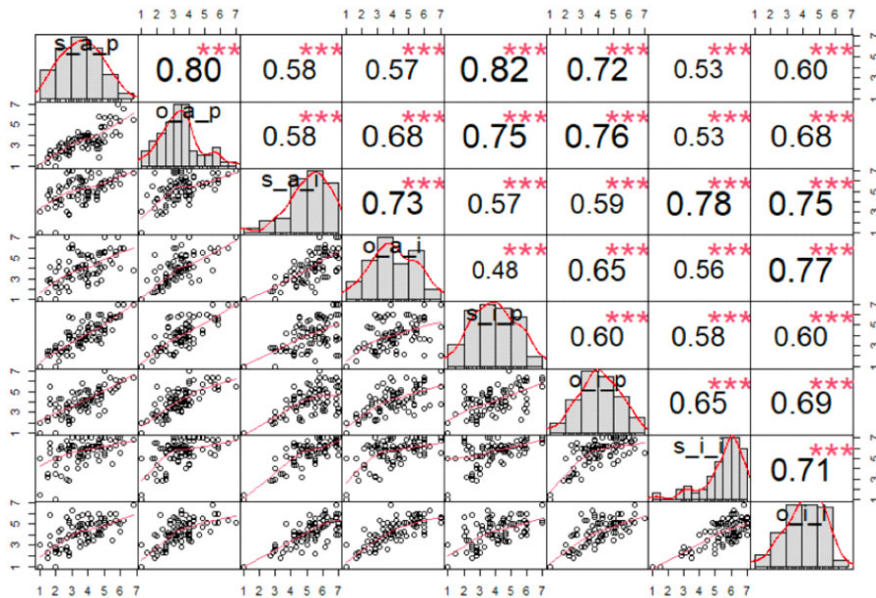
Figure 3. Correlations across mean acceptance rates in the SAP, OAP, SAI, OAI, SIP, OIP, SII, and OII conditions.

The histograms located along the main diagonal show the distribution of participants' mean acceptance rates in the eight conditions. The cells above the diagonal indicate the correlation coefficients between each pair of conditions. For example, the number 0.80 in the top-most cell of the second column is the correlation coefficient between the SAP and OAP conditions, and the number 0.58 in the top-most cell of the third column is the correlation coefficient between the SAP and SAI conditions. In contrast, the scatter diagrams in the cells below the diagonal represent the linear models for each pair of experimental conditions. For example, the two scatter diagrams in the second and third top-most cells of the first column indicate the linear models between the SAP and OAP conditions and between the SAP and SAI conditions, respectively.

Notably, the correlation coefficients between any two of the eight experimental conditions range from 0.48 to 0.80, which are all statistically significant (p < .001), thus indicating that the participants' mean acceptance rates in any two of the eight conditions show a significant correlation. Additionally, all the linear models represented in the scatter diagrams below the diagonal reveal a significant linear pattern. Taken together,

these results suggest that an individual speaker's acceptability of the IHRCs in one condition can be predicted from his or her acceptability of the IHRCs in the other condition (and vice versa). For example, it is likely that the participants who rated the IHRCs relatively high in the SAP condition also rated the IHRCs relatively high in the OAP condition, and those who rated the IHRCs relatively low in the SAP condition rated the IHRCs relatively low in the OAP condition.

4.2 Interpretation of *kes* in IHRCs

Of the 83 participants, 44 participants (53.01%) answered 'yes' to the question in (31a), while 39 participants (46.99%) answered 'no', as illustrated in Table 3 below, thus indicating a clear split between participants with regard to the acceptance of the IHRC sentence in (30), which has been widely cited as an example of IHRC in the literature.[4]

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4   The current study conducted a follow-up survey to examine further how Korean IHRCs are received. Through this process possible reasons for why participants made an acceptability judgement might be revealed. However, one anonymous reviewer rightly pointed out that this methodology can be problematic for the following reasons. First, when the main predicate is *cap*- 'catch', *kes* is unlikely to be interpreted as an event. Second, even if participants replied that *kes* can be interpreted as an event, there is a chance that participants' interpretation of an example might not be reflected to their answer. Third, because only one example was used in the survey, it can be difficult to know clearly whether or not the results are attributed to a certain feature of that question. Nevertheless, the survey in the current study has value as a case study, representing the possibility that Korean speakers might have different argument structures for the verb *cap*- 'catch', which calls for a future study incorporating more verbs with careful design. As a matter of fact, another anonymous reviewer provided the examples below in which the argument of the action *mil*- 'push' in (iA) is referred to as *kuke* 'it' as in (iB) or *salam* 'man' as in (iB´). Each case represents different meaning. In (iB), *kuke* 'it' cannot be interpreted as a person as in (iB´). To put it differently, using *kuke* as in (iB) does not seem to be irrelevant to the fact that some participants replied that *kes* refers to an event in this study. Exploring the types of pronouns that can be used to refer to the head nouns and the interpretation of each type is expected to enhance our understanding of IHRCs in Korean. With the lack of space, however, we will deal with this topic in another paper.

(i)   A: yeca-ka   [namca-ka   naylyeka-lyeko ha-nu-n   kes-ul]
             woman-NOM   man-NOM   go.down-be.about.to-IMPF-REL   KES-ACC
             mil-epeli-ess-tay.
             push-PERF-PST-someone.say.that.
             'The woman pushed the man who was going down.'
      B: seysangey   ettehkey   kuke-l   mil-e?
             my.goodness   how   it-ACC   push-Q
             'My goodness! What on earth did s/he push it?'
      B´: seysangey   ettehkey   naylyeka-lyeko a-nu-n   salam-ul   mil-e?
             my.goodness   how   go.down-be.about.to-IMPF-REL   man-ACC   push-Q
             'My goodness! What on earth did s/he push a man who was going down?'

Table 3: Frequency and proportion of answers to (31)

Answer to (31)	Interpretation	Frequency	% out of 83	% out of (¬)A
A: 'yes'	entity reading	23	27.71%	52.27%
A: 'yes'	event reading	21	25.30%	47.73%
¬A: 'no'	unacceptable	39	46.99%	100.00%

With regard to the question in (31b), those who accepted the IHRC sentence in (31a) were again divided into two groups. Those with an entity reading in which *kes* means the thief and those with an event reading in which *kes* means the situation account for approximately 52.27% (23 participants) and 47.73% (21 participants), respectively. With regard to (31c), approximately 95% out of those who did not accept the IHRC sentence said that the embedded clause denoted the event, that is, the thief's running away, but it was not compatible with the main predicate cap- 'catch'. The proportions presented thus far imply that there are three major subgroups in accepting and interpreting the IHCRs in Korean. The first group interprets the *kes*-clause with an event reading and does not accept the expression for the reason that the *kes*-clause denotes an event and does not match the matrix predicate. The second group also has an event reading of the *kes*-clause but judges the IHRCs as acceptable. The third group has an entity reading of the *kes*-clause and allows IHRCs.

To extend the analysis to the other IHRC sentences, four mosaic plots (a graphical display of a two-way frequency table to examine the relationship between the categorical variables) are presented in Figure 4, comprising contingency tables with two factors, the participant group elicited via the survey ('entity,' 'event,' and 'no') and the participants' mean acceptance rates in the Likert-scale task experiment (1 to 7). For simplicity, the animacy factor was not considered, as the experiment had revealed no main effect, so four mosaic plots were created for the SUBJECT-IMPERFECTIVE, SUBJECT-PERFECTIVE, OBJECT-IMPERFECTIVE, and OBJECT-PERFECTIVE conditions.
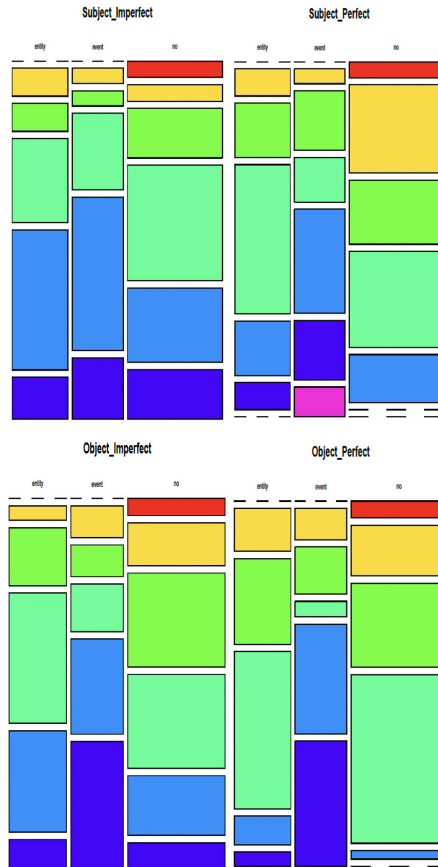
Figure 4: Mosaic plots of the three groups ('entity,' 'event,' and 'no') and the participants' mean acceptance rates in the Likert-scale task experiment (Each colour refers to the acceptability rate as follows: red= 1, yellow = 2, light green = 3, dark green = 4, light blue = 5, dark blue = 6, purple = 7)

The columns for the 'event' group in the four mosaic plots show that most participants in this group rated the IHRC sentences 5 or higher. In the mosaic plot for the SUBJECT-IMPERFECTIVE condition, the portions for 5, 6, and 7 account for most of the area in the column for the 'event' group, as well as most of the 'event' group column in the SUBJECT-PERFECTIVE condition. For the OBJECT-IMPERFECTIVE and OBJECT-PERFECTIVE conditions, the portions for 5 and 6 account for most of the 'event' group column. In contrast, the columns for the 'entity' group in the four mosaic

plots show that most participants in this group rated the IHRC sentences 4 or higher. In the mosaic plot for the SUBJECT-PERFECTIVE, OBJECT-IMPERFECTIVE, and OBJECT-PERFECTIVE conditions, the portions for 4 and 5 account for most of the area in the column for the 'entity' group. For the SUBJECT-IMPERFECTIVE condition, the portions for 5 and 6 account for most of the 'entity' group column. The observations so far suggest that the speakers of the 'event' group can be regarded as having 'high' acceptability of IHRCs, while the speakers of the 'entity' group can be regarded as having a 'mid-high' acceptability of IHRCs.

The columns for the 'no' group in the four mosaic plots show that most participants in this group rated the IHRC sentences 4 or lower. In the mosaic plot for the SUBJECT-PERFECTIVE, OBJECT-IMPERFECTIVE, and OBJECT-PERFECTIVE conditions, the portions for 2, 3, and 4 account for most of the area in the column for the 'no' group. For the SUBJECT-IMPERFECTIVE condition, the portions for 4 and 5 account for most of the 'no' group column. Therefore, the speakers in the 'no' group can be regarded as having a 'low-mid' acceptability of IHRCs.

5. General discussions

The results of the two experiments in the current study provide us with three observations to consider regarding the acceptability of Korean IHRCs, which are given in (32) below.

(32) Factors that are relevant for the acceptability of Korean IHRCs
     a. Subject & Imperfective
     b. Object & {Imperfective, Perfective}
     c. The event construal group > The entity construal group > The 'no' group

First, IHRCs in which the head noun takes a subject role in an RC and the predicate of the RC represents an imperfective aspect show the highest rate of acceptability. Second, when the head noun takes an object role in an RC, the aspectual feature does not affect the acceptability judgement. Third, those who interpreted *kes* of the example given in (33) (repeated from (30)) as an event judged IHRCs as showing higher acceptability than those who interpreted *kes* as an entity.

(33) kyengchal-i totwuk-i   tomangka-nu-n   kes-ul

police-NOM thief-NOM   run away-IMPF-REL   KES-ACC

cap-ass-ta.

catch-PST-DEC

'The police caught the thief who was running away.'

Both groups judged IHRCs with higher acceptability than those who judged the example in (33) as not acceptable. The 'no' group did not accept the example because of the mismatch observed between the syntactic object and the semantic read in the IHRC. They explained that (33) is not acceptable because they interpreted *kes* as an event but the object of the predicate *cap-* 'catch' cannot be an event.

In the rest of this section, we will discuss the results with three issues: a cluster of exemplars, structural similarities and semantic contagion, and statistical preemption and discourse function.

5.1 IHRCs as a cluster of exemplars

To begin with, in light of (32a, b), we argue that Korean IHRCs can be regarded as a cluster of exemplars forming a verb-class-specific constructions (cf. Goldberg 1995, 2006, 2019; Boas 2003; Croft 2003, 2012; Perek 2015). That is, we suggest that verbs such as *pwuthcap-* 'catch', *nakkachay-* 'snatch', and *mek* 'eat' in (34) form a cluster that are more likely to be acceptable as an embedding predicate for IHRCs.

(34) a. Subject & Imperfective

Mary-nun   John-i   nao-nu-n   kes-ul

Mary-TOP   John-NOM   come.out-IMPF-REL   KES-ACC

pwuthcap-ass-ta.

catch-PST-DEC

'Mary caught John who was coming out.'

b. Object & Imperfective

Mary-nun   John-i   congipihangki-lul   cep-ko iss-nu-n

Mary-TOP   John-NOM   paper.plane-ACC   fold-CONT-IMPF-REL

kes-ul   nakkachay-ess-ta.

KES-ACC   snatch-PST-DEC

'Mary snatched the paper plane that John was folding.'
c. Object & perfective

Mary-nun	John-i	ppang-ul	mantul-e twu-n
Mary-TOP	John-NOM	bread-ACC	make-CONT-REL

kes-ul	mek-ess-ta.
KES-ACC	eat-PST-DEC

'Mary ate the bread that John made.'

These examples reflect the features of IHRCs that were regarded as more acceptable in the grammatical judgement test given in (32a, b). These more acceptable examples, or more typical examples, are surrounded by less acceptable or less typical ones. It is not easy, however, to draw a clear-cut boundary between them, because they show a gradation of acceptability and display variation by example and speaker. If this is the case, then what makes some examples of IHRCs more typical? In other words, why are examples with the features given in (32 a, b) more acceptable?

To answer these questions, we can refer to the observation of J.-E. Lee (2021a, b). Regarding *pwuthcap*- 'catch' as a typical embedding predicate for a sentence with an IHRC, she proposes that this predicate takes a nominal clause as its argument as in (35b) based on the semantic similarity to the perception verb construction.

(35) a. The perception verb construction
         Subject + -*n kes-ul* 'REL KES-ACC' + *po*- 'see' type verbs
         ex) Chelsoo-nun   Yenghee-ka   ilena-a
             Chelsoo-TOP   Yenghee-NOM   stand.up-and
             naka-lyeko ha-nu-n   kes-ul   po-ass-ta.
             go.out-be.about.to-IMPF-REL   KES-ACC   see-PST-DEC
             'Chelsoo saw Yenghee who stood up and was about to go out.'
      b. IHRCs
         Subject + -*n kes-ul* 'REL KES-ACC' + *pwuthcap*- 'catch' type verbs
         ex) Chelsoo-nun   Yenghee-ka   ilena-a
             Chelsoo-TOP   Yenghee-NOM   stand.up-and
             naka-lyeko ha-nu-n   kes-ul   pwuthcap-ass-ta.
             go.out-be.about.to-IMPF-REL   KES-ACC   catch-PST-DEC

'Chelsoo caught Yenghee who stood up and was about to go out.'
c. Complement clauses (with non-perception verbs)
Subject + -*n kes-ul* 'REL KES-ACC' + *al-* 'know' type verbs
ex) Chelsoo-nun　　Yenghee-ka　　　ilena-a
　　Chelsoo-TOP　　Yenghee-NOM　　stand.up-and
　　naka-lyeko ha-nu-n　　　　　　kes-ul　　　al-ass-ta.
　　go.out-be.about.to-IMPF-REL　　KES-ACC　　know-PST-DEC
　　'Chelsoo knew Yenghee who stood up and was about to go out.'
　　(J.-E. Lee 2021a: 81)

The predicate *pwuthcap-* 'catch' generally takes an entity as its argument. This predicate seems to take a nominal clause as its argument as in (35b) based on the semantic similarity to the perception verb like *po-* 'see' as in (35a). As Gisborne (2010: 209) points out, 'the percept of seeing has to be temporally located and to have a place'. That is, in order to see something or someone, the observer should be in a specific time and place. In a sense, we can say that there is 'a direct physical interaction' between the observer and observant (cf. Verspoor 2000: 212). Like the event of seeing, the event of catching also assumes a specific time and place for the event to happen. In other words, we cannot see or catch something that does not exist in 'a temporary state'. 'A temporary state' is thus the grammatical requirement applying both for perception verbs and IHRCs, since IHRCs share the same encoding strategy as perception verb constructions. Unlike *po-* 'see', *al-* 'know' in (35c) neither requires for its clausal argument to display this aspectual requirement nor allows an entity construal (see also Section 5.2). Focusing on the similarities between *pwuthcap-* 'catch' and *po-* 'see', J.-E. Lee (2021a, b) suggests that the shared encoding strategy between Korean IHRCs and the perception verb construction seems to be formed centering around certain types of verbs that are similar to the perception verb.

　　We thus suggest that examples showing great similarities to the perception verb construction may consist of typical IHRCs. In other words, examples with embedding predicates that allow a construal of physical interaction with the state of affairs described in the embedding clause, or showing a temporary state, would be more acceptable as an IHRC in Korean. It should be noted, however, that this analysis is applied to those that share an encoding strategy with the perception verb construction in which the head noun takes an object role in the main clause. As described in Section 2, the head noun takes

primarily either a subject or an object role in the main clause. When it takes a subject role in the main clause, however, there are more constraints and it shows more irregularities (Kim and Song 2021; J.-E. Lee 2021a, b), which suggests two possibilities: There are subgroups of IHRCs showing different features, or there are examples that have been regarded as IHRCs but may fall into categories other than IHRCs.

Korean IHRCs remind us of the conative construction described in Perek (2015). Examining corpus data, he shows that 'the conative construction is better seen not as a unified whole, but as a cluster of low-level generalizations over similar verb meanings in line with Croft's (2003) proposal' (Perek 2015: 141). He further proposes that 'the generalizations accounting for the conative construction could well be centred on a few classes first, from which an abstract meaning could be extracted and applied to other verbs and classes. Such a scenario is probably necessary to explain the inclusion of 'orphans,' i.e., verbs whose semantic class does not have any other representative in the distribution' (Perek 2015: 142).

Like the conative construction, nominal clauses marked by the combination of a relativizer *-un/-ul* and *kes* seem to form a cluster of low-level generalizations over similar verb meanings. The physical interaction that is instantiated with a perception verb such as *po-* 'see' might include 'orphans' such as *pwuthcap-* 'catch'. This innovative use may extend to more predicates based on the semantic similarities with different degrees of acceptability. This hypothesis should be empirically examined, which will be the aim of a future research project.

5.2 Structural similarities and semantic contagion

Contagion is a subcategory of analogy and a category adjacent to metonymy (Hock 1991: 197-199; J.-H. Park 2016: 631). In this section, we examine the three different groups of interpretations of *kes* in IHRCs and suggest the possibility that these groups reflect the gradation of semantic contagion between IHRCs and the constructions that are structurally similar but functionally different.

To begin with, J.-E. Lee (2021a, b) points out that Korean IHRCs that are marked by *-(u)n kes-ul* share the formal constraints of other constructions that take a nominal clause as its argument. We can examine the examples given in (36).

(36) a. kyengchal-i   totwuk-i   tomangka-nu-n   kes-ul
        police-NOM   thief-NOM   run away-IMPF-REL   KES-ACC
        pwuthcap-ass-ta.
        catch-PST-DEC
        'The police caught the thief that was running away.'

   b. kyengchal-i   totwuk-i   tomangka-nu-n   kes-ul
        police-NOM   thief-NOM   run away-IMPF-REL   KES-ACC
        po-ass-ta.
        see-PST-DEC
        'The police saw that the thief was running away.'

   c. kyengchal-i   totwuk-i   tomangka-nu-n   kes-ul
        police-NOM   thief-NOM   run away-IMPF-REL   KES-ACC
        al-ass-ta.
        know-PST-DEC
        'The police knew that the thief was running away.'

As we can see above, the IHRC in (36a), the perception verb construction in (36b), and the complement clause in (36c) are encoded in the same way. The object of the predicate of each example, however, can be interpreted differently. In (36a), only an entity can be regarded as the object of the predicate of the embedding clause. That is, what the police caught is the thief. Contrariwise, in (36c), the whole clause is regarded as the object of the predicate of the embedding clause. The police knew what is described in the clause marked by *-nu-n kes-ul.* The situation in (36b) incorporates interpretation of both (36a) and (36c): The object of seeing can be regarded as an entity or the whole scene that is described in the clause marked by *-nu-n kes-ul.*

   Interestingly, however, the findings of the current study show that the way native Korean speakers interpret (36a) is not homogenous. As we have seen in Section 3.2, those who accepted the IHRC example given in (37) (repeated from (30)) as acceptable interpreted *kes* in two different ways: they interpreted it as an entity or an event.

(37) kyengchal-i   totwuk-i   tomangka-nu-n   kes-ul
     police-NOM   thief-NOM   run away-IMPF-REL   KES-ACC
     cap-ass-ta.

catch-PST-DEC

'The police caught the thief who was running away.'

It should be mentioned that those who interpreted *kes* as an event showed higher scores in the acceptability judgement tests than those who interpreted *kes* as an entity, while those who answered that the sentence in (37) is not acceptable showed the least acceptability. The different acceptability rates of IHRCs of the three groups can be ordered as in (38).

(38) Different acceptability rates of IHRCs among the three groups in
     theinterpretation of *kes*
     The event construal group > The entity construal group > The 'no' group

The results of the current study can be interpreted as follows: These three groups reflect different degrees of contagion between IHRCs and other constructions taking nominal arguments that share structural similarities. That is, we suggest the possibility that the event construal that can be made in the perception verb construction or other constructions with verbs taking nominal clauses spreading to IHRCs through the structural similarities. In fact, the perception verb construction or other constructions with verbs taking nominal clause appear far more often than IHRCs. Although predicates that endorse the IHRC interpretation do not take an event as their argument, Korean speakers may allow an event construal because most of the family of that construction marked by *-un kes-ul* allows an event construal. Considering this, the three different groups in the interpretation of *kes* can be understood as follows. Those who can be grouped as the 'no' group do not seem to allow any extension of use for the predicate like *pwuthcap*- 'catch'. Those who can be categorized as the entity construal group seem to allow a non-standard use for the predicate like *pwuthcap*- 'catch'.[5] Lastly, those who can be categorized as

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5   One anonymous reviewer suggested a possibility that pro-drop might have caused *kes* to be interpreted as a thief in (31). That is, the example in (ia) might be the result of the pro-drop from (ib) below.

(i) a. na-nun   [totwuk$_i$-i   tomangka-nu-n   kes-ul]   pro$_i$ cap-ass-ta.
         I-TOP   thief-NOM   run.away-IMPF-REL   KES-ACC   catch-PST-DEC
         'I caught the thief who was running away.'
     b. na-nun   [totwuk-i   tomangka-nu-n   kes-ul]   ku-lul   cap-ass-ta.
         I-TOP   thief-NOM   run.away-IMPF-REL   KES-ACC   he-ACC   catch-PST-DEC
         'I caught the thief who was running away.'

the event construal group show a giant leap from the usual use of the predicate like *pwuthcap*- 'catch' incorporating the use of the construction family consisting of verbs taking a nominal clause as its argument.

5.3 Statistical preemption and discourse function

In previous studies, it has been shown that Korean IHRCs show a highly limited distribution (among others Mun 2017; J.-E. Lee 2020). The results of the current study accord with them, in that only 21.7% of people accepted IHRCs with an acceptability greater than 5 in the Likert-scale task experiment. We can find one of the reasons for this limited use or low acceptability from statistical preemption. Statistical preemption, or competition in context, predicts that productivity is curtailed by the existence of an alternative formulation that conveys the intended message-in-context and is more accessible at the moment of speaking (Goldberg 2019: 74). That is, when native speakers have learned a more conventional way to express the intended message-in-context, they favour formulations that have become entrenched through previous exposure for expressing intended messages (Goldberg 2019: 75). Further, the results of Robenalt and Goldberg (2016) show that novel sentences that had a competing alternative might be judged less acceptable than novel sentences for which there was no clear competing alternative. Previous studies of statistical preemption designated the possibility that both the limited distribution of IHRCs and their low acceptability may be caused or boosted by the existence of these alternative constructions carrying the meaning and functions of IHRCs.

In previous studies, it has been pointed out that Korean IHRCs can be regarded from a functional perspective as a polysemous construction located between adverbial clauses and relative clauses (Y.-B. Kim 2002; M.-J. Kim 2004, 2008b; J.-E. Lee 2017). On the one hand, Korean IHRCs give information about the head noun, as other RCs do. Simultaneously, some IHRCs represent the meaning of clause linking such as time, reasons, and concession (M.-J. Kim 2008b; J.-E. Lee 2017, 2021a, b). In Korean, however, these two functions can be readily expressed by using EHRCs or adverbial clauses, as in (39) below.

(39) a. IHRCs

  kyengchal-i totwuk-i tomangka-nu-n   kes-ul

  police-NOM thief-NOM run away-IMPF-REL KES-ACC

  pwuthcap-ass-ta.

  catch-PST-DEC

  'The police caught the thief that was running away.'

 b. EHRCs

  kyengchal-i tomangka-nu-n   totwuk-ul

  police-NOM run away-IMPF-REL thief-ACC

  pwuthcap-ass-ta.

  catch-PST-DEC

  'The police caught the thief that was running away.'

 c. Adverbial clauses

  totwuk-i   tomangka-ca kyengchal-i   pwuthcap-ass-ta.

  thief-NOM   run away-and police-NOM   catch-PST-DEC

  'The thief ran away and the police caught (him).'

If IHRCs are used by Korean speakers, however, despite the existence of alternative constructions to IHRCs, there must be some motivation that prompts the use of IHRCs. We can find a clue from J.-E. Lee (2020). Examining naturally occurring Korean IHRCs and pseudo-IHRC data, she suggests six discourse functions as given in (40).

(40) a. Representing the common argument quickly

 b. Interaction with the audience

 c. Representing information strategically

 d. Representing the order of events accurately

 e. Dropping the common argument

 f. Licensing to have the particle of the common noun in an RC

Among these six discourse functions, IHRCs serve all but (40b). That is, unlike EHRCs, IHRCs enable speakers to suggest the common argument quickly (as in (41a)), to represent complex information strategically (as in (42a)), to describe the events with accurate order (as in (43a)), to drop the common argument (as in (44a)), and to license

to have the particle of the common noun in an RC (as in (45a)) (J.-E. Lee 2020: 192-199).

(41) Representing the common argument quickly
    a. IHRC
       imeyil   ponay-e   cwu-si-ø-n   kes   cal
       e-mail   send-LNK give-HON-PERF-REL   KES   well
       pat-a po-ass-supnita.
       receive-MDL-PST-DEC
       'I received the email that you sent to me well.'
    b. EHRC
       ponay-e   cwu-si-ø-n   imeyil   cal
       send-LNK   give-HON-PERF-REL   email   well
       pat-a po-ass-supnita.
       receive-MDL-PST-DEC
       'I received the email that you sent to me well.'
(42) Representing information strategically
    a. IHRC
       saysayksi   mom   sok-ey   tuleka-ø-n   kwisin-i
       a.newly.married.woman   body   inside-to   enter-PERF-REL   ghost-NOM
       halapeci-uy   kyeng   ilh-nu-n   soli-ey   mos   kyenti-e
       grandfather-of   chant   read-IMPF-REL   sound-at   cannot   bear-and
       heteki-mye   ilena-lyeko ha-nu-n   kes-ul
       struggling-and   stand.up-be.about.to-IMPF-REL   KES-ACC
       halapeci-ka   kyeng   soli-lo   cwui-e
       grandfather-NOM   chant   sound-with   kill-and
       'By chanting, grandfather killed the ghost that entered the newly married woman's body that could not bear the sound of the grandfather's chanting and was about to go out struggling, and⋯..'
    b. EHRC
       saysayksi   mom   sok-ey   tuleka-ø-n
       a.newly.married.woman   body   inside-to   enter-PERF-REL
       halapeci-uy   kyeng   ilh-nu-n   soli-ey   mos   kyenti-e
       grandfather-of   chant   read-IMPF-REL sound-at   cannot   bear-and

> heteki-mye   ilena-lyeko ha-nu-n   kwisin-ul
> struggling-and   stand.up-be.about.to-IMPF-REL   ghost-ACC
> halapeci-ka   kyeng   soli-lo   cwui-e
> grandfather-NOM   chant   sound-with   kill-and
> 'By chanting, grandfather killed the ghost that entered the newly married woman's body that could not bear the sound of the grandfather's chanting and was about to go out struggling, and…..'

(43) Representing the order of events accurately

    a. IHRC

> pwulli-e   noh-ø-un   ayhopak   malli-e   noh-ø-un
> soak-LNK   put-PERF-REL   zucchini   dry-LNK   put-PERF-REL
> kes-ul   kaci-ko
> KES-ACC   take-and
> 'with the zucchini that has been soaked and then dried'

    b. EHRC

> pwulli-e   noh-ø-un   malli-e   noh-ø-un
> soak-LNK   put-PERF-REL   dry-LNK   put-PERF-REL
> ayhopak   kaci-ko
> zucchini   take-and
> 'with the zucchini that has been soaked and then dried'

(44) Dropping the common argument

    a. IHRC

> talu-ø-n   yeca-hantey   ka-lye(-ko ha)-nu-n
> different-PERF-REL   woman-to   go-be.about.to-IMPF-REL
> kes-ul   nay-ka   ssonay-hantey   kkulko-ass-so.
> KES-ACC   I-NOM   Sonia-to   drag-PST-DEC
> 'I dragged (him) that was about to go to another woman to Sonia.'

    b. EHRC

> talu-ø-n   yeca-hantey   ka-lye(-ko ha)-nu-n
> different-PERF-REL   woman-to   go-be.about.to-IMPF-REL
> nom-ul   nay-ka   Sonia-hantey   kkuleo-ass-so.
> guy.DHON-ACC   I-NOM   Sonia-to   drag-PST-DEC
> 'I dragged him that was about to go to another woman to Sonia.'

(45) Preserving the meaning of the particle

    a. IHRC

      ku-to　　caki　　pang-ulo　　tuleka-lye(ko ha)-nu-n

      he-also　　self　　room-to　　　enter-be.about.to-IMPF-REL

      kes-ul　　　　Cayseo-ka　　　cap-ass-ta.

      KES-ACC　　Cayseo-NOM　　catch-PST-DEC

      'Jayseo caught him who was also about to go into his room.'

    b. EHRC

      caki　　pang-ulo　　tuleka-lye(ko ha)-nu-n　　　ku-lul

      self　　room-to　　enter-be.about.to-IMPF-REL　　he-ACC

      Cayseo-ka　　　　cap-ass-ta.

      Cayseo-NOM　　catch-PST-DEC

      'Jayseo caught him who was about to go into his room.'

In short, IHRCs in Korean are not strong in competition with alternative constructions such as EHRCs and adverbial clauses. They are not, however, completely replaceable since they serve specific discourse functions.

6. Conclusion

In this paper, we examined how Korean IHRCs are received by native speakers. The findings are as follows. First, certain examples are judged as having higher acceptability that have specific grammatical and aspectual features. Based on this observation, we proposed the possibility that the Korean IHRC is an example of a verb-class-specific construction in which innovative use spreads through semantic similarity. Second, IHRCs in Korean are received in three different ways, referred to as the entity group, the event group, and the 'no' group. The first two groups accepted the test example of IHRCs and interpreted *kes* as either an entity or an event. The last group rejected the test example of IHRCs and interpreted *kes* as an event. The event group showed the highest rate in acceptability judgement and the 'no' group the lowest. That is, the event group accepted IHRCs regardless of the mismatch between their interpretation of *kes* and the semantic feature of the object that the embedding predicate requires. On the other hand, the 'no' group judged IHRCs the least acceptable because of this mismatch. Third, the limited distribution of Korean IHRCs was explained by gradual semantic contagion and statistical

pre-emption.

The current study may contribute to relevant areas by providing an empirical study of Korean IHRCs. This study, however, did not examine all the factors that can affect the acceptability of IHRCs in Korean such as the predicate in a main clause. This will be our next line of research.

Abbreviations

ACC	accusative
COP	copula
DEC	declarative
DHON	dishonorific
HON	honorific
IMPF	imperfective
LNK	linker
MDL	modality
NR	nominalizer
NOM	nominative
NONFUT	nonfuture
PERF	perfective
PRED	predicate
PST	past
REL	relativizer
SG	singular
TOP	topic
TR	transitive
Q	question
2	second person

References

Bates, Douglas, Reinhold Kliegl, Shravan Vasishth, and Harald Baayen. 2015. Parsimonious mixed models. *arXiv preprint arXiv:1506.04967.*

Boas, Hans C. 2003. *A constructional approach to resultatives*. Stanford, CA: CSLI Publications.

Cha, Jong-Yul. 2005. *Constraints on clausal noun phrases in Korean with the focus on the gapless*

relative clause construction. PhD Dissertation. Champaign, IL: University of Illinois at Urbana-Champaign.

Cho, Sookeun. 2014. A study on the acceptability of the internally-headed relative clauses in Korean [in Korean]. *The Linguistic Association of Korea Journal* 22(2): 183-198.

Cho, Sookeun. 2016. A study on Korean internally-headed relative clauses through the analysis of corpus data from Korean speakers [in Korean]. *Language Information* 23: 77-94.

Chung, Chan and Jong-Bok Kim. 2003. Differences between externally and internally headed relative clause constructions. In Jong-Bok Kim and Stephen Wechsler (eds.), *Proceedings of the 9th International Conference on Head-Driven Phrase Structure Grammar*, 68-87. East Lansing, MI: Michigan State University. July 18-20.

Chung, Daeho. 1999. A complement analysis of the head internal relative clauses. *Language and Information* 3(2): 1-12.

Cinque, Guglielmo. 2011. On double-headed relative clauses. *Revista de Estudos Linguísticos da Universidade do Porto* 6(1): 67-91.

Croft, William. 2003. *Typology and universals*, 2nd edition. Cambridge: Cambridge University Press.

Croft, William. 2012. *Verbs: Aspect and causal structure*. Oxford: Oxford University Press.

Culy, Christopher D. 1990. *The syntax and semantics of internally headed relative clauses*. PhD Dissertation. Stanford, CA: Stanford University.

Dixon, Robert M. W. 2010. *Basic linguistic theory 2: Grammatical topics*. Oxford: Oxford University Press.

Gisborne, Nikolas. 2010. *The event structure of perception verbs*. Oxford: Oxford University Press.

Goldberg, Adele E. 1995. *Constructions: A construction grammar approach to argument structure*. Chicago, IL: Chicago University Press.

Goldberg, Adele E. 2006. *Constructions at work: The nature of generalization in language*. Oxford: Oxford University Press.

Goldberg, Adele E. 2019. *Explain me this: Creativity, competition, and the partial productivity of constructions*. Princeton, NJ: Princeton University Press.

Grosu, Alexander and Fred Landman. 2012. A quantificational disclosure approach to Japanese and Korean internally headed relatives. *Journal of East Asian Linguistics* 21(2): 159-196.

Grosu, Alexander and Koji Hoshi. 2019. Japanese internally-headed and doubly-headed relative constructions, and a comparison of two approaches. *Glossa* 4(1): 128. 1-23.

Hiraiwa, Ken. 2017. Internally headed relative clauses. In Martin Everaert and Henk C. Van Riemsdijk (eds.), *The Wiley Blackwell companion to syntax*, 2nd edition, 1-32. Hoboken, NJ: John Wiley & Sons.

Hock, Hans H. 1991. *Principles of historical linguistics*, 2nd edition. Berlin: Mouton de Gruyter.

Jhang, Sae-Eun. 1991. Internally headed relative clauses in Korean. In Susumu Kuno, Ik-Hwan Lee, John Whitman, Joan Maling, Young-Se Kang, Peter Sells, James Hye-Suk Yoon, Youngjun Jang, and Young-mee Yu Cho (eds.), *Harvard studies in Korean linguistics*, 269-280. Seoul: Hanshin Publishing.

Jhang, Sae-Eun. 1994. *Headed nominalizations in Korean: Relative clauses, clefts, and comparatives.* PhD Dissertation. Burnaby, BC: Simon Fraser University.

Kim, Jong-Bok. 2016. *The syntactic structures of Korean.* Cambridge: Cambridge University Press.

Kim, Kyeong-min and Sanghoun Song. 2022. Distributional asymmetry in subject and object internally headed relative clauses in Korean. *Korean Linguistics* 94: 57-86.

Kim, Min-Joo. 2004. *Event-structure and the internally-headed relative clause construction in Korean and Japanese.* PhD Dissertation. Amherst, MA: University of Massachusetts Amherst.

Kim, Min-Joo. 2007. Formal linking in internally headed relatives. *Natural Language Semantics* 15: 279-315.

Kim, Min-Joo. 2008a. Internally headed relatives parallel direct perception complements. *Japanese/Korean Linguistics* 13: 281-292.

Kim, Min-Joo. 2008b. Relevance of grammar and pragmatics to the relevancy condition. *Language Research* 44(1): 95-120.

Kim, Min-Joo. 2009. E-type anaphora and three types of *kes*-construction in Korean. *Natural Language & Linguistic Theory* 27(2): 345-377.

Kim, Yong-Beom. 1996. Internally headed relative clause constructions in Korean. *Proceedings of the 11th Pacific Asia Conference on Language, Information and Computation*, 403-413. Kyung Hee University, Seoul. December 20-22.

Kim, Yong-Beom. 2002. Relevancy in internally headed relative clauses in Korean. *Lingua* 112(7): 541-559.

Kim, Yong-Ha. 2013. A note on Korean internally headed relative clauses. *Studies in Modern Grammar* 75: 83-99.

Kitagawa, Chisato. 2022. Internally-headed and doubly-headed relatives in Japanese - How are they related to each other?. *Glossa* 7(1): 1-22.

Kuroda, Shige-Yuki. 1976. Headless relative clauses in modern Japanese and the relevancy condition. *Proceedings of the 2nd Annual Meeting of the Berkeley Linguistics Society*, 269-279. Berkeley, CA: University of California.   February 14-16.

Lee, Jeongrae. 2006. *The Korean internally headed relative clause construction: Its morphological, syntactic and semantic aspects*. PhD Dissertation. Tucson, AZ: University of Arizona.

Lee, Ji-Eun. 2017. *Relativization in Korean: Formal restriction and functional solutions.* PhD Dissertation. Dunedin: University of Otago.

Lee, Ji-Eun. 2020. A study of the internally headed RC and its resemblant constructions marked by '-un kesi' and '-un kesul' [in Korean]. *Journal of Korean Linguistics* 95: 167-210.

Lee, Ji-Eun. 2021a. A study of internally-headed RCs: Focusing on the formal restrictions and the semantic extension to adverbial clauses [in Korean]. *Language Research* 57(1): 51-85.

Lee, Ji-Eun. 2021b. Korean internally headed relative clauses: Encoding strategy and semantic relevance. *Australian Journal of Linguistics* 41(1): 1-32.

Mun, Suk-yeong. 2012. A study on Korean relative clauses in typological perspective [in Korean]. *Gaesin Language and Literature* 35: 31-68.

Mun, Suk-yeong. 2017. 'Ges' clausal nominalization in the Korean language from a typological perspective. *Journal of Korean Linguistics* 84: 33-88.

Park, Chongwon. 2021. Korean relative clauses: Metonymy, zone activation, and reference point. *Studia Linguistica* 76(2): 275-314.

Park, Chongwon. 2022. Metonymy in the Korean internally headed relative clause construction. *Linguistics Vanguard* 8(1): 355-365.

Park, Hyeong-Jin. 2019. The syntax and semantics of internally headed relative clauses in Korean [in Korean]. *Journal of Bangyo Language and Literature* 52: 87-118.

Park, Jin-Ho. 2016. Contagion in language. *Korean Journal of Linguistics* 40(4): 619-632.

Perek, Florent. 2015. *Argument structure in usage-based construction grammar: Experimental and corpus-based perspectives.* Amsterdam: John Benjamins Publishing Company.

R Development Core Team. 2019. R: A language and environment for statistical computing. *R Foundation for Statistical Computing.*

Robenalt, Clarice and Adele E. Goldberg. 2016. Nonnative speakers do not take competing alternative expressions into account the way native speakers do. *Language Learning* 66(1): 60-93.

Shibatani, Masayoshi. 2017. Nominalization. In Masayoshi Shibatani, Shigeru Miyagawa, and Hisashi Noda (eds.), *Handbook of Japanese syntax*, 271-332. Berlin: Walter de Gruyter.

Shibatani, Masayoshi. 2018. Nominalization in crosslinguistic perspective. In Prashant Pardeshi and Taro Kageyama (eds.), *Handbook of Japanese Contrastive Linguistics*, 345-410. Berlin; Boston: De Gruyter Mouton.

Song, Sanghoun. 2021. Different types of internally headed relative clauses in Korean: A corpus-based analysis. *Studies in Linguistics* 60: 89-114.

Sprouse, Jon, Carson T. Schütze, and Diogo Almeida. 2013. A comparison of informal and formal acceptability judgments using a random sample from Linguistic Inquiry 2001-2010. *Lingua* 134: 219-248.

Verspoor, Marjolijn. 2000. Iconicity in English complement constructions: Conceptual distance and cognitive processing levels. In Kaoru Horie (ed.), *Complementation: Cognitive and functional Perspectives* 1, 199-225. Amsterdam: John Benjamins Publishing Company.

de Vries, Lourens. 1993. *Forms and functions in Kombai, an Awyu language of Irian Jaya*. Canberra: Australian National University.

Weskott, Thomas and Gisbert Fanselow. 2011. On the informativity of different measures of linguistic acceptability. *Language* 87(2): 249-273.

Yeom, Jae-Il. 2015. Gapless adnominal clauses in Korean and their interpretations. *Language Research* 51(3): 597-627.

Yeon, Jaehoon and Chongwon Park. 2021. A syntactic-semantic analysis of the bond noun 'kes' in three different grammatical constructions in Korean [in Korean]. *Eoneohag* 90: 129-154.

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