E-type Anaphora and Three Types of *Kes*-Construction in Korean

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Abstract: The overarching goal of this article is to account for why the Internally-Headed Relative Clause, the direct perception, and the factive constructions in Korean have an identical form involving the pronominal *kes* and the relativizer *-un*, despite the fact that one construction instantiates relativization and the other two instantiate complementation. I solve this puzzle by recasting Kim's (2007) analysis of Korean internally-headed relatives in a Kratzerian situation semantic framework (e.g., Kratzer 1989, 1998, 2002). The central claim is that the three *kes*-constructions have an identical form because they all instantiate situation subordination that is facilitated by an E-type pronoun and a relativization strategy. The proposed analysis shows that E-type pronouns and relativizers can have more flexible semantics than widely assumed. It also sheds new light on the connection between modification and complementation across languages. Furthermore, it provides an argument for Kratzerian situation semantic theory in dealing with the interpretations of complex clauses.

Key words: E-type Anaphora, Internally-Headed Relative Clause construction, Direct Perception Construction, Factive Construction, Kratzerian situation semantics

1 Introduction

Consider sentences (1), (2), and (3), which respectively exemplify what is called the Internally Headed Relative Clause (IHRC) construction, the direct perception construction, and the factive construction in Korean.[1] These sentences show that the three constructions are string-identical except for the embedding predicate.[2] What is particularly noteworthy is that the object positions of all three constructions consist of clausal material followed by the grammatical categories *-un* and *kes*.[3] The morpheme *-un* is invariably analyzed as the relativizer or

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[1] In the IHRC construction, action verbs like 'catch', 'stop', and 'chase' usually occur as the embedding clause predicate. The embedding predicate of the perception construction is typically 'see', 'witness', 'hear', or 'feel'. Canonical examples of factive verbs are propositional attitude verbs like 'know', 'realize', 'notice', and 'forget'.

[2] It seems that languages that have the IHRC construction exhibit the same pattern: e.g., Quechua, as documented in Lefebvre and Muysken (1988). In Japanese, however, while the IHRC construction and the perception construction have an identical form in which *no* occurs in lieu of *kes* in Korean, the factive construction usually requires a different nominalizer, namely, *koto* (Yukinori Takubo, Shigeru Miyagawa, p. c.). According to

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[3] There are other constructions that have the same make-up as the three *kes*-constructions. For instance, some psych-verbs can take the gapless clausal material + *kes* string as their complements, as shown in (i).

adnominalizer in the existing literature but the status of *kes* is less clear: it is usually analyzed as a pronominal in the IHRC construction (see Chung and Kim 2003, Kim 2004, Lee 2006) and as a nominalizer (e.g., Kim 1984, Jo 2003) or a complementizer in the other two constructions (e.g., Jhang 1994). In this article, I will treat *kes* as a pronominal in all three cases. To stay neutral in citing the existing literature, however, I will not gloss it until section 3, so it will be glossed as KES for the time being.[4]

(1) The IHRC construction:

John-un	[[totwuk-i	tomangka-n]-un	kes]-ul	cap-ess-ta.
J.-TOP	[[thief-NOM	run.away-IMPRF]-REL	KES]-ACC	catch-PST-DECL

'John caught a/the thief while he (= the thief) was running away.'

(2) The perception construction:

John-un	[[totwuk-i	tomangka-n]-un	kes]-ul	po-ess-ta.
J.-TOP	[[thief-NOM	run.away-IMPRF]-REL	KES]-ACC	see-PST-DECL

'John saw the event of the thief running away.'

(3) The factive construction:[5]

John-un	[[totwuk-i	tomangka-n]-un	kes]-ul	al-ess-ta.
J.-TOP	[[thief-NOM	run.away-IMPRF]-REL	KES]-ACC	know-PST-DECL

'John knew (the fact) that the thief was running away.'

The fact that the IHRC, the perception, and the factive constructions in Korean share the surface form is intriguing because they exhibit rather clear interpretive differences. For instance, while the embedded clause plus *kes* string (henceforth '*kes* string') seems to serve as the object of the embedding predicate in the perception and the factive constructions, in the IHRC

(i)

Na-nun	[[Swunhi-ka	maumssi-ka	chakha-∅]-n	kes-i	**maumeytu**-n-ta.
I-TOP	[[S.-NOM	heart-NOM	be.good-n.pst]-REL	KES-NOM	like-IMPRF-DECL

'I <u>like it that Swunhi has a good heart</u>.'
Or 'I like <u>Swunhi because she has a good heart</u>.'

In constructions like (i), however, the *kes*-string usually occurs bearing a Nominative case marker, while it occurs with Accusative case marking in the three *kes*-constructions introduced above. Furthermore, numerous instances of *kes*-constructions are hard to subsume under the rubric of the IHRC, the perception, or the factive construction (see Chae 2007). Hence, to keep matters simple, I do not discuss other *kes*-constructions like (i) until section 3.5; in that section, we will see that the analysis I propose for the three *kes*- constructions can readily carry over to them.

[4] In this paper, Yale Romanization is adopted for transcribing the Korean data, and the following abbreviations are used:

ACC: accusative case; COMP: complementizer; CON: conditional; COP: copular verb; DAT: dative case; DECL: declarative sentence ending; FUT: future; GEN: genitive case; HON: honorific; IMPRF: imperfective aspect; IND: indicative mood marking; LOC: locative; MOOD: mood; NEG: negation; NOM: nominative case; PRON: pronoun; PST: past tense; PERF: perfect aspect; Q: question ending; REL: relative clause marker; TOP: topic.

[5] In Korean, sentences containing non-factive attitude verbs, such as 'think' or 'say', bear a different form involving *ko*-complementation, as shown in (i).

(i)

John-un	[totwuk-i	tomangka-n-ta]-ko	malhay-/saynkakhay-ess-ta.
J.-TOP	[thief-NOM	run.away-IMPRF-IND]-COMP	say/think-PST-DECL

'John said/thought that the thief was running away.'

construction, it seems to be supplying both the object of the embedding predicate and a modifier thereof, as indicated by the English translation of (1). In addition, the string is interpreted as denoting an eventuality in the perception construction and a fact in the factive construction but an individual in the IHRC construction—e.g., the thief in (1).

These differences between the three constructions raise at least three questions:

(i)   Why do they surface bearing the same form, despite the interpretive differences?
(ii) How else do they differ from each other?
(iii) Do they have any similarities other than the seemingly identical surface form?

To my knowledge, these questions have not been addressed in the literature. Currently, the three constructions are treated separately on the basis of the fact that the IHRC construction instantiates relativization whereas the perception and the factive constructions instantiate complementation (see, among others, Kim 1984, Jhang 1994, Chung 1999, Chung and Kim 2003). Answering the above questions properly will therefore contribute to the existing body of knowledge, and that is what this paper hopes to accomplish.

I show that the three constructions display several subtle semantic differences at the micro-level but are similar at the macro-level and thus can receive an essentially uniform treatment.[6] At its core, this globally uniform treatment of the three constructions is an extension of Kim's (2007) E-type pronoun analysis of the IHRC construction to the perception and the factive constructions in Korean. Yet, departing from the event-based framework adopted in that work, I will adopt Kratzerian situation semantics here, more precisely what is expounded in Kratzer (1989, 1998). In addition, Kratzer's (2002) treatment of knowledge ascriptions will be adopted in dealing with the factive construction. The central claim will be that in all three constructions, -un invariably relates two sets of situations in the denotations of the embedded and the embedding clauses, whether they feel like events or worlds, and kes represents an E-type pronoun whose denotation relates a situation to a salient entity in it, be it a minimal or a maximal situation. Under the analysis to be developed here, such a flexible semantic treatment of -un and kes is possible because in a Kratzerian situation semantics framework, eventualities, states of affairs, and worlds can be simply different types of situations that stand in a part-whole relation to each other and just like individuals, situations and worldly facts can be uniformly treated as particulars or concrete objects.[7]

The remainder of this paper proceeds as follows: section 2 takes a closer look at the three kes-constructions and shows how exactly they are similar and dissimilar to each other. Section 3 develops a situation semantical analysis of the three constructions. At the end of this section, I also discuss how the semantic analysis developed here accounts for the various properties of the three constructions identified earlier. Additionally, I show how it can extend to other kes-constructions that are not discussed in this paper for the reasons given in footnote 3. Finally, the paper closes in section 4 with a summary and conclusion.

2   How exactly are the three *kes*-constructions similar or dissimilar to each other?

In this section, I compare the three kes-constructions with respect to five semantic properties: (i) referential transparency, (ii) indicative mood-marking, (iii) predicate restriction,

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[6] By this, I do not mean to say that they are identical constructions, however.

[7] In this paper, I use the term 'entities' to refer to both 'individuals' and non-individual-like particulars, such as 'events' and 'situations'; the term 'individuals' will be mostly kept for human and animate things.

(iv) presuppositionality, and (v) the interpretive behavior of *kes*. As mentioned above, a widely-held view in the literature is that the IHRC construction forms a separate type of construction from both the direct perception construction and the factive construction. I show that although it is certainly indisputable that the former instantiates relativization and the latter two instantiate complementation, there is reason to rethink the prevailing classification. In order to establish this, I first present some of the characteristic properties of the factive construction and then show how they are shared or not shared by the other two *kes*-constructions.

2.1 Referential transparency of the complement position

A well-known fact in semantics literature is that factive verbs like 'know' and direct perception verbs like 'see' differ from each other in terms of the referential transparency of their complement positions. This can be seen by utilizing what is called 'the substitution test' for intensionality. To illustrate, consider (4) and (5). These paradigms show that while knowledge ascriptions do not pass the substitution test, direct perceptual reports do, suggesting that the former are referentially opaque while the latter are referentially transparent. (For further discussion about English cases, see, among others, Barwise 1981, Higginbotham 1983, Berg 1988).

(4) a. Lois Lane knows that Clark Kent is a reporter.
    b. Clark Kent is Superman.
 =/=> c. Lois Lane knows that Superman is a reporter. (INVALID)

(5) a. Lois Lane saw Clark Kent leave the office.
    b. Clark Kent is Superman
➔ c. Lois Lane saw Superman leave the office.   (VALID)

Notice now that the same kind of contrast obtains between the perception and the factive constructions in Korean, as exemplified by (6) and (7).

(6)   The factive construction:
    a. John-un   totwuk-i   tomangka-n-un   kes-ul   al-ess-ta.
        J.-TOP   thief-NOM   run.away-IMPRF-REL   KES-ACC   know-PST-DECL
        'John knew that the thief was running away.'
    b. Ku   totwuk-un   Chinho-i-ess-ta.
        The   thief-TOP   Chinho-COP-PST-DECL
        'That thief was Chinho.'
=/=> c. John-un   Chinho-ka   tomangka-n-un   kes-ul   al-ess-ta.
        J.-TOP   C.-NOM   run.away-IMPRF-REL   KES-ACC   know-PST-DECL
        'John knew that Chinho was running away.' (INVALID)

(7)   The perception construction:
    a. John-un   totwuk-i   tomangka-n-un   kes-ul   po-ess-ta.
        J.-TOP   thief-NOM   run.away-IMPRF-REL   KES-ACC   see-PST-DECL
        'John saw the event of the thief running away.'
    b. Ku   totwuk-un   Chinho-i-ess-ta.
        The   thief-TOP   Chinho-COP-PST-DECL

'That thief was Chinho.'

➔ c. John-un   Chinho-ka   tomangka-n-un   kes-ul   po-ess-ta.
   J.-TOP   C.-NOM   run.away-IMPRF-REL   KES-ACC   see-PST-DECL
   'John saw the event of Chinho running away.' (VALID)

The fact that the factive and the perception constructions in Korean behave differently with respect to referential transparency does not really surprise us because semantic properties like referential transparency (or opacity) are likely to hold universally. What may come as a slight surprise, though, is that the IHRC construction patterns exactly like the perception construction in this regard. To see this, compare (7) and (8).

(8)   The IHRC construction:
   a.   John-un   totwuk-i   tomangka-n-un   kes-ul   cap-ess-ta.
        J.-TOP   thief-NOM   run.away-IMPRF-REL   KES-ACC   catch-PST-DECL
        'John caught the thief while he was running away.'
   b.   Ku   totwuk-un   Chinho-i-ess-ta.
        The   thief-TOP   Chinho-COP-PST-DECL
        'That thief was Chinho.'
➔ c.   John-un   Chinho-ka   tomangka-n-un   kes-ul   cap-ess-ta.
        J.-TOP   C.-NOM   run.away-IMPRF-REL   KES-ACC   catch-PST-DECL
        'John caught Chinho while he was running away.' (VALID)

This leads us to conclude that when it comes to referential transparency or opacity of the complement position, there is more affinity between the IHRC and the perception constructions than between the perception and the factive constructions.

2.2 Indicative mood marking inside the embedding clause

Another semantic property with respect to which I would like to compare the three *kes*-constructions is the possibility or impossibility of indicative mood marking on the embedded clause's predicate.

In Korean, the morpheme *-ta* occurs on the predicate of a clause, indicating that it is a declarative sentence. This is illustrated by all the Korean sentences presented thus far, for they all end in *-ta* and make some sort of assertion. Given this, *-ta* can be analyzed as an indicative mood marker, even though it is glossed here as a declarative sentence ending. Thus, it is expected to occur inside the embedded clause that has an assertoric force, as illustrated in (9).

(9) John-un [totwuk-i   tomangka-n-ta]-ko   malhay-ss-ta.
    J.-TOP   [thief-NOM   run.away-IMPRF-IND]-COMP   say-PST-DECL
    'John said that the thief was running away.'

When we turn to the three *kes*-constructions, we see that while *ta*-marking is allowed on the embedded predicate of the factive construction, it is disallowed on the embedded predicates of the perception and IHRC constructions, as exemplified in (10), (11), and (12).

(10)   The factive construction:
        John-un [totwuk-i   tomangka-n-**ta**]-nun   kes-ul   alassta/kattalassta.

J.-TOP   [thief-NOM   run.away-IMPRF-IND]-REL KES-ACC   knew/realized

'John knew that the thief was running away.'

(11)   The perception construction:

      *John-un [totwuk-i   tomangka-n-**ta**]-nun   kes-ul   poassta/tulessta.

      J.-TOP   [thief-NOM   run.away-IMPRF-IND]-REL KES-ACC   saw/heard

      Intended: 'John saw/heard the thief running away.'

(12)   The IHRC construction:

      *John-un [totwuk-i   tomangka-n-**ta**]-nun   kes-ul   capassta/makassta.

      J.-TOP   [thief-NOM   run.away-IMPRF-IND]-REL KES-ACC   caught/stopped

      Intended: 'John caught/stopped the thief running away.'

Since *ta*-marking is considered the hallmark of an indicative sentence, we can take the contrast between the above three sentences to suggest that only the embedded clause of a factive sentence has an assertoric force of its own. Alternatively, we can take it to suggest that only a factive complement can denote a proposition; what occurs in the complement position of a sentence instantiating the IHRC or the perception construction denotes something smaller, e.g., a set of eventualities or situations. Whatever may turn out to be the right conclusion, what is clear at this point is that the IHRC and the perception constructions pattern together with regard to the occurrence of indicative mood making inside the embedded clause.

2.3. Predicate restriction on the embedded clause

Another criterion with which to compare the three *kes*-constructions is a predicate restriction on the embedded clause, more specifically, whether the embedded clause can have both individual-level (I-level) predicates and stage-level (S-level) predicates in the sense of Carlson (1977), which respectively describe semi-permanent properties of individuals and spatio-temporally bound stages thereof.

To begin with the factive construction, the embedded clause can have either an I-level predicate or an S-level predicate, as exemplified by (13).[8]

(13) a. John-un [[Mary-ka **changnankkwuleki-i**-∅]-un kes]-ul   alassta/kattalassta

       J.-top   [[M.-nom   goofy.person-COP-N.PST]-REL KES]-ACC   knew/realized

       'John knew/realized that Mary <u>is/was a goofy person</u>.'

    b. John-un [[Mary-ka **changnanchi**-n]-un   kes]-ul   alassta/kattalassta.

       J.-top   [[M.-nom   goof.around-N.PST]-REL   KES]-ACC   knew/realized

       'John knew/realized that Mary <u>is/was goofing around</u>.'

As for the other two *kes*-constructions, several authors have observed that the embedded clause of the IHRC construction cannot contain an I-level predicate (e.g., Y.-B. Kim 2002, Chung and Kim 2003, C.-M. M. Lee 2004).[9] What is important to note here is that the same

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[8] In Korean, the non-past marker for adjectives and adjective nominals is the null morpheme or ∅, as illustrated in (13a), whereas its counterpart for verbs is -*n*, as illustrated in (13b).

[9] This is also true for the Japanese IHRC construction, as observed by Matsuda (2002).

restriction holds for the perception construction as well. To see this, consider (14) and (15) in comparison with (13).

(14) a. *John-un [[Mary-ka   **changnankkwuleki-i**-∅]-un   kes]-ul   capassta/makassta.
          J.-top   [[M.-nom   goofy.person-COP-N.PST]-REL   KES]-ACC   caught/stopped
          Intended: 'John caught/stopped Mary, who <u>is a goofy person</u>.'
     b. John-un [Mary-ka   **changnanchi-n**]-un   kes-ul   capassta/makassta.
          J.-top   [M.-nom   goof.around-N.PST]-REL   KES]-ACC   caught/stopped
          'John caught/stopped Mary when she <u>was goofing around</u>.'

(15) a. *John-un [[Mary-ka   **changnankkwuleki-i**-∅]-un   kes]-ul   poassta/tulessta.
          J.-top   [[M.-nom   goofy.person-COP-N.PST]-REL   KES]-ACC   saw/heard
          Intended: 'John saw/heard Mary <u>be(ing) a goofy person</u>.'
     b. John-un [[Mary-ka   **changnanchi-n**]-un   kes]-ul   poassta/tulessta
          J.-top   [[M.-nom   goof.around-N.PST]-REL   KES]-ACC   saw/heard
          'John saw/heard Mary <u>goofing around</u>.'

When we look at the ungrammatical sentences in (14) and (15), the ungrammaticality of (15a) is expected because one cannot directly perceive someone's semi-permanent property such as being a goofy person. By contrast, the ungrammaticality of (14a) is not entirely expected because it should be possible to apply an action to an individual who has a certain semi-permanent property.

Undoubtedly, this puzzle merits attention and an explanation but it has to wait till section 3.4. What matters for us now is that there is a definite contrast between the factive construction and the perception and the IHRC constructions with respect to the predicate restriction on the embedded clause. And this again leads us to group the latter two *kes*-constructions together, contra the prevailing view.

2.4. Presuppositionality of the complement position
Let us turn now to examining the three constructions in terms of the existential presuppositionality requirement on the complement position. This discussion is relevant for us because presuppositionality is a cross-linguistically well-established property of the factive construction, due largely to Kiparsky & Kiparsky (1970) and much subsequent work.

As exemplified in (16)-(18), the semantics of the complement position of the factive *kes*-construction is such that the existential presupposition imposed on it survives even in negative, interrogative, and counterfactual contexts, which are considered presupposition holes in the sense of Karttunen (1973). All these sentences entail that some (salient) thief ran way in the actual world. This is evidenced by the fact that they cannot be followed by an utterance like *Kuluntey, totwuk-un tomangkaci anhassta* 'But, the thief did not run away', as shown in (16). (For space reasons, I do not repeat the same tests in (17) and (18).)

          The factive construction:
(16)   John-un   totwuk-i   tomangka-n-un   kes-ul   al-ci
          J.-TOP   thief-NOM   run.away-IMPRF-REL   KES-ACC know-NEG
          motha-ess-ta.
          NEG-PST-DECL

'John did not know that a/the thief was running away.'
#Kuluntey,   totwuk-un   tomangkaci   anhassta.
But,   thief-top   run.away   did.not
'But, the thief did not run away'

(17)   John-un   totwuk-i   tomangka-n-un   kes-ul   al-ess-ni?
        J.-TOP   thief-NOM   run.away-IMPRF-REL   KES-ACC   know-PST-Q
        'Did John know that a/the thief was running away?'

(18)   Manil   John$_i$-i   ku cenhwa-lul   pat-ess-ta-meyn,
        if   J.-NOM   the phone.call-ACC   receive-PST-IND-COND,
        pro$_i$ totwuk-i   tomangka-n-un   kes-ul   al-ess-ulthen-tey.
        ___   thief-NOM   run.away-IMPRF-REL   KES-ACC   know-PST-MOOD-DECL
        'If John had received the phone call, he would have known that a/the thief was running
        away.'

Several authors have noted that the perceptual *kes*-construction is also presuppositional with respect to the complement position (Chung and Kim 2003, Chung 1999). This can be confirmed by the semantic properties of sentences that occur in negative, interrogative, and counterfactual contexts such as the following: just as in (16)-(18), these sentences also presuppose the existence of the event of some (salient) thief running away, as evidenced by the infelicity of the discourse in (19).

        The perception construction:
(19)   John-un   totwuk-i   tomangka-n-un   kes-ul   po-ci
        J.-TOP   thief-NOM   run.away-IMPRF-REL   KES-ACC   see-NEG
        mos-ha-ess-ta.
        NEG-DO-PST-DECL
        'John did not see the event of the thief running away.'
        #Kuluntey,   totwuk-un   tomangkaci   anhassta.
        But,   thief-top   run.away   did.not
        'But, the thief did not run away'

(20)   John-un   totwuk-i   tomangka-n-un   kes-ul   po-ess-ni?
        J.-TOP   thief-NOM   run.away-IMPRF-REL   KES-ACC   see-PST-Q
        'Did John see the event of the thief running away?'

(21)   Manil   John$_i$-i   ku   ttay   cip-ey   iss-ess-ta-meyn,
        if   J.-NOM   that   time   home-LOC   exist-PST-IND-COND,
        pro$_i$ totwuk-i   tomangka-n-un   kes-ul   po-ess-ulthen-tey.
        ___   thief-NOM   run.away-IMPRF-REL   KES-ACC   see-PST-MOOD-DECL
        'If John had been home at that time, he would have seen the event of the thief running
        away.'

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Interestingly, however, the presuppositionality exhibited by the complement of a direct perceptual verb is not factive, unlike the case with the factive construction. For instance, when the complement of a direct perceptual verb occurs under an intensional predicate like 'want' while bearing imperfective aspect, its presupposition can be canceled, even if the matrix clause is set in an episodic context. To see this, consider (22), assuming the following discourse context: a year ago Mary had a leg injury. Recently, she recovered from it, so she decided to participate in today's marathon. John was looking very much forward to seeing her run for the first time in a year. But, unbeknownst to John, at the last minute, she decides not to participate in the race for fear of not completing it.

(22)　　John-un　　Mary-ka　　talli-n-un　　kes-ul　　po-ko　　ship-ess-ta.
　　　　　J.-TOP　　　thief-NOM　　run-IMPRF-REL　　KES-ACC　　po-COMP　　WANT-PST-DECL
　　　　　'John wanted to see Mary run.'
　　　　　Haciman,　　kunye-nun　　makphan-ey　　talliki-lul　　phokihaystta.
　　　　　But,　　　　she-TOP　　　last.minute-LOC　　running-ACC　gave-up
　　　　　'But, at the last minute, she gave up on the idea of running.'

Obviously, (22) is judged felicitous even though the second sentence cancels the presupposition that John had about the event described by the embedded clause of the first sentence. The felicity of this discourse clearly shows that under certain circumstances, such as in intensional contexts, the complement of a direct perception verb may not denote a fact. This leads us to conclude that the presuppositionality that is at work in the perception construction is slightly different from the presuppositionality that is at work in the factive construction. Now the question is how to make sense of or account for their difference.

Below I elaborate further on this issue and offer a formal analysis of it in section 3. For now, though, I would like to point out that the IHRC construction behaves like the perception construction in terms of presuppositionality, a fact that has gone unnoticed in the literature. To see this, compare first (19)-(21) and (23)-(25). Just like the former, the latter presuppose the existence of the event of some thief running away, as the anomaly of the discourse in (23) shows.

　　　　　The IHRC construction:
(23)　　John-un totwuk-i　　tomangka-n-un　　kes-ul　　cap-ci
　　　　　J.-TOP　thief-NOM　　run.away-IMPRF-REL　KES-ACC　　catch-NEG
　　　　　mos-ha-ess-ta.
　　　　　NEG-DO-PST-DECL
　　　　　'John did not catch the thief while he (= the thief) was running away.'
　　　#Kuluntey,　　totwuk-un　　tomangkaci　　anhassta.
　　　　　But,　　　　thief-TOP　　run.away　　　did.not
　　　　　'But, the thief did not run away'

(24)　　John-un　　totwuk-i　　tomangka-n-un　　kes-ul　　cap-ess-ni?
　　　　　J.-NOM　　thief-NOM　　run.away-IMPRF-REL　KES-ACC　　catch-PST-Q
　　　　　'Did John catch the thief while he was running away?'

(25)　　Manil　John$_i$-i　　ku　　ttay　　cip-ey　　iss-ess-ta-meyn,
　　　　　if　　　J.-NOM　　that　　time　　home-LOC　　exist-PST-IND-COND,

pro_i	totwuk-i	tomangka-n-un	kes-ul	cap-ess-ulthen-tey.
___	thief-NOM	run.away-IMPRF-REL	KES-ACC	catch-PST-MOOD-DECL

'If John had been home at that time, he would have caught the thief while he was running away.'

Notice now that when we look at cases in which an IHRC occurs under an intensional predicate with its predicate bearing imperfective morphology, we obtain the same kind of non-factivity as in (22). By way of illustration, consider (26): here, even though the second sentence cancels the presupposition of the first sentence, the discourse goes through fine, without incurring any pragmatic anomaly.

(26)	John-un	Mary-ka	talli-n-un	kes-ul	mak-ko	ship-ess-ta.
	J.-TOP	thief-NOM	run-IMPRF-REL	KES-ACC	stop-COMP	want-PST-DECL

'John wanted to stop Mary from running.'

Haciman,	kulel	philyo-ka	epessta.
But,	such	need-NOM	not.existed

'But, there was no such need.'

Kunye-nun	makphan-ey	talliki-lul	phokihaystta.
She-TOP	last.minute-LOC	running-ACC	gave-up

'She gave up on the idea of running at the last minute.'

On the basis of this set of facts, a descriptive generalization I would like to offer is that all the three *kes*-constructions are presuppositional with respect to the complement position but the precise nature of this property differs from one case to another. The presuppositionality triggered in the factive construction is true factivity (and hence the name of the construction) and what is triggered in the other two constructions is mere existential presuppositionality or "potential factivity": the latter surfaces as potential factivity when the embedded clause is under an intensional operator and it contains imperfective aspect, as shown in (22) and (26).[10]

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[10] An anonymous reviewer has raised an issue with this generalization. He/she observes that, unlike the complements of direct perceptual verbs, IHRCs invariably exhibit factivity, even in intensional contexts. At first glance, this claims seems correct, since the sentence below does appear to presuppose that Mary actually made bread although, in the first utterance, an IHRC is embedded under an intensional verb 'want', in contrast with the case in (22).

(i)	John-un	Mary-ka	ppang-ul	mantu-∅-un	kes-ul	mek-ko
	J.-TOP	M.-NOM	bread-ACC	make-PRF-REL	KES-ACC	eat-COMP
	ship-ess-ta.					
	want-PAST-DECL					

'Mary made bread and John wanted to eat it (= the bread she made).'

#Kulentay,	sashilun	Mary-nun	ppang-ul	mantul-ci anhassta.
But,	in.fact	M.-TOP	bread-ACC	make-CI did.not

'But, in fact, Mary did not make bread.'

I would like to point out, however, that the sentences the anonymous reviewer brings up for comparison do not actually form minimal pairs. The IHRC sentences he/she provides all have perfect aspect in the embedded clause, as is the case with (i) above, whereas all the perception sentences have imperfective aspect. So they are not exactly comparable to each other.

When we keep the aspect of the embedded clause identical, we obtain an identical pattern between the two constructions. For instance, in (ii) below, which exemplifies the perception construction, the embedded clause of the

This finding can be interpreted in two different ways. On the one hand, it further confirms our earlier findings that there are some fundamental differences between the IHRC/the perception construction and the factive construction. On the other hand, it seems to suggest that, from a broader perspective, the three constructions are not so different from each other: they all exhibit some sort of presuppositionality and what differs between them is that in the factive construction, what is presupposed holds in the actual world whereas in the IHRC and the perception constructions, it holds in some world, which can sometimes be the actual world. This generalization seems to adequately capture our intuitions that the presuppositionality triggered by the IHRC and the perception construction reflects the belief of some relevant individual, which is not necessarily the speaker or the matrix subject, whereas the presuppositionality triggered by the factive construction does reflect the speaker's belief which has been verified and thus has been established as a fact, provided that the speaker is not mistaken about the state of affairs in the actual world. This second interpretation is what I will adopt and capitalize on in this paper, as we will see in section 3. For now, though, let us take a look at the last property that pertains to all three *kes*-constructions.

2.5. The pronominal interpretation of *kes*

We have just seen that existential presuppositionality can potentially bring the IHRC and the perception constructions closer to the factive construction. We will observe now that there is yet another property that brings them closer to each other: it is the way in which *kes* is interpreted. To illustrate, consider (27), which instantiates the factive construction, repeated from (4).

(27)   John-un   [[totwuk-i   tomangka-n]-un   kes]-ul   alassta.
        J.-TOP   [[thief-NOM   run.away-IMPRF]-REL   KES]-ACC   knew
        'The thief was running away and John knew it (= the fact).'

According to my own intuition, the object position of this sentence is interpreted as referring to the fact that instantiates the proposition described by the embedded clause, and this has been verified by other Korean native speakers. The importance of this interpretation is two-fold: first, it shows that *kes*'s meaning is definite. The other is that *kes* behaves like a pronoun in that interpreting it involves recovering a salient property from the discourse context. This is

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first sentence has perfect aspect, just like in (i), and continuing the discourse with the second sentence is just as anomalous as in (i).

(ii)   Na-un   melli-se   penkay-ka   chi-∅-un   kes-ul   po-ko
        I-TOP   far.away-LOC lighting-NOM   strike- PRF-REL   KES-ACC   see-COMP
        ship-ess-ta.
        want-PAST-DECL
        'There was a lightning at some distance and I wanted to see it.'
        #Kulentey, shilmangsulepkeyto   penkay-ka   chi-ci   anhassta.
        But,   disappointingly   lightening-NOM   hit-CI   did.not
        'But, much to my disappointment, there was no lightening (after all).'

In my view, the parallels between (i) and (ii) and those between (22) and (26) unequivocally show that, in both the perception and the IHRC constructions, presuppositionality manifests itself as "true" factivity when the aspect of the embedded clause is perfect and it manifests itself as "potential" factivity when the embedded aspect is imperfective. I therefore conclude that there is actually no fundamental difference between the two constructions with respect to presuppositionality, contrary to the reviewer's claim; the apparent difference he/she detects simply reflects the different tense/aspect marking in the embedded clause that happened to be uncontrolled for.

evidenced by the fact that *kes* can actually be replaced by a lexical noun that literally means 'fact', namely, *sashil*, as shown in (28), without causing any semantic harm to the original sentence.[11],[12]

(28) John-un   [[totwuk-i   tomangka-n(-ta)]-un   sashil]-ul   alassta.
      J.-TOP   [[thief-NOM run.away-IMPRF(-IND)]-REL   fact]-ACC   knew
      'A/the thief was running away and John knew the fact.'

Notice that the properties displayed by *kes* in the factive construction are shared by the *kes* that appears in the direct perception construction. In a sentence instantiating the direct perception construction, the object position is interpreted as referring to some unique perceptual aspect of the eventuality described by the embedded clause such as 'scene' or 'sound'. That is, it is construed as referring to the scene or sound of the event described by the embedded clause. Evidence for this comes from the fact that the *kes* that occurs in (29) can be replaced by a lexical noun such as *soli* 'sound' as exemplified in (30).

(29) John-un   [[totwuk-i   tomangka-n]-un   **kes**]-ul   tulessta.
      J.-TOP   [[thief-NOM   run.away-IMPRF]-REL   KES]-ACC   heard
      'The thief was running away and John heard it (= the sound).'

(30) John-un   [[totwuk-i   tomangka-n]-un   **soli**]-lul   tulessta.
      J.-TOP   [[thief-NOM run.away-IMPRF]-REL sound]-ACC   heard
      'A/the thief was running away and John heard <u>the sound</u>.'

Now, what about the IHRC construction? In Kim (2007), I have claimed that the IHRC construction instantiates E-type anaphora: the IHRC+*kes* string denotes a unique or maximal individual that stands in a salient relation to the eventuality described by the embedded clause. I have further argued that this relation is a thematic relation such as Agent and Theme. Support for this idea comes from the observation that the *kes* that occurs in sentence (31) can be replaced by a lexical expression, as shown in (32).

(31) John-un [[totwuk-i   tomangka-n]-un   **kes**]-ul   capassta.
      J.-TOP   [[thief-NOM   run.away-IMPRF]-REL   KES]-ACC   caught
      'The thief was running away and John caught him (= the thief).'

(32) John-un   [[totwuk-i   tomangka-n]-un   **saken]-uy hayngwica**-lul
      J.-TOP   [[thief-NOM run.away-IMPRF]-REL   event]-GEN agent-ACC
      capassta.
      caught
      'A/the thief was running away and John caught <u>the agent of the event</u>, i.e., the thief.'

Collectively, these facts show that, in all three *kes* constructions, *kes* behaves like some sort of pronominal. We can therefore list it as yet another commonality between them.

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[11] According to Shigeru Miyagawa (p.c.), the same is true of Japanese IHRCs as well.

[12] For reasons unknown to me at this point, this lexical substitution is better with the indicative mood marker -*ta* overtly realized in the embedded clause.

2.6. Summary

In this subsection, we have seen that the complement positions of the IHRC construction and the perception construction pattern together with respect to referential transparency, indicative mood-marking, and predicate restriction but this parallel is not shared by the complement position of the factive construction.[13] We have also seen, however, that the three constructions behave more alike in terms of the existential presuppositionality requirement on the complement position and the pronominal-like interpretive behavior of *kes*. A proper analysis of the three constructions should therefore be able to derive their fine-grained differences while also capturing their commonalities. Developing such an analysis will be the task of the next section, to which we now turn.

3. An E-type pronoun analysis of the three *kes*-constructions

The goal of this section is to propose a locally individualized but globally uniform analysis of the three *kes*-constructions. I will do this by revising an E-type pronoun analysis of the IHRC construction I have offered in Kim (2007) and extending it to the other two *kes*-constructions. Therefore, I begin this section with a brief overview of Kim (2007).

3.1 Kim's (2007) E-type pronoun analysis of the IHRC construction

In Kim (2007), I have proposed that, in the IHRC construction in Korean, the relative clause occurs as the complement to an N-level pronoun *kes*, which is in turn complement to a phonologically null [+ definite] feature. This is schematically depicted in (33) for sentence (1). (Note that, from this point forward, *kes* is glossed as PRON, shorthand for pronominal, rather than as KES.)

(1)   John-un   [[totwuk-i   tomangka-n]-un   kes]-ul   cap-ess-ta.

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[13] It is also widely held that there is a temporal restriction on the IHRC construction and the perception construction whereas it is not imposed on the factive construction: the embedded clause's event time cannot precede that of the embedding clause's event time (e.g., Kim 2002, Lee 2004, Matsuda 2002, Kim 2004). Further probing reveals, however, that this restriction in fact admits numerous exceptions, as shown by the following examples (sentence (ii) is due to Hee-Rak Chae, p.c.):

(i)   The IHRC construction:
Yenghee-nun   [[sakwa-ka   taum-cwu-ey   swuchwul-toy]-l   kes-ul
Y.-TOP   [[apple-NOM   next-week-LOC   export-PASS]-REL.FUT   KES-ACC
onul   mili   phocangha-ess-ta.
Today   in.advance   pack-PST-DECL
'The apples are going to be exported next week but Yenghee packed them today in advance.'

(ii) The perception construction:
Context: John is watching a TV drama that has a character named Mary appearing in it.
John-un   [[Mary-ka taumcwu-ey   cwuk]-ul   kes]-ul   mili   po-keytoy-ess-ta.
J.-TOP   [[M –NOM next.week-LOC die]-REL.FUT   kes]-ACC   in.advance   see-happen.to-PST-DECL
'Mary is going to die next week and John happened to see it (= the event) in advance (because the broadcasting company showed it as a preview).'

The above data show that a temporal restriction is not a reliable enough diagnostic with which to tease apart the IHRC and the perception constructions from the factive construction. Thus I do not include it in the discussion here.

J.-TOP   [[thief-NOM run.away-IMPRF]-REL   PRON]-ACC   catch-PST-DECL
'John caught a/the thief running away.'
Or 'A/the thief was running away and John caught him.'

(33)

'thief running away'
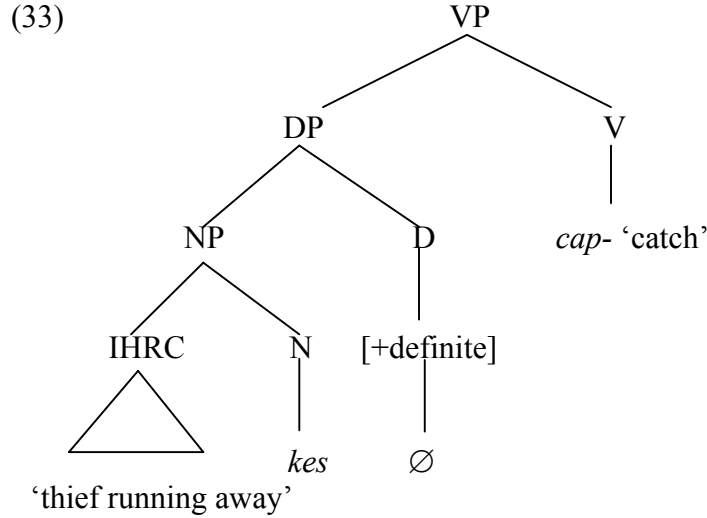
Under this analysis, the DP embedding an IHRC has the semantics of an E-type pronoun: roughly speaking, it is construed as referring to a unique/maximal individual that has a salient property recovered from context.[14] There are several supporting arguments for this treatment. Of these, one notable one is that, just like typical E-type pronouns, the *kes* plus [+definite] string is linked to its antecedent via some sort of semantic mechanism, rather than via a syntactic mechanism like c-command. The other argument is that this string receives a unique or maximal interpretation, which is another defining property of E-type pronouns (Sells 1986, Hoshi 1995, Shimoyama 1999). To illustrate, consider (34). Here, *kes* is interpreted as referring to all the cookies that Mary put in the box, not just some of them. Hence the sentence is judged false if John ate only three cookies out of the five cookies that May put in the box.

(34)   John-un   [[Mary-ka   sangca-ey   kwaca-lul   tases-kay
        J.-TOP   [[M.-NOM   box-LOC   cookie-ACC   five-CL
        noh-a   twu-∅]-n   kes]-ul   mekessta.
        put-COMP   aux-PST]-REL   PRON]-ACC   ate
        'Mary put five cookies in the box and John ate them (= all the five cookies).'

In order to derive the semantics of the IHRC construction compositionally, the following claims are made: one is that the salient property that restricts the denotation of the E-type

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[14] This analysis of the IHRC construction in Korean builds upon the E-type pronoun analyses of Japanese IHRCs (e.g., Hoshi 1996, Shimoyama 1999, Matsuda 2002), but it differs from them in details. Furthermore, it resolves the formal linking problem, which has afflicted its predecessors.

pronoun is a thematic relation that holds between a state described by the embedded clause and an individual (e.g., Agent, Theme), as already mentioned in section 2.5. Another is that the relative marker *-un* relates the contents of the embedded clause and the embedding clause by asymmetrically coordinating them. This analysis is motivated by the well-known non-restrictive semantics of IHRCs with respect to their head noun's meaning (e.g., Jhang 1991, 1994, Jung 1995; Hoshi 1995, Shimoyama 1999), and the standard treatment of non-restrictive relatives in the literature, which utilizes a conjunction structure between the embedded and the embedding clauses (e.g., Déchaine 1993). Incorporating these ideas, in Kim (2007), I have offered the following lexical entries for the core components of the IHRC construction:

(35)   Lexical entry for *-un*: of type $<<s, <i, t>>, <<s, <i, t>>, <i, t>>>$
         $[[[-un]] = \lambda K_{<s, <i, t>>}.\lambda L_{<s, <i, t>>}.\lambda t_i.\exists s[K(s)(t) \& L(s)(t)]$
         Here, *K* and *L* range over sets of states, *s* over states, and *t* over times.

(36)   Lexical entry for *kes*: of type $<s, <e, t>>$
         $[\![kes_{R, P}]\!]^g = \lambda s_s.\lambda x_e[g(R)(x)(s) \& g(P)(x)]$
         Here, *s* ranges over states, *x* over individuals, *R* over thematic relations, and *P* over properties, and *g* is an assignment function.

(37)   Lexical entry for the definite feature: of type $<<e, t>, e>$
         $[[+definite]] = \lambda P.\sigma x[P(x)]$
         Here, *P* ranges over properties and 'σ' represents Link's (1983) sum operator.

Third, concerning the composition scheme, it was hypothesized that the IHRC undergoes LF-raising as a way to resolve its semantic type mismatch with *kes*.[15] In brief, while an IHRC needs to combine with a function from states to sets of times, *kes* needs a state variable to combine with. Hence an IHRC raises and adjoins to the appropriate level of the embedding clause. The adjunction site is argued to be an Aspect Phrase for reasons that do not directly concern us here. What matters for our purposes is that the IHRC is interpreted higher than its surface position.
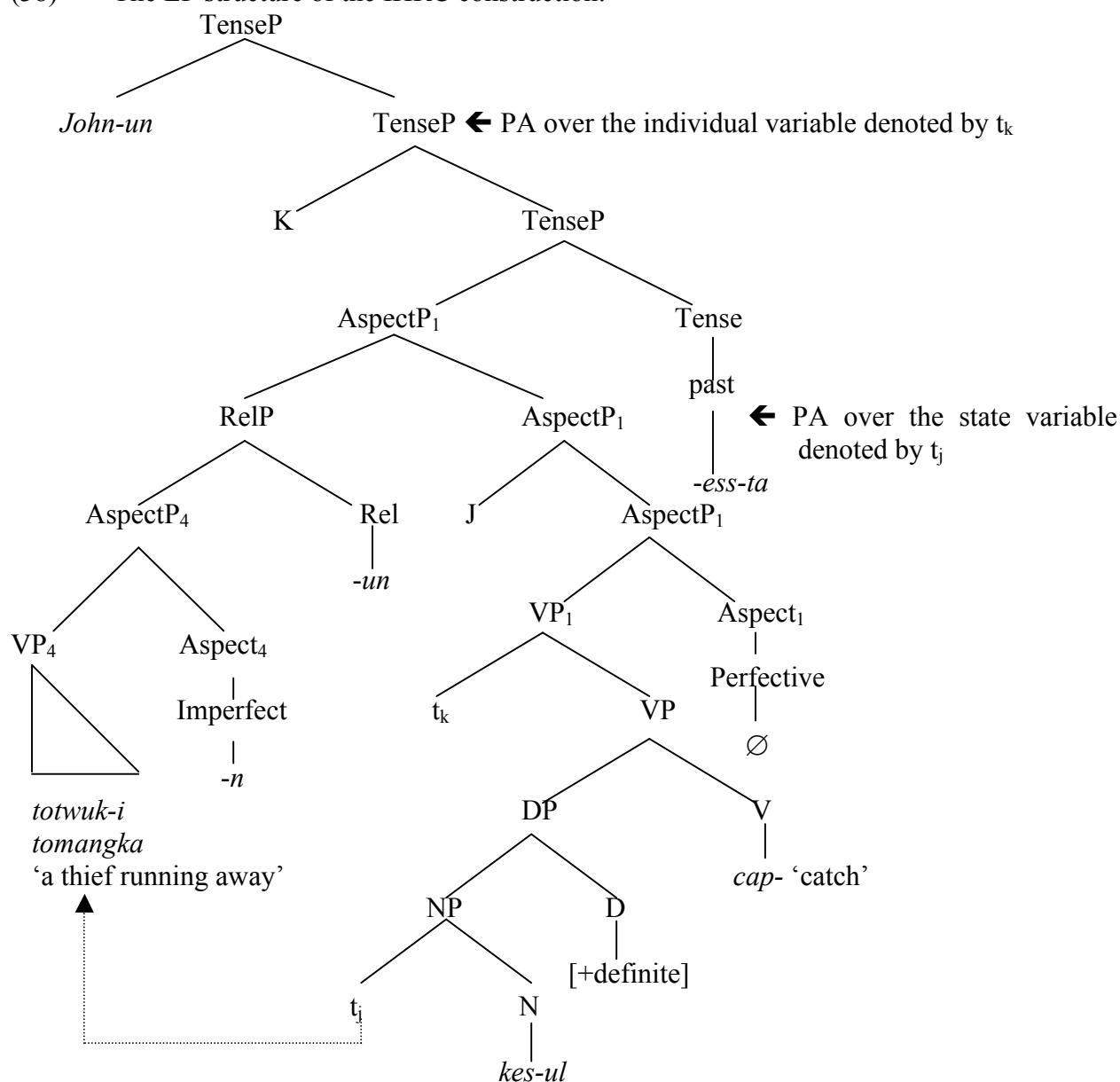
This LF-raising analysis is depicted in (38). Here, K and J respectively stand for the indices of the raised subject[16] and the raised IHRC, which is labeled as RelP, shorthand for Relative Clause Phrase. Also, t_k and t_j stand for the traces of these moved constituents. Given the assumptions in type-driven semantics (Klein and Sag 1985), the traces of the raised subject and the IHRC are interpreted as an individual variable and a state variable, respectively.

When the LF structure gets interpreted, the indices activate the semantic operation called 'Predicate Abstraction' (PA), given the standard assumption on semantic consequences of movement in generative grammar (e.g., Heim and Kratzer 1998). What this operation does is to create a new predicate by abstracting over a variable denoted by a trace, as indicated in the following LF structure.

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[15] LF-raising analyses of the IHRC construction have also been proposed for the Japanese IHRC construction (e.g., Fuji 1998 and Shimoyama 1999), but they differ from the analysis proposed in Kim (2007) in their theoretical assumptions and technical executions. Compare the original works for details.

[16] In Kim (2007), to adopt the standard syntactic assumptions, I assume the VP-internal subject hypothesis proposed by Fukui and Speas (1986), and Koopman and Sportiche (1991), among others.

(38)   The LF structure of the IHRC construction:

TenseP

John-un   TenseP ← PA over the individual variable denoted by t_k

K   TenseP

AspectP$_1$ Tense

past

RelP   AspectP$_1$ ← PA over the state variable
denoted by t_j

-*ess-ta*

AspectP$_4$ Rel   J   AspectP$_1$

-*un*

VP$_4$ Aspect$_4$ VP$_1$ Aspect$_1$

Imperfect   Perfective

t_k VP   ∅

-*n*

totwuk-i   DP   V
tomangka
'a thief running away'   *cap-* 'catch'

NP   D

[+definite]

t_j N

kes-ul

The LF-raising of an IHRC outlined above has an important consequence for capturing its semantics: the trace it leaves behind gets interpreted as a state variable that combines with the denotation of *kes*. And crucially, this ensures that the E-type pronoun refers only to an individual

that has a property in the eventuality denoted by the embedded clause, rather than just any prominent individual in the discourse context.

When we apply this E-type pronoun analysis of the IHRC construction to sentence (1), we obtain (39).[17] Here, in-progress state means a developmental stage of a progressive event in the sense of Parsons (1990), which, by definition, contains all the event participants in its structure, and the highlighted part corresponds to the denotation of the E-type pronoun present in the embedding clause of (1).

(39)   Logical structure of (1):
$\exists$t[t < now & $\exists$s[$\exists$e[$\exists$x[run.away(e) & Agent(x)(e) & thief(x)] & In-progress(s, e) & t $\subseteq$ τ(s)] & $\exists$e'[catch(e') & Agent(John)(e') & **Theme(σy[g(R)(y)(s) & g(P)(y)])(e')** & τ(e') $\subseteq$ t]]]

Given the definition of an in-progress state, and given the content of the embedded clause, the assignment function g yields 'Agent' as the value for R and 'thief' as the value for P. This allows the E-type pronoun to be interpreted as referring to the unique individual that bears an Agent relation to the in-progress state of the event described by the embedded clause and has the property of being a thief. Consequently, the sentence is judged to be true if there was some thief running away at some time in the past and John caught that thief at that time.

What is appealing about the analysis proposed in Kim (2007) is that the E-type pronoun present in the embedding clause has a delimited interpretive variability, since its property is supplied by the interaction between the linguistic context and the event structure of the embedded clause. Hence it can capture the ambiguity of sentences like (40). Notice that (40) is three-ways ambiguous, as the English translations show.

(40)   John-un [[koyangi-ka   cwi-lul   cohaka-n]-un   kes]-ul   capassta.
        J.-TOP   [[cat-NOM   mouse-ACC   chase-IMPRF]-REL   PRON]-ACC   caught
        Reading 1: 'A cat was chasing a mouse and John caught the cat.'
        Reading 2: 'A cat was chasing a mouse and John caught the mouse.'
        Reading 3: 'A cat was chasing a mouse and John caught both the cat and the mouse.'

Under Kim's (2007) analysis, this sentence will receive (41) as its interpretation. (Again, the highlighted part corresponds to the denotation of the E-type pronoun, i.e., the object of the matrix verb.) Since R and P that occur in (41) are free variables, the E-type pronoun can refer to either the cat or the mouse, because both bear a thematic relation to the state described by the embedded clause, Agent and Theme, respectively. This captures the first two possible readings of sentence (40). The third reading, namely the plural individual reading, also becomes available, because Link's sum operator σ can take all the individuals that bear some thematic relation to the embedded clause's content and return a plural individual that consists of them.

(41)   Logical structure of (40):
$\exists$t[t < now & $\exists$s[$\exists$e[$\exists$x$\exists$y[chase(e) & Agent(x)(e) & cat(x) & Theme(y)(e) & mouse(y)] & In-progress(s, e) & t $\subseteq$ τ(s)] & $\exists$e'[catch(e') & Agent(John)(e') & **Theme(σz[g(R)(z)(s) & g(P)(z)])(e')** & τ(e') $\subseteq$ t]]]

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[17] See Kim (2007) for the precise derivational process.

To summarize the main points of Kim's (2007) analysis, then, the DP that directly embeds an IHRC plus *kes* string has the semantics of an E-type pronoun: it is interpreted as referring to a unique/maximal individual that bears a salient thematic relation to the eventuality described by the embedded clause. Importantly, this pronoun's denotation is both free and restricted. We will see below that this delimited interpretive flexibility of the IHRC+*kes* string gives us just what we need to capture the similarities between the IHRC construction and the other two *kes*-constructions.

3.2 Extending an E-type pronoun analysis to the other two *kes*-constructions

I claim that Kim's (2007) E-type pronoun analysis that we have just reviewed can be successfully extended to the perception and the factive constructions in Korean if we recast it in a Kratzerian (Kratzer 1989, 1998, 2002) situation semantics framework and make minimal amendments to it.

In Kratzerian situation semantics, propositions denote sets of situations in which the proposition is true and these situations are minimal or fine-grained enough to not include anything that is irrelevant to the truth of the sentence. Another important tenet of this theory is that situations are particulars, just like individuals, and things like eventualities, states of affairs, facts, and worlds can all be subsumed under the rubric of situations. That said, they may differ in their relative 'sizes': eventualities are presumably smaller than or equal to situations, and situations are in turn smaller than or equal to worlds. Thus, an eventuality, a situation, and a world can form a part-whole relation in a semi-lattice structure whose supremum is the world—that is, a world has a unique situation as its part, and this situation in turn has a unique eventuality as its part.[18] This idea is more formally expressed in (42), which Kratzer offers in the works cited above (i.e., Kratzer 1989, 1998, 2002):

(42)   For all $s \in S$, there is a unique $s' \in S$ such that $s \leq s'$ and for all $s'' \in S$, if $s' \leq s''$, then $s'' = s$.

This condition states that every possible situation s must be related to a unique maximal element, namely, its world. Consequently, no situation can be part of more than one possible world.

Given these assumptions, under a Kraterzian situation semantics analysis, an English sentence (43) will have the logical structure given in (44).

(43)   Ewan swam for ten hours.

(Kratzer 2008: ex. (59a))

(44) $\lambda s[past(s)\ \&\ \exists e[e \leq_p s\ \&\ swim(Ewan)(e)\ \&\ f_{hour}(e) = 10]]$
        Here, s ranges over situations and e over eventualities, and '$\leq_p$' stands for a part-whole relation.

(Kratzer 2008: (60))

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[18] For a comprehensive overview of Kratzerian situation semantics, in comparison with Barwise and Perry's (1983) situation semantic theory, see Portner (1992). Kratzer (2008) also offers an overview on situation semantics in general and how it can incorporate or encompass (Neo)-Davidsonian event semantics.

If we bring intensionality into the picture and also differentiate between minimal situations and maximal situations by calling the former 'situations' and the latter 'worlds', the logical form of sentence (43) will look like (45).

(45) $\lambda w \exists s[\text{past}(s) \ \& \ \exists e[s \leq_p w \ \& \ e \leq_p s \ \& \ \text{swim}(\text{Ewan})(e) \ \& \ f_{\text{hour}}(e) = 10]]$

When we transpose Kim's (2007) event-based E-type analysis of the IHRC construction into the situation semantic framework adopted here, the two core assumptions of the situation semantic theory, namely, (i) the part-whole relations between different types of situations and (ii) their status as particulars, afford us an essentially uniform analysis of the three *kes*-constructions at the macro-level.

First, the embedded clause of the IHRC construction now denotes (a characteristic function of) a set of situations, rather than a function from states to sets of times. Hence, we obtain (46) as the logical form of sentence (1). Notice that the only notable difference between this formula and the one in (39) is the choice of *l* as the variable for states and *s* as the variable for situations, a choice I have made to keep things consistent with Kratzer's example in (44).

(46)   The logical structure of (1) in a Kratzerian situation semantics analysis:
        $\exists t[t < \text{now} \ \& \ \exists s[\exists l \exists e[\exists x[e \leq_p s \ \& \ \text{run.away}(e) \ \& \ \text{Agent}(x)(e) \ \& \ \text{thief}(x)] \ \& \ \text{In-progress}(l, e) \ \& \ t \subseteq \tau(l)] \ \& \ \exists e'[\text{catch}(e') \ \& \ \text{Agent}(\text{John})(e') \ \& \ \text{Theme}(\sigma y[g(R)(y)(s) \ \& \ g(P)(y)])(e') \ \& \ \tau(e') \subseteq t]]]$
        Here, *t* ranges over temporal intervals, *s* over situations, *l* over states, *e* over events, and *x* and *y* range over individuals.

Importantly, in the adopted situation semantic framework, the embedded clauses of the perception construction and the factive construction denote sets of situations as well, just like the embedded clause of the IHRC construction does, although their denotations may differ at the micro-level: the embedded clause of the IHRC construction denotes a set of eventualities (or minimal situations), the embedded clause of the direct perception construction denotes a set of minimal situations, and the embedded clause of the factive construction denotes a set of maximal situations or worlds.

Under this situation semantics analysis of the embedded clauses of the three *kes* constructions, we can unify the interpretive behavior of *kes* as follows: in all three constructions, *kes* is construed as referring to an entity that stands in a salient relation to the situation described by the embedded clause, regardless of whether this situation is an eventuality, a situation, or a world at a more fine-grained level. That is, it instantiates an E-type pronoun.

Now the question is: what kind of relation does this entity bear in each case? I claim that it bears a thematic relation in the IHRC construction, a direct perceptual relation in the perception construction and a part-whole relation in the factive construction. The idea that the E-type pronoun in the IHRC construction bears a thematic relation to the content of the embedded clause is already established in Kim (2007). Hence, below, I focus on how *kes*'s meaning is computed in the other two *kes*-constructions.

To begin with the direct perception construction, we have already seen in section 2.5 that the E-type pronoun denotes a perceptual aspect of the eventuality described by the embedded clause: e.g., it is translated as 'the scene of an event' or 'the sound of an event'. It is intuitively clear that things like 'scene' and 'sound' map eventualities or minimal situations onto entities that

represent parts of them, in a way analogous to thematic relations such as Agent and Theme, although they are not thematic relations themselves.[19] Hence, it stands to reason that the denotation of *kes* that occurs in the perception construction also contains a free relation variable R, just like the denotation of *kes* in the IHRC construction, except that it ranges over things like 'scene' and 'sound'. As for the free property variable P that is postulated in the denotation of *kes* that occurs in the IHRC construction given in (36) or (46), however, we need not postulate it for the denotation of *kes* that occurs in the direct perception construction, because the object of a direct perceptual verb does not have a property of individuals like 'thief'.[20] Therefore, I propose (47) as the denotation of *kes* that occurs in the perception construction. Note that, here, the variables range over different things from those in (36).

(47) Lexical entry for *kes* in the direct perception construction: of types $<s, <e, t>>$

$[\![kes_R]\!]^g = \lambda s.\lambda x[g(R)(x)(s)]$

Here, g is an assignment function and s ranges over minimal situations, x over entities, and R over perceptual relations.

We can give a similar treatment to the factive construction if we adopt Kratzer's (2002) notion of 'fact' and what it means to 'know that *p*'. First, according to Kratzer (2002), 'facts' are not synonymous with 'true propositions'; while propositions are sets of possible worlds, facts are particulars, each constituting just one world. Second, Kratzer proposes that for an individual S to know a proposition p means satisfying the following conditions:

(48) S knows p if and only if
(i)   There is a fact f that exemplifies p,
(ii) S believes p *de re* of f, and
(iii) S can rule out relevant possible alternatives of f that do not exemplify p.

(Kratzer 2002: (7))

Of the three sub-conditions in (48), what is directly relevant to the present discussion are (i) and (ii). Together, they state that to know p means to have the *de re* belief of some fact exemplifying p. What does it mean to have the *de re* belief of a fact exemplifying p? It means that the content of the belief or the *re* thereof matches the fact of the world in the denotation of p. This rules out unwanted cases in which the individual's belief about the actual world "happens" to match some state of affairs in it. To illustrate, suppose a guy named Jones believes that the last name of the current president of South Korea is Lee. At the time of writing this article, the president of South Korea is Myeng-Pak Lee. Hence what Jones believes is a true proposition. But what if Jones mistakenly believes that the president's full name is Sung-Man Lee (who was the first president of the country)? Under such circumstances, we cannot assert that Jones knows that the current president of South Korea's last name is Lee; his belief accidentally matches the fact, though only partly so.[21] Thus, there is a need to impose the sub-condition (ii) on knowledge ascriptions.

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[19] See Parsons (1990) and Landman (2000) for treating thematic relations as mapping between eventualities and individuals.

[20] I thank two anonymous reviewers for raising a question that has led to this amendment.

[21] This illustration is adapted from Kratzer's (2002) examples (1) and (2).

In view of this analysis of knowledge ascriptions, the complement position of the factive construction in Korean denotes the fact f that exemplifies the proposition p denoted by the embedded clause. Since propositions denote sets of worlds and worlds are maximal situations that have minimal situations, including facts, as their parts, we can restate the above statement as follows: the complement position of the factive construction refers to the fact f of the world w that exemplifies the proposition p denoted by the embedded clause. This in turn means that, in the factive construction, *kes* relates a maximal situation (or a world) to its parts, namely, minimal situations that we call facts. I therefore propose (49) as the lexical entry for *kes* that occurs in the factive construction, modeling after (47).

(49)   Lexical entry for *kes* in the factive construction: of type $\langle w, \langle e, t \rangle \rangle$
        $[\![kes_R]\!]^g = \lambda w.\lambda x[g(R)(x)(w)]$
        Here, g is an assignment function and w ranges over maximal situations or worlds, x over entities, and R over parts of worlds.

Turning now to the semantics of the relativizer or adnominalizer *-un*, I propose that in the perception construction, it relates two sets of minimal situations and in the factive construction, it relates two sets of maximal situations (or worlds). This flexible semantic treatment of *-un* is highly possible since its lexical entry proposed in Kim (2007) contains the logical connective '&', and it is well-established that '&' can conjoin any multiple linguistic expressions as long as they are of the same semantic type (see Partee and Rooth 1983). Thus, I posit the following lexical entries for the *-un* that occurs in the perception construction and the *-un* that occurs in the factive construction by making minimal amendments to (35):

(50)   Lexical entry for *-un* in the perception construction: of type $\langle\langle s, t \rangle, \langle\langle s, t \rangle, t \rangle\rangle$
        $[[[-un]]] = \lambda K_{\langle s, t \rangle}.\lambda L_{\langle s, t \rangle}.[K(s) \& L(s)]$
        Here, K and L range over sets of minimal situations.

(51)   Lexical entry for *-un* in the factive construction: of type $\langle\langle w, t \rangle, \langle\langle w, t \rangle, t \rangle\rangle$
        $[[[-un]]] = \lambda K_{\langle w, t \rangle}.\lambda L_{\langle w, t \rangle}.[K(w) \& L(w)]$
        Here, K and L range over sets of maximal situations or worlds.

Finally, concerning the semantic contributions of the [+definite] feature, I posit that, in the perception and the factive constructions, the denotation of this feature contains the iota operator, in lieu of the sigma operator that occurs in (37), as formally represented in (52).

(52)   Lexical entry for [+definite] in the perception and factive constructions:
        of type $\langle\langle e, t \rangle, e \rangle$
        $[[+definite]] = \lambda P.\iota x[P(x)]$
        Here, P ranges over properties and 'ι' represents the uniqueness operator.

This amendment will deliver a unique singular, rather than a maximal or plural, entity that has a salient property in the denotation of the embedded clause. The reason for this revision is that maximality may not be what is at stake in the perception and the factive constructions because, for a direct perceptual report to be true, the subject need not see or hear every perceptual aspect

of the relevant situation and, similarly, for a knowledge ascription to be verified, the subject need not know every fact of the relevant world.[22]

To summarize the foregoing, then, I have proposed that, in all three *kes*-constructions, the embedded clause denotes a set of situations of some kind and the relativizer *-un* relates this set of situations to the set of situations of the same kind that is denoted by the embedding clause. I have also argued that, across the board, *kes* relates the situation described by the embedded clause to a salient entity that bears some relation to it. In the IHRC construction, this relation is a thematic relation, as proposed in Kim (2007). In the perception construction, it spells out a perceptual aspect of a situation. In the factive construction, it essentially denotes a part of the world in which the embedded clause's content is true.[23] In conjunction with the proposed lexical entry for [+definite], the denotation of *kes* therefore lets the complement position of each construction be construed as referring to a unique thematic role bearer of the relevant eventuality, a unique visual or auditory aspect of the relevant situation, or a unique part of the relevant world. Notably, this new analysis uncovers yet another common thread across the three *kes*-constructions: at a deeper level, they all instantiate situation subordination that is facilitated by combining E-type anaphora and relativization strategies.

3.3. Sample derivations

Let me now demonstrate how the proposed analysis derives the interpretations of sentences instantiating the perception and the factive constructions.

Given the affinity between the complement position of the IHRC construction and that of the perception construction with respect to referential transparency, indicative mood marking, and temporal restriction discussed in sections 2.1, 2.2, and 2.3, I propose that they have an identical internal structure. Moreover, given that the complement position of the factive construction behaves differently in these respects, I submit that it has a different structure from the complement position of the IHRC or the perception construction. More specifically, I hypothesize that, while the embedded clause of the factive construction is a full-fledged clause or CP (Complementizer Phrase), the embedded clause of the other two *kes*-constructions consists of a small clause or TP (Tense Phrase).[24, 25] This would mean that a CP denotes a set of maximal situations or worlds, whereas a TP denotes a set of minimal situations. It should be stressed, however, that I am not entirely committed to calling each embedded clause a CP or a TP, since the interpretive system is presumably blind to node labels and, furthermore, any verbal projection larger than or equal to VP can denote a proposition (Portner 1992). In addition, I wish to stay neutral as to the CP vs. TP status of relative clauses in Korean. Thus I assume, as in Kim (2007), that the relativizer *-un* hosts its own maximal projection called RelP (Relative Clause Phrase). Furthermore, I claim that RelP is cross-categorial—that is, it can select for any type of

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[22] I thank an anonymous reviewer for raising this issue.

[23] This set of statements raises the question of whether this relation can be anything other than a thematic relation, perceptual aspect of a situation, or a part relation to a world. Also, it makes us wonder whether all such relations can be subsumed as a 'part relation to a situation'. There is no doubt that these are important questions in many respects but given their magnitude, addressing them properly will have to await another occasion.

[24] In the literature, a small clause analysis of the embedded clause of the direct perception construction is rather common (see Guasti 1993, Horie 1993, Felser 1999, Basilico 2003), although a similar analysis has not been put forward for the IHRC construction except for Kim (2007).

[25] Recall that, in Kim (2007), the embedded clause of the IHRC construction is assumed to be an Aspect Phrase. But whether it is indeed an Aspect Phrase or not will not have direct bearing on the analysis put forward here.

phrase as its complement, rather than just what we call the embedded clause of the IHRC construction.

Under these assumptions, the composition scheme of the perception construction and that of the factive construction look analogous to that of the IHRC construction given above in (38); they only differ in terms of the adjunction site of the RelP at LF. [26] In the case of the perception construction, the RelP adjoins to the TP of the embedding clause, as illustrated in (53) for sentence (29). This LF-raising is again invoked to resolve a semantic type mismatch between the RelP and *kes*: the RelP denotes a function from a set of situations to a function from a set of situations to truth-values and *kes* denotes a function from situations to entities. Hence they cannot combine with each other.[27] By undergoing LF-raising to the embedding clause's TP level, the RelP finds an argument of the right type and it also supplies the right argument for *kes*, because its trace gets interpreted as a situation variable that gets bound by the lambda abstractor that is introduced by its index J, given the assumptions of type theory (Klein and Sag 1985).

(29)　　John-un　　　[[totwuk-i　　tomangka-n]-un　　　kes]-lul　　　tul-ess-ta.
　　　　J.-TOP　　　　[[thief-NOM　run.away-IMPRF]-REL　PRON]-ACC　hear- PST-DECL
　　　　'A/the thief was running away and John heard it (= the sound).'

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[26] An anonymous reviewer wonders whether the proposed LF-raising of the RelP violates the island constraint, because it involves raising out of a DP. In this structure, however, the RelP is the complement to *kes* and raising out of complements is usually allowed even in English, as illustrated in (i), even though rather rigid island constraints seem to apply to English.
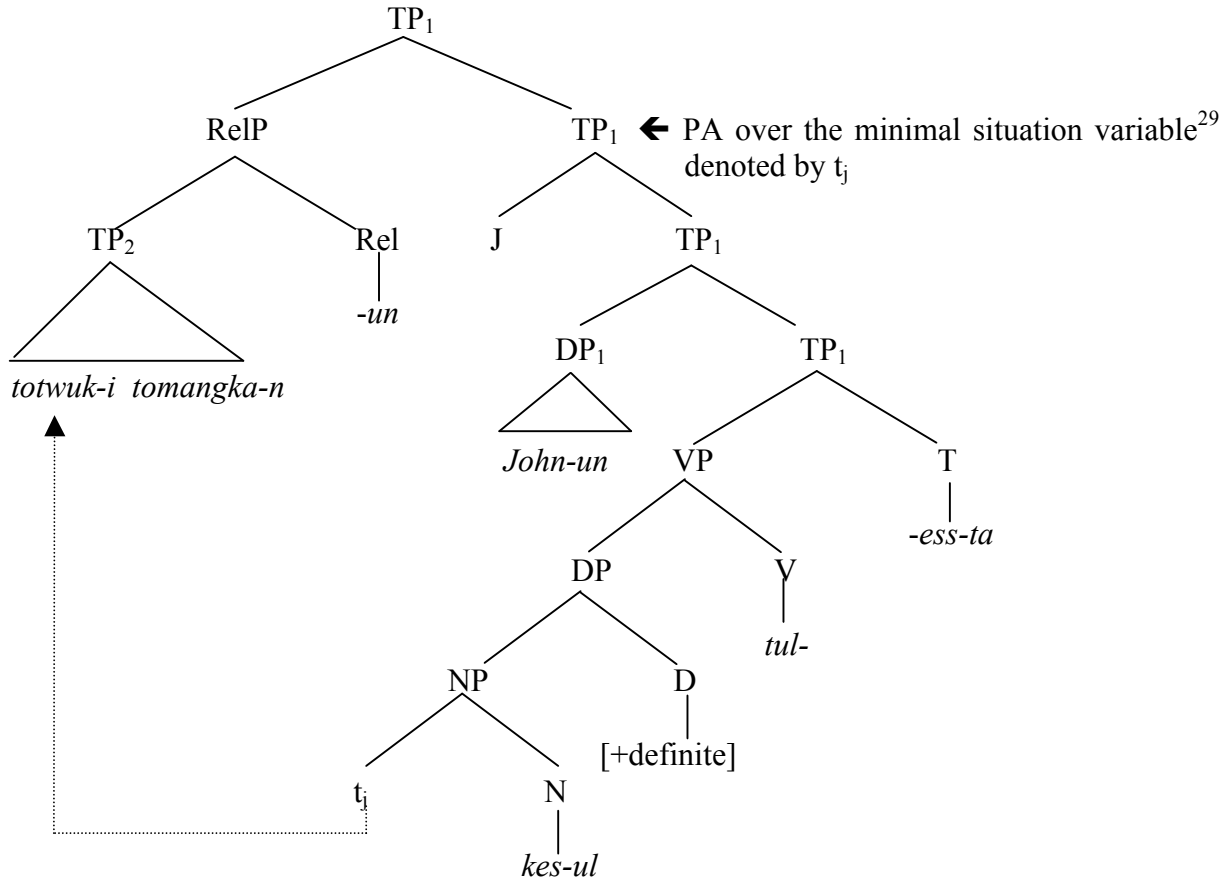
(i)　　　John, whose fiancé is a medical doctor, came to our party.

Furthermore, Korean does not seem to comply with the same kind of island constraints as English does. This is exemplified by the following sentence, in which the nominal *shinsa* 'gentleman' (or the relative operator, depending on one's theory of the syntax of relative clauses) has raised crossing two bounding nodes, namely $RelP_1$ and DP_1.

(ii)　　[DP2 [RelP2 [**DP1** [**RelP1** e_i　ip-ko　　　　iss-n]-un　　　os]-i　　　mesiss-n]-un　　　*shinsa$_i$*
　　　　[　[　　[　[　　　　wear-CONN　be-IMPRF]-REL　clothes]-NOM　be.nice-IMPRF]-REL　*gentleman*
　　　　Lit.: The gentleman such that the clothes that he is wearing are nice.

Given these facts, I believe that the LF-raising analysis adopted here does not necessarily conflict with the usual assumptions about constraints on movement in Korean (and also in other languages).

[27] There might be alternative ways to resolve this type mismatch, employing a type-shifting mechanism being one of them. But I will have to defer exploring such alternative possibilities to another occasion.

(53)   The LF structure of (29):[28]

TP$_1$ branches into RelP and TP$_1$ (← PA over the minimal situation variable[29] denoted by t$_j$).

RelP branches into TP$_2$ and Rel (*-un*). TP$_2$ dominates *totwuk-i tomangka-n*.

TP$_1$ branches into J and TP$_1$. TP$_1$ branches into DP$_1$ (*John-un*) and TP$_1$. TP$_1$ branches into VP and T (*-ess-ta*).

VP branches into DP and V (*tul-*). DP branches into NP and D ([+definite]). NP branches into t$_i$ and N (*kes-ul*).

When we interpret this LF by plugging in the proposed lexical entries for the core components of the perception construction while making the standard assumption about past tense as a relation between topic time and speech time (Klein 1994), we obtain (54) as the logical form for (29).[30]

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[28] For expositional simplicity, here and below, I do not assume the VP-internal subject hypothesis as in Kim (2007). But this simplification has no impact on the main argumentation of the present analysis.

[29] When (38) is transposed into the current semantic framework, the PA operation that occurs over a state individual there will be over a minimal situation variable, as is here.

[30] I abstract away from how exactly the embedded and the embedding clauses end up being evaluated with respect to the same topic time, because doing justice to this question will inevitably involve touching on the sequence of tense phenomenon, which is a complex topic in and of itself and thus will go well beyond the scope of this paper.
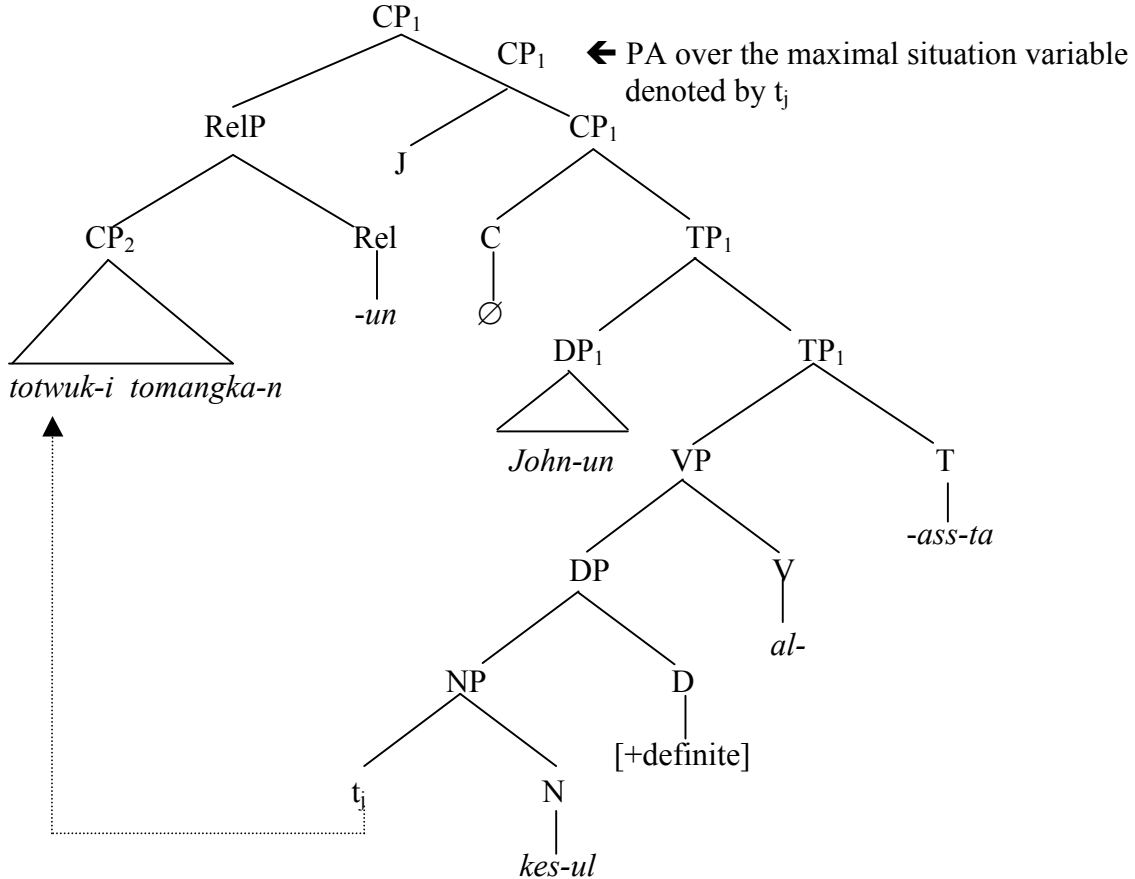
(54)   Logical form of (29):
        $\exists t[t < now \ \& \ \exists s[\exists l \exists e[\exists x[e \leq_p s \ \& \ run.away(e) \ \& \ Agent(x)(e) \ \& \ thief(x)] \ \& \ In\text{-}progress(l, e) \ \& \ t \subseteq \tau(l)] \ \& \ \exists e'[hear(e') \ \& \ Agent(John)(e') \ \& \ \textbf{Theme}(\iota y[g(R)(y)(s)])(e')$ $\& \ \tau(e') \subseteq t]]]$

This logical form is nearly identical to (46) except for the highlighted part but the interpretation it receives is slightly different: given the lexical semantics of the embedding predicate 'hear', we supply an audio perceptual relation as the value for *R*. Hence, the sentence is construed as meaning that John heard the unique sound of the situation that contains the event of the thief running away.

    In the case of the factive construction, I hypothesize that the RelP raises at LF and adjoins to the CP of the embedding clause, as illustrated in (55) for sentence (3). The landing site is higher than in the perception construction because the RelP embeds a CP and thus it is looking for another CP-level denotation to combine with, given the lexical entry for the morpheme *-un* proposed in (51) and the assumption that a CP denotes a set of maximal situations (or worlds).

(3)   John-un   [[totwuk-i   tomangka-n]-un   kes]-ul   al-ass-ta.
       J.-TOP   [[thief-NOM   run.away-IMPRF]-REL   PRON]-ACC   know-PST-DECL
       'A/the thief was running away and John knew the fact.'

(55)   The LF structure of (3):

When we compute the above LF, we obtain (56) as the logical structure for (3).

(56)   The logical structure of (3):
$\lambda w.\exists t[t < now \ \& \ \exists s[\exists l \exists e[\exists x[s \leq_p w \ \& \ e \leq_p s \ \& \ run.away(e) \ \& \ Agent(x)(e) \ \& \ thief(x)] \ \&$
$In\text{-}progress(l, e) \ \& \ t \subseteq \tau(l)] \ \& \ \lambda w'\exists s'\exists e'[s' \leq_p w' \ \& \ e' \leq_p s' \ \& \ know(e') \ \& \ Agent(John)(e')$
$\& \ \textbf{Theme}(\sigma y[g(\textbf{R})(\textbf{y})(\textbf{w})])(\textbf{e'}) \ \& \ \tau(e') \subseteq t]]]$

Again, the highlighted part corresponds to the interpretation of the complement position of the sentence: given the content of the embedded clause, *R* is interpreted as 'part'. So the E-type pronoun present in the embedding clause gets construed as referring to a unique entity that stands in a part relation to the world described by the embedded clause. This makes sentence (3) judged to be true if and only if at some past time, John knew the unique situation or fact of the world that verifies the proposition that a thief was running away at that time,[31] provided that all the three conditions on knowledge ascription given in (48) are also met—that is, (i) there is indeed a fact of a thief running away in the actual world, (ii) John has a *de re* belief of the fact, and (iii) he can also rule out relevant possible alternatives of the fact that do not exemplify the proposition.

3.4. Back to the properties of *kes*-constructions

Let us now revisit the properties of the three *kes*-constructions presented in section 2 and show how the proposed analysis sheds new light on them.

First of all, in light of the proposed analysis, the three constructions have a seemingly identical surface form, because their core components have similar lexical entries, leading them to have similar composition schemes. More specifically, in each case, the embedded clause describes a situation of some kind, the relativizer *-un* relates two sets of situations denoted by the embedded and the embedding clauses by LF-raising to the relevant projection of the embedding clause, *kes* relates the minimal or maximal situation described by the embedded clause to some entity that bears a relation to it, and the [+definite] feature makes this entity unique, be it singular or plural.

The present analysis also accounts for why *kes* behaves like a disguised definite expression, receiving the interpretation of 'the X', as shown in section 2.5. It is because *kes* is in fact the morpho-phonological representation of the E-type pronoun that is present in the embedding clause, whose interpretation is built from combining the trace of the raised RelP, the pronominal *kes* itself, and the [+definite] feature. Under our analysis, *kes* can also have a flexible semantics that accommodates all the three constructions because in Kratzerian situation semantics, situations are particulars and therefore they can stand in a relation to another particular or an entity.

Treating the *kes* string as an E-type pronoun also offers a relatively simple account of the presuppositionality exhibited by the three *kes*-constructions discussed in section 2.4. Since E-type pronouns can be analyzed as disguised definite descriptions (Elbourne 2005), it is reasonable to assume that the denotation of the *kes* string comes with a built-in existential

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[31] On the present analysis, the propositional attitude verb *al-* 'to know' is a two-place relation between two individuals, rather than a characteristic function from a set of possible worlds to an individual, as standardly assumed. This makes the relation between the embedded clause's content and the attitude holder, i.e., the subject of the embedding clause, not so direct; they are related indirectly via an E-type pronoun which bears a relation to the embedded clause's content. To the extent that this analysis correctly captures native Korean speakers' intuitions about various sentences instantiating the factive construction, we can conclude that there is a way to capture the semantics of knowledge ascriptions without adopting the standard analysis of attitude predicates.

presupposition that its descriptive content is non-null. This makes a sentence instantiating one of the three *kes*-constructions judged felicitous only if the situation described by the embedded clause exists in the world of evaluation; otherwise, it will be undefined. We can also attribute the presuppositional behavior of three *kes*-constructions in part to the semantics of -*un*. This morpheme's denotation contains the logical connective '&' and this makes the logical structures of all the three constructions have the form of p & q. Since p and q respectively correspond to the embedded clause's content and the embedding clause's content, the truth of a sentence instantiating a *kes*-construction is bound to entail the truth of the embedded clause. Consequently, the situation it describes has to exist in some world.

Why is it then that the three constructions exhibit different kind of existential presuppositionality, namely, what I have referred to as "true" factivity vs. "potential" factivity (or simple existential presuppositionality)? The factive construction displays "true" factivity because it is concerned with connecting two sets of maximal situations or worlds, which in turn make up two assertions about the actual world, one assertion expressed by the embedded clause and the other expressed by the embedding clause. As a result, a sentence instantiating the construction cannot be judged true unless the embedded clause's content denotes a true proposition, i.e., a set of situations that we call 'facts'. In the case of the IHRC and the perception constructions, they merely display "potential" factivity because they are concerned with connecting two minimal situations,[32] which together form just one maximal situation or world. Hence, if their embedded clauses contain imperfective aspect and they are under an intensional operator, as is the case in (22) and (26), then they do not necessarily describe a fact; rather, they describe a situation that is expected to exist in some possible world by some relevant individual. For instance, in (22), the situation of Mary running in the race was presupposed to be actualized by John. But, given the semantics of the imperfective, which is akin to that of progressive (see Dowty 1979, Portner 1992, and Landman 1992), such an actualization is not guaranteed and hence the presupposition can be canceled.

We can apply a similar logic to explaining why the IHRC and the perception constructions behave differently from the factive construction with regard to the referential transparency, indicative mood marking, and predicate restriction that pertains to the embedded clause, as shown in sections 2.1, 2.2, and 2.3, respectively.

First, the embedded clauses of the IHRC and the perception constructions are referentially transparent because they denote sets of minimal situations and hence they have to be evaluated relative to the same world as the clause embedding them. On the other hand, the embedded clause of the factive construction can be referentially opaque because its denotation contains a world variable of its own, independently from the embedding clause.

Second, indicative mood marking is not possible in the embedded clause of the IHRC or the perception construction but possible in the factive construction because presumably, indicative mood marking is only possible in linguistic expressions that denote worlds or maximal situations.

Third, the embedded clauses of the IHRC and the perception construction cannot tolerate I-level predicates because, in order for situation subordination to work, the situations involved have to be of the same kind: in both constructions, the embedding clauses describe spatio-

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[32] It has been claimed by several authors that the semantics of the IHRC construction has to do with connecting two eventuality descriptions although the claim was not made in the exact same terms (e.g., Kuroda 1992, Ohara 1993, Kim 2002, Matsuda 2002, Chung and Kim 2003). Similarly, the perception constructions in English and German have been argued to describe a (part-whole) relation between eventualities (e.g., 1983, Felser 1999, Basilico 2003). Since we treat eventualities as a type of situations here, we can say that the existing body of literature lends independent support to the present analysis of the IHRC and the perception constructions.

temporally bound situations, due to the lexical semantics of their predicates, such as 'catch'/'stop'/'comfort' and 'see'/'hear'/'sense'. Thus, if the embedded clause describes a semi-permanent situation, as in (14) and (15), then it cannot "connect well" with the embedding clause's content.[33] Support for this line of analysis comes from the fact that when the embedding predicate is changed to an I-level predicate, the predicate restriction on the embedded clause disappears except that such cases will no longer be considered instances of the IHRC construction; in such cases, the embedded clause plus *kes* string denotes a state of affairs, not an individual. To see this, compare (14a) and (57).

(14) a. *John-un [Mary-ka   **changnankkwuleki-i-∅**]-un   kes-ul   **mak**-ass-ta.
         J.-TOP   [M.- NOM   goofy.person-COP-N.PST]-REL   PRON]-ACC   stop-N.PST-DECL
         Intended: 'John <u>stopped</u> Mary, who <u>is a goofy person</u>.'

(57)   John-un [Mary-ka   **changnankkwuleki-i-∅**]-un   kes-ul   **cohaha**-n-ta.
         J.- TOP [M.-NOM   goofy.person-COP-N.PST]-REL   PRON]-ACC   like-N.PST-DECL
         'John likes Mary because she is a goofy person.'
         Or 'John <u>likes it that Mary is a goofy person</u>.'

On the analysis presented here, the grammaticality of (57) is expected because here, both the embedded clause and the embedding clause have the same type of predicate and thus they describe the same type of situations, namely, semi-permanent situations. (14a) is ungrammatical, by contrast, because the embedded clause describes a semi-permanent situation whereas the embedding clause describes a temporary situation.

3.5. Application to other *kes*-constructions
Since sentence (57) is another instance of *kes*-construction although it apparently defies any of the three labels we have been using, one may wonder how the proposed analysis may derive the semantics of other *kes*-constructions that have been set aside for the reasons given in footnote 3. The simple answer is that other *kes*-constructions can receive an essentially identical semantic treatment to the three *kes*-constructions examined above, in spite of their subtle syntactic and semantic differences. To illustrate, sentence (57) receives the following interpretation:

(58)   The logical structure of (57):
         $\lambda w.\exists t[t < now \ \& \ \exists s[\exists l[\exists x[s \leq_p w \ \& \ l \leq_p s \ \& \ goofy\_person(l) \ \& \ Theme(x)(l) \ \& \ t \subseteq \tau(l))]]$
         $\& \ \lambda w'\exists s'\exists e'[s' \ \leq_p \ w' \ \& \ e' \ \leq_p \ s' \ \& \ like(e') \ \& \ Agent(John)(e') \ \&$
         $\mathbf{Theme(\sigma y[g(R)(y)(w)])(e')} \ \& \ \tau(e') \subseteq t]]]$

This logical form suggests that the embedded clause of (57) is a full-fledged clause or CP which denotes a set of worlds. There is in fact supporting evidence for such a treatment: the embedded clause of this sentence can contain the indicative mood marker *-la*, a morphophonemic variant of *-ta*,[34] just like the embedded clause of the factive construction can, as we saw in section 2.4. To see this, consider (59), in comparison with (57).

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[33] A similar account was offered by Kim (2002) for the predicate restriction on the IHRC construction. But his analysis resorts to the impossibility of establishing binding relation between the event arguments in the denotations of the embedded and the embedding clauses when an I-level predicate occurs in the embedded clause.
    [34] The morpheme *-ta* becomes *-la* when immediately following the copular verb.

(59)   John-un [Mary-ka   **changnankkwuleki-i**-∅-**la**]-un   kes-i   coh-∅-ta.
       J.-TOP [M.-NOM   goofy.person-COP-N.PST-IND]-REL   PRON]-NOM   like-N.PST-DECL
       'John <u>likes it that Mary is a goofy person</u>.'

Under the present analysis, we can also capture the ambiguity of (57) as well: that is, the sentence can be conveyed to mean that what John likes is Mary or it can mean that what he likes is the fact that she is a goofy person. The logical form given in (58) allows for either reading, because both Mary and the fact that she is a goofy person are part of the world described by the embedded clause, so the free variable R inside the denotation of *kes* can map the world onto either of them.[35]

Given this set of results, I conclude that the proposed analysis not only accounts for all the challenging properties of the three *kes*-constructions discussed in this article but also provides a way to capture other *kes*-constructions as well.

4. Summary and Conclusion

The overarching goal of this article has been to account for why the IHRC, the direct perception, and the factive constructions in Korean have a *prima facie* identical form, despite their fine-grained semantic differences. Yet, along the way, I have also clarified how exactly the three constructions are similar and/or dissimilar to each other. We have seen that there is more parallel between the IHRC and the perception construction than between the perception and the factive construction, contra the prevailing view. We have also seen, however that at a more macro-level, the three constructions are more alike than different: they all exhibit presuppositionality with respect to their complement positions and instantiate E-type anaphora.

I have proposed a globally uniform but locally individualized account of the three constructions by recasting Kim's (2007) event-based E-type pronoun analysis of the IHRC construction within a Kratzerian situation semantics framework. The core claim has been that the three *kes*-constructions parallel each other because they all instantiate situation subordination wherein an E-type anaphor and a relativizer mediate between the subordinate and the superordinate clauses.

The proposed analysis implicates that a relativizer and an E-type pronoun have a greater semantic versatility than standardly assumed: a relativizer is canonically believed to connect two sets of individuals, as is the case with externally headed relative clause constructions, but it may connect two sets of situations as well, as we saw here. An E-type pronoun is usually believed to denote a unique or a maximal entity with a salient property such as 'being a thief'. But it can also refer to a unique entity that bears a salient relation to a situation such as 'a perceptual aspect of a minimal situation', as we have observed here.

Such semantic versatility of E-type pronouns and relativizers lets us see how employing a pronoun can maximize functional efficiency in creating a complex clause construction, be it a relative clause or a complement clause construction. It therefore provides a possible account of why clausal modifiers and complements seem to bear the same form across languages; that is, why in many languages, complementizers tend to have the same morphology as 3rd person singular pronouns, just like *that* in English or *kes* in Korean. The reason is that such pronouns can have the semantics of an E-type pronoun which relates a situation to a salient entity in that situation. It remains to be seen how the factual generalizations about the three *kes*-constructions

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[35] A virtually identical analysis can be given of sentence (i) in footnote 3.

in Korean and the proposed semantic analyses thereof can carry over to the corresponding constructions in other languages, such as Japanese and Cuszo Quechua, whose IHRC constructions appear to resemble the Korean IHRC construction, as discussed in Kim (2004).[36]

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[36] As mentioned in footnote 2, in Japanese, in the IHRC and the direct perception constructions, *no* occurs in the position where *kes* would occur in Korean but, in the factive construction, *koto* occurs instead. This fact accords well with the generalization offered here, namely that the IHRC and the perception constructions form one subclass and the factive construction forms another. One might wonder whether the fact that Japanese makes a morphological distinction between these two subclasses would pose a challenge to the analysis put forward here. I believe that it does not: the proposed E-type pronoun analysis can actually accommodate *koto*-constructions rather easily by assigning an appropriate lexical entry to it, such as what is posited for *kes* in (49).

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