When Events Meet Phrase Structure:
Perception Verb Complements*

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Lee, Sang-Geun. 2008. When Events Meet Phrase Structure: Perception Verb Complements. *Linguistic Research* 25(1), 39-60. Syntacticians have begun to take note of the emerging role of events in the mapping from lexical semantics to syntax ever since Davidson (1967) laid out a theory involving action (or event) expressions by defining events as primitive individuals. Extensional verbs like *see* become central in this respect since they express relations between individuals and events. In this paper, I reexamine the internal structure of Korean perception verb complements (PVCs) to reveal how the referential type of events s-selected by the extensional verb *see* is arranged in the syntax. I propose that the syntactic category, VP, must be licensed by the aspectual head, Aspect, to get the event argument to be interpreted as referential. This study eventually contributes to a better understanding on how the semantic concept of events is encoded in phrase structure. **(Korea University)**

Keywords   events, perception verb complements, head-internal relative clauses, aspect phrase, referentiality

1. Introduction

This paper is organized as follows. In section 2, I introduce the DP analysis of Korean head-internal relative clauses (Hoshi 1996, Jung 1997, Shimoyama 1999, Kim, M-J 2003, 2004 among others), according to which they have the same syntactico -semantic properties as non-restrictive relative clauses in English. In section 3, I justify myself claiming that Korean PVCs can be also analyzed in the same way as Korean head-internal relative clauses by emphasizing that the former share the same properties in morphology and semantics with the latter. In section 4, I propose that it is the functional

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projection, AspP, which licenses the event denoted by the verbal predicate to be interpreted as referential in the syntax. It explains why the extensional verb *see*, but not the intensional verb *wish*, necessarily requires its complement to include an aspectual projection in Korean syntax.

2. Head-internal relative clauses (HIRCs) in Korean

Korean is one of those languages that employ the head-internal relative clause (henceforth HIRC) to deliver a distinctive interpretation, i.e., non-restrictive relative clause interpretation, through which the internal head is understood to play the dual role of being an argument of the embedded verb and an argument of the matrix verb (cf. Cole 1987, Williamson 1987, Jhang 1991, Kuroda 1992, Watanabe 1992, Basilico 1996, Hoshi 1996, Jung, Y-S 1997, Shimoyama 1999, Kim, M-J 2003, 2004 among others).

Unlike the ordinary relative clause, that is, the head-external relative clause (henceforth HERC), where the head occurs external to the relative clause, as in (1a), the nominal head of the HIRC remains within it, rather than external to it, as in (1b):[1]

(1) a. kyengchal-i [$_{DP}$ [$_{HERC}$ t_i pang-eyse   nao -nun]   totwuk$_i$]-ul capassta.
       policeman-Nom   room-from come out-Rel thief-Acc   caught
       'The policeman caught a thief who was coming out of the room.'
   b. kyengchal-i [$_{DP}$ [$_{HIRC}$ totwuk-i   pang-eyse nao -nun]-kes]-ul   capassta.
       policeman-Nom   thief-Nom room-from come out-Rel-NM-Acc caught
       'The policeman caught a thief, who was coming out of the room.'

One crucial syntactic variation noticed in (1) is that the head *totwuk* 'thief' in (1a) is external to the relative clause, whereas the same head *totwuk* 'thief' in (1b) stays in the relative clause and yet it is interpreted as an argument of the matrix verb. The association of the internal head to the matrix verb in (1b) has led some researchers to assume that the internal head underwent a LF raising, understanding the HIRC to be identical with the HERC (Cole 1987, Williamson 1987, Jhang 1991 among others).

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1) As a departure, I have treated the mysterious morpheme *-kes* in Korean as an ordinary nominalizer (NM), but I will later follow Kim's (2003, 2004) proposal that the major property of the nominalizer *-kes* can be identified as a determiner pronominal.

However, as has been recently demonstrated by other researchers (Demirdache 1991, Basilico 1996, Hoshi 1996, Jung, Y-S 1997, Shimoyama 1999, Kim, M-J 2003, 2004 among others), there are several non-trivial asymmetries between these two relative clauses that take place in systematic ways and hence undermine the previous treatment of the HIRC identical with the HERC.[2]

In this section, I will call people's attention to the distinctive properties of the Korean HIRC, which eventually give a clue to an analysis of Korean perception verb complements (PVCs) s-selected by the genuine perception verb *see*.

2.1 Properties of Korean HIRCs

Consider the following examples in (2) that contain a numeral classifier (CL) as external and internal head, respectively.

(2) a. Mina-nun [[t_i talana -nun]   twu-myeng-uy *totwuki*]-ul capassta.
      Mina-Top   run away-Rel two-CL-Gen   thief-Acc   caught
      'Mina caught two thieves who were running away.'
  b. Mina-nun [[$_{HIRC}$ twu-myeng-uy totwuk-i   talana -nun]-kes]-ul   capassta.
      Mina-Top   two-CL-Gen   thief-Nom run away-Rel-NM-Acc caught
      'Mina caught two thieves, who were running away.'

If the internal head *twu-myeng-uy totwuk* 'two-CL-Gen thieves' in (2b) is analyzed as raising at LF, it will be similar to its external counterpart in (2a), where the head occurs outside the relative clause and hence explicitly serves as object of the matrix verb 'catch'. However, as the English translations in (2) has suggested, the HIRC is different from the HERC in interpretation: the former has a non-restrictive interpretation (which merely provides additional description about the internal head) as primary one while the latter has a restrictive interpretation (which defines a subset of the external head) as primary one. That is, the translation for (2a) with a HERC is such that the relative clause 'x runs away' puts a restriction on the domain of the numeral classifier *twu-myeng* 'two-CL' along with the head 'thieves', whereas the translation for (2b) with a HIRC is such that the domain of *twu-myeng* 'two-CL' along with the head 'thieves' is not restricted by the relative clause 'x runs away'. The HIRC in Korean

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2) For more differences between HERCs and HIRCs, see Shimoyama (1999) for Japanese and Jung, Y-S (1997) and Kim, M-J (2003, 2004) for Korean.

is more like a non-restrictive relative clause than a restrictive relative clause in that it is interpreted as if it is an independent sentence that is separate from the matrix clause, though it appears to be associated with a DP in the matrix clause.

Given that maximality is a key property of distinguishing the non-restrictive relative clause from the restrictive relative clause (Hoshi 1996, Jung, Y-S 1997, Shimoyama 1999, Kim, M-J 2003, 2004),[3] the HIRC in Korean certainly shows this property. Suppose that there were five thieves and Mina caught only two of them who were running away. Then, the sentence in (2a) is true while the sentence in (2b) is false. The sentence in (2b) with a HIRC will be judged true if and only if there were only two thieves running away and Mina caught all of them. The content of the HIRC always provides the maximal entity that satisfies the description of the internal head.

The contrast in interpretation between (2a) and (2b) suggests that the internal head in (2b) remains inside the HIRC, and that the HIRC itself is interpreted like a non-restrictive relative clause. The association of the HIRC with the matrix clause must be obtained through a mediator (i.e., the determiner pronominal ‑*kes* 'the' in Kim, M-J (2003, 2004)) in the matrix clause, which is anaphorically related to the internal head in the HIRC. The LF head-raising analysis for HIRCs in Korean, by which the HIRC is analyzed as equivalent to the HERC, cannot account for this kind of difference in interpretation, since it would force the HIRC in (2b) to be interpreted exactly in the same way as the HERC in (2a), incorrectly leading to a restrictive interpretation.

Another major difference between the HERC and the HIRC is that the former does not require the external head to be existential while the latter requires the internal head to be necessarily existential (Jung, Y-S 1995, 1997, Hayashi & Nishigauchi 2003). After all, properties, generics, or vocations, which are known to have no reference cannot serve as internal heads although they can as external heads. It can thus be said that the range of the internal head in the HIRC is more restricted than that of the external head in the HERC, which is illustrated in (3):

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3) Note the contrast in maximality between restrictive and non-restrictive relative clauses in English:

    (i) a. John caught two thieves who came out of the room. (restrictive relative clause)
       b. John caught two thieves, who came out of the room. (non-restrictive relative clause)

In (ia) with a head-external relative clause, the interpretation allows for us to imagine such a situation that there are more thieves who did not actually come out of the room, whereas the sentence in (ib) with a head-internal relative clause implies that only two thieves (maximal number of thieves) came out of the room and John caught them all. It is only the nonrestrictive relative clause that shows the maximality effect.

(3) a. Mary-nun [$_{DP}$ [$_{HERC}$ t$_i$ ton-ul   cal   pe-nun] uysa$_i$-ka   toyessta.

       Mary-Top   money-Acc well earn-Rel doctor-Nom became

       'Mary became a doctor that makes a lot of money'

   b. *Mary-nun [$_{DP}$ [$_{HIRC}$ uysa-ka   ton-ul   cal pe-nun]-kes]-i   toyessta.

       Mary-Top   doctor-Nom money-Acc well earn-Rel-NM-Acc became
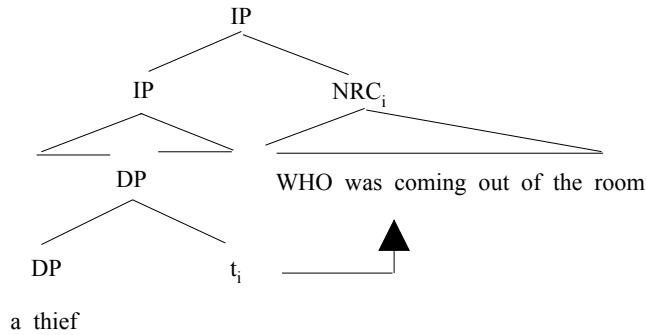
       'Mary became a doctor, which makes a lot of money'

In (3), the matrix verb *toyta* 'become' forces both the external and the internal head *uysa* 'doctor' to be interpreted as a vocation without reference, not as any real doctor. The vocation expression *uysa* 'doctor' with no reference is generally accepted as an external head, as in (3a). In contrast, the same nominal expression *uysa* 'doctor' is not compatible with the HIRC, as in (3b). The contrast in (3) indicates that the HIRC is distinguished from the HERC in existential / referential character: the HIRC forces the internal head to be strictly existential / referential.

I have so far shown that in Korean the HIRC is different from the HERC in three main respects; non-restrictive interpretation, maximality, and existentiality, all of which justify us in analyzing the Korean HIRC in the same way as the non-restrictive relative clause. That is, the Korean HIRC, whose head noun is associated with the matrix verb through a mediator, can be analyzed as an independent sentence that is separate from the matrix sentence.

2.2 The structure of Korean HIRCs
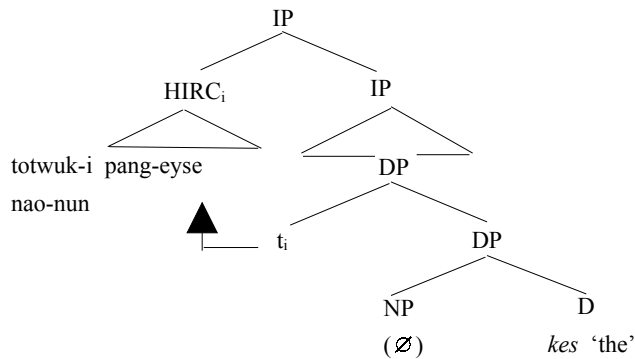
To capture the characteristics of the Korean HIRC mentioned in the previous section, following Kim, M-J (2003, 2004), I suggest that the DP analysis of non-restrictive relative clauses can be extended to the case of HIRCs in Korean. The analysis of English non-restrictive relative clauses (Demirdache 1991, Shimoyama 1999) is exemplified in (4a), and that of Korean HIRCs is in (4b):

(4) a. The Non-restrictive Relative Clause (NRC) Construction at LF (in English)

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                          IP
                ┌─────────┴─────────┐
               IP                   NRCᵢ
          ┌────┴────┐          ┌─────┴──────────────┐
                   DP          WHO  was coming out of the room
              ┌────┴────┐              ▲
             DP         tᵢ        └────┘
           a  thief
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b. The Head-internal Relative Clause (HIRC) Construction at LF (in Korean)

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                          IP
                 ┌────────┴────────┐
               HIRCᵢ               IP
          ┌─────┴──────┐      ┌────┴────┐
    totwuk-i  pang-eyse           DP
    nao-nun                  ┌────┴────┐
              ▲             tᵢ        DP
          └───┘                  ┌────┴────┐
                                NP         D
                                (∅)     kes 'the'
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In (4a) with an English non-restrictive relative clause, the *WHO* in the relative clause functions like a pronominal taking a DP in the matrix clause as its antecedent. Similarly, in (4b) with a Korean HIRC, the determiner *-kes* 'the' in the matrix clause functions like a pronominal taking the internal head (DP) in the HIRC as its antecedent. The HIRC, which is originally added as an adjunct clause to the DP in the matrix clause, is later adjoined to the matrix IP at LF, as shown in (4b). The HIRC adjoined to the IP at LF is understood to represent an independent sentence that is separate from the matrix clause and is not composed with the rest of the DP in the matrix clause, so much as the non-restrictive relative clause is interpreted as an independent sentence.[4]

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4) I assume with Shimoyama (1999) and Kim, M-J (2003, 2004) that the HIRC raising at LF is

Assuming with Kim, M-J (2003), who suggests identifying the so-called Korean nominalizer -*kes* 'the' as a spell-out of the determiner pronominal with an elided NP complement.[5] I interpret the determiner –*kes* 'the' in Korean as denoting something like 'the maximal entity that has a salient property in the event described by the HIRC.' The HIRC in the string of [$_{DP}$ [$_{HIRC}$]-*kes*] functions to provide a descriptive content for the determiner pronominal –*kes* 'the'. Next, I will show the similarity of PVCs to HIRC in Korean.

3. Korean PVCs taking on the HIRC structure

Korean PVCs have turned out to be identical with HIRCS, at least, in three key respects (i.e., morphological arrangement, existentiality, and maximality). It amounts to suggesting that the same DP analysis of HIRCs may be extended to an analysis of

triggered by a semantic type mismatch as in Quantifier raisings. The HIRC raising itself is not a crucial part of the study at the moment, since I am concerned more about the internal structure of the HIRC, which is assumed to reveal the aspectual nature of event. See Shimoyama (1999) for Japanese and Kim, M-J (2003, 2004) for the semantic composition of the head-internal relative clause construction.

5) The determiner pronominal analysis has been originally proposed by Elbourne (2002), who analyzes the definite article in 'the (NP)' as being occasionally assimilated to a pronoun while the NP as undergoing PF deletion in the environment of an identical NP. Elbourne (2002) provides the following data in (i) for the hypothesis of determiner pronominals:

    (i) a. [You troops] will embark but the other troops will remain. (Elbourne 2002: 244)
        b. [We Americans] distrust [you Europeans].

The DPs in (i) do not seem to involve appositive constructions, since there is no sign of the characteristic comma intonation associated with apposition sentences like You, troops, will embark. The data in (i) indicate that pronouns in English can be (either always or optionally) analyzed as a kind of determiner. In German, though restricted, there is an identity between third-person pronouns and determiners, as in (ii):

    (ii) a. Hans sieht [den Mann]. (definite article *den*) (Elbourne 2002: 245)
        'Hans sees the man.'
      b. Hans sieht [den]. (determiner pronoun *den*)
        'Hans sees him.'

The complement NP following *den* 'the' in (iib) is supposed to undergo PF deletion, of which semantic content would rely on some extra linguistic reconstruction by the hearer of what must be meant by the speaker. In this paper, I assume with Kim, M-J (2003, 2004) that the Korean nominalizer -*kes* can be understood to function as determiner pronominal, since the semantic content of -*kes* appears to be determined in terms of some extra linguistic content.

Korean PVCs.

First, the morphological arrangement in the PVC is in perfect match with that in the HIRC: the imperfective relativizer ‑*nun*, the determiner pronominal ‑*kes*, and the accusative case particle ‑*(l)ul*. This is illustrated in (5a) with a HIRC and in (5b) with a PVC:

(5) a. kyengchal-i   [[totwuk-i bang-eyse nao -nun]-kes]-ul   capassta.
        policeman-Nom thief-Nom room-from come out-Rel-Det-Acc caught
        'The policeman caught a thief, who was coming out of the room.'
    b. kyengchal-i   [[totwuk-i bang-eyse nao-nun]-kes]-ul   poassta.
        policeman-Nom thief-Nom room-from come out-Rel-Det-Acc saw
        'The policeman saw an event, which was of a thief coming out of the room.'

In (5), the PVC is precisely in match with the HIRC with respect to a set of critical morphemes, that is, the imperfective relativizer ‑*nun* and the determiner ‑*kes* followed by the accusative case particle ‑*ul*. This perfect match in morphology demonstrates that Korean PVCs take on the structure of HIRCs.[6]

Second, the internal head, which is indirectly associated with the matrix verb in both the HIRC and the PVC, must be existential or referential. If the internal head refers to nothing or if the denotation of the internal head is cancelled in a sentence, it will result in ungrammaticality.

Compare the grammatical sentences in (6), where the internal head is interpreted as existential, with the ungrammatical sentences in (7), where the internal head is not interpreted as existential:

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6) Korean PVCs also share with HIRCs the same property in selection: both constructions take only stage-level predicates as their complement predicates. This is exemplified in (i):

    (i) a. Mina-nun [[Bola-ka   ttena-nun / *khu-n]-kes]-ul   capassta. (HIRC)
            Mina-Top   Bola-Nom leave-Rel / tall-Rel-Det-Acc caught
            'Mina caught Bola, who was leaving / tall.'
        b. Mina-nun [[Bola-ka   ttena-nun / *khu-n]-kes]-ul   poassta. (PVC)
            Mina-Top   Bola-Nom leave-Rel / tall-Rel-Det-Acc saw
            'Mina saw the event, which was of Bola leaving / being tall.'

    It amounts to suggesting that the HIRC describes a unique individual which stands only in a relation to an event. The exact translation of the sentence in (ia) is such that there was an event of Bola leaving and Mina caught her in that event.

(6) a. Mina-nun [[_HIRC_ Bola-ka   bang-eyse nao -nun]-kes]-ul   capassta.

　　　 Mina-Top   Bola-Nom room-from come out-Rel-Det-Acc caught

　　　 'Mina caught Bola, who was coming out of the room.'

　　b. Mina-nun [[_PVC_ Bola-ka   bang-eyse nao -nun]-kes]-ul   poassta.

　　　 Mina-Top   Bola-Nom room-in   come out-Rel-Det-Acc saw

　　　 'Mina saw an event, which was of Bola coming out the room.'

(7) a. *Mina-nun [[_HIRC_ amwuto bang-eyse   nao -cianh-nun]-kes]-ul   capassta.

　　　 Mina-Top   nobody room-from come out-not-Rel-Det-Acc caught

　　　 '*Mina caught nobody, who was coming out of the room.'

　　b. *?Mina-nun [[_PVC_ Bola-ka   bang-ey iss-cianh-nun]-kes]-ul poassta.

　　　 Mina-Top   Bola-Nom room-in exist-not-Rel-Det-Acc saw

　　　 '??Mina saw an event, which was of Bola not staying in the room.'

In both (6) and (7), the truth of the whole sentence is to imply the truth of the relative clause complement, since both the matrix verbs 'catch' and 'see' requires their object to be referentially implied.[7] However, since the internal head *amwuto* 'nobody' in (7a) refers to nothing, it cannot serve as an object of the matrix verb 'catch'. Likewise, in (7b) with a PVC, canceling the embedded eventuality of 'exist' that is selected by the matrix verb 'see' would fail not only to form a legitimate anaphoric relation to the determiner pronominal -*kes* 'the', but also to satisfy the extensional property of the matrix verb 'see' that requires its complements to be referential. That is why those sentences in (7) sound odd.

Third, as noted by Kim, M-J (2004), PVCs are identical with HIRCs in maximality, a key factor of the non-restrictive relative clause.

Consider the following perceptual sentence in (8) that is assumed to take on the structure of HIRC:

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7) The prohibition of negation in the HIRC (and the Korean PVC) is consistent with the following English data in (i), where insertion of the negative from not into the English PVC turns it into marginality (cf. Barwise1981, Higginbotham 1983, Bayer 1986, Mittwoch 1990, Cooper 1998, Hayashi & Nishigauchi 2003):

　　(i) a. ?*I heard [the baby not cry]. (Mittwoch 1990: 108)
　　　 b. ?*I felt [the wasp not sting me].
　　　 c. ?*I watched [the baby not eat his porridge].
　　　 d. ?*I saw [the ice not melt].

(8) Na-nun [[_{PVC} Romi-ka   ecey   twupen-uy   chengso-lul
    I-Top   Romi-Nom yesterday two times-Gen cleaning-Acc
    ha-nun]-kes]-ul poassta.
    do-Rel-Det-Acc saw
    'I saw two times of cleaning, which Romi was doing yesterday.'

In (8), where the verbal noun compound (i.e., *chengso-lul hata* 'do cleaning') functions as an internal head that is selected by the matrix verb 'see', the determiner pronominal *-kes* 'the' is interpreted to refer to all the (cleaning) events, i.e., two times of cleaning, that Romi actually involved yesterday. That is, the sentence in (8) will be true if and only if there were only two times of cleaning by Romi yesterday and I saw all of them. If Romi cleaned (her room) three times yesterday, but I saw only two of them, the sentence in (8) will be judged false. The maximality effect of the PVC, together with the existentiality in interpretation, can be taken for the claim that both the PVC and the HIRC share the same structure of (4b), which is repeated below.

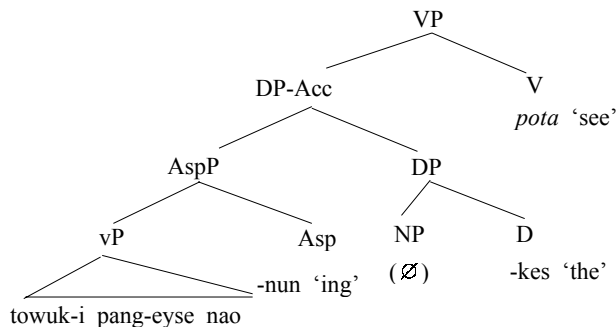(4) b. The Head-internal Relative Clause (HIRC) Construction at LF (in Korean)
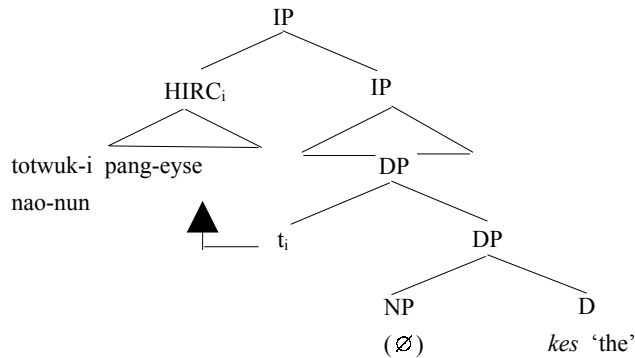
Given the structure of (4b) for both the PVC and the HIRC, what semantic type (i.e., event or individual) the determiner *-kes* refers to is assume to rely on the semantic content of the complement, NP, which is semantically selected by the main verb.
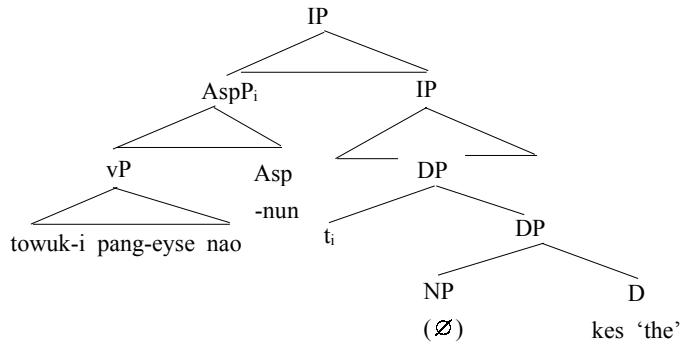
4. The AspP analysis of Korean PVCs

As for the internal structure of Korean PVCs, I argue that the Korean imperfective relativizer ㄱ*nun* must be analyzed as heading an aspectual projection, AspP, as in (9a), and I assume that the AspP undergoes LF-raising and adjoins to the matrix IP, as in (9b).

(9) a. The internal structure of Korean PVCs in overt syntax

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                          VP
                      ／      ＼
                 DP-Acc          V
               ／      ＼        pota 'see'
           AspP          DP
          ／    ＼      ／    ＼
        vP      Asp   NP      D
       ／△    -nun 'ing'  (∅)  -kes 'the'
 towuk-i pang-eyse nao
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b. The perception verb construction at LF

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                        IP
                    ／      ＼
               AspPᵢ          IP
              ／    ＼       ／    ＼
           vP      Asp    DP
          ／△     -nun   ／  ＼
 towuk-i pang-eyse nao   tᵢ    DP
                             ／    ＼
                           NP      D
                           (∅)   kes 'the'
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The structure in (9a) provides a configuration for the embedded VP to be necessarily associated with Aspect, whereby the event argument denoted by the embedded verb can legitimately function as complement to the genuine perception verb *see*, which semantically selects for only events as its complements.[8] In what follows, I will provide several pieces of evidence for the aspectual analysis of Korean PVCs.

4.1 The imperfective relativizer *-nun* - 'ing'

When analyzing the PVC as having an aspectual projection, I suggest that the semantic notion of events, which are reserved only for stage-level predicates (Milsark 1974, Carlson 1977, Higginbotham 1983, Kratzer 1989, 1995, among others), is not directly encoded by VP in phrase structure but must be licensed by the presence of grammatical aspect.[9]

In Korean, progressive events can be expressed in terms of a locative phrase, as in (10), where the morpheme *¬nun* is known as imperfective relativizer indicating that the event denoted by the verb is in progressive.[10]

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8) Though Davidson (1967) treats events as primitives, his analysis apparently makes a sentence more analogous to an indefinite DP, rather than a definite singular referential DP, since there is an existential quantifier binding the event variable at the level of the whole sentence. So, on a Davidsonian analysis, a sentence like John buttered the toast at midnight in the bathroom does not refer to a toast-buttering event but rather asserts that there was an event of that kind. Essentially, the analysis of events as primitives already assumes that VPs express properties of events. See Moltmann (1989) and Partee (2000) for the view of events as derived objects.

9) The absence of any overt functional morpheme in the English bare infinitive PVC has led some linguists to analyze them as bare VPs or verbal Small Clauses (cf. Stowell 1981, 1983, Higginbotham 1983, Safir 1993 among others). On the other hand, other linguists like Felser (1998) have recently provided several pieces of evidence for the functional projection analysis of the so-called bare infinitive PVC in English. For instance, note that the complement verbs, look and throw, in (i) should raise to some functional head within the bare infinitive PVC:

(i) a. We saw [μP George look$_i$ the reference t$_i$ up]. (Felser 1998: 357)
   b. We heard [μP George throw$_i$ the bicycle t$_i$ out].

If Johnson (1991) is correct in claiming that the verb can be separated from its particle when the verb moves to some higher head position (μ), the data in (i) suggest that the embedded verb, *look* or *throw*, must reside in some functional head position, at least, higher than the VP. The example in (ii) also confirms that short verb movement does indeed takes place within the so-called bare infinitive PVC in English:

(ii) We saw [μP him look$_i$ frequently t$_i$ at the wall]. (Felser 1998: 357)

If we assume that aspectual adverbials like frequently adjoin to VP, it follows that the embedded verb look in (ii) must be relocated somewhere higher than the VP. This kind of short movement points towards a conclusion that English bare infinitive PVCs can be analyzed as having a functional projection, which I suggest labelling AspP (see more evidence for the functional analysis of English bare infinitive PVCs in Heycock (1995), Felser (1998), and Basilico (2003).

10) Comrie (1976) reports that there is similarity between the formal expression of imperfective aspect and various locative adverbial phrases, and that a full expression of progressive, though highly marked in English, would be a locative expression containing the noun process, e.g., John is in the process of running. On this view, it seems that Korean is one of those languages frequently relying on such adverbial phrases, as in (10), for progressive aspect.

(10) Romi_i-nun cikum [_{PP} [pro_i talli-*nun*-cwung]-ey]   issta.

    Romi-Top now   run-Imprf.Rel-middle-at existed

    'Romi is right now in the process / middle of running.'

The internal structure of Korean PVCs carries the same imperfective morpheme *‑nun* to signal a progressive event. The morphological realization of the imperfective relativizer *‑nun* in the PVC indicates that the Korean PVC should be analyzed as having an AspP. The possibility of canceling the truth of a PVC in (11) confirms that the imperfective relativizer *‑nun* works for progressive aspect.

(11) Sara-nun [[Romi-ka   kil-ul   kenne-nun]-kes]-ul   poass-una,

    Sara-Top   Romi-Nom street-Acc cross-Imprf.Rel-Det-Acc saw-but,

    Romi-nun sasil   kil-ul   kenne-ci anhassta.

    Romi-Top actually street-Acc cross-not

    'Sara saw Romi crossing the street, but actually Romi didn't cross the street.'

The Korean PVC in (11) with the imperfective relativizer *‑nun* is interpreted to express an on-going event. Thus, the whole sentence is still coherent in meaning though the speaker has cancelled out the truth of the complement sentence, where Romi was seen to cross the street. Such data as in (11) indicates that Korean PVCs are more like English gerundive PVCs.[11]

In fact, it has been noted that the English inflectional suffix *‑ing* in the English gerundive PVC has a verbal feature, [+V], as well as a nominal feature, [+D], (cf. Reuland 1983, Abney 1987, Johnson 1988, Milsark 1988 among others). That is, the suffix *‑ing* in the English gerundive PVC is salient in aspectual property, providing a progressive interpretation for the complement. This is exemplified in the following contrast:

(12) a. John saw [Bill *run* to the store].

    b. John saw [Bill *running* to the store].

The bare infinitive form *run to the store* in (12a) is interpreted to denote a complete

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11) It turns out that the English gerundive PVC is indeed participial, indicating a progressive aspect. But, I occasionally use the conventional term 'gerundive' PVCs, simply to differentiate it from 'bare' PVCs.

event, while the gerundive from *running to the store* in (12b) is interpreted to denote an incomplete event. After all, the complete event indicated by the bare infinitive in (12a) is not cancelable while the complement indicated by the progressive in (12b) is thus cancelable.

The contrast in the following also indicates that the inflectional morpheme *-ing* in the English gerundive PVC has a verbal feature, [+V].

(13) a. *I couldn't see [John's *playing* the piano]. (Akmajian 1977: 429)
  b. *I couldn't see [John's *having* played the piano].
  c. *I heard [my *saying* such foolish things].
(14) a. I regret [John's *playing* the piano].
  b. I regret [John's *having* played the piano].
  c. I regret [my *saying* such foolish things].

The difference between (13) and (14) is whether the embedded subject is assigned genitive case by the embedded V-ing. The contrast in the above tells that the embedded V-ing of the gerundive PVC cannot assign genitive case to the embedded subject while the embedded V-ing of the ordinary gerundive complement can. Considering that genitive case is a property of NP (or DP in Abney (1987)), the unavailability of genitive case in (13) supports the claim that the gerundive PVC in English actually has a verbal feature, [+V], as salient feature.

In addition, it turns out that the morpheme *-ing* in the English gerundive PVC serves as a nominalizer with [+D]. The function of the *-ing* as a nominalizer is noticed in the following contrast, where only the gerundive PVC, not the bare infinitive PVC, can be placed in the subject position:[12]

(15) a. *[Superman *take* a bath] is a breathtaking sight. (Akmajian 1977: 439)
  b. *[Superman *take* a bath] has been witnessed by Sara.
(16) a. [Superman *taking* a bath] was a breathtaking sight. (Akmajian 1977: 430):
  b. [Superman *taking* a bath] has been witnessed by Sara.

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12) The Korean PVC is comparable to the English gerundive PVC rather than the bare infinitive PVC, as shown in (i):

  (i) [Superman-i   mokyokha-nun-kes]-i   Sara-eykey mokkyek-toyessta.
     Superman-Nom take a bath-Asp-NM-Nom Sara-to   witness-became
     '[Superman taking a bath] has been witnessed by Sara.'

The dual functions, [+V] and [+N], of the English inflectional morpheme *-ing* in the English gerundive PVC, can be said to surface with two distinctive morphemes, [_DP_ [_AspP_ V-*nun*]-*kes*] in the Korean PVC. One of them indicates the progressive aspect '-ing' with [+V], and the other is identified as determiner pronominal with [+D]. The aspectual property of '-ing' with [+V] in both languages supports the aspectual analysis of Korean PVCs.

4.2 A truncated structure

The fact that the imperfective relativizer *-nun* heads a functional projection, and yet does involve neither a CP nor a TP, further confirms that the relativizer *-nun* should be analyzed as nothing but an aspectual projection, AspP.

In Korean, full-grown embedded clauses include the complementizer *-ko* 'that' as well as the sentential ending marker *-ta* indicating a declarative statement, as illustrated in (17):

(17) Mina-nun [_CP_ [_TP_ Bola-ka   ttena-*ss* -*ta*] -*ko*]   malhayssta.
    Mina-Top   Bola-Nom leave-Pst-Dec-Comp said
    'Mina said that Bola left.'

The full-grown structure of complement clause in (17) shows that the verb predicate in Korean can be expanded to include three functional morphemes; a tense marker, i.e., the past tense marker *-(e)ss* in (17), followed by a sentence-type marker, i.e., the declarative ending marker *-ta* in (17), and the complementizer (i.e., *-ko* in (17)). However, neither sentence-type marker *-ta* nor tense marker *-ss* is allowed in the PVC, as in (18):

(18) a. *Mina-nun [_DP_ [_CP_ [_TP_ Bola-ka   ttena-ss-ta]-nun]-kes]-ul   poassta.
        Mina-Top   Bola-Nom leave-Pst-Dec-Rel-Det-Acc saw
        'Mina saw an event that Bola left.' (Lit.)
    b. *Mina-nun [_DP_ [_CP_ [_TP_ Bola-ka   ttena-ss]-nun]-kes]-ul   poassta.
        Mina-Top   Bola-Nom leave-Pst-Rel-Det-Acc saw
        'Mina saw an event that Bola left.'

Given that a tense marker is located in TP and a sentence-type marker is in CP, the

fact that neither of them can show up in the PVC suggests that the functional projections, TP and CP, are not available in the Korean PVC.[13]

The deficient structure of Korean PVCs accounts for the complementary distribution of relativization and topicalization in Korean.[14] This is illustrated in (19b, c), where topicalization out of the basis is not allowed:

(19) a. Mina-nun [$_{DP}$ [Bola-ka   ppang-ul   mek-nun]-kes]-ul poassta.
         Mina-Top   Bola-Nom bread-Acc eat-Rel-Det-Acc   saw
         'Mina saw the event, which was of Bola eating bread.'
     b.*?Mina-nun [$_{DP}$ [Bola$_i$-nun t$_i$ ppang-ul   mek-nun]-kes]-ul poassta.
         Mina-Top   Bola-Top   bread-Acc eat-Rel-Det-Acc   saw
     c.*?Mina-nun [$_{DP}$ [ppang$_i$-un Bola-ka   t$_i$ mek-nun]-kes]-ul poassta.
         Mina-Top   bread-Top Bola-Nom   eat-Rel-Det-Acc   saw

If we assume that the Korean PVC is analyzed as a maximal functional projection, AspP, the incompatibility of the topic phrase in (19b, c) (as well as the unavailability of tense in (18)) is attributable to the truncated structure, [$_{AspP}$ [$_{VP}$]], which does not leave any room for the topic phrase, *Bola-nun* 'Bola-Top' in (19b) or *ppang-un*

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13) The claim that the Korean imperfective relativizer ¬*nun* in the PVC cannot be analyzed as heading TP is also consistent with the temporal restriction that the matrix event of perceiving must be in contemporal relation to the complement event selected by see (cf. Gee 1977, Barwise 1981, Higginbotham 1983, Safir 1993, Felser 1998). If the imperfective relativizer ¬*nun* itself was analyzed as heading TP, this analysis could not prohibit the complement event to take place at different time from the matrix event. But, this is not true. Ordinarily, the genuine perception verb see is characterized with contemporality.

14) This incompatibility of topic constituents in the head-internal relative clause XP may be treated like a natural result from the similarity in sentence processing between topicalization and relativization (Kuno 1973). In particular, when following Kuno's (1973) idea that what is relativized is not an ordinary noun phrase, but the theme of the relative clause, a relative clause with its head, which is supposed to already occupy a topic position, cannot contain a topic phrase. However, as pointed out by Kitagawa (1982), there is a difference between topicalization and relativization: a thematized sentence is acceptable only when the theme represents the presupposition, while a relative clause may occur in an existential sentence (that is, a sentence which does not have any particular presupposition). That is, Kuno (1973) cannot account for the following contrast in grammaticality:

  (i) a. *dareka-wa   gakkoo-ni urami-o   idak-u. (topicalization) (Kitagawa 1982: 179)
         someone-Top school-Dat grudge-Acc hold-Prs
         'Speaking of somebody, he bears a grudge against the school.'
     b. [gakkoo-ni urami-o   idak-u] dareka-ga   gakkoo-ni hi-o   tuke-ta. (relativization)
        school-dat grudge-Acc hold-Prs someone-Nom school-Dat fire-Acc set-Pst
        'Some who bears a grudge against the school set fire to the school.'

'bread-Top' in (19c).

4.3 Aspect as licensor of referentiality

If the AspP analysis of Korean PVCs proposed here is right,[15] what I am now suggesting is that the aspectual head, Aspect, of the PVC contributes to licensing an event argument to function as complement to the extensional verb see. That is, it is the functional projection, AspP, not the lexical projection, VP, that is responsible for syntactically licensing event arguments to be interpreted as referential (cf. Heycock 1995, Ramchand 1997, Felser 1998, Cowper 1999, Rafel 2000, Basilico 2003).[16]

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[15] The AspP analysis of PVCs is also relevant to other languages like Romance languages. For instance, the majority of the Romance languages express a perceptual report using the so-called Pseudo-Relative (PR) clause with imperfective aspect, as in (i), which is taken from Rafel (2000):

   (i) a. He visto   a [$_{PR}$ Juan que corria]. (Spanish)
       I   have seen to-Acc John that ran-IMPRF
     b. J'ai   vu [$_{PR}$ Jean qui courait]. (French)
       have seen   John that ran-IMPRF
       'I saw John running.'

On the other hand, Rafel (2000) points it out that European Portuguese and some Italian dialects, though belonging to Romance languages, do not accept the Pseudo-Relative (PR) clause with imperfective aspect. Instead, they employ the so-called Prepositional Infinitival Construction (PIC) to express a perceptual report, as in (ii), which is also taken from Rafel (2000):

   (ii) a. Eu vi [$_{PIC}$ osmeninos a correr]. (Portuguese)
       I   saw   the children at run-INF
     b. (L') ho visto [$_{PIC}$ a corre]. (Falconara dialect, Italy)
       him I   have seen at run-INF
       'I saw him running.'

Details aside, the data in (ii) could be a potential problem for the aspectual analysis of PVCs, since the perception verb *see* in these languages seems to take an infinitive verb as its complement verb. However, Rafel (2000) claims the preposition *a* 'at' in (ii) indeed functions as an aspectual element in that it provides the PIC with a progressive interpretation. When we adopt Rafel's (2000) claim that the prepositional *a* 'at' in (ii) is an aspectual head that operates on the infinitive, the data in (ii) can be taken for the aspectual analysis of PVCs..

[16] Though Basilico (2003) is on the side of the functional analysis of English bare infinitive PVCs, he distinguishes himself from the others by assuming that the event argument s-selected by the genuine perception verb see is indeed realized as a null pronominal element (pro) that functions as the event topic in [Spec, TopP], as shown in (i):

   (i) Plato saw [$_{TopP}$ pro [$_{VP}$ him stab Caesar]]. (Basilico 2003: 9)

One potential problem for this topic-pro analysis is that it allows the topic-pro to intervene

Consider the following contrast in (20), where the bare verbal predicate *ttenata* 'leave' is directly followed by a nominalizer, *-ki* and hence no aspectual information is attached:

(20) a.*Romi-nun [$_{DP}$ [$_{VP}$ Nami-ka   *ttena*]-ki]-lul   *poassta*. (extensional)
        Romi-Top   Nami-Nom leave -NM-Acc saw
        'Romi saw Nami leave.'
    b. Romi-nun [$_{DP}$ [$_{VP}$ Nami-ka   *ttena*]-ki]-lul   *wuenhaysta*. (intensional)
        Romi-Top   Nami-Nom leave-NM-Acc wished / wanted
        'Romi wished Nami to leave.'

The data in (20) shows that the bare verbal predicate *ttenata* 'leave', when supported by no aspectual information, cannot serve as complement to the extensional verb 'see', though it can serve as complement to the intensional verb 'wish / want'. In contrast, when the same verbal predicate is followed by an aspectual morpheme, as in (21), it can serve as complement to the extensional verb 'see', though it cannot to the intensional verb 'wish / want'.

(21) a. Romi-nun [$_{DP}$ [$_{AspP}$ Mina-ka   *ttena-nun*]-kes]-ul *poassta*. (extensional)
        Romi-Top   Mina-Nom leave-Rel-Det-Acc saw
        'Romi saw Mina leaving.'
    b.*Romi-nun [$_{DP}$ [$_{AspP}$ Mina-ka   *ttena-nun*]-kes]-ul *wuenhaysta*. (intensional)
        Romi-Top   Mina-Nom leave-Rel-Det-Acc wished
        'Romi wished Mina to leave.' (Int.)

Given that extensional verbs like 'see' necessarily require their complement to be referential while intensional verbs like 'wish' does not necessarily require their complement to be referential, Both the contrasts in (20) and (21) indicate that there is a correlation between the presence of aspectual information and the referentiality of events. The AspP analysis of Korean PVCs thus justifies the treatment of the aspect as a major factor licensing events to be interpreted as referential.

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between the case-assigner (i.e., the main verb see) and the case-assignee (i.e., the complement subject him), which would raise a problem for accusative case assignment. See Basilico (2003) for more details.

5. Conclusion

With a focus on English and Korean, I have examined how the Davidsonian event argument is encoded in phrase structure, and proposed that the lexical category, VP, cannot be automatically qualified as introducing an event that may be s-selected by extensional verbs like *see* but must be associated with the grammatical aspect, Aspect, to get the event to be interpreted as referential. This study thus shows that the Davidsonian event argument is not taken as primitive in the syntax, but must be licensed by the presence of grammatical aspect ((im)perfective) to function as referential argument.

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