Auxiliary Verbs and Structural Case Assignment in Korean*

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This paper investigates diverse case marking patterns in auxiliary verb constructions (AVCs) in Korean, and provides an account in terms of a general mechanism of structural case assignment within the framework of Head-Driven Phrase Structure Grammar (HPSG). It is first shown that the complicated case marking patterns which arise from various combinations of auxiliary verbs posit problems for both transformational analyses based on head movement and previous HPSG analyses in which the final auxiliary verb solely determines the case marking property of the whole complex predicate. This paper argues that auxiliary verbs are different in their way of "inheriting" case marking property of the preceding predicate, and case alternation in *siphta* construction can be explained by the dual "inheritance" property specified in the lexicon. Drawing upon a complex predicate analysis of AVCs, this paper proposes that complicated case patterns in AVCs can be accounted for by classification of verbs/auxiliary verbs via distinct feature values and by the mechanism of structural case resolution.

Key words: auxiliary verbs, complex predicates, structural case assignment, *siphta* constructions, case marking, case alternation

1. Introduction

This paper deals with case marking in auxiliary verb constructions (AVCs) in Korean, and investigates how complicated case marking patterns

in AVCs can be explained in terms of a general mechanism of case assignment within the framework of Head-Driven Phrase Structure Grammar (HPSG). There have been numerous studies on the theory of case marking in Korean, including Kang (1986), Kim, Y. J. (1990), Hong (1991), Lee (1992), Chung (1994), and Lee (1994). There also have been many works on the structure of Korean AVCs (Cho, 1988; M. K. Kim, 1990; No, 1991; Sells, 1991, 1998; Chung, 1993; Kang, 1998). Yet it has not been attempted to examine diverse case marking patterns that arise from various combinations of auxiliary verbs.

Previous studies have focused on simple case alternation phenomena with the auxiliary verb *siph-* 'want' (Gerdts & Youn, 1989; Chang & Cho, 1991; Kim & Maling, 1996) and many claim that such case alternation is caused by the dual structure that the *siph-* construction exhibits. Within transformational grammar, it is a common practice to employ head movement to yield an additional structure in *siph-* constructions. On the other hand, within the HPSG framework, Yoo (1993) and Bratt (1996) discuss the basic mechanism of case marking in AVCs under the assumption that auxiliary verbs combine with a main verb to form a complex predicate (Chung, 1993, 1998).

In this paper, a new set of data involving various combinations of auxiliary verbs is presented to point out problems with both transformational analyses based on head movement and previous HPSG analyses in which the final auxiliary verb solely determines the case of the complements of the whole complex predicate. This paper shows that while most auxiliary verbs "inherit" the case marking property of the preceding verb, the auxiliary verbs *siph-* 'want' and *ha-* 'act like' have an additional property of assigning nominative and accusative case, respectively, to their complements. The actual case assignment by these auxiliary verbs is made possible, however, depending on what other kind of auxiliary verbs they are combined with. Drawing upon a complex predicate analysis of AVCs, this paper proposes that complicated case patterns in AVCs can be accounted for by classification of verbs/auxiliary verbs via distinct feature values and by the mechanism of structural case resolution in the spirit of Pollard (1994), Heinz and Matiasek (1994), and Przepirkowski (1999).

2. Basic Facts

AVCs in Korean are formed with a main verb followed by one or more auxiliary verbs. When an auxiliary verb combines with a verb or another auxiliary verb, it requires a particular verbal ending on the preceding predicate. This is shown in (1), which lists auxiliary verbs that may combine with transitive verbs, may precede another auxiliary verb, and are used in relatively high frequency. (Cf. Nam & Ko, 1993; Kwon, 1994; Seo, 1994; Sohn, 1996; Kang, 1998)[1]

(1) Auxiliary verbs in Korean
  a. *-e/a*: *po-* 'try, do as a try', *cwu-* 'do as a favor', *noh-* 'do in advance',
      twu- 'do in advance', *chiwu-* 'do resolutely', *peli-* 'do completely',
      tay- 'do repeatedly', *nay-* 'do thoroughly', *ha-* 'act like'
      ka- 'be getting', *o-* 'gradually come to/get', *ci-* 'come to'
  b. *-ko*: *siph-* 'want', *iss-* 'be in the process of', *na-* 'have finished doing',
      mal- 'end up doing'
  c. *-ci*: *anh-* 'not', *mosha-* 'cannot'
  d. *-key*: *toy-* 'come to', *mandul-/ha-* 'cause to do'

Moreover, each auxiliary verb has selectional restrictions on preceding predicates in terms of a syntactic category or semantics. For example, *cwu-, tay-, nay-,* and *iss-* do not combine with adjectives, and *noh-* and *twu-* do not combine with adjectives or intransitive verbs without cognate objects. While both *chiwu-* and *peli-* have a meaning associated with removal, *chiwu-* cannot combine with stative verbs with abstract objects (e.g., **al-a chiwu-ta* 'know resolutely'). (Kang, 1998)

In AVCs, the complement NP(s) usually bear the case that the main verb would assign. This is illustrated by (2-3) below.

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1) While auxiliary verbs are commonly characterized as verbs that help the predicative function of the main verb, scholars have not been in agreement on which verbs can be counted as auxiliary verbs in Korean. For various discussions on the criteria for auxiliary verbs and their classifications, see works such as C. S. Kim(1981), K. H. Kim(1987), S. T. Kim(1992), Nam and Ko(1993), Kwon(1985, 1994), Seo(1994), M. H. Kim(1995), Sohn(1996), Kang(1998). The list in (1), which is not intended to be comprehensive, is primarily based on Nam and Ko(1993) and Seo(1994). Two other verbs, *po-* 'seem', *siph-* 'seem, be likely to', which are commonly categorized as auxiliary verbs that select verbs ending with -(nu)nka/-na, are not included here, because they are not followed by another auxiliary verb, thus not necessarily analyzed in the same way as other auxiliary verbs (i.e., via a complex predicate analysis in our approach).

(2) a. Nay-ka   sakwa-lul   mek-nun-ta.
     I-Nom   apple-Acc   eat-Pres-Decl
     'I eat an apple.'

   b. Nay-ka   sakwa-lul   mek-e   po-ass-ta.
     I-Nom   apple-Acc   eat   do.as.a.try-Pst-Decl
     'I tried to eat an apple.'

   c. Nay-ka   sakwa-lul   mek-e   po-key   toy-ess-ta.
     I-Nom   apple-Acc   eat   do.as.a.try   come.to-Pst-Decl
     'I came to try to eat an apple.'

(3) a. Nay-ka   paym-i   mwusep-ta.
     I-Nom   snake-Nom   afraid-Decl
     'I am afraid of a snake.'

   b. Nay-ka   paym-i   mwusew-e   ci-ess-ta.
     I-Nom   snake-Nom   afraid   come.to-Decl
     '(Lit.) I have become afraid of a snake.'

   c. Nay-ka   paym-i   mwusep-ci   anh-key   toy-ess-ta.
     I-Nom   snake-Nom   afraid   not   come.to-Decl
     '(Lit.) I have become not afraid of a snake.'

In (2b,c), accusative case assigned by the main verb *mek-* 'eat' is retained, while in (3b,c), nominative case assigned by the psych verb *mwusep-* 'afraid' is maintained.

On the other hand, when the auxiliary verb *siph-* 'want' is involved, case alternation between Acc and Nom is observed.

(4) Nay-ka   sakwa-lul/sakwa-ka   mek-ko   siph-ta.
   I-Nom   apple-Acc/apple-Nom   eat   want-Decl
   'I want to eat an apple.'

(5) a. Nay-ka   sakwa-lul/sakwa-ka   mek-e po-ko   siph-ta.
     I-Nom   apple-Acc/apple-Nom   eat   do as.a.try   want-Decl
     'I want to try to eat an apple.'

   b. Nay-ka   sakwa-lul/sakwa-ka   mek-e po-ko   siph-ci   anh-ta.
     I-Nom   apple-Acc/apple-Nom   eat   do.as.a.try   want   not-Decl
     'I do not want to try to eat an apple.'

Moreover, the auxiliary verb *ha-* 'act like', which is only attached to psych verbs, changes case marking of the preceding verb (No 1991).[2]

(6) a. Nay-ka paym-ul   mwusew-e ha-n-ta.
       I-Nom snake-Acc afraid   act.like-Pres-Decl
       'I am afraid of a snake.'
    b. Nay-ka paym-ul/*paym-i   mwusew-e ha-ko   siph-ta.
       I-Nom snake-Acc/snake-Nom afraid   act.like want-Decl
       'I want to be afraid of a snake.'

The auxiliary verb *ha-* also combines with *siph-* predicates and may affect the case of the main verb.

(7) Nay-ka sakwa-lul/*sakwa-ka mek-ko siph-e ha-n-ta.
    I-Nom apple-Acc/apple-Nom eat   want act.like-Pres-Decl
    'I want to eat an apple.'

The examples in (4-7) show that the case of an NP complement in AVCs is not solely determined by the main verb, and suggest that the role of *siph-* and *ha-* in case marking should be examined. In the following section, we will review some previous analyses on these phenomena.

3. Previous Analyses

3.1. Derivational Approaches

Chang and Cho (1991) propose that case alternation in *siph-* constructions and *ha-* psych-predicate constructions can be accounted for by positing head movement of a main verb into a higher auxiliary verb. For the structure of AVCs, they assume that auxiliary verbs *siph-* or *ha-* take VP complements. Then they claim that head movement of a main verb is obligatory when the hosting auxiliary verb has no lexical meaning (e.g., *ha-* in (6)), and it is optional, otherwise (e.g., *siph-* in (4)). According to them, when head movement occurs, the case of the complement is

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2) When *ha-* is attached to a psych predicate, it has the meaning of 'act like, show signs of some emotion' (No, 1991; Bratt, 1996). Thus it should be noted that the translations given to *ha-* predicates in the following examples are simplified ones.

determined by the host auxiliary verb. Thus a *siph-* predicate assigns
Nom and a *ha-* predicate assigns Acc. However, this analysis posits many
serious problems. Most importantly, this analysis yields multiple structures
for most AVC examples, because head movement is optional when an
auxiliary verb has a lexical meaning. Since almost all auxiliary verbs has
some semantic content (probably including *ha-*), when more than one
auxiliary verb appears, each of them has an option for head movement.
Consequently, many different structures are possible for one sentence,
even if there is no case alternation involved. Furthermore, it would
wrongly predict that examples such as (2c) have case alternation, because
when head movement occurs, the auxiliary verb *toy-* will be able to
assign Nom as well. In addition, they cannot account for (6b), because
both *mwusep-* and *ha-* may move to *siph-*, and the resulting *siph-*
predicate may assign Nom to the complement.

Kim and Maling (1996) adopt a head movement approach to the *siph-*
construction as well. In their analysis, the *siph-* construction is
structurally ambiguous: *siph-* takes an Asp(ect)P headed by *-ko* as its
complement, and has an additional structure as a result of head
movement. Their analysis is based on the following structural schema:

(8) [[[[[NP V2]vp2 ko]AspP2 *siph-*]vp1 Asp1]AspP1 T]TP Mood]MoodP

According to them, when *-ko*, the head of a AspP, is [-complete], denoting
an incomplete event, the main verb remains inside a VP and assigns Acc
to its complement. On the other hand, when *-ko* is [0complete], denoting
an unrealized event, head movement of a verb (V2) occurs to form a
verbal complex *V-ko-siph*. When a verbal complex with *siph-* is formed,
V2 is not associated with its own Aspect, so Acc is not assigned. Instead,
Nom is assigned to the complement NP by the matrix Infl, due to the
Nom assigning property of the complex predicate headed by *siph-*.

Kim and Maling argue for syntactic ambiguity of the *siph-* construction
on two grounds. First, they argue that the two structures (i.e., without
and with head movement) exhibit different behaviors with respect to
coordination and gapping. Consider the following coordination example:

(9) a. Cheli-nun pap-ul   cis-ko   ppallay-lul   ha-ko siph-ess-ta.
        Cheli-Top   rice-Acc cook-Conj laundry-Acc do   want-Pst-Decl
        'Cheli wanted to cook rice and do the laundry.'
     b. *Cheli-nun pap-i   cis-ko   ppallay-ka   ha-ko siph-ess-ta.
        Cheli-Top   rice-Acc cook-Conj laundry-Acc do   want-Pst-Decl
        'Cheli wanted to cook rice and do the laundry.'

They explain that while (9a) is an instantiation of a VP (or AspP) coordination, (9b) cannot be generated by coordination, since a nominative complement appears only when a verbal complex is formed via head movement. However, this cannot be strong evidence for structural ambiguity, because, if we assume that an untensed -*ko* clause (or VP) is an adjunct, following Kim (2000), (9) can be analyzed as involving an adjunct VP, rather than a coordinated structure. (Cf. Manning et al., 1999)

(10) a. Cheli-nun [pap-ul   cis-ko]   ppallay-lul   ha-ko siph-ess-ta.
         Cheli-Top rice-Acc cook-Conj laundry-Acc do   want-Pst-Decl
         'Cheli wanted to cook rice and (then) do the laundry.'
      b. Cheli-nun ppallay-lul [pap-ul   cis-ko]   ha-ko siph-ess-ta.
         Cheli-Top laundry-Acc rice-Acc cook-Conj do   want-Pst-Decl
         'Cheli wanted to cook rice and then do the laundry.'

Example (10b) shows that the bracketed phrase in (10a) can be analyzed as an adjunct.[3] Therefore, the ungrammaticality of (9b) can be accounted for regardless of head movement, because the sequence *pap-i cis-ko* can never form an adjunct phrase.

Another argument for the dual structure analysis comes from difference in scope of aspect/time adverbials. According to them, scopal difference occurs in (11), because, in (11a), there are two possible VPs to be modified, while in (11b) the adverbial only modifies the whole complex predicate.

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3) One of the reviewers pointed out that (10b) is not acceptable according to his/her judgment. Since (10b) involves non-cannonical word order, proper intonation seems essential for grammaticality judgment. In (10b), the scrambled object NP must be accented and there must be a pause between the scrambled NP and the adjunct VP, as in examples like (i) containing a more clear case of an adjunct VP.

(i) Cheli-nun ppallay-lul [pap-ul   cis-ko   na-se] ha-ko siph-ess-ta.
    Cheli-Top laundry-Acc rice-Acc cook-Conj finish do   want-Pst-Decl
    'Cheli wanted to cook rice and then do the laundry.'

(11) a. Na-nun pamsay swul-ul   masi-ko siph-ess-ta.
        I-Top   all.night liquor-Acc drink   want-Pst-Decl
        'To drink all night was my desire.' or
        'All night long, I had a desire to drink.'
     b. Na-nun pamsay swul-i   masi-ko siph-ess-ta.
        I-Top   all.night liquor-Nom drink   want-Pst-Decl
        'All night long, I had a desire to drink.'
        Not available : 'To drink all night was my desire.'
        (Kim & Maling, 1996, p. 141)

However, scope ambiguity with aspect/time adverbials is not always correlated with structural ambiguity. For example, in (12), though it is not possible to posit two different constituent structures, the time adverbial still have two possible scope readings.

(12) Emeni-ka   ai-ekey ppalkan os-ul   olay-tongan ip-hi-ess-ta.
     mother-Nom child-to red   cloth-Acc long-during wear-Caus-Pst-Decl
     'Mother dressed the child with red dress for a long time.' or
     'Mother made the child wear red dress for a long time.'
     (Bratt, 1996, p. 180)

More importantly, even in (11b), a slightly different word order allows narrow scope reading, as shown in (13).

(13) Na-nun swul-i   pamsay masi-ko siph-ess-ta.
     I-Top   liquor-Nom all.night drink   want-Pst-Decl
     'To drink all night was my desire.' or
     'All night long, I had a desire to drink.'

Therefore, there is no convincing evidence that case alternation in *siph*-constructions should be accounted for in terms of structural ambiguity.[4]

Kim and Maling's analysis posits empirical problems as well. First, if -*ko* [0complete] triggers head movement of V resulting in a complex predicate

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4) Sells (2002) independently argues that the Acc/Nom case on NP complement is not correlated to the different syntactic structures. He provides examples similar to (13), in which scope ambiguity is exhibited regardless the case marking on the complement, when the negation particle *an* 'not' or the event quantifier *cacwu* 'often' appears between the complement and the *siph*- complex predicate.

V-ko-siph, it is not explained why Nom is also available in (14).

(14) a. Na-nun sakwa-lul/sakwa-ka   mek-e po-ko   siph-ta.
        I-Nom   apple-Acc/apple-Nom eat   do.as.a.try want-Decl
        'I want to try to eat an apple.'
     b. Na-nun sakwa-lul/sakwa-ka   mek-e chiwu-ko   siph-ta.
        I-Nom   apple-Acc/apple-Nom eat   do.resolutely want-Decl
        'I want to get through with eating an apple.'
     c. Na-nun Cheli-lul/Cheli-ka   ttayli-e cwu-ko   siph-ta.
        I-Nom   Cheli-Acc/Cheli-Nom hit   do.as.a.favor want-Decl
        'I want to hit Cheli.'

In (14a), for example, *po-ko* is incorporated with *siph-*, but cannot assign Nom to the complement of *mek-*, which is not part of the verbal complex.

Second, as Kim & Maling note, the sentences in (15) are left unexplained. (Kim & Mailing, 1996, p. 165)
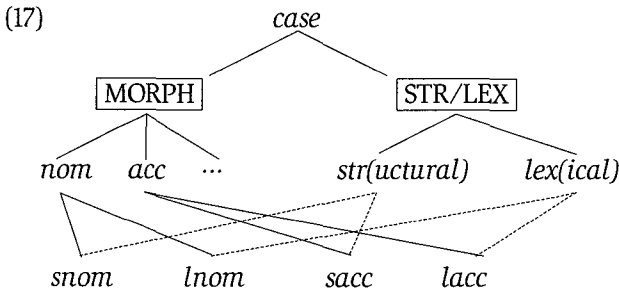
(15) a. Na-nun paym-ul/*paym-i   mwusewe-ha-ko siph-ta.
        I-Top   snake-Acc/snake-Nom afraid-act.like   want-Decl
        'I want to be afraid of a snake.'
     b. Na-nun wuli cip-ul/*cip-i   calangsulewe-ha-ko siph-ta.
        I-Top   our house-Acc/house-Nom proud-act.like   want-Decl
        'I want to be proud of our house.'

Since they treat *ha-* as an affix, *mwusewe-ha-ko* and *calangsulewe-ha-ko* in (15) form a verbal complex with *siph-* respectively. Then it is unexplained why Nom cannot be assigned by the verbal complex. Furthermore, they cannot account for why case alternation does not occur in (16) in spite of formation of the verbal complex *mek-ko-sihp-e-ha* via head movement of the main verb.

(16) Nay-ka sakwa-lul/*sakwa-ka   mek-ko siph-e- ha-n-ta.
     I-Nom apple-Acc/apple-Nom eat   want act.like-Pres-Decl
     'I want to eat an apple.'

3.2. Non-derivational Approaches

Within the framework of HPSG, Yoo (1993) and Bratt (1996) discuss the basic mechanism of case marking in Korean AVCs under the assumption that a main verb followed by an auxiliary verb forms a complex predicate (Chung, 1993). Yoo assumes that Nom and Acc can be both lexically and structurally assigned in Korean. (Cf. Heinz & Matiasek, 1994)

(17)   *case*

         ［MORPH］   ［STR/LEX］

   nom   acc   ···   str(uctural)   lex(ical)

     snom   lnom   sacc   lacc

In Yoo (1993), case alternation with *siph-* is explained by two different lexical entries, one of which specifies lexical nominative case [lnom] on the complement. Furthermore, examples with psych verbs (e.g., (3a)) and their non-psych counterparts containing *ha-* (e.g., (6)) are accounted for by assuming that psych verbs assign lexical nominative case to their complements, while the *ha-* form verbs, which are derived from psych verbs, assign lexical accusative case, [lacc].

However, Yoo (1993) has a problem in more complicated examples. When *ha-* is analyzed as a [lnom] assigner, the example in (18) cannot be accounted for, since all the examples involving *ha-* are predicted to have accusative complements.[5]

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5) The same kind of problem arises in Chung (1998) that also assumes lexical assignment of accusative case for *ha-*.

    (18) a. Ku-nun pam-i/*pam-ul   twulyep-key toy-ko siph-e ha-n-ta.
          he-Top night-Nom/night-Acc afraid   come.to want act.like-Pres-Decl
          'He wants to get afraid of night.'
        b. Ku-nun ton-i/*ton-ul   philyoha-ci anh-key toy-ko   siph-e
          he-Top money-Nom/-Acc need   not   come.to want
          ha-n-ta.
          act.like-Pres-Decl
          '(Lit.) He wants to come to be not in need of money.'

The examples in (18) will raise problems for Bratt (1996) as well, who assumes that structural case is basically determined by the [AG(ENTIVE)-PR(EDICATE)-SIS(TER)] value of the predicate. Following Kim,Y.J. (1990), Bratt assumes that predicates with agent subjects assign Acc to its complement, and those with non-agent subjects, Nom case. Therefore, in (18), the [AG-PR-SIS +] of *ha-* will wrongly predict that the complement is assigned Acc. Furthermore, in order to explain the case alternation with *siph-* in (4-5), *siph-* will have to be specified as [AG-PR-SIS±]; however, this does not explain (19) as well as (15), in which no alternation is observed.

    (19) Ku-nun paym-i/*paym-ul   muwsep-ci anh-key toy-ko siph-ta.
         he-Top snake-Nom/snake-Acc afraid   not   come.to want-Decl
         '(Lit.) He wants to come to be not afraid of a snake.'

We take the case non-alternation in (18) to be crucial evidence that indicates that the complements of the complex predicates headed by *ha-* is neither always assigned structural accusative case by its [AG-PR-SIS +] property nor assigned lexical accusative case. Such unexpected case patterns cannot be simply accounted by the presence of *siph-* or *ha-*, and we will argue that they can receive a proper explanation when the preceding auxiliary verbs are taken into account.

4. Case Alternation/Non-Alternation with *Siph-*

In this section, we will consider more examples involving *siph-* to investigate what is responsible for unexpected non-alternation with *siph-*, and unexpected nominative case in *ha-* constructions. As shown in (4),

when *siph-* immediately follows a main verb that normally assigns Acc, case alternation occurs. However, when *siph-* is preceded by a main verb that normally assigns Nom, this does not happen. Although examples of this kind are not common, due to incompatibility of *siph-* with transitive psych verbs (e.g., *coh-* 'like'), the following example with *toy-* exemplifies it:

(20) a. Nay-ka   tayphyo-ka   toy-ess-ta.
       I-Nom   representative-Nom   become-Pst-Decl
       'I became a representative.'
    b. Nay-ka   tayphyo-ka/*tayphyo-lul   toy-ko   siph-ta.
       I-Nom   representative-Nom/-Acc   become   want-Decl
       'I want to become a representative.'

Thus we cannot say that *siph-* has an intrinsic property of assigning both Nom and Acc case. Instead, it can be said that while *siph-* allows the main verb to maintain its case marking property, it may also have an additional property as a psych predicate that enables the complement of the *siph-* complex predicate to bear nominative case, which would take a Acc form otherwise.

What is more interesting is that when *siph-* follows another auxiliary verb, case alternation is not always exhibited, even if the main verb is an Acc assigner. Compare the case alternation examples with *siph-* in (21-22) with non-alternation ones in (23-25).[6]

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6) The examples in (23-25) become more acceptable when the nominative complements receive (contrastive) focus. When the *-i/-ka* marked NPs receive focus, they get focus interpretation. The difference in interpretation with and without focus is clearly shown in examples like (ii).

(i) a. ?Na-nun KU CIP-I (cengmallo) phal-ci anh-ko siph-ta.
       'It is the house that I want not to sell.'
    b. ?Na-nun (talun kakey mal-ko) SECEM-I wunyengha-key toy-ko siph-ta.
       'It is a bookstore that I want to get to run.'

(ii) a. Na-nun sey   haksayng-ul citoha-key toy-ko   siph-ta.
        I-Top   three student-Acc advise   come.to want
        'I want to get to advise   three students./What I want is to get to advise three students.'
     b. ?Na-nun KU SEY HAKSAYNG-I citoha-key toy-ko siph-ta.
        'It is those three students that I want to get to advise.'

While it is an interesting issue to pursue how to explain the function of *-i/-ka* as a focus marker, it is outside the scope of this research. See Yoon (2001) for some current discussion on case makers and their focus function.

(21) a. Na-nun sakwa-lul/sakwa-ka   mek-e po-ko   siph-ta.
         I-Nom   apple-Acc/apple-Nom eat   do.as.a.try want-Decl
         'I want to try to eat an apple.'
     b. Na-nun sakwa-lul/sakwa-ka   mek-e po-ko   siph-ci anh-ta.
         I-Nom   apple-Acc/apple-Nom eat   do.as.a.try want   not-Decl
         'I don't want to try to eat an apple.'

(22) a. Na-nun Cheli-lul/Cheli-ka   ttayli-e cwu-ko   siph-ta.
         I-Nom   Cheli-Acc/Cheli-Nom hit   do.as.a.favor want-Decl
         'I want to hit Cheli.'
     b. Na-nun swukcey-lul/?swukcey-ka mili   ha-y twu-ko   siph-ta.
         I-Top   homework-Acc/-Nom   beforehand do   do.in.advance want-Decl
         'I want to get homework done in advance.'
     c. Na-nun ipwul-ul/?ipwul-i   phye-e noh-ko   siph-ta.
         I-Top   bedding-Acc/-Nom unfold do.in.advance want-Decl
         'I want to make the bed (in advance).'
     d. Na-nun casecen-ul/?casecen-i   phye   nay-ko   siph-ta.
         I-Top   autobiography-Acc/-Nom publish do.thoroughl want-Decl
         'I want to publish an autobiography.'

(23) a. Na-nun cip-ul/?*cip-i   phal-ci anh-ko siph-ta.[7]
         I-Top   house-Acc/house-Nom sell   not   want-Decl
         'I want not to sell a house.'
     b. Na-nun phyenci-lul/?*phyenci-ka ponay-ci anh-ko siph-ta.
         I-Top   letter-Acc/letter-Nom   send   not   want-Decl
         'I want not to send a letter.'

(24) a. Na-nun secem-ul/?*secem-i   wunyengha-key toy-ko   siph-ta.
         I-Top   bookstore-Acc/-Nom run   come.to want-Decl
         'Lit.) I want to get to run a bookstore.'
     b. Na-nun khemphyuthe-lul/?*khemphyuthe-ka sa-key toy-ko   siph-ta.
         I-Top   computer-Acc/-Nom   buy   come.to want-Decl
         '(Lit.) I want to get to buy a computer.'

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7) The informants that I consulted agreed with the contrast between (21-22) and (23-25), and my proposal is based on these judgments. However, it should be noted that minor revisions in my analysis can also account for the speakers who find no such contrast, if there are any.

(25) a. Nay-ka (kuttay-nun) ccikay-lul/*ccikay-ka kkuli-ko iss-ko siph-ta.
       I-Nom then   pot.stew-Acc/-Nom   boil   be   want-Decl
       '(Lit.) I want to be boiling a pot stew (at that time).'
    b. Nay-ka (kuttay-nun) phiano-lul/*phiano-ka chi-ko iss-ko siph-ta.
       I-Nom then   piano-Acc/-Nom   play   be   want-Decl
       '(Lit.) I want to be playing the piano (at that time).'

In these examples, auxiliary verbs *anh-* 'not', *toy-* 'come to', and *iss-* 'be in the process of' show different patterns from other auxiliary verbs such as *po-* 'do as a try', *cwu-* 'do as a favor', *noh-* 'do in advance', *twu-* 'do in advance', *chiwu-* 'do resolutely', *peli-* 'do completely', *tay-* 'do repeatedly', and *nay-* 'do thoroughly' in case alternation with *siph-*. Examining various combinations among auxiliary verbs, we observe that while the majority of auxiliary verbs such as *po-*, *cwu-*, *noh-*, *twu-*, *chiwu-*, *peli-*, *tay-*, and *nay-* do not affect case alternation when they are used before *siph-*, the auxiliary verbs *anh-*, *toy-*, and *iss-* prevent the complements of the main verbs from manifesting case alternation when they are followed by *siph-*.[8]

The contrast between (21-22) and (23-25) has not been discussed in literature, and no previous analyses, whether derivational or non-derivational, can account for the difference. As will be discussed in section 5, we argue that there exist differences between the two groups of auxiliary verbs and it should be taken into account in case marking in AVCs.

Another environment in which case alternation does not occur is when *siph-* is followed by the auxiliary verb *ha-* 'act like' as in (26). Just as when *ha-* combines with simple psych verb (e.g., in (6)), if *siph-* is followed by *ha-*, it loses the property as a psych predicate that licenses a nominative complement.

(26) Nay-ka sakwa-lul/*sakwa-ka mek-ko siph-e ha-n-ta.
    I-Nom apple-Acc/apple-Nom eat   want act.like-Pres-Decl
    'I want to eat an apple.'

---

8) One of the reviewers pointed out that *anh-* in (23) seems to behave like the first group of auxiliary verbs such as *po-*, rather than the second group of verbs such as *toy-*. If this judgment pertains to a considerable number of speakers, we can assume that, in this variant, *anh-* will have the lexical information in (34), not (36), in our analysis. However, in this case, it will not be clear what causes the existence of such variants.

Furthermore, case alternation does not occur, either, when *ha-* combines with a psych verb before *siph-*.

(27) Nay-ka paym-ul/*paym-i   mwusew-e ha-ko   siph-ta.
     I-Nom snake-Acc/snake-Nom afraid   act.like want-Decl
     'I want to be afraid of a snake.'

Since it is an idiosyncratic property of *ha-* that it combines only with psych predicates and affect the case marking property of their complements, this kind of examples will have to be explained in terms of the lexical property of *ha-*.

5. The Proposed Analysis

5.1. Proposal

For the account of AVCs, we employ a complex predicate analysis of AVCs, following Hinrichs and Nakazawa (1989, 1994) and Chung (1993, 1998). Hinrichs and Nakazawa propose the notion of argument composition to explain German AVCs, by which an auxiliary verb "attracts" the arguments of the verb or the complex predicate it combines with. This idea is manifested in the description of the German auxiliary verb *wird* in (28).
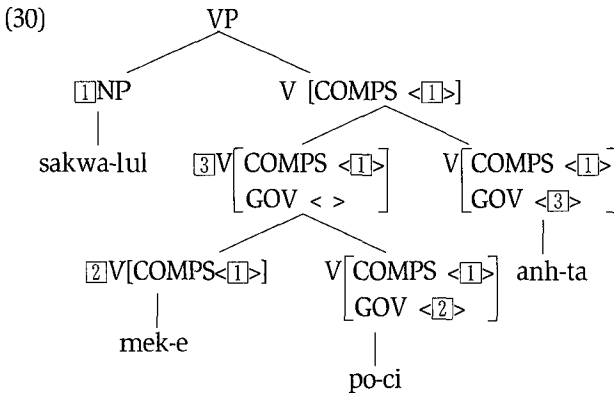
(28) *wird* 'will' : [SUBCAT *append*(①, <V[SUBCAT ①]>)]

Based on Hinrichs & Nakazawa's mechanism of argument composition, Chung proposes that an auxiliary verb selects its governee verb via the GOV(ERNEE) feature, and that the valence values of the governing verb and the governee verb are structure-shared. The following (29) exemplifies the lexical entry of an ordinary auxiliary verb *po-* 'do as a try':

(29) *po-*

$$\begin{bmatrix} \text{SUBJ①} \\ \text{COMPS②} \\ \text{GOV <V[VFORM } e\text{, SUBJ①, COMPS②]>} \end{bmatrix}$$

In Chung, when an auxiliary verb combines with a verb, a complex predicate of the sort *complex-word* is formed syntactically. Since an auxiliary verb, which is the head of the *complex-word-structure*, may combine with either a simplex verb or a complex verb, more than one auxiliary verb can follow a main verb. Accordingly, the whole sequence of a main verb and auxiliary verb(s) forms a complex predicate, in which the final auxiliary verb is the head. This is illustrated in (30).

(30)
```
                        VP
              ┌──────────┴────────────┐
          ☐NP                  V [COMPS <☐>]
           │                ┌──────┴──────┐
        sakwa-lul    ☐V┌COMPS <☐>┐  V┌COMPS <☐>┐
                       └GOV < >   ┘   └GOV <☐>  ┘
               ┌─────────┴────────┐          │
        ☐V[COMPS<☐>]    V┌COMPS <☐>┐      anh-ta
             │            └GOV <☐>  ┘
          mek-e              │
                           po-ci
```

Before getting into the account of case marking in AVCs, discussion of theoretical assumptions on the general mechanism of case marking is in order. Following Pollard (1994), Heinz and Matiasek (1994), Yoo (1993), and Przepiórkowski (1999), who argue for the notion of structural case in HPSG, we explain case marking in Korean in terms of structural case assignment. Furthermore, we maximally utilize the mechanism of structural case marking, so that nominative and accusative case is only structurally assigned. Accordingly, the type hierarchy of case values as in (17) can be simplified, eliminating the distinction between lexical vs. structural nominative case and between lexical vs. structural accusative case.

In this paper, psych predicates (including *siph-*) are analyzed as structural case assigners. In addition, in order to account for problematic examples like (18), we treat *ha-* 'act like' as an auxiliary verb assigning structural case, rather than a derivational affix assigning lexical case. The most important reason for such assumption is that delimiters such as *-man* 'only', *-to* 'also', or *-nun* 'Contrastive Topic' may occur between the main verb and *ha-*, just as in the cases of other auxiliary verbs.

Therefore, the present analysis contrasts to Yoo (1993) and Chung (1998) that assign lexical nominative case to the complements of psych predicates, and lexical accusative case to the complement of a complex predicate headed by *ha-*.

For determination of structural case values, we assume that predicates have [Agentive +/-] values ([AG ±], henceforth), roughly depending on whether they have Agent subjects or not (Y. J. Kim, 1990; Bratt, 1996). The distinction between [AG+] verbs and [AG-] ones also corresponds to Wechsler and Lee's (1996) division of verbs into two groups, i.e., verbs with an external argument and verbs without one. While it is arguable whether the [Agentive] is the most appropriate term for the distinction that has been recognized in literature, we assume that this line of classification is necessary for the account of Acc vs. Nom complements of verbs.

As a general principle of structural case resolution in Korean, we employ the Case Principle in (31), revising and incorporating the ideas in Yoo (1993), Bratt (1996), and Wechsler and Lee (1996):
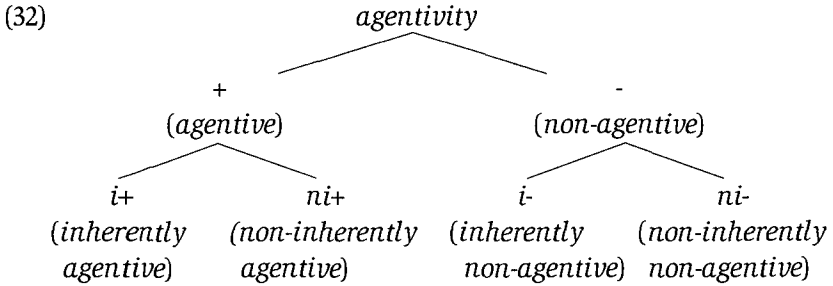
(31) Case Principle (for Korean)
  For an unresolved structural NP that is a daughter of a phrase α,
  i) it is [acc], if it is a COMPS-DTR of α whose head is [AG+], and
  ii) it is [nom], if it is a SUBJ-DTR of α, or a COMPS-DTR of α
    whose head is [AG-].

It should be noted that (31) can be easily restated in non-configurational terms along the lines of Przepiórkowski (1999) as well. For AVCs, nothing seems to hinge on the choice between a configuational or non-configurational approach to case assignment.

In order to account for the complicated pattern of case marking in AVCs, this paper proposes a fine-grained classification of the [AG] value in the type hierarchy. This is shown in (32).[9]

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9) In (32), the values such as *i+*, and *ni+* are used as shorthand for the full value names in the parentheses, i.e., *inherently agentive, non-inherently agentive*, etc.

(32)   *agentivity*

                        +   -
                   (*agentive*)   (*non-agentive*)

           i+   ni+   i-   ni-
      (*inherently*   (*non-inherently*   (*inherently*   (*non-inherently*
       agentive*)   agentive*)   non-agentive*)   non-agentive*)

As for non-auxiliary verbs, the AG value can be inherently (or lexically) determined considering their argument structure and CONT value. Thus verbs with agentive subjects (e.g., *mek-* 'eat', *phal-* 'sell', *kolu-* 'select', and *ttayli-* 'hit') will be specified as [AG *i+*], while verbs that are non-agentive (i.e., with no external argument) are [AG *i-*] (e.g., *coh-* 'like', *mwusep-* 'be afraid', *philyoha-*'need', and *toy-* 'become').

On the other hand, determination of [AG] values of auxiliary verbs is less straightforward. One possibility is to assume that auxiliary verbs, just like main verbs, are assigned their own [AG] values in the lexicon. In this case, auxiliary verbs like *anh-*, *toy-* and *iss-* would be [AG *i-*], since they do not have their own agentive external argument in their semantic interpretation. However, this approach immediately fails to predict the case marking patterns in AVCs, because, as shown in (33), complex predicates headed by these auxiliary verbs have accusative complements when the main verbs are agentive ones.

(33) a. Nay-ka sakwa-lul mek-ess-ta.
        I-Nom   apple-Acc eat-Pst-Decl
        'I ate an apple.'
     b. Nay-ka sakwa-lul mek-ci anh-ass-ta.
        I-Nom   apple-Acc eat   not-Pst-Decl
        'I did not eat an apple.'
     c. Nay-ka sakwa-lul mek-key toy-ess-ta.
        I-Nom   apple-Acc eat   come.to-Pst-Decl
        'I came to eat an apple.'

In order to avoid such problems, we propose that auxiliary verbs are basically "transparent" with respect to the [AG] value, so they "inherit" the [AG] value of their governee verbs. Futhermore, we argue that the

[AG] value of auxiliary verbs, while being basically "inherited" from the preceding predicates, needs to reflect differences among auxiliary verbs. In our view, case alternation and non-alternation exhibited in (21-25) is related to the property of the auxiliary verbs involved, more specifically, to the way auxiliary verbs inherit [AG] values from the embedded predicates.

Considering the meaning and combinatorial properties of various auxiliary verbs, we can identify two different classes. One group of auxiliary verbs such as *po-* 'try, do as a try', *cwu-* 'do as a favor', *noh-* 'do in advance', *twu-* 'do in advance', *chiwu-* 'do resolutely', *peli-* 'do completely', *tay-* 'do repeatedly', and *nay-* 'do thoroughly' have agentive meaning. They combine with agentive verbs in most cases, and maintain their meaning as an agentive predicate in the combination with agentive verbs. Sells (1993, 1998) argues verbs like *po-* and *cwu-* are control verbs that assign a role to their highest argument, and that this role is coindexed with the subject of the governed predicate. While the control verb relation detected in these predicates may be a very 'weak' one as Sells notes, we can still identify some verb relation that is associated with these predicates. Then, for this group of auxiliary verbs that retain their agentive property in the combination with agentive verbs, we can assume that they have the same [AG] values with the embedded verbs. Thus, the [AG] value of this group of auxiliary verbs can be specified as in (34).

(34) [AG ①, GOV<V[AG ①]>]

In contrast, another group of auxiliary verbs such as *anh-* 'not', *toy-* 'come to', and *iss-* 'be in the process of', *ci-* 'come to', *ka-* 'be getting', *o-* 'gradually come to/get' are non-agentive since they do not bear their own external argument. Semantically, these auxiliary verbs can be typically represented as a weak, supplementary verb relation that takes a proposition as their argument. Thus, for example, *mek-ci anh-ta* can be expressed as 'not'(eat'(x,y))', *mek-key toy-ta* as 'come-to'(eat'(x,y))' and *mek-ko iss-ta* as 'in-progress'(eat'(x,y))'.[10] For this second group of auxiliary verbs, whose meaning is non-agentive, their [AG] values cannot be

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10) Alternatively, we can characterize these auxiliary verbs as event-modifiers, as Peter Sells points out to me (p.c.).

determined by their non-agentive property. Most of these auxiliary verbs combine both agentive or non-agentive verbs and their case marking property is inherited from their governee verbs, as shown in (33) and (35).

(35) a. Nay-ka   paym-i   mwusep-ta.
        I-Nom   snake-Nom   afraid-Decl
        'I am afraid of a snake.'
     b. Nay-ka   paym-i   mwusep-ci   anh-ta.
        I-Nom   snake-Nom   afraid   not-Decl
        'I am not afraid of a snake.'
     c. Ku-nun   paym-i   mwusep-key   toy-ess-ta.
        He-Top   snake-Nom   afraid   come.to-Decl
        'He became afraid of a snake.'

Since their non-agentive property does not directly determine their [AG] value, we assume that their [AG] values are only non-inherently agentive or non-agentive. Therefore, the [AG] value of the second group of auxiliary verbs can be specified as in (36).

(36) [AG $ni\,\alpha$, GOV<V[AG α]>]

In (36), α is used as a variable over the boolean type values, i.e., + or -. Therefore, when the governee verb is [AG +] (i.e., [AG i+], [AG ni+], or [AG +]), the auxiliary verb is [AG ni+], and when the governee verb is [AG -] (i.e., [AG i-], [AG ni-], or [AG -]), the auxiliary verb is [AG ni-].

On the other hand, the two auxiliary verbs *siph-* and *ha-* should be treated specially, since their semantic contribution is directly related to the agentive/non-agentive property. Unlike other auxiliary verbs that are just "transparent" with respect to the case marking property of governee verbs (cf. (2-3), (33), and (35)), *siph-* and *ha-* may affect the case marking pattern of complex predicates containing them, as shown in (4-6). We assume that this is because *siph-* and *ha-* may have a lexically assigned, inherent [AG] value, in addition to the [AG] value that comes from the govenee verb.

The auxiliary verb *siph-* expresses a non-agentive relation, so when it inherits its [AG] value from the governee verb, it behaves like the second group of auxiliary verbs. (See (37a).) When it combines with an inherently agentive verb, however, it may exhibit its own non-agentive

property as a psych predicate, thus having the [AG i-] value. Accordingly, the dual lexical entry of *siph-* can be represented as in (37).

(37) *siph-*
    a. [AG $ni\alpha$, GOV<V[AG α]>]
    b. [AG i-, GOV<V[AG i+]>]

Meanwhile, *ha-* 'act like, show signs of some emotion' is agentive in its meaning, so it can be taken to belong to the first group of auxiliary verbs. (See (38a).) However, when it combines with a lexically non-agentive psych verb, it exerts its inherent property as an agentive predicate, thus satisfying the entry in (38b).

(38) *ha-*
    a. [AG ①, GOV<V[AG ①$ni\alpha$]>]
    b. [AG +, GOV<V[AG i-]>]

In (38), the governee verb of *ha-* is restricted to [AG $ni\pm$] and [AG i-], since *ha-* never combines with ordinary, non-psych verbs which are [AG i+]. In the following section, we will show how various AVC examples can be accounted for by the lexical entries and theoretical assumptions discussed so far.

5.2. How the Analysis Works

In a sentence with a simplex verb, the case value of the complement is determined by the [AG] value of the verb and the Case Principle in (31). For example, in (39), the two NPs, which are specified as NP[str] in the lexicon, are realized as NP[nom] and NP[acc] respectively in a sentence, by (31). This is because the first NP is a SUBJ-DTR of S and the second NP is a COMPS-DTR of VP whose head is [AG +].

(39) a. Nay-ka chayk-ul ilk-ess-ta.
       I-Nom   book-Acc read-Pst-Decl
       'I read a book.'
    b. Nay-ka chayk-ul ilk-ess-ta.
       NOM   ACC   [AG i+]

When a main verb is followed by an ordinary auxiliary verb, the case value of the complement is not changed, as shown in (40).

(40) a. Nay-ka chayk-ul ilk-e   po-ass-ta.
        ACC   [AG i+] [AG i+] (by 34)
     b. Nay-ka chayk-ul ilk-e   po-ci   anh-ass-ta.
        ACC   [AG i+] [AG i+] [AG ni+]   (by 34, 36)

In (40a), the auxiliary verb *po-* has the [AG i+] value, since it should satisfy the constraint on the AG value in (34). On the other hand, since auxiliary verbs like *anh-* are subject to (36), *anh-* in (40b) gets [AG ni+]. As the (final) auxiliary verb is the head of a complex predicate, and the [AG] feature is assumed to be a HEAD feature, the [AG] values of the verbs in (40b) are specified as in (41).

(41)
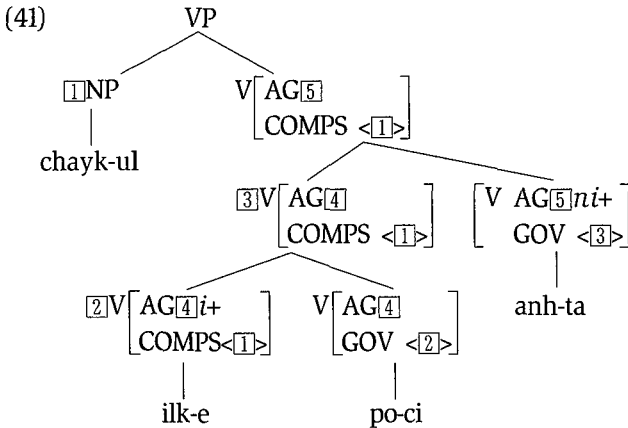
In (40a), the complex predicate is [AG i+], and the one in (40b) is [AG ni+]. However, since both [AG i+] and [AG ni+] are subtypes of [AG +] in the type hierarchy (32), the Case Principle requires both complements in (40) to be [acc].

Next, when *siph-* combines with ordinary transitive verbs, it may have either [AG ni+] or [AG i-] value, due to the dual property described in (37). Accordingly, either Nom or Acc is allowed.

(42) Na-nun sakwa-lul/sakwa-ka mek-e po-ko   siph-ta.   (Example 21a)
     ACC   [AG *i+*] [AG *i+*] [AG *ni+*] (by 37a)
     NOM   [AG *i+*] [AG *i+*] [AG *i-*]   (by 37b)

In (42), it should be emphasized that our analysis does not posit two
different structures for the account of case alternation. The sentence has
only one constituent structure that looks like (41), while the two possible
AG values of the complex predicate lead to different case values.

On the other hand, when *siph-* combines with a non-agentive verb as
in (43), the whole complex predicate is just [AG *ni-*], since (37b) does not
apply.

(43) Nay-ka tayphyo-ka/*tayphyo-lul toy-ko siph-ta. (Example 20b)
     NOM   [AG *i-*] [AG *ni-*] (by 37a)

Moreover, case alternation does not occur when *siph-* follows a complex
predicate with *ha-*.

(44) Nay-ka paym-ul/*paym-i mwusew-e ha-ko   siph-ta. (Example 15a)
     ACC   [AG *i-*]   [AG+]   [AG *ni+*]
                               (by 38b) (by 37a)

The problematic example (18a) can be also accounted for by adequate
inheritance of AG values in the complex predicate structure.

(45) Ku-nun pam-i/*pam-ul twulyep-key toy-ko   siph-e   ha-n-ta. (Example 18a)
     NOM   [AG *i-*]   [AG *ni-*] [AG *ni-*] [AG *ni-*]
                           (by 36) (by 37a) (by 38a)

Likewise, a more complicated example where case alternation does not
occur can be explained by the partial and total inheritance of [AG]
values, as shown in (46).

(46) Nay-ka ccikay-lul/*ccikay-ka kkuli-ko iss-ko   siph-ta. (Example 25a)
     ACC   [AG *i+*] [AG *ni+*] [AG *ni+*]
                                (by 36)   (by 37a)

6. Concluding Remarks

We have argued that complicated case marking patterns in AVCs can be accounted for by recognizing different classes of auxiliary verbs and proper specification of auxiliary verbs in terms of the [Agentive] feature values. This approach enables us to deal with idiosyncratic properties of *siph-* and *ha-* lexically, while maintaining the general mechanism of structural case assignment. Since the use of the [Agentive] feature and a case principle has been independently motivated for Korean case marking, this analysis does not employ any new device adopted only for the case marking in AVCs. Furthermore, the proposed analysis provides explanation for the examples that are problematic for existing derivational/ non-derivational analyses, without positing ambiguous structures or stipulating the case principle.

In this paper, we have focused on case marking of complements of predicates. On the other hand, current works such as Wechsler and Lee (1996), Kim and Maling (1996), Przepirkowski (1999), and Lee (1999) convincingly argue that the domain of direct case marking should be extended to certain adverbials. In particular, Wechsler & Lee show that adverbials interpreted as situation delimiters (i.e., adverbials of duration, frequency, and path length that temporarily quantifies a situation) should be treated in the same ways as ordinary complements with respect to case assignment. According to Wechsler and Lee, situation delimiters are extensive measures that must satisfy the condition of ADDITIVITY.[11] Within the HPSG framework, case marking of adverbials can be accounted for by assuming that adjuncts are added to the COMP (LEMENT)S list and that the NPs in the COMPS list are subject to the Case Principle (Przepirkowski, 1999).[12] Drawing upon Wechsler and Lee's proposal, we can say that among adjuncts that are added to the COMPS list, only the ones that are [ADDITIVITY +] are marked as structural NPs (i.e., NP[str]).[13] Then these adverbial NP[str]s would have case values by

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11) (i) Additivity ($\boxplus$ is the concatenation operator)
  $m(x \boxplus y) = m(x) + m(y)$, if x and y do not overlap.

12) The idea of adding adjuncts to the COMPS list has been also proposed in Bouma et al. (2001) for the unified treatment of complement extraction and adjunct extraction, and it has been shown that this practice does not completely eliminate complement vs. adjunct dichotomy, because only "true" complements appear in the ARG(UMENT)-ST(RUCTURE) list.

the Case Principle (31). This line of assumptions will account for simple examples as in (47), and the AVC examples in (48), which is from Kim and Maling (1996, p. 148).

(47) Nay-ka cacenke-lul hansikan-ul   tha-ss-ta.
     I-Nom   bicycle-Acc one.hour-Acc ride-Pst-Decl
     'I rode a bicycle for an hour.'

(48) a. Na-nun cacenke-lul hansikan-ul   tha-ko siph-ess-ta.
        I-Top   bicycle-Acc one.hour-Acc ride   want-Pst-Decl
        'I wanted to ride a bicycle for an hour.'
     b. Na-nun cacenke-ka hansikan-i tha-ko siph-ess-ta.
     c. *Na-nun cacenke-ka hansikan-ul tha-ko siph-ess-ta.
     d. *Na-nun cacenke-lul hansikan-i tha-ko siph-ess-ta.

While the case pattern of duration/frequency adverbials is parallel to that of complements in many examples, they do not always coincide with each other. As some current research suggests, a comprehensive discussion of adverbial case marking should take into account semantic factors as well. (Cf. Lee, 1999) Furthermore, it should be noted that focus may well be another factor that affects adverbial case marking patterns, when we consider examples like (49).[14]

(49)a. Ku-ka   chongli-ka   twu pen-i/*pen-ul   toy-ess-ta.
       he-Nom prime.minister-Nom two times-Nom/-Acc become-Pst-Decl
       'He became Prime Minister twice.'
    b. Ku-ka TWU PEN-UL chongli-ka toy-ess-ta.
       'He became Prime Minister twice.'

Whatever explanation is given to such non-syntactic factors, we believe that it would be one that can interact with the syntactic domain of case marking such that it can be equally well applied to the AVCs. However,

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13) See Lee (1999) for the use of the [ADDITIVITY] feature.

14) In this regard, it is interesting to note that Kim and Maling (1996, p. 149) also mentions that the example (i) is ameliorated when the adverbial is focused as in (ii).

  (i) *Na-nun cacenke-ka hansikan-ul tha-ko siph-ess-ta.
  (ii) ?Na-nun cacenke-ka HANSIKAN-UL tha-ko siph-ess-ta.

even a very sketchy answer to these questions requires concrete understanding of syntax-semantics interaction and focus assignment mechanism in the grammar, and we leave this issue for future research.

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