

Case Licensing and Scrambling¹

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Scrambling, which I define to be the possibility that arguments of a verb can be arranged in any order, has been extensively discussed with respect to its property as A- or A-bar movement (cf. Webelhuth 1989, Mahajan 1990, Saito 1992).² The question which has been hardly raised despite the extensive attention given to it is what induces scrambling. Many linguists simply assume that scrambling is truly optional (cf. Fukui 1992), except for Mahajan (1990) who argues that scrambling is induced by case requirement sometimes, but optional at other times. However, if the basic economy of derivation assumption is correct that operations are driven by necessity – operations are “last resort”, applied if they must be, not otherwise (cf. Chomsky 1986, 1991, 1992: 45), – the nature of scrambling movement³ is completely obscure. It is this optionality assumption of scrambling that I would like to refute in this paper.

I argue that scrambling is case-driven just like standard A-movement (cf. Chomsky 1986). This claim is based on my analysis of Korean data involving case and word order possibilities in event nominal clauses. The intricacy of the data serves to constrain certain details concerning case li-

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² Concerning the A-/A-bar properties of scrambling in Korean, the reader is referred to Frank, Lee and Rambow (1992), and Young-Suk Lee (1993).

³ I assume that scrambling is movement, as opposed to base-generation, along the lines of Saito (1985) and Webelhuth (1989).

censing which have been, so far, left underdetermined, and leads to the conclusion that (both subject and object) arguments have to move out of VP (which I call the theta-domain) for case licensing. In section 1 I present the data concerning case and word order variation in transitive event nominal clauses. In section 2 I propose an analysis of case licensing on the basis of the data in section 1, and extend it to clauses. In section 3 I discuss predictions and consequences of the current analysis, one of which is that scrambling is a consequence of case-driven movement of arguments.

Throughout this paper I assume the VP-internal subject hypothesis along the lines of Kitagawa (1986), Fukui and Speas (1986), Koopman and Sportiche (1991). I also maintain the traditional view that elements like Tense and Agr are specified as features on Infl (cf. Chomsky 1981, 1986, Iatridou 1990), and do not adopt the split Infl hypothesis advocated by Pollock (1989), Mahajan (1990) and Chomsky (1992).

1. Data: Case and Word Order Possibilities in Event Nominal Clauses⁴

It has been widely noted that some nouns have their own argument structure just like verbs. These nouns typically include those referring to event or process (cf. Grimshaw 1990). *yenkwu* 'research' in Korean is one of such nouns. It takes subject and object. The arguments occurring within an NP can only be marked with genitive case, as in (1).

⁴Throughout this paper I distinguish an NP, a clause and a nominal clause in the following way: An NP consists of a noun and its arguments, as in (i).

- (i) Kim kyoswu-uy wencahayk-uy yenkwu
 Kim Prof.-GEN nuclear weapon-GEN research
 'Prof. Kim's research on nuclear weapons'

A clause consists of a verb, its arguments and Infl, as in (ii).

- (ii) Kim Kyosuw-ka wencahayk-ul yenkwuhay-ss-ta
 Kim Prof.-NOM nuclear weapon-ACC research-INFL-DEC
 'Prof. Kim researched nuclear weapons.'

A nominal clause consists of a noun-like head (this term will be clarified in section 2), its arguments and an INFL-like element, as in (iii).

- (iii) Kim kyoswu-ka wencahayk-ul yenkwu-cwung
 Kim Prof.-NOM nuclear weapon-ACC research-during(INFL)
 'during Prof. Kim's research on nuclear weapons'

- | | | | |
|--------|---|--------------------|----------|
| (1) a. | Kim kyoswu-uy | wencahayk-uy | yenkwu |
| | Kim Prof.-GEN | nuclear weapon-GEN | research |
| | 'Prof. Kim's research on nuclear weapons' | | |
| b. | *Kim kyoswu-ka | wencahayk-uy | yenkwu |
| | Kim Prof.-NOM | nuclear weapon-GEN | research |
| c. | *Kim kyoswu-uy | wencahayk-ul | yenkwu |
| | Kim Prof.-GEN | nuclear weapon-ACC | research |
| d. | *Kim kyoswu-ka | wencahayk-ul | yenkwu |
| | Kim Prof.-NOM | nuclear weapon-ACC | research |

As shown in (1b) to (1d), arguments in an NP cannot be marked with verbal case (i.e. nominative and/or accusative case).⁵ Arguments in a clause, on the other hand, can only be marked with verbal case, as in (2).

- | | | | |
|--------|---|--------------------|-------------------|
| (2) a. | Kim kyoswu-ka | wencahayk-ul | yenkwuha-n-ta. |
| | Kim Prof.-NOM | nuclear weapon-ACC | research-PRES-DEC |
| | 'Prof. Kim does research on nuclear weapons.' | | |
| b. | *Kim kyoswu-ka | wencahayk-uy | yenkwuha-n-ta. |
| | Kim Prof.-NOM | nuclear weapon-GEN | research-PRES-DEC |
| c. | *Kim kyoswu-uy | wencahayk-ul | yenkwuha-n-ta. |
| | Kim Prof.-GEN | nuclear weapon-ACC | research-PRES-DEC |
| d. | *Kim kyoswu-uy | wencahayk-uy | yenkwuha-n-ta. |
| | Kim Prof.-GEN | nuclear weapon-GEN | research-PRES-DEC |

However, as discussed by Iida (1987), Shibatani and Kageyama (1988), Sells (1990), Miyagawa (1991), and Tsujimura (1992) for Japanese, and Cho and Sells (1991) and Ahn (1991) for Korean, when an event noun is followed by a morpheme indicating tense and/or aspect such as (*to*)*cwung* 'during', (*cik*)*hwu* 'after', (*tang*)*si* 'when', etc., the arguments exhibit additional case possibilities, as in (3).

- | | | | |
|--------|--|-------------------------|-----------------|
| (3) a. | Kim kyoswu-uy | wencahayk-uy | yenkwu-cwung, |
| | Kim Prof.-GEN | nuclear weapon-GEN | research-during |
| | cencayng-i | ilenassta. ⁶ | |
| | war-NOM | broke out | |
| | 'During Prof. Kim's research on nuclear weapons, a war broke out.' | | |

⁵ I use the term "verbal case" to refer to nominative and accusative case to distinguish them from genitive case.

⁶ Note that an event nominal clause followed by an aspect/tense morpheme can only function as either an adverbial or a subject clause, but not as a complement clause.

- b. ⁷Kim kyoswu-ka wencahayk-uy yenkwu-cwung,
 Kim Prof.-NOM nuclear weapon-GEN research-during
- c. *Kim kyoswu-uy wencahayk-ul yenkwu-cwung,
 Kim Prof.-GEN nuclear weapon-ACC research-during
- d. Kim kyoswu-ka wencahayk-ul yenkwu-cwung,
 Kim Prof.-NOM nuclear weapon-ACC research-during

The arguments can all be marked with genitive case, as in (3a), all verbal case, as in (3d). Furthermore, the combination in which the subject is marked with nominative case, and the object genitive case is possible, as in (3b) (i.e. mixed case array).⁷ But the combination like (3c) in which the subject is marked with genitive case, and the object accusative case, is not allowed. One thing to note concerning the nominal clause in (3) is that they function as adverbial clauses, modifying the matrix clause *cencayng-i ilenassta* 'a war broke out', which has its own subject distinct from the subject of the nominal clauses. This indicates that the subject of an event nominal clause does not have to be controlled by the matrix subject (i.e. the subject of the event nominal clause and the matrix subject do not have to refer to the same entity).⁸

⁷ Some people judge (3b) and/or (3c) to be marginal. This indicates that the judgement of the data varies from individual to individual. Nevertheless, people agree on the contrast between (3a, b, d) on the one hand, and (3c) on the other, and my goal is to account for this clear-cut contrast.

⁸ As Hee-Don Ahn points out to me in personal communication, the word order in (i) is possible along with (3a, b, d).

- (i) *cencayng-i* Kim kyoswu-uy/ka wencahayk-uy/ul
 war-NOM Prof. Kim-GEN/NOM nuclear weapon-GEN/ACC
 yenkwu-cwung ilenassta
 research-during took place

In (i), the matrix clause subject *cencayng-i* precedes the event nominal clause. This word order suggests that the hypothesis is not tenable that the subject of the event nominal clause is a kind of sentence topic which ranges over the matrix clause. If the subject of the nominal clause were indeed the sentence topic, it would always be in the first position. The ungrammaticality of (ii) where the subject of the nominal clause is topic-marked further disputes this hypothesis.

- (ii) *Kim kyoswu-nun wencahayk-ul yenkwu-cwung,
 Prof. Kim-TOP nuclear weapon-ACC research-during
 cencayng-i ilenassta
 war-NOM took place
 'A war took place while Prof. Kim was researching nuclear weapons.'

More interestingly, depending on the kind of case which the arguments bear, we observe different word order possibilities, as in (4).

- (4) a. *wencahayk_i-uy Kim kyoswu-uy t_i yenkwu-cwung,
 nuclear weapon-GEN Kim Prof.-GEN research-during
 ‘during Prof. Kim’s research on nuclear weapons’
- b. *wencahayk_i-uy Kim kyoswu-ka t_i yenkwu-cwung,
 nuclear weapon-GEN Kim Prof.-NOM research-during
- c. *wencahayk_i-ul Kim kyoswu-uy t_i yenkwu-cwung,
 nuclear weapon-ACC Kim Prof.-GEN research-during
- d. wencahayk_i-ul Kim kyoswu-ka t_i yenkwu-cwung,
 nuclear weapon-ACC Kim Prof.-NOM research-during

As illustrated in (4a) and (4b), scrambling of an argument marked with genitive case is impossible. The order in which accusative object precedes genitive subject, as in (4c), is not allowed either. (Note that its canonical order counterpart (3c) is also ungrammatical.) However, when all the arguments are marked verbal case, they can be freely scrambled, as in (4d).

2. Proposal

In this section I propose an analysis of the data described in the previous section, and extend it to clauses.

2.1. An Analysis

I hypothesize that the correct analysis of the data in the previous section hinges on the formulation of case licensing condition. A close examination of the data suggests the Case Licensing Condition informally stated in (5).⁹

⁹ An anonymous reader of this paper has pointed out that “genitive” in Korean should not be considered as Case since it appears on PPs inside an NP, presumably as below:

- (i) [pwukkyeng-ulopwute-uy pyenci]-ka tochakhyssta
 Peking-from-GEN letter-NOM arrived
 ‘A letter from Peking has arrived.’

Note, however, that not only genitive but also nominative and/or accusative case can occur on PPs in Korean, as in (ii) and (iii).

- (5) a. Genitive case is licensed by the event noun.
 b. Nominative case is licensed by the aspect morpheme.
 c. Accusative case is licensed by the complex category consisting of the head noun and aspect morpheme.

The contrast in grammaticality between (1a), (3a) on one hand, and (2b, c, d) on the other suggests that genitive case is licensed only by the event noun. The contrast between the ungrammatical (1b, c, d) and the grammatical (2a), (3b, d) indicates that the presence of the aspect morpheme is crucial in verbal case licensing. However, ungrammatical (3c) in which there is an aspect morpheme and the object is marked accusative, leads to the conclusion that the mere presence of a tense/aspect morpheme is not sufficient for accusative case licensing, and that a condition like (5c) has to be posited.

To give a precise analysis of the data I assume the *Extended Projection Principle* proposed in Grimshaw (1991). In particular, projections of a lexical category and a functional category can constitute an extended projection when their N/V features are compatible with each other. For instance, a lexical projection with feature [+N, -V] cannot form an extended projection with a functional projection with feature [-N, +V]. VP and IP form an extended projection because both share [-N, +V] in feature. NP and an IP cannot form an extended projection because NP has feature [+N, -V], and IP [-N, +V]. I also assume (6).

- (6) a. An aspect morpheme is functional category Infl (i.e. projects into IP in the phrase structure), and has feature specification [+F, -N, +V].
 b. An event noun is category neutral with respect to N/V.

(ii) cikum-pwute-ka il-i himtulta.
 now-from-NOM things-NOH difficult
 'Things are hard from now on.'

(iii) Seoul-kkaci-lul kanun-tey twusikan kellinta
 Seoul-to-ACC go-?? two hours take
 'It takes two hours to get to Seoul.'

Examples (ii) to (iii) suggest that nominative and accusative case is no different from genitive case in that they can appear on PPs, and therefore genitive case is Case as much as nominative and accusative case are.

(6a) states that an aspect morpheme is a morphological variant of Infl, and therefore projects into an IP in the phrase structure. This draws on the fact that an aspect morpheme makes an NP a clause-like category, and that category Infl is the key component of a clause (cf. Clark 1992).¹⁰ Concerning N/V feature, Infl is [-N, +V] just like a verb. At the same time it is a functional category with feature [F]. (6b) says that an event noun can be treated as either a verb or a noun. This is to capture the fact that by itself an event noun acts like a noun. And yet, by combining with combine with a functional category of a verbal nature i.e. aspect/tense morpheme, it assumes the properties of a verbal projection.^{11, 12}

I propose *Case Licensing Condition* in (7), which is a more precise formulation of (5).¹³

¹⁰Discussing the similarities and differences between an NP and clause structure in English, Clark (1992) argues that the presence of a tense operator in a clause (which eventually projects into IP) and its absence in an NP is crucial in deriving the asymmetries between clauses and noun phrases.

¹¹The proposal that an event noun is category neutral with respect of N/V is analogous to Grimshaw (1991)'s proposal for the category of a verbal noun in light verb construction in Japanese. Grimshaw says,

Japanese verbal nouns may be category neutral in the relevant way and the transparency of 'NP' may follow from this, since it will form part of an extended projection with V. In this case the extended projection has nominal properties at the lower level and verbal at the higher level...the light verb is a V, and its complement is an NP...

¹²This proposal differs from (i), which is suggested by an anonymous reader of this paper:

(i) An event noun is primarily nominal, but can be verbal after it moves to Infl. First, if we assume that an event noun is nominal with feature [+N, -V] it cannot combine with Infl with feature [-N, +V] under the extended projection principle. Second, an event noun differs from other nominals in that it can combine with aspect morphemes while other nouns cannot. One way of capturing this difference is by positing some categorial difference between event nouns and other nouns, and my proposal that event nouns are category neutral is an instantiation of this idea.

¹³A question arises concerning how to ensure that nominative case is associated with the subject and accusative case with the object. A possible solution is to have certain case feature associated with each argument, [+NOM]/[+GEN] for subject, [+ACC]/[+GEN] for object, for instance. A stipulation of this sort is necessary to rule out ungrammatical strings like 'nominative object followed by a genitive subject' and 'accusative subject followed by nominative object'.

(7) Case Licensing Condition

- a. Genitive case is licensed (via head government) by an overt lexical category (X^0 category) with feature [+N, -V]
- b. Accusative case is licensed by a complex head, consisting of a lexical and functional category, with feature [+F, -N, +V]
- c. Nominative case is licensed by a functional head with feature [+F, -N, +V]

Following Checking Theory in Chomsky (1992), I assume that nouns are drawn from the lexicon with their morphological features including Case, and the Case feature on the noun is discharged by case licensing in (7). Unlike Chomsky, however, I assume that Case is licensed via head government rather than via Spec-head relation. Accusative case licensing in (7b) share feature [+F, -N, +V] with nominative case licensing in (7c). But they differ from each other in that the licenser of the former is a complex category consisting of a lexical and functional head, which is formed via head raising of the head noun to Infl, whereas the nominative case licenser is simple category Infl. An accusative case licenser has the ability of licensing nominative case but not vice versa. *Head government* is defined, as in (8), which is identical to that of Rizzi (1990) except that the relativized minimality condition is omitted.¹⁴

(8) Head Government: X head-governs Y iff

- i. $X \in \{A, N, P, V, \text{Infl}\}$
- ii. X m-commands Y, and
- iii. no barrier intervenes.¹⁵

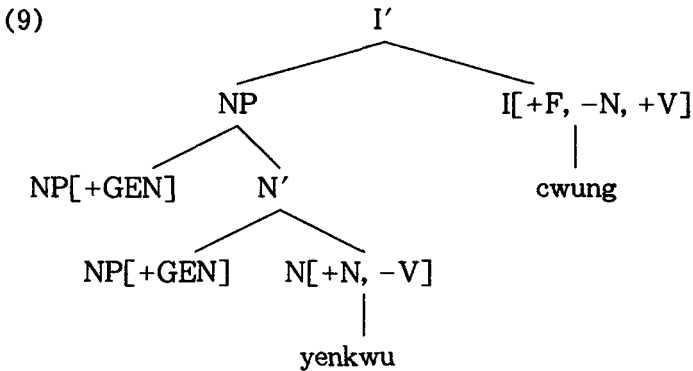
Let us now consider how the data in (3) can be explained in terms of (6), (7) and (8). I would like to point out several assumptions: First, when there is no head raising, the head noun is associated with feature [+N, -V] and therefore projects into an NP. When there is head raising, the head noun is associated with feature [-N, +V] and projects into VP. Second, all the arguments of an event noun are generated and assigned theta-

¹⁴I assume different definitions of government for case-licensing and for movement. For case-licensing I assume the head government, as defined here. For movement, however, I assume the condition on movement spelled out in Chomsky (1992).

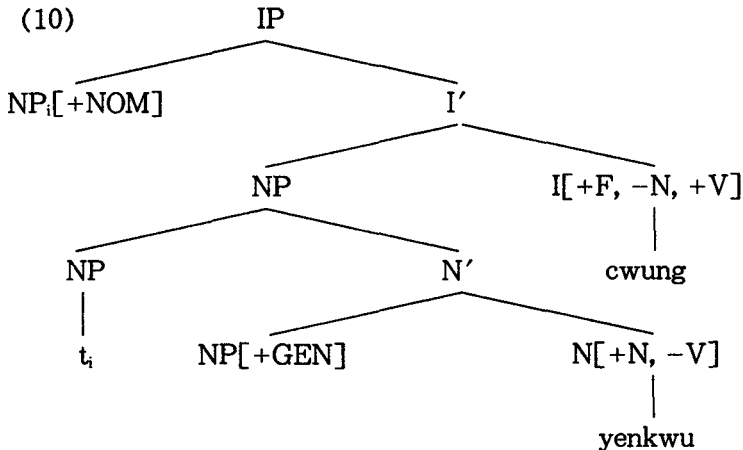
¹⁵I adopt the definition of barrier in Chomsky (1986).

role within NP/VP. Third, following Hoekstra (1991) and Fukui (1992) who argue that a specifier is an adjunct with feature Agr, I assume that there is no distinction between adjuncts and specifiers, and therefore [Spec IP] is not distinguished from IP-adjoined position.

(9–12) are skeletal representations of (3a–d), not necessarily in the same order:

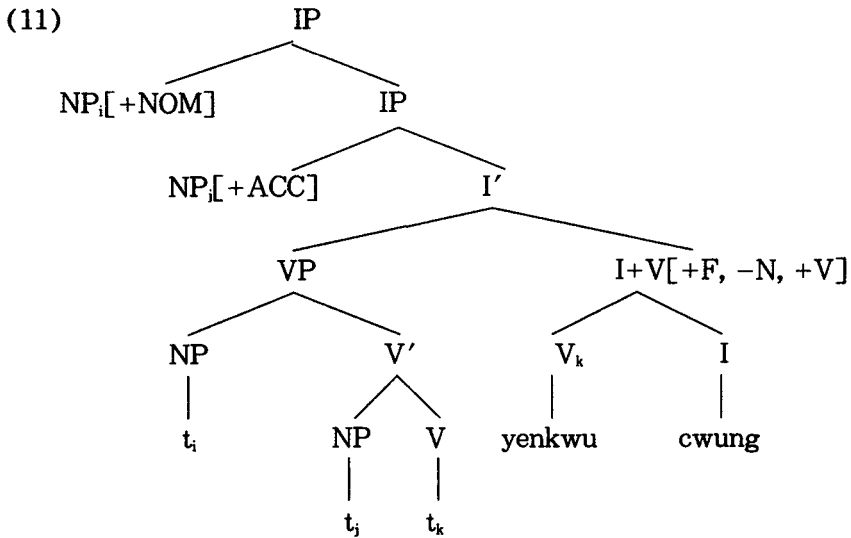


(9) is the representation of (3a), which is grammatical. In (9) the genitive case on the subject and the object are both licensed within the NP by the head noun in situ. Category I and NP do not form an extended projection due to their conflicting N/V features. Head noun *yenkwu* and aspect morpheme *cwung* form a phonological unit at PF.

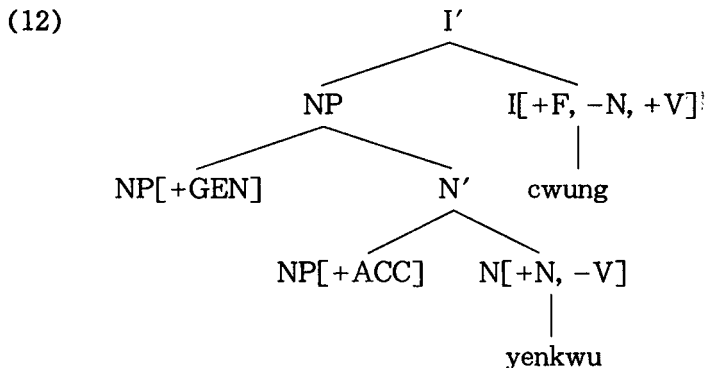


(10) corresponds to grammatical (3b). [+NOM] feature on the subject is licensed by I[+F, -N, +V] after moving to a position beyond NP. The object with feature [+GEN], on the other hand, doesn't have to move since

genitive case can be licensed by the in-situ head noun.



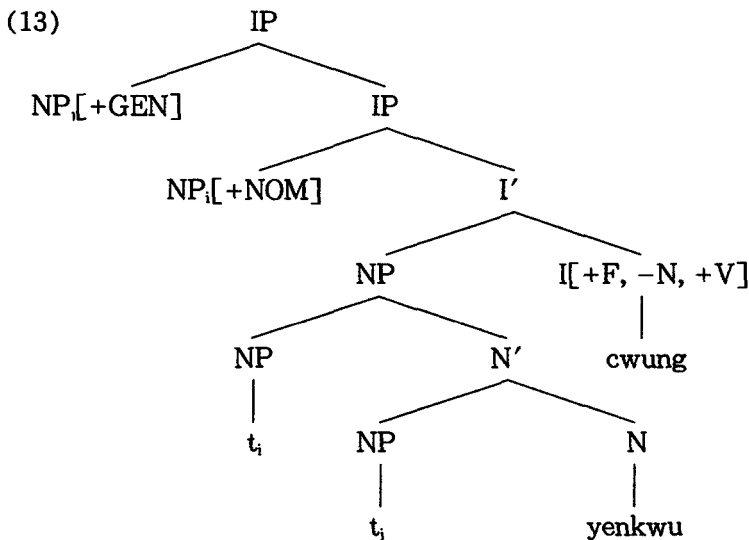
In (11), which is the representation of (3d) with all the arguments in verbal case, the subject bears feature [+NOM], and the object [+ACC]. The subject has to move out of VP for nominative case to be licensed by I[+F, -N, +V]. For the accusative case on the object to be licensed, two instances of movement are involved: First the head noun has to raise to I to form the complex category I+V[+F, -N, +V]. Second, the object is forced to move out of VP for accusative case licensing by this newly created complex category.



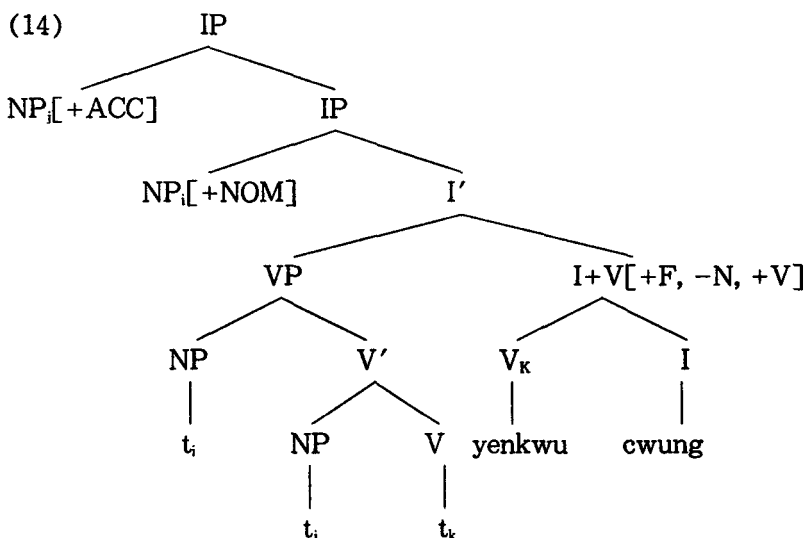
In (12), which is the representation of ungrammatical (3c), there are conflicting demands on the position of the head noun. For genitive case to be licensed, the subject has to stay in situ. For accusative case on the object to

be licensed, however, the head noun has to raise to I to form category I+V [+F, -N, +V]. Since these two demands cannot be satisfied at the same time, the string is ruled out.

Let us now turn to the permuted counterparts of (3) in (4). To see why (4a) is ungrammatical, we can look at the representation of (3a) given in (9). In (9) the genitive case on the subject and object can both be licensed in situ by the head noun. Hence there is no need for arguments to move, and no way of getting the permuted order. (13) is the representation of (4b), which in turn is the permuted counterpart of (3b):



The subject argument has to move for nominative case to be licensed by I [+F, -N, +V]. The object argument, however, cannot move to a position beyond NP since genitive case can be licensed by the head noun only. If the head noun moves to I, it assumes feature [+F, -N, +V] which is not qualified for genitive case licensing. As to the ungrammaticality of (4c), the permuted counterpart of (3c), there are conflicting demands on the position of the head noun: For accusative case licensing of the object, the head noun has to move to I. For genitive case licensing of the subject, however, the head noun has to stay in situ. Since these demands cannot be satisfied simultaneously, the string is ruled out. (14) is the representation of (4d), the permuted counterpart of grammatical (3d).



In (14) the subject argument moves out of VP for nominative case licensing. The object argument also moves out of VP for accusative case licensing by I+V[+F, -N, +V], which has been formed by raising of the event noun to I.

To recapitulate the analysis so far, head raising of an event noun (to Infl) is a necessary condition for accusative case licensing. I have also been assuming that only the head of a chain (moved element) never the tail (trace) is responsible for case licensing. This assumption distinguishes my analysis from that of Miyagawa (1991) for the same set of data in Japanese. I briefly summarize Miyagawa's analysis below.

As far as nominative case licensing is concerned, there is no practical difference between the two analyses, namely, nominative case is licensed by Infl. Miyagawa also assumes the head raising of event noun to Infl¹⁶ when the object is marked with accusative case, as in my analysis.¹⁷ Unlike my analysis, Miyagawa proposes two steps of accusative case licensing condition stated in (15), and the Government Transparency Corollary of Baker

¹⁶According to Miyagawa, the category of an aspect morpheme is 'Asp' and projects into AspP. However the function of AspP in Miyagawa is exactly the same as standard category IP.

¹⁷Even though Miyagawa assumes head raising in cases where object is marked with accusative case, head raising does not play any direct role in accusative case licensing. Instead Miyagawa exploits head raising to give a typological account for the difference between scrambling and non-scrambling languages.

(1988) stated in (16).

(15) Accusative case is licensed in two steps:

- a. Case feature assignment by a [+ACC] noun/verb at D-structure.
- b. Case realization at S-structure via government by a functional head(e.g. Infl).

(16) Government transparency Corollary (Baker 1988)

A lexical category which has an item incorporated into it governs everything which the incorporated item governed in its original structural position.

What distinguishes Miyagawa's analysis of accusative case licensing from my analysis is (15b) and (16): (15b) states that accusative case realization requires only Infl. Government Transparency Corollary allows accusative case to be licensed in the D-structure position of the object, which is equivalent to saying that the trace of the moved head noun participates in case licensing. Consequently, accusative case can be licensed either in the D-structure or the moved position. Miyagawa's analysis cannot rule out ungrammatical strings like (4c), which is repeated here as (17).

(17)*wencahayk _i -ul	Kim kyoswu-uy	t _i	yekwu-cwung,
nuclear weapon-ACC	Kim Prof.-GEN		research-during

Under Miyagawa's analysis, in (17) the accusative case of the object can be realized in the scrambled position, and genitive case of the subject in its D-structure position via government by the head noun. Hence (17) is incorrectly ruled in. But such a problem does not arise under my analysis, as discussed above.

Before proceeding to the next section, I would like to briefly defend my claim that an event noun is category neutral with respect to N/V. An alternative to my proposal would be that an event noun¹⁸ is uniformly either a noun or a verb. In fact, Ahn (1991: 29) argues that an event noun is uniformly a verb, and therefore any phrase containing the event noun as

¹⁸I am using the term 'event noun' only for expository convenience without any theoretical implication. In particular, I wish to point out that the term does not imply that its category is Noun.

- (22) [[_{XP} Jiho-ka swuhak-ul yenkwu]-*wa
 Jiho-NOM mathematics-ACC research-and
 [_{XP} Minho-ka enehak-ul kongpwu]]-cwung]
 Minho-NOM linguistics-ACC study-during

When the arguments are marked with genitive case, as in (21), category XP can be coordinated by particle *-wa*, while when the arguments are marked verbal case, as in (22), coordination by *-wa* is impossible. This indicates that XP is an NP in (21), but not an NP in (22). This categorial distinction of XP in the two cases is exactly what my analysis offers.²¹ When the arguments exhibit mixed case array, as in (23), coordination by *-wa* is not possible, either.

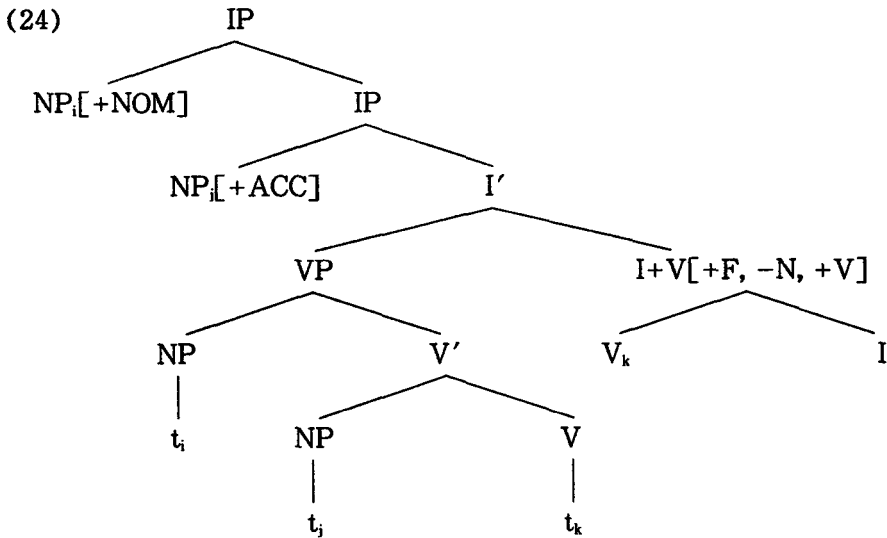
- (23) [[_{XP} Jiho-ka swuhak-uy yenkwu]-*wa
 Jiho-NOM math-GEN research-and
 [_{XP} Minho-ka enehak-uy kongpwu]]-cwung]
 Minho-NOM linguistics-GEN study-during

Under my analysis XP in (23) cannot be an NP; the fact that the subject is marked with nominative case indicates that the coordinated elements are IP's rather than NP's, and therefore the impossibility of coordination by *-wa* is easily explained.

2.2. Extension to Clauses

The analysis of case licensing proposed easily extends to (verbal) clauses. Consider the schematic phrase structure representation of a clause in (24):

²¹Strictly speaking, (18) is not an instance of simple coordination. Under the current analysis the head noun is raised to Infl (i.e. incorporated into *-cwung*) given that the subject and the object are marked with nominative and accusative case, respectively. There are two ways of analyzing the data: One is to assume that there is an abstract Infl after head noun *yenkwu* in the first coordinate. The other is to assume that it is an instance of right node raising in which Infl *-cwung* is right-node raised. In either analysis the category of XP would be IP. Which analysis we take does not affect my claim here, though. The crucial point is that if the category of the head noun is uniformly a verb or a noun (regardless of different case possibilities of the arguments), we do not expect such a contrast as we observe in (21) and (22).



Assuming Case Licensing Condition (7) the subject with feature [+NOM] moves out of VP for case licensing by I[+F, -N, +V]. For accusative case licensing, the verb has to raise to Infl, and the object moves out of VP to be governed by complex category I+V[+F, -N, +V].

Note that the obligatory verb raising for accusative case licensing (and consequently case-driven movement of object) is not obvious when we consider just clauses. It is only when we consider data with the complexity manifested in (3) and (4) that we can conclude that verb (head) raising is required for accusative case licensing.

3. Consequences

In this section I discuss some consequences and predictions of the analysis.

First, Choe (1988) and Whitman (1991) argue that verbs raise to Infl in Korean (and then to Comp). But motivating such a verb raising analysis has not been easy, primarily due to the fact that Korean is head-final and therefore such movement is string vacuous in clauses. The current analysis provides solid evidence for such a claim.

Second, the current analysis leads us to conclude that scrambling is a consequence of case-driven movement, which is consistent with the Econ-

omy Principle in Chomsky (1991, 1992).²² Once head raising has taken place, both nominative and accusative case licensors are on the same node, that is, the complex category $I+V[+F, -N, +V]$ acts as both nominative and accusative case licensors. And therefore, the subject and the object (which have moved out of VP) can be arranged in any order with respect to case licensing, *giving rise to scrambling effects*, cf. (3d) and (4d). In short, scrambling is a consequence of two factors: case-driven movement of arguments and the identity of the position of the nominative and accusative case licensors.

Since scrambling is partially a consequence of case-driven movement, it is predicted that if case can be licensed in situ, then there is no scrambling. This prediction is borne out when we consider scrambling possibilities of arguments which are marked with genitive case. In (3a, b) genitive case on the objects are licensed in situ by the head noun, and therefore movement of the objects leads to an ungrammaticality, as in (4a, b).

The current analysis more generally predicts that when there are more than two arguments in a nominal clause, the arguments obey the generalization stated in (25):

- (25) If an argument of an event noun is marked with genitive case, all the arguments to its right must be marked genitive case as well.

(25) follows from the case licensing condition that nominative/accusative case is licensed in a position higher than genitive case: if an argument is marked genitive case, any argument in a position lower than that (or equivalently to its right) has to be marked genitive as well.²³ This prediction is borne out, as can be seen in the examples of (26) in which the head noun takes three arguments, i.e. subject, indirect object and direct object.

- (26) a. Kim chongcang-uy swusekhaksayng-eykey-uy colepcang-uy
 Kim president-GEN best student-DAT-GEN graduation certificate-GEN
 swuye-cwung, deymo-ka ilenassta
 offer-during demonstration-NOM took place
 'During president Kim's passing the graduation certificate to the best student,
 a student demonstration took place.'

²²This crucially differentiates the current analysis from the existing theories of scrambling, which assume scrambling to be truly optional (See Mahajan 1990, however).

²³I am assuming that arguments are ordered hierarchically within VP or NP according to their theta roles.

- b. Kim chongcang-i swusekhaksayng-eykey-uy colepcang-uy swuye-cewung,
 -NOM -DAT-GEN -GEN
- c. Kim chongcang-i swusekhaksayng-eykey colepcang-uy swuye-cewung,
 -NOM -DAT -GEN
- d. Kim chongcang-i swusekhaksayng-eykey colepcang-ul swuye-cewung,
 -NOM -DAT -ACC
- e. *Kim chongcang-uy swusekhaksayng-eykey-uy colepcang-ul swuye-cewung,
 -GEN -DAT-GEN -ACC
- f. *Kim chongcang-uy swusekhaksayng-eykey colepcang-ul swuye-cewung,
 -GEN -DAT -ACC

Just as in the case of a transitive head noun, all of the arguments of a ditransitive head noun may be marked genitive case, as in (26a), or verbal case, as in (26d). When the arguments exhibit mixed case array, as in (26b) and (26c), they have to obey the generalization in (25): As evidenced by the contrast in grammaticality between (26a, b, c, d) on one hand, and (26e, f) on the other, a verbal case-marked argument cannot follow a genitive case marked NP.

The prediction is borne out that an argument which is case-licensed in situ cannot be scrambled.

- (27) a. *colepcang_i-uy swusekhaksayng_i-eykey-uy
 -GEN -DAT-GEN
 Kim chongcang-uy t_i t_j swuye-cwung,
 -GEN
- b. *Kim chongcang-i colepcang_i-uy
 -NOM -GEN
 swusekhaksayng-eykey-uy t_j swuye-cwung,
 -DAT-GEN
- c. *swusekhaksayng_i-eykey-uy Kim chongcang-i
 -DAT-GEN -NOM
 t_i colepcang-uy swuye-cwung,
 -GEN
- d. swusekhaksayng_i-eykey Kim chongcang-i
 -DAT -NOM
 t_i colepcang-uy swuye-cwung,
 -GEN
- e. colepcang_i-ul swusekhaksayng_i-eykey
 -ACC -DAT

- Kim chongcang-i t_i t_i swuye-cwung,
 -NOM
- f. *colepcang_i-ul Kim chongcang-uy
 -ACC -GEN
- swusekhaksayng-eykey-uy t_i swuye-cwung,
 -DAT-GEN

Arguments marked with genitive case cannot be permuted with each other since genitive case can be licensed in situ, as in (27a, b). As can be seen by the contrast between (27c) and (27d) a genitive case-marked argument cannot precede a verbal case-marked argument. The ungrammaticality of (27f) is due to the conflicting demands for the position of the head noun for accusative and genitive case licensing.

From the data in (26) and (27), a question arises concerning how the dative argument is licensed—what is the licensing condition for dative case? I assume that dative case is an inherent case which is licensed according to the theta-role of the host argument. I further assume that a dative argument has to be obligatorily structural case marked (i.e. nominative, accusative, and genitive case), and therefore has to move out of VP to be licensed nominative or accusative case. The latter assumption is based on data such as (28) to (30):

- (28) Jiho-eykey-ka i os-i cal ewullinta.
 -DAT-NOM this clothes-NOM well suit
 ‘This clothes well-suits Jiho.’
- (29) Mary-ka Minhø-eykey-lul chayk-ul senmwulhayssta.
 -NOM -DAT-ACC book-ACC gave as a present
 ‘Mary presented Minhø a book.’
- (30) Kim chongcang-uy swusekhaksayng-eykey-uy
 Kim president-GEN best student-DAT-GEN
 colepcang-uy swuye
 graduation certificate-GEN award
 ‘president Kim’s award of a graduation certificate to the best student’

In (28) to (30) the dative arguments are marked with nominative, accusa-

tive and genitive case, respectively. For cases in which no structural case is overtly realized on a dative argument, I assume that there is abstract structural case. For the details the reader is referred to Young-Suk Lee (1993).

Appendix: More on the Status of Aspect Morphemes

Throughout this paper, I have assumed that an aspect morpheme is Infl of a verbal nature (i.e. I[+F, -N, +V]). However, there is at least one fact which suggests that an aspect morpheme might be a nominal category. That is, when a clause precedes an aspect morpheme, the verb in the preceding clause exhibits the inflection of noun modification, cf. (31), analogous to a relative clause modifying a head noun in (32), and a complement clause of a head noun in (33) (*-n* in (31) and (32), and *-nun* in (33) are allomorphs).

(31) [nay-ka kwunaysecekpwu-eyse chayk-ul sa-n] hwu, ...
 I-NOM on-campus bookstore-LOC book-ACC buy-MOD after
 'after I bought a book at the campus bookstore'

(32) [_{REL} nay-ka kwunaysecekpwu-eyse sa-n] chayk
 I-NOM on-campus bookstore-LOC buy-REL book
 'the book which I bought at the campus bookstore'

(33) [nay-ka kwunaysecekpwu-eyse chayk-ul sassta-nun] sasil
 I-NOM campus bookstore-LOC book-ACC bought-MOD fact
 'the fact that I bought a book at the campus bookstore'

It is controversial whether morpheme *-n* (or *-nun*) in (31) to (33) can be analyzed as the same category. Regardless of the categorial status of this morpheme, however, the relevant point for the present discussion is that *-n* is attached to a verbal category modifying a noun. And the aspect morpheme *hwu* in (31) must be a noun in light of this.

If an aspect morpheme is indeed a noun, then there has to be some other element in event nominal clauses which are responsible for verbal case marking on the arguments. The only other overt element which can function as a verb is the event noun. The difficulty of treating an event noun as a verb has already been discussed, however. One possibility is to posit an abstract verbal category between the event noun and the aspect morpheme,

so-called light verb *hata* 'do.' (This has been discussed in Mester and Grimshaw 1988 and Miyagawa 1989 for Japanese, and Ahn 1991 for Korean.) Assuming this view, the examples in (3) can be re-written, as in (34) (where 'O_{LV}' stands for the abstract light verb, and LV light verb).²⁴

- (34) a. Kim kyoswu-uy wencahayk-uy yenkwu-cwung,
 Kim Prof.-GEN nuclear weapon-GEN research-during
 'during prof. Kim's research on nuclear weapons'
- b. ³Kim kyoswu-ka wencahayk-uy yenkwu-O_{LV}-cwung,
 Kim Prof.-NOM nuclear weapon-GEN research-LV-during
- c. Kim kyoswu-ka wencahayk-ul yenkwu-O_{LV}-cwung,
 Kim Prof.-NOM nuclear weapon-ACC research-LV-during

My analysis of Case Licensing and its consequences scrambling can be maintained under such an analysis if we assume the following: First the light verb is Infl (cf. auxiliary *do* in English).²⁵ Second all the functions of an aspect morpheme in my analysis are transferred to it. But an anonymous reader of this paper points out that the abstract light verb proposal makes the following wrong prediction: If an event noun can be followed by an aspect morpheme, it must also be followed by light verb *hata*, and yet there are some nouns that appear with *cwung* not with *hata*, for example, *hywuka* 'vacation.' However, this problem could be explained by assuming that *hywuka* takes different light verbs such as *kata* (as in *hywuka-kata*) and *patta* (as in *hywuka-patta*), which presumably have exactly the same syntactic functions as *hata*.²⁶

²⁴ An audience in the spring meeting of Linguistic Society of Korea 1993 pointed this possibility out to me.

²⁵ There is one crucial piece of evidence that the so-called light verb *hata* in Korean is close to Infl rather than Verb (or some of its use). That is, in a negative construction which is formed by sequencing the main verb, negative suffix *-ci*, negative morpheme *an*, and a phonological variant of *hata*, the tense of the clause is always specified on the light verb, and never on the main verb, as in (i) (NS stands for negative suffix).

²⁶(i) Jiho-ka pap-ul mek-ci an-ass-O_{LV}ta.
 Jiho-NOM meal-ACC eat-NS NEG-PAST-LV
 'Jiho hasn't eaten.'

Examples like (i) seems to indicate that the light verb is very much like auxiliary *do* in English, and hence an Infl.

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ABSTRACT

Case Licensing and Scrambling

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In this paper I argue that scrambling is case-driven just like standard A-movement, cf. Chomsky (1986). This claim is based on my analysis of Korean data involving case and word order possibilities in event nominal clauses. The intricacy of the data serves to constrain certain details concerning case licensing which have been so far left underdetermined. It leads to the conclusion that (both subject and object) arguments have to move out of VP for case licensing, and that the scrambling phenomenon is a consequence of the case-driven movement of arguments. This analysis of scrambling is consistent with the basic economy of derivation assumption in Chomsky (1986, 1991, 1992: 45) that operations are driven by necessity.

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