

**TO MAKE A CASE FOR ALL: SYNTACTIC STRUCTURE, SEMANTIC  
INTERPRETATION AND CASE MORPHOLOGY**

by

Chang-Yong Sim

A dissertation submitted to the Faculty of the University of Delaware in  
partial fulfillment of the requirements for the degree of Doctor of Philosophy with a  
major in Linguistics

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## ABSTRACT

This study attempts to understand the case morphology on arguments and non-arguments in Korean. Korean allows more than one occurrence of accusative case morphology in a single sentence. The syntactic objects that can bear accusative case morphology include arguments, VP-internal topics, and measure expressions. The resulting multiple accusative structures can be divided into an inalienable possession type, a zooming-in type, and a measure expression type.

A standard approach to case in natural languages focuses on arguments. Chomsky (1981) claims that a DP needs case to be licensed in the syntax, and that a DP licensed by case is visible for thematic role assignment at LF. Assuming that case is closely related to case morphology, this approach provides a neat account for arguments with case morphology, while non-arguments with case morphology are considered to be trivial. The understanding of case morphology in general, however, requires an investigation of the case morphology on non-arguments, in addition to the case morphology on arguments.

A multiple accusative structure, which involves more than one accusative argument, does not necessarily require a revision of the standard approach to case. For instance, the inalienable possession type of the multiple accusative structure employs a recursive VP structure with two different verbs. Being arguments of each verb, the

possessor and the possessee are assigned case and bear accusative case morphology. The inalienable possession relation between the two accusative arguments has its root in the material part-whole relation between events.

The presence of accusative topics, and accusative measure expressions, however, leads us to rethink the nature of case morphology. Case morphology is domain specific (i.e., accusative case morphology occurs within VP) and is a default morphological particle of the domain. Non-arguments with case morphology use these properties of case morphology for various purposes. For instance, accusative case morphology can be used to link a topic that occurs within VP (an In-Field topic) to a syntactic constituent that corresponds to the comment part (i.e., VP) of the topic. Accusative case morphology is used as a default morphological particle unless lexically specified morphological particles such as postpositions are used (e.g., Kiparsky 1973). Measure expressions can also bear case morphology. These include Split Classifier Phrases, Split Amount Phrases, and measure adverbials. Since measure expressions cannot measure the target directly, they measure out events and relate the measurement to the intended scheme, such as cardinality of individuals, temporal trace, etc., with a help of the homomorphism. Measure expressions are sensitive to the syntactic position where they occur. Since case morphology is domain specific, case morphology is used to indicate the position of a measure expression. This study reveals that non-arguments can bear case morphology due to the very properties of case morphology: Its status as a morphological default and its domain specificity.

## LIST OF ABBREVIATIONS

ACC: accusative

CAUS: causative

Cl: classifier

DAT: dative

DECL: declarative

GEN: genitive

MOD: modifier

NEG: negation

NMZ: nominalizer

NOM: nominative

PASS: passive

PAST: past

PL: plural

PRES: present

Q: question

REL: relativizer

TOP: topic

## **CHAPTER 1**

### **Syntactic Structure and Case Morphology**

#### **1.1 Goals**

In the tradition of generative grammar, it has been believed that there is a close relationship between abstract case and morphological case. This has been believed since the introduction of Vergnaud's Case Filter (cf. Chomsky 1981) into syntactic theory. At the same time, the relation between the two has been questioned based on the claim that morphological case and abstract case behave as separate systems. A close examination of morphological case reveals that restrictions on the surface positions of DPs, usually treated under the Case Filter, cannot be implemented by the same features that underlie case morphology (Arad 1998, Harley 1995, Marantz 1991, Schütze 1997, Schütze 2001a). Furthermore, there are languages in which syntactic objects other than argumental DPs can surface with case morphology. For instance, in languages like Finnish (Maling 1993), Classical Arabic (McCarthy 1976, Noyer 1989), Russian (Fowler and Yadroff 1993), and Korean, measure expressions such as frequency adverbials and duratives bear accusative case morphology. Furthermore,

and perhaps more importantly, the case morphology on these expressions alternates depending on the syntactic environment. While there have been efforts to incorporate case morphology on measure expressions into the notion of abstract/structural case (e.g., Cho, Seng-Eun 2001, Fowler and Yadroff 1993, Kim, Young-Joo 1991, Kim and Maling 1998, Maling 1989, Maling 1993, Wechsler and Lee 1996 among others),<sup>1</sup> it is still controversial for various reasons.

Then, what does case morphology do in a sentence? It is still believed that case morphology on the arguments of a predicate is an instance of abstract case, and that case morphology satisfies the Case Filter. This instance of case morphology is found in natural language and it is generally believed that there is a one-to-one correspondence between the case assigner and the case assignee. While maintaining this notion of abstract case for arguments, we also want to account for case morphology on non-arguments in natural language.

This study attempts to understand the case morphology on arguments and non-arguments in Korean. The primary data to be examined are sentences with multiple occurrences of accusative case morphology. It focuses in particular on answering the following questions in relation to three constructions with accusative case morphology on two or more nominal expressions: How can more than one

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<sup>1</sup> I use full name for Korean Authors, if there is more than one researcher that I cite to avoid any unnecessary confusion. I put the last name first followed by the first name with a comma.



element bear the same case morphology in a sentence? How are these elements represented in syntax? How are they semantically related and interpreted?

## 1.2 The Standard Case Theory

A standard approach to case in natural languages focuses on arguments.<sup>2</sup> Chomsky (1981) claims that a DP needs case to be licensed in the syntax, and thus, he proposes a Case Filter.

### (1) Case Filter

\*[<sub>N</sub>α ], where α includes a phonetic matrix, if N has no Case.

(Chomsky 1981: 49)

Case under the Case Filter is *abstract case*, which is assigned to an overt DP by a case assigner in the syntax. An argumenthood and the case assigner-case assignee relation are the core parts of the standard case theory. For instance, the internal argument is assigned accusative case by the verb (or the accusative case assigning head such as the light verb, *v* in Chomsky (1995, and subsequent works), or the Voice head in Kratzer

---

<sup>2</sup> Expletives such as *there*, which are generally believed to receive abstract case, are considered non-arguments. Since expletives are not relevant in this dissertation, I will put them aside.

(1996)), and the external argument is assigned nominative case by T/Infl. In a passive, the external argument is suppressed or demoted into an adjunct, and the verb (or the accusative assigning head) loses its capability to assign accusative case. Therefore, the internal argument has to move to the available case position, the surface subject position, in order to avoid the Case Filter violation, as shown in (2b).

- (2) a. Yoda kicked the frog.  
b. The frog was kicked (by Yoda).

The situation, however, becomes slightly more complicate, if we consider verbs like *weigh*, *run*, *walk*, *spend*, *cost*, etc., that take amount phrases<sup>3</sup> as their complement.

- (3) a. Yoda weighed *200 lbs*.  
b. Yoda ran *20 miles*.  
c. Yoda spent *5 hours* in catching the snake.  
d. The light sabre costs *10 dollars*.

---

<sup>3</sup> Rizzi (1991) and Frampton (1991) use ‘measure phrases’ instead of ‘amount phrases’. Since I use ‘measure phrases’ to refer to ‘classifier phrases’ and ‘amount phrases’ in Chapter 4, I use ‘amount phrases’ instead of ‘measure phrases’.

Rizzi (1991) claims that an amount phrase is selected by a verb, and receives a non-referential theta-role. A non-referential theta role is distinguished from a referential theta role that a typical argument receives in that elements with the non-referential theta role are not participants in the event expressed by the verb. Thus, amount phrases with the non-referential theta-role in (3) are ‘quasi-arguments’.<sup>4</sup>

A question I would like to ask is whether these amount phrases in (3) are assigned abstract case to satisfy the Case Filter. However, the answer to this question is controversial. One who believes that all arguments including quasi-arguments must satisfy the Case Filter would claim that these amount phrases are assigned abstract case. On the other hand, for those who consider that an element with a non-referential theta role is not subject to the Case Filter would claim that quasi-arguments do not have abstract case.

This controversy whether amount phrases are assigned abstract case or not under the Standard Case Theory can be, at least partly, resolved in languages with overt case morphology. If a language allows an amount phrase to bear case morphology, then, it is not difficult to say that the amount phrase is subject to the Case Filter, and thus, needs abstract case. However, in order to have a conclusive answer, it is necessary to understand the nature of case morphology and its relation to abstract case. Further complication comes from the unclear nature of the non-referential theta-role of amount phrases. Amount phrases measure the scheme of a certain entity much

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<sup>4</sup> In a sentence like *Yoda weighed apples*, in contrast, the verb *weigh* has a different theta-structure. The internal argument, *apples*, receives a Theme role.

like *mile* measures spatial length, *pound* measures weight, and so on. Semantically these amount phrases are related to a ‘measure function’, which relates amount phrases to the entity to measure. If the non-referential theta role means this measure function, amount phrases may not need abstract case, which we will see in Chapter 4.

To summarize, the standard approach to (abstract) case crucially depends on argumenthood and the assigner-assignee relation. An element with a non-canonical theta-role such as a non-referential theta role, thus, becomes controversial whether it is subject to the Case Filter. Furthermore, if there is no clear assigner-assignee relation, the situation becomes more complicated. Languages with case morphology like Korean provide such a complicated situation.

### **1.3 Case Morphology and the Standard Case Theory**

It is generally believed that case morphology is closely related to abstract case. The distribution of case morphology, however, shows that non-arguments can bear case morphology, in addition to arguments. Furthermore, there are cases where it is not clear whether there is a case assigner for non-arguments or not. This section serves as an introduction to non-arguments with case morphology. It will be shown that case morphology is domain specific and it is a default manifestation of morphological

resources. The case morphology on non-arguments is closely related to these properties: The domain specificity and a default morphological form.

### 1.3.1 Case Morphology in Korean

In ordinary transitive sentences in Korean, the suffix *-i/-ka* attaches to a subject (an external argument) and the suffix *-ul/-lul* attaches to an object (an internal argument) and these suffixes alternate depending on their phonological environment: *-i* and *-ul* are used after a consonant and *-ka* and *-lul* after a vowel.

- (4) a. Yoda-***ka*** kaykwuri-***lul*** cap-ess-ta.  
           Yoda-NOM frog-ACC grab-PAST-DECL  
           ‘Yoda caught the frog.’
- b. Shrek-***i*** swul-***ul*** masi-ess-ta.  
           Shrek-NOM liquor-ACC drink-PAST-DECL  
           ‘Shrek drank the liquor.’

These suffixes, *-i/-ka* and *-ul/-lul*, are instances of morphological case, nominative and accusative respectively. These morphological case markers are believed to be a morphological realization of abstract case assigned by case assigners. Therefore, it is expected that in passive constructions the internal argument, *kaykwuri* ‘frog’ in (4a), bears *-ka* and that it cannot bear *-lul*, since one of the properties of passive constructions is that the verb loses its ability to assign accusative case to its

argument. As a result of this, the internal argument moves to a subject position and is assigned nominative case by Infl/T. This is, indeed, what happens in (5).

- (5) (Yoda-eykey) *kaykwuri-ka/\*-lul* cap-hi-ess-ta.  
 Yoda-by frog-NOM/-ACC grab-PASS-PAST-DECL  
 ‘The frog was caught (by Yoda).’

In this sense, the morphological realization of abstract case is determined by the case assigner. A DP that is assigned abstract case by a verb is realized with accusative case morphology, and a DP assigned abstract case by Infl/T is realized with nominative case morphology. Being a morphological realization of abstract case, the case morphology on the external and internal arguments, therefore, satisfies the Case Filter (Chomsky 1981). This direct application of the Case Filter involves the assumption that abstract case and morphological case are closely related. Every DP must be licensed by some abstract case assigner, and morphological case is a spelled-out version of such abstract case. Languages may differ with respect to their morphological richness, but all of them are subject to the Case Filter.

The situation, however, becomes slightly more complicated in the following sentences.

- (6) a. Yoda-ka Leia-*lul* achim-ey phal-*ul* ttali-ess-ta.  
 Yoda-NOM Leia-ACC morning-at arm-ACC hit-PAST-DECL  
 ‘Yoda hit Leia in the arm in the morning.’

- b. Yoda-ka mwul-***lul*** achim-ey nayngswu-***lul*** masi-ess-ta.  
 Yoda-NOM water-ACC morning-at cold.water-ACC drink-PAST-DECL  
 ‘As for water, Yoda drank the cold water in the morning.’

The examples in (6) involve multiple occurrences of accusative case morphology. The accusative case morphology on these DPs raises questions: Is the accusative case morphology an instance of abstract case, and are these accusative DPs licensed by V?

There has also been a claim that morphological case and abstract case fall under different components of grammar and should be treated separately (Harley 1995, Marantz 1991). Under this approach, roughly speaking, only if nominative case has been assigned can the remaining DPs in a sentence be assigned accusative case. Thus, the multiple occurrences of accusative case morphology seem to be accounted for. However, this approach turns out to be unsatisfactory in accounting for the passive counterparts of the sentences in (6). This approach predicts that nominative case is assigned to the first DP and that accusative case is assigned to the second DP in the passive counterparts of (6). However, this prediction is not borne out. The second accusative DP can have nominative or accusative case, while the first DP must be nominative.

- (7) a. (Yoda-eykey) Leia-***ka*** phal-***i/-ul*** cap-hi-ess-ta.  
 Yoda-by Leia-NOM arm-NOM/-ACC grab-PASS-PAST-DECL  
 ‘Leia was caught by the arm by Yoda.’
- b. (Yoda-eykey) kwail-***i*** sakwa-***ka/\*-lul*** phal-li-ess-ta.  
 Yoda-NOM fruit-NOM apple-NOM/-ACC sell-PASS-PAST-DECL  
 ‘As for fruits, the apples were sold to Yoda.’

The nominative and accusative case alternation in (7a) and the lack of such an alternation in (7b), therefore, lead us to reconsider the whole situation. The question that I would like to ask at this moment is whether all instances of case morphology are abstract case. In cases where the case assigner is Infl/T or V, DPs that are assigned abstract case bear case morphology.

What if there is a DP which is not thematically motivated? In (6) and (7), intuitively, *Leia* and *phal* ‘arm’, and *kwail* ‘fruit’ and *sakwa* ‘apple’, are interpreted as Themes. However, the relations between these DPs are not identical. *Leia* has an additional thematic interpretation where *Leia* is the possessor of *phal*, ‘arm’. Arguably, this possessor-possessee relation involves thematic roles, and thus, the heads that introduce the possessor and the possessee are thematically motivated. In contrast, *kwail* ‘fruit’ and *sakwa* ‘apple’ have a different relation: Apples are a specific sub-kind of fruit. This type of relation cannot easily be reinterpreted as thematic roles such as Agent, Theme, etc. Rather we find that the best candidate is a Topic-Comment structure, as the English translations suggests. The first accusative DP in (6) is a topic that takes the second accusative DP and the verb as its comment. While the second accusative DP is an argument of a predicate, the first accusative DP is not subcategorized by the predicate, and thus, it is not an argument of a predicate, which will be shown in Chapter 3. Then, non-thematic DPs in (6b) and (7b) can bear case morphology, as well as thematic DPs.



This leads us to admit that not all instances of DPs with case morphology are arguments.<sup>5</sup> Suppose that if a non-thematic DP is introduced into a sentence, it must be properly linked to sentence structure. Further suppose that this process involves morphological realization. Case morphology is one of the morphological resources. While some languages like English lack case morphology, others like Korean have case morphology which is domain specific. Grammatical relations such as a topic-comment relation are represented in a particular structure in syntax and that syntactic structure determines and realizes the non-thematic syntactic object with an available and legitimate morphological spell-out including case morphology. If so, on the surface, a sentence can exhibit multiple occurrences of the same case morphology. Some of these instances are realizations of abstract case and others are the result of utilizing morphological resources for properly linked non-thematic elements. This is the idea that I appeal to and argue for in this dissertation. Chapters 2 and 3 explore this hypothesis with multiple accusative structures with the possessor-possessee relation, and the topic-comment relation, respectively.

This idea also extends to measure expressions with accusative case morphology (Chapter 4). Measure expressions optionally bear case morphology when they are syntactically separated from the noun that they count and measure. In

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<sup>5</sup> Non-thematically motivated DPs can include expletives. Expletives, however, differ from those DPs under discussion, since it is generally believed that expletives do not have semantic content.

ordinary transitive sentences, internal argument oriented Split Classifier Phrases and Split Amount Phrases can bear accusative case morphology.

- (8) a. Yoda-ka sakwa-**lul** achim-ey *twu kay(-lul)* mek-ess-ta.  
 Yoda-NOM apple-ACC morning-at two Cl<sub>unit</sub>-ACC eat-PAST-DECL  
 ‘Yoda ate two apples in the morning.’
- b. Yoda-ka maykcwu-**lul** *sam lithe(-lul)* masi-ess-ta.  
 Yoda-NOM beer-ACC three liter-ACC drink-PAST-DECL  
 ‘Luke drank three liters of beer.’

Again, in certain constructions like unaccusatives, we find a case alternation and a lack of a case alternation.<sup>6</sup>

- (9) a. elum-i **twu cokak(-i/\*-ul)** el-ess-ta.  
 ice-NOM two Cl<sub>piece</sub>-NOM/-ACC freeze-PAST-DECL  
 ‘Two pieces of ice froze.’
- b. Elum-i **sam inchi(-ka/-lul)** el-ess-ta.  
 ice-NOM three inch-NOM/-ACC freeze-PAST-DECL  
 ‘The water froze three inches thick.’

The possibility of a case alternation must be determined not by a simple case assigning mechanism but by an interaction between the syntactic structure that hosts these split measure expressions and the mechanism that is responsible for the realization of case morphology.

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<sup>6</sup> These classifier phrases and amount phrases can also occur without case morphology.

Measure adverbials, such as frequency adverbials, also optionally surface with accusative case morphology in a transitive sentence, but they cannot bear nominative case morphology. In the passive counterpart, in contrast, the frequency adverbial can bear either accusative or nominative case morphology. Given that the case morphology on certain adverbials is optional, and that the occurrence of nominative case morphology is available only in certain constructions like passives, the syntactic conditions for these adverbials and the device that realizes the particular case morphology on them requires explanation.

- (10) a. Luke-ka maykcwu-lul **twu pen(-ul/\*-i)** masi-ess-ta.  
 Luke-NOM beer-ACC **two time-ACC/-NOM** drink-PAST-DECL  
 ‘Luke drank the beer twice.’
- b. (Yoda-eykey) Paym-i **twu pen(-ul/-i)** cap-hi-ess-ta.  
 Yoda-by snake-NOM **two time-ACC/-NOM** grab-PASS-PAST-DECL  
 ‘The snake was caught twice by Yoda.’

The aim of this dissertation is to reveal the nature of these multiple accusative structures and ultimately lead us to a better understanding of case morphology, syntactic structure and their interactions. The case morphology on arguments does not require a significant revision of the Standard Case Theory assuming that case morphology is closely related to abstract case. The case morphology on non-arguments, however, if it is an overt realization of abstract case, requires a significant revision of the Standard Case Theory. If the case morphology on non-arguments has

nothing to do with abstract case, then, a new understanding of case morphology is required.

### 1.3.2 Case Morphology is Domain specific

In addition to case morphology, Korean also uses various morphological particles like postpositions. Sells (1995, 1997) and Cho and Sells (1995) claim that these morphological forms can be categorized into four different groups, based on Yang, In-Seok's (1972) classification.

#### (11) Nominal Particles (Cho and Sells 1995:137)

Postpositions	Conjunctives	X-Lim	Z-Lim <sup>7</sup>
<i>eykey(se)</i> 'DAT' <i>hanthey(se)</i> 'DAT' <i>ey(se)</i> 'locative' <i>ey, (u)li</i> 'directive' <i>kkaci</i> 'goal' <i>hako, (k)wa</i> 'comitative' <i>(u)lo</i> 'instrumental' <i>kkey</i> 'honorific DAT' <i>kkeyse</i> 'honorific NOM'	<i>hako, (k)wa</i> 'conjunctive' <i>pota</i> 'comparator' <i>(i)na</i> 'disjunctive' <i>pwuthe</i> 'from' <i>chelem</i> 'like'	<i>man</i> 'only' <i>kkaci</i> 'even' <i>mace</i> 'even' <i>choca</i> 'even' <i>pakkey</i> 'only'	<i>(n)un</i> 'TOPIC /focus' <i>to</i> 'also' <i>(i)lato</i> 'even' <i>i/ka</i> 'NOM' <i>ul/lul</i> 'ACC' <i>euy</i> 'GEN'

Here, particles that are believed to express case fall mostly in the postpositional slot and the Z-Lim slot.<sup>8</sup> Hong, Ki-Sun (1990, 1991) claims that nominal particles in the

<sup>7</sup> Yang, In-Seok (1972) classifies nominal particles other than postpositions and conjunctives as delimiters, and uses X, Y and Z to refer to the slots where certain particles occur: Z refers to the rightmost slot that nominal particles can occur in.

postposition slot are semantic case, which do not vary depending on configuration.<sup>9, 10</sup> The particles in the Z-Lim slot, in contrast, are sensitive to configuration. *-(n)un* is a topic marker which attaches to the topic expression that occurs in the sentence-initial position.<sup>11</sup> *-to* and *-(i)lata* are attached to Negative/Positive Polarity Items, respectively. The other three particles in the Z-Lim slot are case morphology: nominative, accusative and genitive. It is generally believed that genitive case morphology is used within the DP domain. It is also believed that nominative and accusative case morphologies are domain specific, occurring in TP and VP, respectively. For instance, there is a well-known contrast between nominative and accusative in the ECM/Raising to Object context. A pronoun with nominative case morphology can refer to the matrix subject, while its accusative counterpart cannot.

- (12) a.    Yoda<sub>i</sub>-ka        **ku<sub>i/j</sub>-ka**        ttokttok-ha-ta-ko        mit-ess-ta.  
              Yoda-NOM     he-NOM        smart-do-DECL-COMP    believe-PAST-DECL  
              ‘Yoda believed that he was smart.’

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<sup>8</sup> Cho and Sells (1995) and Sells (1995, 1997) claim that nominal particles are assigned to slots in the following morphological template.

(i) Nroot – postposition – conjunctive – X-lim – Z-lim

<sup>9</sup> It is controversial whether *eykey(se)* is a postposition or is a dative case marker. See Section 1.3.3.

<sup>10</sup> In many formal theories of case, it is generally assumed that there is a distinction between ‘Structural Case’ and ‘Inherent Case’ (Chomsky 1981) or between ‘Grammatical Case’ and ‘Semantic Case’ (Kurylowicz 1964).

<sup>11</sup> When a *-(n)un* marked element occurs in a position other than the sentence-initial position, it has a contrastive topic reading/contrastive focus reading.

- b. Yoda<sub>i</sub>-ka      **ku<sub>i/j</sub>-lul**      ttokttok-ha-ta-ko      mit-ess-ta.  
 Yoda-NOM      he-ACC      smart-do-DECL-COMP      believe-PAST-DECL  
 ‘Yoda believed him to be smart.’

The contrast between nominative and accusative pronouns in (12) shows that the nominative-marked pronoun is in the subject position of the embedded clause, while the accusative counterpart is in the matrix VP. The accusative pronoun and the matrix subject are in the same binding domain, and thus, co-reference between them results in a Condition B violation, since a pronoun must not be bound in its binding domain. Case morphology signals the position where the pronoun occurs in a sentence: nominative case morphology indicates the pronoun is in the domain of TP and accusative case morphology indicates that the pronoun is in the domain of VP.<sup>12</sup> Therefore, case morphology in Korean is domain specific: Accusative case morphology is used within VP, and nominative is used within TP.

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<sup>12</sup> There seems to be an exception to this generalization that case morphology indicates the position of the syntactic element. As shown below, constructions known as ‘Dative Subject’ or ‘Nominative Object’ constructions allow their Theme to bear nominative case morphology, while their transitive counterparts do not.

- (i) a. Yoda-ka/-eykey      **paym-i/\*-ul**      mwusep-ta.  
 Yoda-NOM/-DAT      snake-NOM/-ACC      afraid-DECL  
 ‘Yoda is afraid of the snake.’  
 b. Yoda-ka/\*-eykey      **paym\*-i/-ul**      mwusewe-ha-n-ta.  
 Yoda-NOM/-DAT      snake-NOM/-ACC      afraid-do-PRES-DECL  
 ‘Yoda is afraid of the snake.’

It is still controversial whether or not the nominative object (Theme) in (ia) moves to the domain of TP. Despite the controversy, I assume that the Theme moves to the domain of TP.

This domain specific property of case morphology is related to the notion of a default morphological particle in a certain domain. Marantz (1991) differentiates morphological case from the DP licensing mechanism, as briefly reviewed above. In the spirit of Marantz (1991), Arad (1998) argues that morphological case is domain sensitive. Nominative case morphology is a default outside the domain of VP. Within the domain of VP, accusative case morphology and lexical/thematic case such as inherent case are assigned. Similarly, Legate (2005) claims that languages can have a morphological default and that abstract case determined in the syntax is realized in the form of morphological default case according to the Elsewhere Principle (Kiparsky 1973, 1982, Halle 1997). The Elsewhere Principle enables lexically specified morphological particles such as inherent case to be realized instead of a morphological default. These approaches to case morphology have an implicit assumption that all instances of case morphology are abstract case assigned by the case assigner: Infl/T or V. In the morphological component, the abstract case on the syntactic object is realized in the form of case morphology.

A question arises: Are all syntactic objects with case morphology assigned abstract case? Suppose that a language has a default morphological particle for each domain. Among available morphological resources in (11), case morphology is domain specific. Then, it is conceivable that case morphology can be used on syntactic objects to indicate the domain these linguistic expressions occupy. Thus, further suppose that the default morphological particle within VP is the accusative case

morphology, *-ul/-lul*, and the default morphological particle outside VP is the nominative, *-i/-ka*. If so, case morphology on linguistic expressions does not necessarily reflect abstract case. Under this approach, non-arguments as well as arguments bear default case morphology in the domain they occupy to serve as an indicator of the domain. Throughout this dissertation, I show that this is the case in Korean and that case morphology on non-arguments has some semantic effect.

However, it is not the case that all non-arguments can bear case morphology. As will be shown in Chapter 3 and Chapter 4, non-arguments with certain semantic/pragmatic effects bear case morphology. In order to have certain semantic/pragmatic effects, I show that linguistic expressions must occupy a certain position in a clause. Elements in that position are spelled-out with case morphology in the morphological component. In a sense, the case morphology on non-arguments is the result of a conspiracy between syntax, morphology, and semantics/pragmatics, using the domain specificity of case morphology.

### **1.3.3 Abstract Case, Structural Case, and Inherent Case**

So far, I have used the term ‘abstract case’ referring to the case morphology on arguments. Abstract case is essentially assigned/valued by the case assigner via Match/Agree in the syntax. As far as arguments are concerned, case morphology and abstract case are overlapped. The case morphology on arguments is determined by



syntactic environment. Thus, the accusative internal argument becomes nominative in passives. In addition, non-arguments such as frequency adverbials can also bear case morphology and the form of case morphology is sensitive to the syntactic environment. In an ordinary transitive sentence, a frequency adverbial can bear accusative case morphology but not nominative case morphology, while in a passive, it can bear either nominative or accusative case morphology.

It is generally believed that structural case is case assigned to a structural position without referring to any thematic relation between the assigner and the assignee. Then, the case morphology on arguments qualifies as structural case. What about the case morphology on frequency adverbials? If the syntactic position and the assigner determine structural case, the answer becomes a little bit complicated: In an ordinary transitive sentence, a verb assigns accusative case morphology to a frequency adverb, while in a passive, either Infl/T or the verb assigns case morphology.<sup>13</sup> Furthermore, the presence of a nominative frequency adverb in a passive indicates that such adverbials optionally move to the position to which nominative case morphology is assigned by Infl/T. The situation becomes more complicated with other non-arguments with case morphology (Chapter 3, and Chapter 4). However, if the notion of structural case depends on the syntactic position alone, the case morphology on frequency adverbials is structural case. As was discussed in the previous sub-section,

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<sup>13</sup> If it is such a case, to be precise, it cannot be case morphology that a verb assigns to a frequency adverbial. The verb assigns some feature which is eventually realized as case morphology in the morphological component.

case morphology in Korean is domain specific. In Chapter 4, I will claim that there are two independently motivated positions in a sentence for frequency adverbials to occur: one is within VP and the other is outside VP. Therefore, if the notion of structural case is defined by syntactic position without referring to the assigner and the assignee, all the instances of case morphology in this dissertation can be considered as structural case. Thus, I use *abstract case* to refer to case morphology on arguments instead of structural case, and *case morphology* will be used to refer to any instance of it on both arguments and non-arguments.

Inherent case is a case assigned to a particular argument of a particular verb/head in conjunction with thematic role assignment by that verb/head (Chomsky 1981, 1986, cf. Pesetsky 1982). It is often claimed that dative case in Korean is an instance of inherent case (e.g., Kim, Young-Joo 1990, Yoon, James 1995). For instance, the experiencer in psych predicates and the locative in the existential-possessive construction can bear dative case morphology, *eykey*.

- (13) a.   **Yoda-eykey**   paym-i       mwusep-ta.  
           **Yoda-DAT**   snake-NOM afraid-DECL  
           ‘Yoda is afraid of the snake.’
- b.   **Leia-eykey**   ton-i           manh-ta.  
           **Leia-DAT**    money-nom   much-DECL  
           ‘Leia has a lot of money.’

As Ahn and Lee (1995) claimed, the dative case morphology, *eykey*, can be used on the Agent in passives, and on the Goal argument in ditransitive predicates.

- (14) a. Yoda-ka    **Leia-eykey**    cap-hi-ess-ta.  
              Yoda-NOM Leia-by            grab-PASS-PAST-DECL  
              ‘Yoda was caught by Leia.’
- b. Yoda-ka    **Leia-eykey**        chayk-ul    cwu-ess-ta.  
              Yoda-NOM Leia-DAT            book-ACC    give-PAST-DECL  
              ‘Yoda gave a book to Leia.’

One of the issues involving dative case morphology is whether it is a postposition or a dative case marker. In this dissertation, I assume that *eykey* is ambiguous between a dative marker and a postposition, following Jung and Miyagawa (2004), Yoon, James (to appear). Regardless of its categorial status, since the distribution of dative case morphology is not predictable based on syntactic position, the possibility of its being structural case is ruled out.

#### 1.3.4 Syntax and Case Morphology

If case morphology is used to indicate the domain, and if it does not necessarily reflect the abstract case assigned by either T/Infl or V, what is the relation between the syntax and the realization of case morphology? Essentially, there are three possible answers.

- (15) a. Syntactic features determine the realization of case morphology.
- b. Case morphology is related to syntactic features but can also be used for other purposes.

- c. Semantically licensed syntactic objects can bear case morphology.

The answer in (15a) attributes all instances of case morphology to the syntax. Considering adverbials with case morphology, however, it is not clear what kind of mechanism triggers the realization of case morphology.

The answer in (15b) means that the morphological realization of abstract case is separate and distinguishable from the case morphology on non-arguments, maintaining the argument/non-argument distinction. The realization of case morphology on non-arguments is the result of interactions between the syntax and semantic/pragmatic factors, using the domain specificity of case morphology.

The answer in (15c) minimizes the role of the syntax with respect to case morphology. It says that any syntactic object that is semantically justified and licensed can bear case morphology, and that the syntax provides the position for the semantically licensed syntactic objects.

In this dissertation, I pursue the answer in (15b). Once the relevant sets of data are presented and discussed, I will discuss the other possible answers in Chapter 6, comparing the answer that I pursue.

## 1.3 Framework

### 1.3.1 Syntax

The syntactic assumptions I follow in this thesis are mainly those of the Minimalist Program (Chomsky 1995, 1998, 1999, 2001), with some modifications. In this system, an external argument is introduced by a functional head  $v$  (cf. Voice of Kratzer 1996).  $v$  selects VP as its complement and checks the accusative case of an internal argument. For Chomsky (1998, 1999, 2001), ordinary transitive sentences contain  $vP$ , while passives and unaccusatives do not have  $vP$ . The presence or absence of this functional head  $v$  has an impact on syntactic theory.

Chomsky (1998, 1999, 2001) argues that feature checking, a mechanism of syntactic licensing and movement, takes place via an abstract operation called Agree.

(16) *Agree* (Chomsky 2000, p. 101)

Establishes a relation (agreement, Case-checking) between a lexical item

(LI)  $\alpha$  and a feature  $F$  in some restricted search space (its *domain*).

Matching of probe-goal induces AGREE.

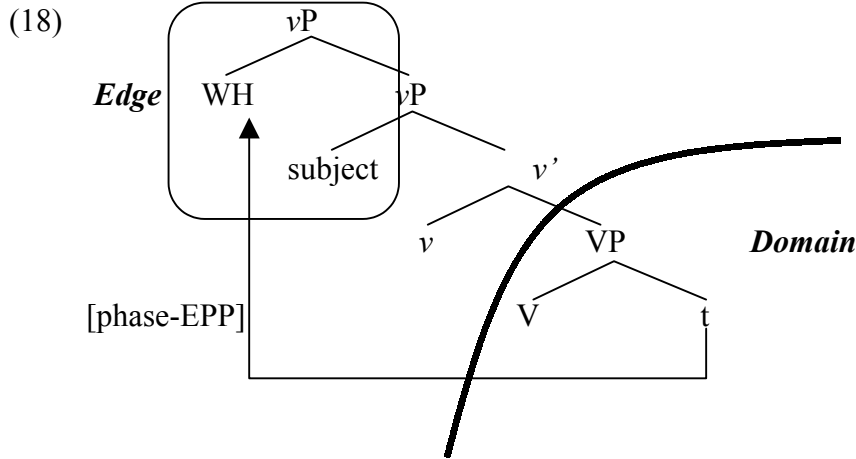
In Chomsky's system, syntactic elements enter the derivation with uninterpretable features, which must be deleted prior to the derivation being sent to the interfaces (the conceptual-intentional interface and the perceptual-articulatory interface). The output of the syntax is sent to the interfaces in stages. Each stage is called a *phase* (for Chomsky, *v*P, CP, or DP), and the operation that sends the output to the interfaces is called Spell-Out. At the point of Spell-Out, the complements of the phase defining heads are sent to each of the interfaces. The head and the *edge* of the phase are accessible to later syntactic operations, but the *domain* is not, resulting in the Phase Impenetrability Condition.

(17) *Phase Impenetrability Condition (PIC)* (Chomsky 2000:108)

In phase  $\alpha$  with head H, the domain of H is not accessible to operations outside  $\alpha$ , only H and its edge are accessible to such operations.

The PIC allows XPs in the specifiers and adjuncts (i.e., edge) of Phases, as well as their heads, to remain visible to further syntactic operations. Therefore, the PIC requires that Phase-internal XPs move to the edge of the Phase if they need to undergo feature-checking with a Probe outside their minimal domain. For example, if an internal argument is to undergo WH-movement, it must raise to the edge of *v*P prior to Spell-Out, in order to be visible at the next Phase level. Under this system, therefore, any covert movement (cf. Chomsky 1993, 1995) is replaced by overt movement to the

phase edge and AGREE. Overt movement is driven by the need to check uninterpretable EPP features on T or on a Phase head before the end of the Phase. A sample illustration is given below.



For Chomsky (1998, cf. 2001), passives and unaccusatives lack the head  $v$ , or have a defective  $v$ , and thus, passive and unaccusative VPs are not subject to the PIC. Contrary to Chomsky, however, I assume that passive and unaccusative constructions contain the functional head  $v_{passive/unaccusative}$  or *non-active Voice* of Kratzer (1996) and thus, passive and unaccusative VPs are subject to the PIC, as argued in Legate (2003). Legate shows that passive and unaccusative VPs exhibit the properties of strong phases, based on the parallelism between ordinary transitive sentences and passive/unaccusative sentences with respect to diagnostic tests such as WH-reconstruction effects, quantifier raising, parasitic gaps, and the Nuclear Stress Rule. In Chapter 2, in order to account for the passive sentences of inalienable

possession structures, I show that a non-active Voice head must be merged in passives. Similarly, in the discussion of split measure phrases, I show that unaccusatives involve a non-active Voice head. Therefore, by positing the non-active Voice head for passives and unaccusatives, the phasehood of passive VP can be captured. For these reasons and in order to avoid any unnecessary confusion, I use active and non-active Voice heads instead of *v*.

Another modification made in this thesis concerns the left periphery of a sentence. Since Rizzi (1997), the left periphery of the clause is seen as a structural zone defined by a system of functional heads and their projections.

(19) [Force [Top\* [Foc [Top\* [Fin [TP ]]]]]]

The system is delimited upward by Force, the head expressing clausal typing (cf. Cheng 1991), and downward by Finiteness, the head differentiating finite and non-finite constructions. As will be discussed in Chapter 3, this expanded C system, especially the functional head that hosts a topic, has grammatical effects in relative clauses.



### 1.3.2 Semantics

The semantic assumptions of this thesis are embedded within the semantic system developed in Heim & Kratzer (1998). I follow the assumption that interpretation is compositional and type driven with a limited set of interpretation rules. The basic interpretation rules employed in this thesis are the following:

- (20) Terminal Nodes (TN)  
If  $\alpha$  is a terminal node,  $[[\alpha]]$  (the semantic value of  $\alpha$ ) is specified in the lexicon.
- (21) Non-Branching Node (NN)  
If  $\alpha$  is a non-branching node, and  $\beta$  is its daughter node, then  $[[\alpha]] = [[\beta]]$ .
- (22) Functional Application (FA)  
If  $\alpha$  is a branching node,  $\{\beta, \gamma\}$  is the set of  $\alpha$ 's daughters, and  $[[\beta]]$  is a function whose domain contains  $[[\gamma]]$ , then  $[[\alpha]] = [[\beta]]([[\gamma]])$   
(Heim and Kratzer, 1998: 43-44)

I further assume that a verb is a predicate of events and it is linked to its arguments through thematic roles following the Neo-Davidsonian event semantics. Davidson (1967) argues that verbs have an extra slot for the event argument. Instead of the standard denotation of the verb *kiss* in (23a), he proposed (23b), where *kiss* (x)(y)(e) is read as 'an event which is a kissing event of x by y'. Therefore, in (23b), a

transitive verb like *kiss* is a three-place relation between the nominal arguments and an implicit event argument.

- (23) a.  $\lambda x. \lambda y. \text{kiss}(x)(y)$   
       b.  $\lambda x. \lambda y. \lambda e. \text{kiss}(x)(y)(e)$

Castañeda (1967) and Parsons (1990) modify Davidson's proposal and claim that agent and theme arguments are also predicates of the event. As in (24b), verbs are one-place predicates of events denoting sets of events, and arguments as well as adjuncts are expressed by two-place predicates denoting thematic relations (Carlson 1984, Higginbotham 1985, Dowty 1989, Parsons 1990, Schein 1993, Landman 2000). This approach is generally referred to as the neo-Davidsonian theory, as opposed to the traditional Davidsonian theory in (23b). In Neo-Davidsonian event semantics, a verb is a predicate of events and it is linked to its arguments through thematic roles. So a sentence like (24a) is interpreted as (24b).

- (24) a. Yoda kissed Fiona.  
       b.  $\lambda e. [\text{kiss}(e) \ \& \ \text{Agent}(e, \text{Yoda}) \ \& \ \text{Theme}(e, \text{Fiona})]$   
       c.  $\exists e. [\text{kiss}(e) \ \& \ \text{Agent}(e, \text{Yoda}) \ \& \ \text{Theme}(e, \text{Fiona})]$

The verb *kiss* is treated as a predicate of events, and individuals participating in the event as agent or theme are linked to the event by means of theta roles. The predicate of events in (24b) is ‘existentially closed’ and changed to a proposition as in (24c) by binding the variable over events *e* with an existential quantifier.

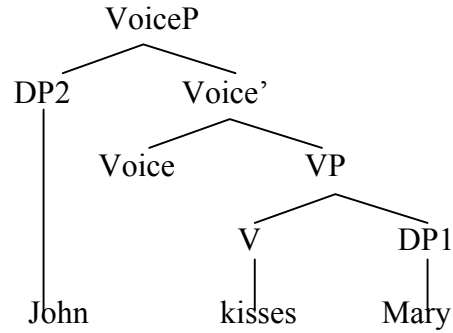
Kratzer (1996, forthcoming) argues that the external argument is not introduced by the verb, but by a separate functional head, Voice. Voice is a functional head denoting a thematic relation that holds between the external argument and the event described by the verb. There are two kinds of Voice heads: active and non-active. The active Voice head adds an external argument and the non-active Voice head does not add an external argument. The non-active Voice head has a minimum semantic denotation like  $\lambda e_s [\text{event proper } (e)]$ , and thus it selects eventualities that are neither actions nor states. Voice combines with the VP by a rule of Event Identification.

(25) Event Identification (EI; Kratzer 1996, 122)

$$\begin{array}{ccc} f & g & \rightarrow h \\ \langle e, \langle s, t \rangle \rangle & \langle s, t \rangle & \langle e, \langle s, t \rangle \rangle \end{array}$$

An example showing how a sentence is compositionally derived is given in (26).

(26) a.



b.  $[[\text{Mary}]] = \text{Mary}$  (TN)

$[[\text{kisses } \_]] = \lambda x. \lambda e. [\text{kisses}(e) \ \& \ \text{Theme}(e)(x)]$  (TN)

$[[\text{VP}]] = \lambda e. [\text{kisses}(e) \ \& \ \text{Theme}(e)(\text{Mary})]$  (FA)

$[[\text{Voice}]] = \lambda y. \lambda e. [\text{Agent}(e)(y)]$  (TN)

$[[\text{Voice}']] = \lambda y. \lambda e. [\text{Agent}(e)(y) \ \& \ \text{kisses}(e) \ \& \ \text{Theme}(e)(\text{Mary})]$  (EI)

$[[\text{John}]] = \text{John}$  (TN)

$[[\text{VoiceP}]] = \lambda e. [\text{Agent}(e)(\text{John}) \ \& \ \text{kisses}(e) \ \& \ \text{Theme}(e)(\text{Mary})]$  (FN)

$[[\text{VoiceP}]] = \exists e. [\text{Agent}(e)(\text{John}) \ \& \ \text{kisses}(e) \ \& \ \text{Theme}(e)(\text{Mary})]$

(Existential cloursure)

## 1.4 Organization of Dissertation

In this dissertation, I will argue for a very conservative approach to the relation between case morphology and the syntax, thereby defending the distinction between arguments and non-arguments with respect to case morphology. This dissertation

consists of six chapters. Each chapter is devoted to a particular type of multiple accusative structures with differing semantic and syntactic behavior.

Chapter 2 explores how syntactically separated DPs have the same case morphology and represent a semantic relation such as the inalienable possession relation. I show that the inalienable possession relation is represented in the syntax as a recursive VP structure with two different verbs: a phonologically silent verb, *affect*, and a lexical verb. While a lexical verb occupies the lower verb position and takes the possessee as its argument, a phonologically silent verb, *affect*, occupies the higher verb position and takes the possessor as its argument. Each verb assigns abstract case to its argument and in the morphology both DPs are realized with accusative case morphology, which is a morphological default in the domain of VP.

I propose that the inalienable possession interpretation is derived from a material part-whole relation between events, rather than from a direct thematic relation between the whole and the part DPs. The lower event represented by a lexical verb and the possessee is a material part of the higher event with the possessee and the verb *affect*. With some constraints, this material part-whole relation between events maps into a material part-whole relation between the possessee and the possessor.

In passives, the possessee can be either nominative or accusative, while the possessor must be nominative. In order to account for the case alternation of the possessee, I propose that the external argument introducing head (Voice) selects verbs. Following Kratzer (1996), I assume that there are two types of Voice heads: active and

non-active. With this assumption, I claim that the Voice head selects the higher verb, *affect*. More specifically, the active Voice head selects the verb, *affect*, which can assign abstract case, while the non-active Voice selects the one that lacks the case assigning capability. Unlike the higher verb, the lower verb is not selected by the Voice head. Thus, the lower verb can optionally assign accusative case to its argument, the possessee.

Chapter 3 examines the multiple accusative structure in which the two DPs have a generic-specific relation. I show that the first accusative DP is a topic, which occupies a position within VP, forming a VP internal topic-comment structure. I propose that a topic occurring within the domain of VP needs to be properly linked to the syntactic constituent. This process involves a semantic/pragmatic requirement as well as a syntactic requirement. Once the topic satisfies the requirements, it surfaces with accusative case morphology. I further show that this type of topic can occur outside VP, below CP. In such a case, the topic is realized with nominative case morphology.

Chapter 4 investigates various measure expressions with case morphology such as measure phrases (classifier phrases and amount phrases), and measure adverbials (duratives, frequency adverbials, and path-length adverbials), based on the semantics of Nakanishi (2003, 2004). Measure expressions are subject to the monotonicity constraint (Schwarzschild 2002, Nakanishi 2003, 2004). Since these measure expressions cannot measure the entities that they aim to measure directly,

they measure the events, and thus indirectly measure the target entities with the help of a device called homomorphisms from events to other domains such as individuals, temporal trace, spatial trace, etc. (Krifka 1989, Nakanishi 2003, 2004).

I claim that two distinct positions are available for measure expressions in a sentence: one within VP, and the other in the projection of the head that introduces the external argument (i.e., within VoiceP). These two positions have semantic effects. For instance, the choice of the homomorphism can be determined by the position the measure expression occupies. In the morphological component, measure expressions in these two positions are realized with case morphology: Measure expressions within VP bear accusative case morphology, and measure expressions in VoiceP bear nominative case morphology. In this sense, case morphology on measure expressions functions as a position indicator, and thus case morphology indirectly interacts with semantic computation.

Chapter 5 demonstrates how the proposed analysis accounts for other types of multiple accusative structures: Ditransitives, resultatives and morphological causatives. Under the lexical decomposition analyses proposed by Harley (2002), Son, Minjeong (2004a, 2004b), and many others, ditransitives and morphological causatives have a CAUSE Voice head. Using a selectional relation between the CAUSE Voice head and an applicative head, I show how more than one occurrence of accusative case morphology can be realized on the surface. I also extend the lexical decomposition analysis to the resultative type of multiple accusatives. Chapter 6

presents two possible alternative approaches to the current theory of case morphology and defends the current analysis. Following this, I present problems which remain unsolved and/or untouched.



## CHAPTER 2

### Inalienable Possession

#### 2.1 Introduction

In this chapter, I will explore the multiple accusative structure in the context of an inalienable possession (henceforth IAP) relation between two accusative DPs. The IAP relation is of particular interest, since syntactically separated elements have an extremely close relationship: body-part. This chapter provides the basic diagnostics used to classify the multiple accusative structures throughout the dissertation, since the accusative case morphology on both DPs is structural case in this construction.

Every language has a mechanism to express the possession relation. The exact mechanism to express this possession relation, however, varies across languages. For instance, languages like English attach particular morphology to the possessor, as in *John's dog*, while languages like Javanese mark the possessee as in *asu-ne dheen* 'dog-POSS he'. In particular, an IAP relation is often expressed in a way distinct from ordinary possession relations. Cross-linguistically languages differ with respect to what they consider an IAP category. Physical body parts belong to the IAP category

across all languages (Haiman 1985, Shiatani 1984, Payne and Barshi 1999, and many others). Other potential IAP categories such as kinship terms, spatial relations, or culturally defined basic items (e.g., arrows, domestic animals, etc.) can belong to the IAP category depending on the language (Nichols 1988).

This IAP relation is often realized with a special syntactic structure. In Korean, for instance, IAP can be expressed by giving the same case morphology to the possessor DP as to the possessee DP. The sentences in (1) are multiple accusative structures in which the two accusative-case-marked DPs stand in an IAP relation with respect to one another. This relation holds between body-part nouns and human possessors (1a), parts of non-human animate possessors (1b), or parts of inanimate possessors (1c).

- (1) a. Yoda-ka            Buffy-lul        son-ul        ttayli-ess-ta.  
          Yoda-NOM        Buffy-ACC       hand-ACC    hit-PAST-DECL  
          ‘Yoda hit Buffy on the hand.’
- b. Annie-ka           robot-lul       pal-ul        palp-ass-ta.  
          Annie-NOM       robot-ACC       foot-ACC    step.on-PAST-DECL  
          ‘Annie stepped on the robot’s foot.’
- c. Chelswu-ka        sap-ul           caru-lul       cap-ass-ta.  
          Chelswu-NOM    shovel-ACC    handle-ACC   grab-PAST-DECL  
          ‘Chelswu grabbed the handle of the shovel.’

A similar kind of structure is found in other languages, such as Swahili and Sotho.

(2) Swahili

- a. ni-li-m-songoa Juma shingo.  
I-PAST-1-twist 1Juma 9neck  
'I twisted Juma's neck.' (Keach and Rochemont 1992, p. 82)
- b. ni-li-(i)-vunja meza miguu miwili.  
I-PAST-(9)-break 9table 4leg 4two  
'I broke two of the table's legs.' (Keach and Rochemont 1992, p.100)

(3) Sotho

- a. Ke roba Opa letsoho.  
I break Opa arm  
'I break Opa's arm.' (Voeltz 1976, p. 256)
- b. Palesa obetla pene motsu.  
Palesa sharpen pen tip  
'Palesa sharpens the tip of the pen.' (Voeltz 1976, p. 259)

As the sentences in (2) and (3) show, Swahili and Sotho have a pattern known as juxtaposition for the two DPs that have the inalienable possession relation,<sup>1</sup> and Keach and Rochemont (1992) claim that they are objects that receive accusative case. The verb agrees with the possessor, but not the possessee.

This phenomenon belongs to a larger family of what is known as *External Possession*: that is, the possessor is placed outside the DP headed by the possessee noun (Payne and Barshi 1999, Herslund and Baron 2001). In Korean, the non-

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<sup>1</sup> The numbers preceding nouns and their modifiers indicate noun class affiliation. Verbal morphology for the third person display numbers according to noun classes that the verb agrees with. Generally, the transcription of the languages other than Korean includes the glosses of the cited sources.

constituency of the two DPs is confirmed by the fact that they can be separated by a postpositional phrase, such as *in the car*, or an adverb like *always*, as illustrated below.

- (4) a. Yoda-ka      Leia-lul      **cha-eyse**      son-ul      cap-ass-ta.  
          Yoda-NOM    Leia-ACC    car-at      hand-ACC    grab-PAST-DECL  
          ‘Yoda grabbed Leia by the hand in the car.’
- b. Yoda-ka      Leia-lul      **nul**      son-ul      cap-ass-ta.  
          Yoda-NOM    Leia-ACC    **always**    hand-ACC    grab-PAST-DECL  
          ‘Yoda always grabbed Leia by the hand.’

Cross-linguistically the possession relation can be realized in the syntax as an internal possession structure or an external possession structure. While no language exclusively uses the external possession structure, some languages allow both options. When a language chooses both internal and external structures, the external possession structure is reserved for special possession relations, such as inalienable possession and kinship (Herslund and Baron 2001, implied in Payne and Barshi 1999). This is rather puzzling, because intuitively the inalienable possession relation and the kinship relation are closer or more ‘intimate’ relations than ordinary possession relations are. To capture this intuition, it has been claimed that such possession relations are directly reflected in a thematic relation between the possessor and the possessee (e.g., Stockwell et al. 1973, Abney 1987, Alexiadou 2000), and that the possessors move to some position in the course of derivation. Nevertheless, the question still remains why a semantically close relation is manifested with a

syntactically separated structure. One of the aims of this chapter is to provide an answer to this puzzle.

In the following section, a critical review of possessor raising analyses of the IAP construction will be presented. While the inadequacies of the simple version of possessor raising have been pointed out in the past, a more sophisticated version, which assigns a different syntactic structure from the ordinary possession relation to the IAP, also faces serious challenges. In Section 2.3, an alternative analysis that makes use of a recursive VP structure will be provided. Section 2.4 serves as an introduction to material part-whole relations between eventualities. These will play a crucial role in our semantic analysis. Section 2.5 demonstrates how the proposed structure is compositionally interpreted. The IAP relation is derived from the material part-whole relation between two events. More specifically, the event denoted by the lexical verb and the possessee is a material part of the event denoted by the possessor and the higher verb. Some additional constraints to ensure the IAP interpretation will also be presented. In Section 2.6, I discuss how verb types make a difference in the availability of the inalienable possession structure. Possible cross-linguistic variation in semantic restrictions on inalienable possession is also discussed. Section 7 presents a case-marking mechanism that is consistent with the recursive VP structure. The proposed system also accounts for case patterns found in the passive of IAP multiple accusative structure. Section 8 concludes the chapter.

## 2.2 Against the Possessor Raising Analysis

Many analyses have attempted to explain the inalienable possession relation between two DPs in examples like (1) by hypothesizing that the possessor and the possessee form a constituent at some level, and that the possessor moves away from its base-generated position to some other position (Perlmutter and Postal 1983, Choe, Hyun-Sook 1986, Cho, Seng-Eun 2000, among others). Based on the observation that there are two patterns, the ACC-ACC pattern in (5b), and the GEN-ACC pattern in (5a), proponents of this analysis have tried to derive (5b) from (5a).

- (5) a. Yoda-ka      **Fiona-euy**      **son-ul**      cap-ass-ta.  
Yoda-NOM      Fiona-GEN      hand-ACC      grab-PAST-DECL  
'Yoda grabbed Fiona's hand.'
- b. Yoda-ka      **Fiona-lul**      **son-ul**      cap-ass-ta.  
Yoda-NOM      Fiona-ACC      hand-ACC      grab-PAST-DECL  
'Yoda grabbed Fiona by the hand.'

The possessor raising analysis crucially relies on the assumption that the sentences in (5a) and (5b) have the same meaning. As has been noted before (Blake 1990, p.102), however, this assumption is incorrect. Imagine that one of Fiona's hands was amputated (i.e., physically detached), and Yoda grabbed that amputated hand. The GEN-ACC pattern in (5a) can describe such a situation while the ACC-ACC pattern in (5b) is uniformly judged inappropriate. This semantic difference



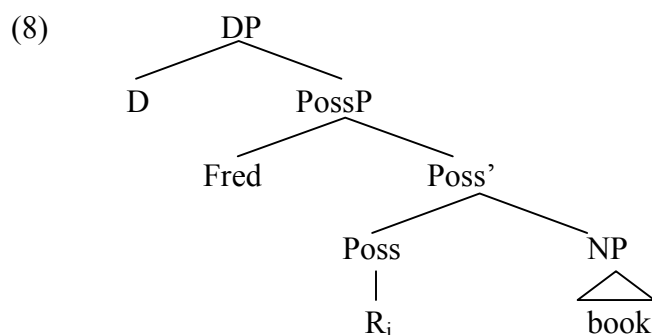
- (6) a. Mary-ka John-**euy** cha-lul cha-ass-ta.  
 Mary-NOM John-GEN car-ACC kick-PAST-DECL  
 'Mary kicked John's car.'
- b. \*Mary-ka John-**ul** cha-lul cha-ass-ta.  
 Mary-NOM John-ACC car-ACC kick-PAST-DECL
- (7) Swahili (Keach and Rochemont 1992, p. 88)
- \*ni-li-m-vunja Juma kiti.  
 I-PAST-1-break 1Juma 7chair  
 'I broke Juma's chair.'

To maintain the possessor raising approach, we need some kind of filter to prevent alienable possession from undergoing raising. Otherwise, a semantic/thematic restriction on the derived structure should be posited. Neither option seems particularly convincing or attractive. Therefore, it is highly unlikely that there is any derivational relation between the ACC-ACC pattern and the GEN-ACC pattern.

Since the simple version of the possession structure fails to distinguish the IAP relation from the alienable possession relation, to maintain the raising analysis, one might develop a more sophisticated version of possession structure, assuming a different thematic structure, and consequently a different syntactic structure for the inalienable possession relation (Ura 1996, Tsujioka 2002). Under such an analysis, the inalienable possession structure can feed into possessor raising, while the ordinary possessive construction cannot. Therefore, the semantic non-equivalence observed above is explained.

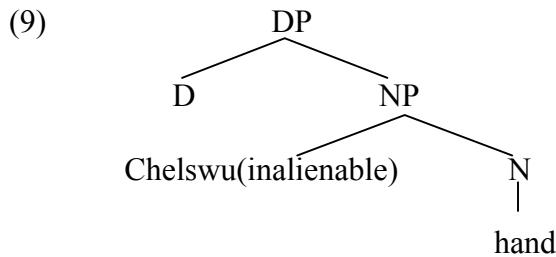


A typical possession relation, such as 'Fred's book', has many possible interpretations with respect to the relation between Fred and the book in question; the book that Fred owns, the book that Fred wrote, the book that Fred read, etc. Semantically these various interpretations are represented by the presence of a free variable over relations whose value is pragmatically determined. For example, Alexiadou (2003) argues that in syntax, this free variable is realized as the functional head,  $\text{Poss}^0$ . As illustrated below, the possessee is a complement of  $\text{Poss}^0$ , and the possessor occurs in the specifier position of  $\text{PossP}$ .



Under this sophisticated analysis, the inalienable possession relation involves a direct thematic relation between a possessed noun and its possessor. Specifically, a possessed noun is semantically a two-place predicate, i.e.,  $\langle e \langle e, t \rangle \rangle$ . The possessor DP saturates one of the argument positions of the possessed noun and the possessee saturates the other. This thematic relation maps into a syntactic structure in which the

possessor DP occupies a position with the NP headed by the possessed noun (Ura 1996<sup>3</sup>, Alexiadou 2003<sup>4</sup>, cf. Tsujioka 2002<sup>5</sup>).



Ura (1996) claims that, if the possessor is marked as genitive, the possessor DP moves to the specifier position of DP. Thus, the distinction between alienable/inalienable possession disappears.<sup>6</sup> In the case of external possession, the possessor DP moves to the structural case position in the course of the derivation. Crucially, to maintain the raising analysis, movement of the possessor from the specifier position of DP needs to be blocked. Otherwise, the possessor would receive the same interpretations as in (8). By positing two different positions, the IAP relation seems to be accounted for. However, it is unclear how one could devise a reasonable constraint that differentiated the two positions.

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<sup>3</sup> In Ura (1996), the D head has the function of the Poss head.

<sup>4</sup> Alexiadou (2003) uses XP instead of NP in (9), whose function is to combine the possessor and the possessee as a single unit.

<sup>5</sup> Tsujioka (2002) claims that the PossP is also projected in the IAP structure, just like the alienable possession structure in (8).

<sup>6</sup> For Tsujioka (2002), the inalienable possessor moves to the specifier position of PossP.

There exist some empirical reasons why a raising analysis with two positions is not adequate. First, it has been pointed out that the IAP multiple object structure is possible not only for body-parts but also for pieces of clothing, as long as they are understood to be physically attached to the possessor (Baker 1999, Berman 1982, Diffloth 1974, Hyman 1977, Yoon, James 2001).

(10) a. Haya (Hyman 1977)

n-ka-teemul' ómwáán' éshaati.  
 SM-P3-tear child shirt  
 'I tore the child's shirt.'

b. Korean (Yoon, James 2001)

Cheli-ka **Swuni-lul** **chimalalak-ul** pwutcap-ass-ta.  
 Cheli-NOM Swuni-ACC dress.train-ACC catch-PAST-DECL  
 'Cheli caught the train of Swuni's dress.'

To account for (10), these piece-of-clothing nouns are semantically ambiguous: With an ordinary possession structure, they are one-place predicates occupying the alienable possessor position, while with a multiple accusative structure, they are two-place predicates occupying the inalienable possessor position. This is not likely to be an appropriate option. Furthermore, the acceptability of sentences like (10) actually depends on the verb. Consider (11).

(11) a. Chelswu-ka Sunhee-lul shikey-lul cap-ass-ta.  
 Chelswu-NOM Sunhee-ACC watch-ACC grab-PAST-DECL  
 'Chelswu grabbed Sunhee's watch.'

- b. ?Chelswu-ka      Sunhee-lul      shikey-lul      kochi-ess-ta.  
      Chelswu-NOM      Sunhee-ACC      watch-ACC      repair-PAST-DECL  
      ‘Chelswu repaired Sunhee’s watch.’
- c. ??Chelswu-ka      Sunhee-lul      shikey-lul      po-ass-ta.  
      Chelswu-NOM      Sunhee-ACC      watch-ACC      see-PAST-DECL  
      ‘Chelswu saw Sunhee’s watch.’

In all of the examples in (11), we can imagine that the watch is physically attached to Sunhee (i.e., she wears the watch). Nevertheless, judgment varies: with the verb *grab*, the sentence is perfectly acceptable, while with the use of *repair*, it is a little awkward; and this awkwardness increases with the verb *see*. Therefore, even if we can justify the semantic ambiguity of piece-of-clothing nouns, these delicate contrasts are left unaccounted for. Therefore, the examples show that possessor raising is indeed possible with possessors that do not exhibit an inherent thematic relation as do Sunhee and the watch, which is not expected under the possessor raising analysis.

Furthermore, not all intrinsically thematic possession relations can be expressed with the multiple accusative structure. The possessor raising analysis in (9) is based on an intrinsic thematic relation between the two DPs. That is, if the two DPs have a certain inherent thematic relation, one of the DPs is predicted to raise and become accusative. For instance, it is expected that kinship terms and deverbal nouns, which are two-place predicates, should be able to employ the multiple accusative structure.<sup>7</sup> This prediction is not borne out.

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<sup>7</sup> The following sentence (i) with a kinship term, *brother*, is accepted by Yoon, James (2001), though our informants find it ungrammatical. The acceptability

- (12) \*Chelswu-ka Sunhee-lul atul-ul cap-ass-ta.  
 Chelswu-NOM Sunhee-ACC son-ACC grab-PAST-DECL  
 ‘Chelswu grabbed Sunhee’s son.’
- (13) a. Cengpu-nun WTC-euy pha kwoy-lul inceng-ha-yess-ta.  
 government-TOP WTC-GEN destruction-ACC admit-do-PAST-DECL  
 ‘The government admitted the WTC’s destruction.’
- b. \*Cengpu-nun WTC-lul phakwoy-lul inceng-ha-yess-ta.  
 government-TOP WTC-ACC destruction-ACC admit-do-PAST-DECL

In (12), the kinship term, *son*, being a relational noun, has two argument slots, and *Sunhee* can occupy one of them. Deverbal nouns are generally believed to have an argument structure corresponding to their verbal counterparts. Thus, *phakwoy* ‘destruction’ in (13) is a two-place predicate. Presumably the possessor DPs in (12) and (13) are projected in the same position as the inalienable possessors, but their raising is prohibited.

Finally, the multiple accusative structure is available for a verb like *attach*, as shown below.

- (14) Annie-ka robot-lul phal-ul tal-ass-ta.  
 Annie-NOM robot-ACC arm-ACC attach-PAST-DECL  
 ‘Annie attached the arm to the robot.’

---

improves, even though it is still not perfect, with a pause between *John-ul* and *tongasyng-ul*. This indicates that we are not dealing with the same multiple accusative construction. My current hypothesis is that this is the case of an appositive construction. I thank Breuning for the apposition hypothesis.

- (i) Cheli-ka John-ul tongasyng-ul pwutcap-ass-ta.  
 Cheli-NOM John-ACC brother-ACC catch-PAST-DECL  
 ‘Cheli caught John’s brother.’

It has been noted that the internal argument of a transitive predicate involves a different existential presupposition depending on the meaning of a predicate. For instance, in *Fred made a table*, the table is presupposed not to exist before the event of making the table. Unlike ‘creation’ predicates, ‘destruction’ predicates have a different presupposition; namely, the internal argument exists prior to the event. Thus, in the sentence *Yoda erased the mark*, we presuppose that the mark existed before the event of erasing the mark. Then, what about the arm in sentence (14)? Before the event, the robot and the arm exist but the robot does not possess that arm as a body part. After the event of attaching the arm, the robot then has that arm as its body part. If this is the case, what position should the robot occupy in the structure in (9)? The multiple accusative structure in (14) forces the robot to occupy the inalienable possessor slot. However, prior to the application of possessor raising, the arm is not a body part of the robot. This contradiction makes the possessor raising analysis dubious. Therefore, I conclude that the possessor raising analysis is not tenable.

To summarize, the multiple accusative pattern of IAPs cannot be derivationally related to the genitive-accusative pattern. The semantic non-equivalence of the two patterns provides a basis for rejecting the possessor raising analysis, which assumes a uniform structure for all possessive constructions. These problems could be avoided if different structures were assumed for the inalienable and

ordinary possession relations, but such an approach has its own challenges that are not easy to overcome.

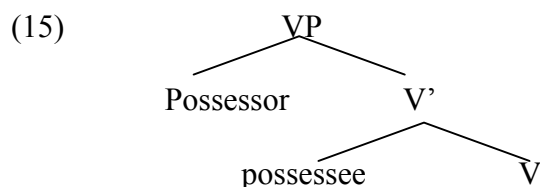
### **2.3 The Recursive VP Analysis**

This section provides a syntactic structure for the IAP type of the multiple accusative. Based on the idea that both accusative DPs are ‘objects’, I propose a recursive VP structure. As will be seen shortly, the recursive VP structure involves two different verbs.

#### **2.3.1 Basics**

The analysis that I would like to propose is based on the very intuitive idea that both DPs are accusative-marked because they are both ‘objects’. This notion of ‘object’ differs from that of those who deny the possessor raising analysis and posit an alternative analysis in which the possessee DP and the verb are reanalyzed as one complex predicate. This analysis assumes that the possessee is a two-place predicate, and that the possessor saturates one of the argument slots as in a sophisticated version of the possessor raising analyses. Instead of positing that the possessor and the possessee form a constituent at some level, however, this analysis posits that the

possessee and the possessor are generated in different positions in the sentence. The verb takes the possessee as an internal argument. However, because one of the argument slots of the possessee is not saturated, the [possessee + verb] complex is reanalyzed as a thematic complex predicate, and this takes the possessor as an argument (Yoon, James 1989, Yoon, Jeong-Me 1997, O'Grady 1998, among others). In other words, sentence (1a) means something like 'Yoda hand-grabbed Fiona.' Thus, IAP has the following structure, with the V' being reanalyzed as a complex predicate.



There seems to be an argument in favor of such an analysis. In the literature, it is often found that relativizing the possessee DP is impossible.

- (16)
- |  |            |   |          |      |
|--|------------|---|----------|------|
| [Chelswu-ka                              | Sunhee-lul | t | ttali-n] | son  |
| Chelswu-NOM                              | Sunhee-ACC |   | hit-REL  | hand |
| 'the hand with which Chelswu hit Sunhee' |            |   |          |      |
| * 'the hand where Chelswu hit Sunhee'    |            |   |          |      |

Under the complex predicate analysis, the possessee noun is assumed to be non-referential and defective, which is analogous to split/floating classifiers (See Chapter 4 for a discussion of split classifier phrases). Due to the non-referential properties of the



possessee, relativizing the possessee is prohibited. This argument, however, turns out to be rather unsatisfactory. It is true that the instrumental interpretation is so overwhelming that it gives the impression that it is impossible to interpret the hand in (16) as the patient's hand. However, if 'hand' is replaced by a body part that cannot easily be an instrument of hitting, the intended reading becomes available.<sup>8</sup>

- (17) [Chelswu-ka Sunhee-lul t ttali-n] ppam  
 Chelswu-NOM Sunhee-ACC hit-REL cheek  
 'The cheek where Chelswu hit Sunhee'

Relativization of both the possessee and the possessor DP is also observed in other languages, such as Swahili.

- (18) Swahili (Keach and Rochemont 1992, p. 84)

- a. miguu a-li-yo-m-funika mtoto  
 4legs 1-PAST-4REL-1-cover 1child  
 'The legs of the child which s/he covered.'
- b. mtoto a-li-yo-m-funika miguu  
 1child 1-PAST-4REL-1-cover 4legs  
 'The child whose legs s/he covered.'

---

<sup>8</sup> A similar effect is achieved by adding an instrumental postpositional phrase to (16). In such a case, 'the hand' is easily understood to be Sunhee's.

- (i) [Chelswu-ka Sunhee-lul maktayki-lo ttali-n] son  
 Chelswu-NOM Sunhee-ACC stick-with hit-REL hand  
 'the hand with which Chelswu hit Sunhee with a stick'  
 'the hand where Chelswu hit Sunhee with a stick'

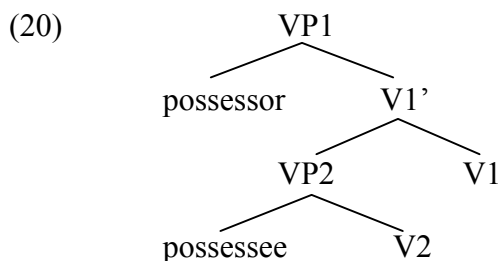
Furthermore, a possessee DP can have a modifier, just like an ordinary argument DP (Kim, Young-Joo 1989). This is shown below.

- (19) a. Chelswu-nun Sunhee-lul *tachi-ess-ten son-ul* cap-ass-ta.  
 Chelswu-TOP Sunhee-ACC hurt-PAST-REL hand-ACC grab-PAST-DECL  
 ‘Chelswu grabbed Sunhee by the injured hand.’
- b. Chelswu-nun Sunhee-lul *cinan pen-ey tachi-ess-ten son-ul*  
 Chelswu-TOP Sunhee-ACC last time-in hurt-PAST-REL hand-ACC  
 cap-ass-ta.  
 grab-PAST-DECL  
 ‘Chelswu grabbed Sunhee by the hand that was hurt the other time.’

If the possesseees are thematically defective, it is not clear how they are able to take a modifier, especially a clausal modifier. Furthermore, it is unclear how *grabbed-the-hand-that-was-hurt-the-other-time* might be treated as a single predicate. The examples so far suggest that the possessee DPs in the IAP multiple accusative structure are by no means ‘defective’. Therefore, the complex predicate analysis is not satisfactory.

The idea that I am pursuing is that the two accusative DPs are both ‘real’ objects and that they are independent arguments just like those in the Double Object construction. However, the two DPs are not arguments of the same verb. I propose that the IAP construction involves a recursive VP structure in which the possessor is

the argument of the higher verb, while the lower verb selects the possessee as its complement, as illustrated in (20).<sup>9</sup>



Since only one verb occurs on the surface, the following questions immediately arise: What are the identities of each verb when there is only one verb on the surface? How does this structure end up with its particular meaning?

Let us begin with the first question regarding the identities of the two verbs. One simple hypothesis is that V1 and V2 are identical, and that one of them deletes at PF under identity, as Sim (2004) claimed. It has been claimed that the event denoted by the verb and the possessee entails the event denoted by the verb and the possessor (e.g., Choe, Hyun-Sook 1986, Cho, Seng-Eun 2000). Under this hypothesis,

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<sup>9</sup> Cho, Dong-In (1992, 1993) proposes a structure superficially similar to the current analysis, based on the Larsonian VP Shell structure (Larson 1988). In his analysis, the IAP relation is accounted for in terms of verb movement and compositional theta role assignment. The higher verb position is empty and the lexical verb moves to the empty position in the course of the derivation. The possessee is assigned its theta role by the lexical verb, while the theta role of the possessor is assigned by the verb and the possessee (VP2 in (20)). ‘Affectedness’ is involved in the assignment of a theta role to the possessor (cf. Yoon 1989). This analysis, thus, is another version of the complex predicate analysis employing the recursive VP structure.

the entailment relation is derived from the syntactic containment relation between VP1 and VP2.

- (21) ACC-marked possessor DPs must bear the same relation to the verb as ACC-marked possessee DPs do to the verb in IAP.

(Choe, Hyun-Sook 1986)

- (22) Conditioning Factor in Possessor Agreement

V(Possessor-Possessee) → V(Possessor)

(Cho, Seng-Eun 2000, p.14)

For example, since kicking John's leg entails kicking John in (23a), whereas kicking John's car does not entail kicking John in (23b), (23a) is grammatical, whereas (23b) is ungrammatical.

- (23) a. Mary-ka John-ul tali-lul cha-ass-ta.  
 Mary-NOM John-ACC leg-ACC kick-PAST-DECL  
 'Mary kicked John's leg.'
- b. \*Mary-ka John-ul cha-lul cha-ass-ta.  
 Mary-NOM John-ACC car-ACC kick-PAST-DECL  
 'Mary kicked John's car.'

This entailment relation is derived from a recursive VP structure with two identical verbs. Since the possessor DP is an argument of V1 and the possessed DP is

an argument of V2, it is natural that the possessor DP have the same relation to the verb as the possessed DP does. Thus, the entailment relation is derived from the syntactic containment relation between VP1 and VP2.

The situation, however, is slightly more complicated, since there are sentences where the entailment condition is not observed.

### 2.3.2 Further Data and the Verb ‘Affect’

In the following sentences, the possessors can have seemingly different theta roles from the theta roles that the possesseees have. The closest thematic roles for the possessors are Source in (24) and Goal in (25).

#### (24) Source Interpretation

##### a. Korean

Leia-ka    Yoda-lul    meri-lul    ppop-ass-ta.  
 Leia-NOM   Yoda-ACC   hair-ACC   pull.out-PAST-DECL  
 ‘Leia pulled out Yoda’s hair.’

##### b. Swahili (Keach and Rochemont 1992, p. 91)

mganga    a-li-mw-ondoa    Juma    risasi.  
 1doctor    1-PAST-1-remove 1Juma    9bullet  
 ‘The doctor removed a bullet from Juma’s body.’

##### c. Sotho (Voeltz 1976, p. 259)

Palesa    opoma    khomo    lenaka.  
 Palesa    cut    cattle    horn  
 ‘Palesa cuts off the cattle’s horn.’

(25) Goal Interpretation

a. Korean

Annie-ka      robot-lul    phal-ul      tal-ass-ta.  
Annie-NOM    robot-ACC   arm-ACC    attach-PAST-DECL  
'Annie attached the arm to the robot.'

b. Swahili (Keach and Rochemont 1992, p. 100)

ni-me-(ki)-fanya    kiti      miguu.  
I-STAT-(7)-make    7chair   4legs  
'I made the chair's leg.'

c. Sotho (Voeltz 1976, p. 261)

Palesa    oroka    borigoe pokotho  
Palesa    sews    trousers pocket  
'Palesa sews the trousers a pocket.'

The sentences in (24) and (25) show that the hypothesis that the two verbs are identical cannot account for all of the instances of the IAP multiple accusative pattern.<sup>10, 11</sup> Leia's pulling out Yoda's hair does not entail her pulling out Yoda, and Annie's attaching the robot's arm does not entail her attaching the robot.

---

<sup>10</sup> The possessive counterpart in (i) has the same garden variety meaning that *Juma's bullet* has. That is, the removed bullet is not necessarily extracted from Juma's body (Keach and Rochemont 1992, p. 91).

(i)    mganga a-li-ondoa      risasi    ya    Juma.  
1doctor 1-PAST-remove   9bullet 9-of 1Juma  
'The doctor removed Juma's bullet.'

<sup>11</sup> Voeltz (1976, p.261) notes that the possessive counterpart in (i) cannot "be argued" to be a "paraphrase" of (25c), since "pokotho...is not a part of borigoe until Palesa sews it. "

Rather, these sentences obey the Affectedness Condition (Choe, Hyun-Sook 1987, Yoon, James 1989, Diffloth 1974, Voeltz 1976, and many others).

(26)      The Affectedness Condition

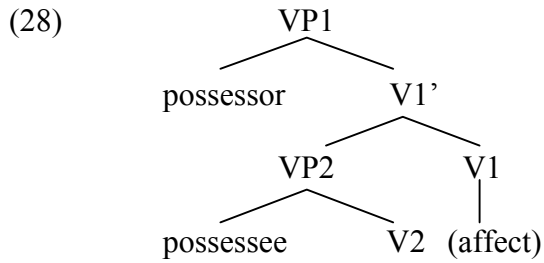
The referent of the possessor is ‘affected’ by the action denoted by the possessee and the verb in IAP constructions.

As a result of pulling out hair, Yoda lost his hair, and as a consequence of attaching the arm, the robot has an arm. Therefore, both possessors are affected by the action denoted by the verb and the possessee. These data indicate that it is not likely that both verbs are identical. Therefore, it is necessary to consider the alternative hypothesis in (27).

(27)      An Alternative Hypothesis

The higher verb is a phonologically silent verb, *affect*,  
whereas the lower verb is a lexical verb.

- 
- (i)    Palesa      oroka      pokotho      oa-borigoe  
      Palesa      sews      pocket      of-trousers  
      ‘Palesa sews the pocket of the trousers’



The phonologically silent verb *affect*, in (28) has its own Theme role which is assigned to the possessor DP. In positing the verb, *affect*, the Affectedness Condition follows naturally. Furthermore, the event description contained in the lexical meaning of *affect* is general and broad enough to be compatible with the meanings of the overt lexical verbs. Therefore, the entailment relation is, in effect, subsumed under the Affectedness Condition.

## 2.4 Part-Whole Relations of Eventualities

With the proposed structure of the IAP multiple accusative, let us move on to the second question: How does the structure in (28) end up with the meaning that it has? Since there is no thematic relation between the possessor and the possessee under the current proposal, we need to consider an alternative mechanism to account for the inalienable possession interpretation. The main idea is that the inalienable possession relation comes from a ‘material’ part-whole relation between eventualities in which



the possessor and the possessee are contained. This section provides some basic concepts of part-whole relations between events.

I follow Landman (1996, 97) and others (e.g., Krifka 1992) in assuming that we can define plural events. The denotations of one-place predicates are subsets of the domain of individuals  $D_e$  or the domain of events and states (eventualities)  $D_s$ . The domain of individuals  $D_e$  contains singular, or atomic individual as well as plural individuals (Link 1983). The domain of eventualities  $D_s$  also contains singular/atomic, and plural events (Krifka 1989, Landman 1996, 2000). The elements of each domain are represented by a lattice of individuals and events, respectively (Link 1983). This lattice structure provides a criterion by which to distinguish the part-whole relations: the individual part-whole relation and the material part-whole relation.

The individual part-whole, or  $\subseteq$  relation, is based on a lattice structure (Link 1983).

- (29) a. If the animals in this camp are horses, and the animals in that camp are horses, then the animals in both camps are horses. (Link 1983, p. 303)
- b. For all  $X$  and  $P$ , if  $*P(X)$ , then  $*P(x)$  for all  $x \subseteq X$ , where  $*P$  is a property that can be true of pluralities and singularities.

$*P$  stands for the plural predicate variable, derived with the operation of semantic pluralization ‘ $*$ ’ from the singular predicate variable  $P$ .

The material part-whole, or  $\triangleleft$  relation, on the other hand, is not based on the lattice structure, and the principle stated above does not hold. For instance, Fred's left index finger is a material part of him, but it itself is not considered to be Fred.

The individual part-whole relation is also relevant to events. Plurality of events is achieved by using a lattice of events with event arguments (Krifka 1989, Landman 1996, 2000, among others). The event argument of a lattice is associated with a VP. That is, a VP denotes a lattice of events. With the covert \*-operator (Link 1983), a VP can always be understood as being semantically pluralized. Thus, a plural VP denotes a set containing atomic events and their sums. For instance, consider (30). For this sentence to be true, there must have been two jumping-into-the-lake events: one by Fred and the other by Chris. The formal relations among these events can be characterized as in (30b). It is important to note that all the events in (30b) are jumping-into-the-lake events.

- (30) a. Fred and Chris jumped into the lake.
- b.  $e_1$  = Fred jumped into the lake,  $e_2$  = Chris jumped into the lake,  
 $e_1 + e_2$  = Fred and Chris jumped into the lake ("+" means summation)  
 $e_1 \subseteq$  Fred and Chris jumped into the lake  
 $e_2 \subseteq$  Fred and Chris jumped into the lake

The material part-whole relation between events is relevant to a case like

(31). (31b) describes what Fred did when (31a) happened.

(31) a. Fred cooked the curry.

b. Fred heated a pan, put in some oil, sautéed vegetables and meat,  
added water, and put spices in.

$e_1$  = Fred heated the pan .....  $e_5$  = Fred put in spices

$e_1 \blacktriangleleft$  Fred cooked the curry .....  $e_5 \blacktriangleleft$  Fred cooked the curry

The smaller events in (31b) are “bits and pieces” that comprise the event of Fred’s cooking the curry, and none of those events is the event of Fred’s cooking the curry all by itself. This kind of part-whole relation is what the *material* part-whole relation is designed to capture.

In some cases, the material part-whole relation between events corresponds to, or is “measured” in terms of the material part-whole relations between entities, as Bach (1986) noted.

(32) a. Fred wrote a book.

b. Fred wrote a chapter.

Fred's writing a chapter is a material part of his writing a book because the chapter is a material part of the book. By stating the sentence in (33b), we can measure the progress of Fred's book writing. This is the idea that I appeal to in accounting for the IAP relation. The inalienable possession interpretation does not come from a thematic part-whole relation between the part noun and the whole DP (e.g. Stockwell, Schachter, & Partee 1973), but is derived via a part-whole relation between eventualities in which the part and the whole are included.

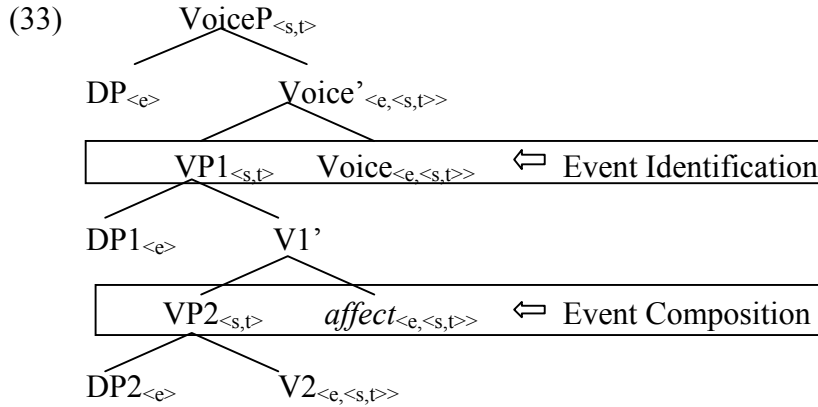
## **2.5 Semantic Interpretation**

The proposed syntactic structure captures the intuition that both accusative DPs are objects. However, the syntactic structure alone is not sufficient to have the IAP relation between the two accusative DPs. I propose a semantic analysis for the IAP relation based on the material part-whole relation between events.

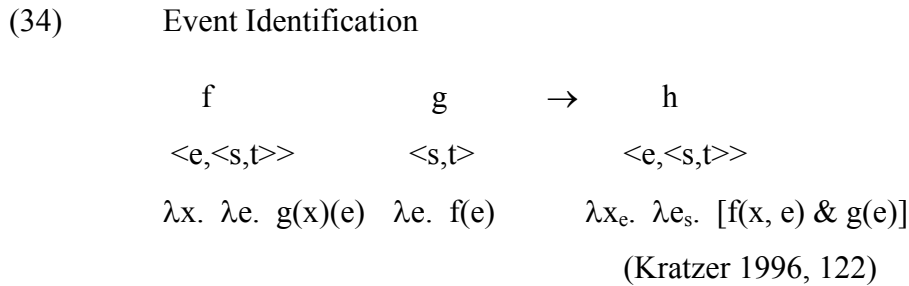
### **2.5.1 Event Identification and Event Composition**

Following Kratzer (1996), we assume that the Agent role is not the argument of a lexical verb but is introduced by the functional head Voice. With the Voice head selecting the VP headed by *affect*, the structure looks like (33). This structure has two

sites where Functional Application, the most common compositional rule, cannot apply. In these spots, we employ Event Identification (Kratzer 1996) and a modified version of Event Composition (Brisson 1998).



The two compositional rules are different. Modified Event Composition represents the material part-of or  $\blacktriangleleft$  relation between the two events of input functions, while Event Identification does not necessarily represent the part-of relation. The two compositional rules are shown below.



(35) Modified Event Composition

$$\begin{array}{ccc}
 f & g & \rightarrow h \\
 \langle s, t \rangle & \langle e, \langle s, t \rangle \rangle & \langle e, \langle s, t \rangle \rangle \\
 \lambda e. f(e) & \lambda x. \lambda e. g(x)(e) & \lambda x. \lambda e. [g(x)(e) \ \& \ \exists e' [e' \blacktriangleleft e \ \& \ f(e')]]
 \end{array}$$

(Based on Brisson 1998, 156)

Brisson (1998) proposed the rule of Event Composition to interpret the distributive subcomponents of certain collective predicates.<sup>12</sup> In my analysis it is used to combine the VP2 headed by an overt V and *affect*. Within itself, this rule exhibits existential quantification over a material part event. After applying Modified Event Composition to the sentences in (24), (repeated as (36)), the event of pulling out hair and the event of attaching the arm are material parts of the affecting Theme events, as shown in (37).

- (36) a. Leia-ka      Yoda-lul    meri-lul    ppop-ass-ta.  
           Leia-NOM    Yoda-ACC   hair-ACC   pull.out-PAST-DECL  
           ‘Leia pulled out Yoda’s hair.’
- b. Annie-ka      robot-lul    phal-ul    tal-ass-ta.  
           Annie-NOM   robot-ACC   arm-ACC   attach-PAST-DECL  
           ‘Annie attached the arm to the robot.’

---

<sup>12</sup> The original Event Composition (Brisson 1998, p. 156) produces a different result from Modified Event Composition such that function *g* is the material part of function *f*, as shown in (i). Modified Event Composition, in contrast, treats function *f* as the material part of function *g*.

(i)

$$\begin{array}{ccc}
 f & g & \rightarrow h \\
 \langle s, t \rangle & \langle e, \langle s, t \rangle \rangle & \langle e, \langle s, t \rangle \rangle \\
 \lambda e. f(e) & \lambda x. \lambda e. g(x)(e) & \lambda x. \lambda e. [f(e)] \ \& \ \exists e' [g(x)(e') \ \& \ e' \blacktriangleleft e]
 \end{array}$$

(37) The application of Modified Event Composition

- a. f:  $\lambda e. [\text{pull out}(e) \ \& \ \text{Theme}(e, \text{the hair})]$   
     g:  $\lambda y. \lambda e. [\text{affect}(e) \ \& \ \text{Theme}(e, y)]$   
     → h:  $\lambda y. \lambda e. [\text{affect}(e) \ \& \ \text{Theme}(e, y) \ \& \ \exists e' [e' \blacktriangleleft e \ \& \ \text{pull out}(e') \ \& \ \text{Theme}(e', \text{the hair})]]$
- b. f:  $\lambda e. [\text{attach}(e) \ \& \ \text{Theme}(e, \text{the arm})]$   
     g:  $\lambda y. \lambda e. [\text{affect}(e) \ \& \ \text{Theme}(e, y)]$   
     → h:  $\lambda y. \lambda e. [\text{affect}(e) \ \& \ \text{Theme}(e, y) \ \& \ \exists e' [e' \blacktriangleleft e \ \& \ \text{attach}(e') \ \& \ \text{Theme}(e', \text{the arm})]]$

The result of the application of Event Identification to combine VP1 and the Voice head is shown in (38), and the final translations for the sentences in (36) are given in (39).

(38) The application of Event Identification

- a.  $\lambda y. \lambda e. [\text{affect}(e) \ \& \ \text{Agent}(e, y) \ \& \ \text{Theme}(e, \text{Yoda}) \ \& \ \exists e' [e' \blacktriangleleft e \ \& \ \text{pull out}(e') \ \& \ \text{Theme}(e', \text{the hair})]]$
- b.  $\lambda y. \lambda e. [\text{affect}(e) \ \& \ \text{Agent}(e, y) \ \& \ \text{Theme}(e, \text{the robot}) \ \& \ \exists e' [e' \blacktriangleleft e \ \& \ \text{attach}(e') \ \& \ \text{Theme}(e', \text{the arm})]]$

- (39) a. a set of eventualities  $e$  such that  $e$  is affecting Yoda by Leia and there is  $e'$  such that  $e' \blacktriangleleft e$  and  $e'$  is pulling out the hair.

- b. a set of eventualities  $e$  such that  $e$  is affecting the robot by Annie and there is  $e'$  such that  $e' \triangleleft e$  and  $e'$  is attaching the hand.

In both cases, the possessors are understood to be Themes. The impression that these possessors can have different thematic roles, such as Goal or Source, comes from semantic inference: If the *pulling-out-hair* event is a material part of the *affecting-Yoda* event, for instance, it is most natural to receive the interpretation that Yoda was the source of the hair.

Whether the IAP relation holds before (e.g., *pull out*), after (e.g., *attach*) or during (e.g., *hit*) the event may also depend on semantic inference from the verb meaning. However, we acknowledge the possibility that the VP that *affect* selects has more complex syntactic structure, reflecting the aktionsart of the lexical verb.

To summarize, I have provided a way to achieve an IAP relation with the recursive VP structure compositionally. In addition to Functional Application, we employ two compositional rules; Event Identification and Modified Event Composition.

### 2.5.2 Restrictions on Event Arguments

The current semantics does not yet ensure that the correct interpretation is assigned to the IAP type of multiple accusatives. Consider the sentence in (36b), repeated as (40).



- (40) a. Annie-ka **robot-lul** **phal-ul** tal-ass-ta. (=36b)  
 Annie-NOM robot-ACC arm-ACC attach-PAST-DECL  
 ‘Annie attached the arm to robot.’
- b. a set of eventualities  $e$  such that  $e$  is affecting the robot by Annie  
 and there is  $e'$  such that  $e' \triangleleft e$  and  $e'$  is attaching the hand. (=39b)

For the sentence in (40a) to be true, Annie attached the arm to the robot, and thus the robot was affected. Now imagine that there is this robot that has a sensor recognizing the shape of human. When it sees a human like shape, it reacts. Annie attached the arm to a mannequin, making it looks like a human. The robot saw the mannequin and reacted. So, by attaching the arm to a mannequin, Annie affected the robot.

The IAP multiple accusative structure is never true in this kind of ‘causative-like’ situation. To make this scenario true in the current semantics, an eventuality of Annie’s affecting the robot must contain other robots in addition to an arm and the robot. Thus, there must be a way to prohibit such an irrelevant entity from being included.

This causative-like situation is eliminated if we assume that VP1 denotes a set of minimal eventualities in the sense of Kratzer (1989) or eventualities that exemplify the proposition in the sense of Kratzer (2002).

- (41) If  $s$  is a possible situation and  $p$  a proposition, then  $s$  is a fact exemplifying  $p$  iff for all  $s'$  such that  $s' \leq s$  and  $p$  is not true in  $s'$ , there is an  $s''$  such that  $s' \leq s'' \leq s$ , and  $s''$  is a minimal situation in which  $p$  is true. (A minimal situation in which  $p$  is true is a situation that has no proper parts in which  $p$  is true.)

(Kratzer 2002; 660)

In this kind of eventuality, irrelevant entities cannot be included. So, the ‘affecting the robot by Annie’ event contains the robot and Annie and nothing else. Since the attaching the arm event is a material part of the affecting the robot event, other robots or an arm that is not a part of the robot cannot exist in it.

On this line, kinship terms, alienable possessors, and pieces-of-clothes that are not physically attached to the possessor are excluded. Since the affecting the possessor is the minimal eventuality, and the lexical verb and the possessee denotes a material part of the minimal eventuality, those that cannot be the material part of the possessor cannot enter into this affecting the possessor event. For example, the eventuality of Mary’s affecting John event can include kicking John’s legs, grabbing John’s shirts that he was wearing. This eventuality, however, contains any non-material part of John such as his father, or his car.

Despite the notion of minimal eventualities exclude irrelevant entities, there is another situation that the current semantics must exclude: Assume the same

robot. Annie, an android, attaches an arm to herself, making the robot react. So, Annie affected the robot by attaching an arm to herself. The sentence is still judged to be false in this scenario, but in this case, no irrelevant entities are in a material-part eventuality.

One possible way to exclude the possessee being a part of the Agent is to impose a restriction on the two accusative DPs such that the two accusative DPs have the same thematic role. That is, if an entity  $\alpha$  is in  $e$ , and entity  $\beta$  is in  $e'$  such that  $e' \triangleleft e$ , then,  $\alpha$  can be a material part of  $\beta$  only if the expression for  $\alpha$  and that for  $\beta$  bear the same thematic role. As far as the individual part-whole relation is concerned, Krifka (1989) proposed a principle that ensures the effect of obligatory sharing of a thematic role between parts and wholes (his Mapping of Events, Uniqueness of Events, Mapping of Objects and Uniqueness of Objects in Krifka 1989, p.92). If this idea can be extended to material part-whole relations, it would be desirable. Suppose that we have (42).

- (42) For any thematic relation  $R$ , eventualities  $e, e'$ , and individual  $x$ ,
- $$[R(e, x) \ \& \ R(e', y) \ \& \ e' \triangleleft e] \rightarrow y \triangleleft x$$

If (42) holds, then, (40a) is correctly predicted to be false under the scenario where Annie attached the arm to herself. The event of attaching the arm is a material part of Annie's affecting the robot. Then, only the two Themes (the arm and the robot) have a

material part-whole relation. Annie is an Agent and the arm is the Theme. Therefore, the material part-whole relation cannot be established between them.

However, (42) targets the Theme, which is not summative/cumulative. As noted by Krifka (1986) and extensively discussed by Kratzer (forthcoming), the Agent role is summative/cumulative but the Theme role isn't. Consider the sentence in (43a), assuming that the actual planting event is divided into the three subevents in (43b).

- (43) a. Abby, Molly and Sally planted this tree. (Collective reading)
- b. **What really happened:** Abby dug a hole, Molly carried the tree and placed it in the hole, and Sally put some soil in the hole.

Under the collective reading of (43a), Abby, Sally, and Molly form a group, which is the Agent, and each individual is considered to be a material part of the group Agent (cf. Landman 1995). Once we combine the three Agents of the three material part events in (43b), the correct Agent of the tree planting event is achieved; the group of Abby, Molly, and Sally. However, it is obvious that the same strategy does not work for the Theme arguments. If we add up the three Themes of the part events (i.e., a hole, the tree, and the soil), we do not get the Theme of the whole event (i.e., this tree).

To solve this problem, consider the interpretation of  $VP_{AFFECT}$  of (38a).

- (44) The denotation of  $VP_{AFFECT}$
- $$\lambda e.[affect(e) \ \& \ Theme(e, \text{the robot}) \ \& \ \exists e' [e' \blacktriangleleft e \ \& \ attach(e') \ \& \ Theme(e', \text{the arm})]]$$

In (44), in order for the arm to be a part of an Agent, we need a certain global property such that an Agent role will be eventually introduced beyond the level of  $VP_{AFFECT}$  since the Agent is still absent in the denotation in (44). If we can block such a foreseeing property, and maintain the computation locally, the problem of Annie's attaching the arm to herself situation can be prevented. One possible way to implement this intuition is to assume that the composition rule *Modified Event Composition* comes with the following presupposition.

- (45) a. Modified Event Composition = (35)
- |                        |   |               |  |
|------------------------|---|---------------|--|
| f                      | g   | $\rightarrow$ | h  |
| $\langle s, t \rangle$ | $\langle e, \langle s, t \rangle \rangle$ |               | $\langle e, \langle s, t \rangle \rangle$  |
| $\lambda e. f(e)$      | $\lambda x. \lambda e. g(x)(e)$           |               | $\lambda x. \lambda e. [g(x)(e) \ \& \ \exists e' [e' \blacktriangleleft e \ \& \ f(e')]]$ |

b. Presupposition

$$\begin{aligned} &\exists y \in D_e. \exists R \in D_{\langle e, st \rangle} [\lambda e'. R(y)(e') = f \ \& \\ &\forall x \in D_e. \forall e'' \in D_s [g(x)(e'') \rightarrow y \blacktriangleleft x]] \end{aligned}$$

*Modified Event Composition* combines a predicate of events (i.e.,  $\langle s, t \rangle$ ) and an individual-event relation ( $\langle e, \langle s, t \rangle \rangle$ ). The presupposition requires (i) that the predicate of event (f) consist of an individual and an individual-event relation, and (ii) that the individual argument of the individual-event relation (g) have as its material part the individual argument specified for f. The first half of the presupposition prohibits predicates of events without any individual argument (e.g.,  $\lambda e. \text{rain}(e)$ ,  $\lambda e. \text{windy}(e)$ , etc.) from being a part of this rule. The second half of the presupposition ensures the material part-whole relation of the two arguments.

With the presupposition in (45b), the global property is eliminated and the semantic computation remains local. Even though it is a little bit difficult to find an independent motivation for the second half of the presupposition, at least the notion of minimality of events can be a candidate. If f is a set of minimal events for the proposition of affecting the robot and g is similarly a set of minimal events for the proposition of attaching the hand, then, the part-whole relation of the two events appears to guarantee that no entity that is not the robot (or the hand) should be included in those events. However, the aforementioned planting example shows how difficult it is to define the minimality. Is it possible to plant a tree without the presence of some soil? If not, then soil should be in a minimal event of the planting of a tree. How many things that seem necessary but are not linguistically expressed should be included? At this point, I leave this philosophical question associated with event semantics as an open question and I hope someday I can return to this question. For

the time being, let us take it for granted that *Modified Event Composition* has the built-in presupposition, which blocks the clearly irrelevant entity such as Agent from being introduced.

### **2.5.3 Summary**

In this section, a way to compositionally interpret the recursive VP structure is provided. In addition to Functional Application, two compositional rules are employed; Event Identification and Modified Event Composition. In order to ensure the inalienable possession meaning is achieved with the application of Modified Event Composition, however, it is necessary to impose certain restrictions on event arguments.

## **2.6 Verb Types and Affectedness**

So far, we have seen that IAP relations are derived from material part-whole relations between events, and that the IAP multiple accusative structure involves the notion of affectedness. What will happen if we find verbs that lack the event argument?

There are some verbs that arguably lack the eventuality argument (Kratzer 1995). Non-eventive or stative predicates such as *alta* ‘know’ have this property. In

the absence of event arguments, it is expected that they will not allow the IAP type of multiple accusative structure, whose IAP interpretation depends on the material part-whole relation between events. However, as shown in (46), these verbs do use the multiple accusative structure.

- (46)      Na-nun      **pemin-ul**      **elkul-ul**      a-n-ta.  
              1sg-TOP      criminal-ACC      face-ACC      know-PRES-DECL  
              ‘I know the criminal’s face.’

Therefore, it seems that the sentence in (46) is a counter-example to the proposed analysis. More careful examination reveals, however, that this type of multiple accusative is, in fact, not the same kind of multiple accusative as we have discussed so far. For example, IAP does not allow kinship terms. The multiple accusative with the verb, *know*, however, allows kinship relations between the two accusative DPs. Therefore, this contrast shows that we are not dealing with the same type of multiple accusative.

- (47) a.    \*Na-nun      Sunhee-lul      apeci-lul      cap-ass-ta.  
              1sg-TOP      Sunhee-ACC      father-ACC      grab-PAST-DECL  
              ‘I grabbed Sunhee’s father.’  
       b. (?)Na-nun      Sunhee-lul      apeci-lul      a-n-ta.  
              1sg-TOP      Sunhee-ACC      father-ACC      know-PRES-DECL  
              ‘I know Sunhee’s father.’



In addition, these two types of multiple accusatives behave differently in the syntax. We find one example of such differences in the 'predicate cleft' construction (cf. Cho and Nishiyama 1998). In this construction, a predicate is fronted and marked with the topic marker *-(n)un*, leaving a duplicated verb in its original position. As shown in (47), both types of multiple accusative allow predicate clefting.

- (47) a.    **ttali-ki-nun**   Chelswu-ka   Sunhee-lul   ppam-ul    **ttali-ess-ta.**  
          hit-NMZ-TOP   Chelswu-NOM Sunhee-ACC   cheek-ACC   hit-PAST-DECL  
          'Hit Chelswu's face, Chelswu did indeed.'
- b.    **al-ki-nun**      Chelswu-ka   pemin-ul    elkul-ul    **a-n-ta.**  
          know-NMZ-TOP Chelswu-NOM criminal-ACC face-ACC   know-PRES-DECL  
          'Know the criminal's face, Chelswu does indeed.'

This operation, however, is not limited to a verb alone. The internal argument may accompany the verb when it undergoes predicate clefting. In this case, the two types of multiple accusative constructions show a difference. While the true IAP structure allows the possessee DP and the verb to be fronted together, this strategy is not available for the *know*-type.

- (48) a.    **[ppam-ul ttali-ki]-nun**   Chelswu-ka   Sunhee-lul   ttali-ess-ta.  
          cheek-ACC hit-NMZ-TOP   Chelswu-NOM   Sunhee-ACC   hit-PAST-DECL  
          'As for hitting the face, Chelswu hit Sunhee's.'
- b.    \***[elkul-ul al-ki]-nun**   Chelswu-ka   pemin-ul    a-n-ta.  
          face-ACC know-NMZ-TOP Chelswu-NOM criminal-ACC know-PRES-DECL  
          'As for knowing the face, Chelswu knows the criminal's.'

Even though it is not clear how this predicate clefting works, it is sufficient to show the difference between the IAP type and the non-eventive type of multiple accusative structure. The *know*-type exhibits peculiar syntactic behaviors, which do not pertain to the IAP type or the type that will be discussed in the next chapter.

What about those verbs that are eventive but seemingly lack the notion of affectedness in their lexical meaning? A verb with an eventive experiencer like *see* would be an ideal example. Interestingly, the result is mixed, and there are variations across languages. Korean and Haya can use the IAP structure for *see*, although as far as Korean is concerned, the judgment is not unanimous.<sup>13</sup>

(49) a. Korean

Chelswu-ka Sunhee-lul elkul-ul po-ass-ta.  
 Chelswu-NOM Sunhee-ACC face-ACC see-PAST-DECL  
 ‘Chelswu saw Sunhee’s face.’

b. Haya (Hyman 1996, p. 867)<sup>14</sup>

n-ka-bón’ ómwáán’ ómukôno  
 I-P3-see child arm  
 ‘I saw the child’s arm.’

---

<sup>13</sup> The judgment varies from speaker to speaker, since it is ungrammatical for Cho, Dong-In (1992, 1993) and Ahn, Hee-Don (1991), a little bit marginal for Yoon, Jamers (2001) and perfectly grammatical to Cho, Seng-Eun (2000) and our consultants.

<sup>14</sup> Hyman (1977, p. 105) notes that this sentence “implies that what I saw of the child was only his *arm*, possibly also that I wasn’t supposed to see it”.

There are, in contrast, languages like Sotho and Swahili that do not allow this type of verb for the IAP relation.

(50) a. Sotho (Voeltz 1972, p. 260)

\*Peter obona buka maqephe.  
 Peter see book pages  
 ‘Peter sees the book the pages.’

b. Swahili (Keach and Rochemont 1992, p. 101)

\*Juma a-li-mw-ona Asha miguu.  
 1Juma 1-PAST-1-see 1Asha 4legs  
 ‘Juma saw Asha’s legs.’

In Korean, the multiple accusative with *see*, nevertheless, shows all of the properties of an inalienable possession structure: Kinship terms are prohibited in the possessee positions, and predicate fronting with the verb and the possessee DP is permitted.

(51) \*Chelswu-ka Sunhee-lul apeci-lul po-ass-ta.  
 Chelswu-NOM Sunhee-ACC father-ACC see-PAST-DECL  
 ‘Chelswu saw Sunhee’s father.’

(52) a. Chelswu-ka Sunhee-lul elkul-ul [po-ki]-nun po-ass-ta.  
 Chelswu-NOM Sunhee-ACC face-ACC see-NMZ-TOP see-PAST-DECL  
 ‘Speaking of seeing, Chelswu saw Sunhee’s face.’

b. (?)Chelswu-ka [elkul-ul po-ki]-nun Sunhee-lul po-ass-ta.  
 Chelswu-NOM face-ACC see-NMZ-TOP Sunhee-ACC see-PAST-DECL  
 ‘Speaking of seeing a face, Chelswu saw Sunhee’s (but not other’s).’

The variation of judgments across languages is related to the notion of affectedness. The notion of affectedness is, in fact, very vague. Recall that the event description of

the phonologically silent verb, *affect*, is broad and general. Therefore, while the cases of being physically affected belong to the notion of affectedness in all languages, whether or not emotional affectedness or adversity is considered to be affectedness depends on the language (cf. Shibatani 1994). Then, the cross-linguistic variations found above are not totally surprising.

## 2.7 The Source of the Identical Case Markers

Since the proposed structure for the IAP contains two verbs, it seems that the multiple occurrences of accusative morphology can be easily accounted for. Each verb assigns abstract case to its argument and the arguments are realized with accusative case morphology in the morphology. This, however, is not the end of the story.

It has been claimed that there is a correlation between the absence of an external argument and accusative case assignment. For instance, in the passive of an ordinary transitive verb, the external argument is suppressed or demoted into an adjunct and the internal argument, *kaykuri* ‘frog’, is marked nominative, as shown in (53b). This internal argument is marked accusative in the active counterpart in (53a).

- (53) a.    Leia-ka    kaykwuri-lul    cap-ass-ta.  
              Liea-NOM   frog-ACC    catch-PAST-DECL  
              ‘Leia caught the frog.’

- b. Kaykwuri-ka/\*-lul (Leia-eykey) cap-hi-ess-ta.  
 frog-NOM/-ACC Liea-by catch-PASS-PAST-DECL  
 ‘The frog was caught by Leia.’

Based on this correlation, it has been assumed that the head that introduces the agent and the head that assigns/checks abstract case of the internal argument are the same (Kratzer 1996, and Chomsky 1995, 1998, 2001). The internal argument with assigned/checked abstract case is realized with accusative case morphology in the morphology. I use ‘accusative case’ to refer to the combination of abstract case checking/assignment and the morphological realization as accusative case morphology.

In Chomsky’s system, a light verb, *v*, introduces the external argument and checks the accusative case of the internal argument. In passives and unaccusatives, the light verb, *v*, is not present. In Kratzer’s system, there are two types of Voice heads: an active Voice head and a non-active Voice head. Active sentences and unergatives have the active Voice head, while passives and unaccusatives have the non-active Voice head. The active Voice head introduces the external argument and checks accusative case. The non-active Voice head, in contrast, does not introduce the external argument and does not check accusative case. Both Chomsky’s and Kratzer’s systems neatly account for the active and passive patterns in (53). The light verb, *v*, or the active Voice head assigns accusative case to the internal argument. In contrast, the light verb, *v*, is not present in passives in Chomsky’s theory. The non-active Voice head (i.e., the passive Voice head) cannot assign accusative to the internal argument in

Kratzer's. Thus, the internal argument moves to the subject position to satisfy the Case Filter.

The situation is, however, a little bit more complex because in passives of IAP multiple accusative, the possessee can be either nominative or accusative, while the possessor has to be nominative.

- (54) a. Yoda-ka pang-an-eyse **son-i** cap-hi-ess-ta.  
 Yoda-NOM room-in-at hand-NOM catch-PASS-PAST-DECL  
 'Yoda's hand was caught in the room.'
- b. Yoda-ka pang-an-eyse **son-ul** cap-hi-ess-ta.  
 Yoda-NOM room-in-at hand-ACC catch-PASS-PAST-DECL

Similarly, in languages like Swahili (Keach and Rochemont 1992) the possessor DP moves to the subject position in the passive, while the possessee DP remains in its base-generated position, as in (55).

- (55) mtoto a-li-funik-wa miguu.  
 1child 1-PAST-cover-PASS 4legs  
 'The child's legs were covered.'
- (Keach and Rochemont 1992, p.83)

The examples so far show the following generalization: Passivization takes away at least one accusative, but if there are two accusatives and only one case is taken away, it has to be the one on the possessor.

Since I have used Kratzer's system in the discussion of the IAP interpretation, I will continue employing Kratzer's system, which has the active Voice and the non-active Voice heads.

It is clear that there is a close correlation between the active Voice head and accusative case or between the passive Voice head and the loss of the accusative of the possessor. If *Voice* is responsible for accusative case, the Voice-case correlation can be derived in the following way: First, there is a correlation between the lack of an external argument and the inability to check accusative case, and that correlation is related to a selectional process between the Voice head and the lexical verb. Second, the selectional relation between the Voice head and the verb is associated with the  $\phi$ -completeness of the verb. As Chomsky (2001; 8) notes, the selectional property can be formulated in terms of Match/Agree:<sup>15</sup>

- (56) *Agree* (Chomsky 2000, p. 101)  
Establishes a relation (agreement, Case-checking) between a lexical item (LI)  $\alpha$  and a feature F in some restricted search space (its *domain*).  
Matching of probe-goal induces AGREE.
- (57) Selection (based on Chomsky 2001; 8)  
If  $\alpha$  selects  $\beta$ , the  $\phi$ -features of  $\alpha$  with uninterpretable features must be deleted under Agree by  $\beta$ .

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<sup>15</sup> Uninterpretable features have attributes with empty values in their feature structure, i.e., [F:\_\_\_], while interpretable features have attributes with specified values, [F:x] (Chomsky 2001; 5).

Under (57), the uninterpretable features of the voice head agree with the uninterpretable features of the verb. For the selectional property, therefore Match/Agree is identity of features. Therefore, the uninterpretable  $\phi$ -features on the verb need to be deleted in the course of derivation. As for the role of  $\phi$ -features on Voice, I believe that the complete  $\phi$ -feature set on Voice introduces the external argument, while the incomplete  $\phi$ -feature set does not.

As Kratzer (1996) argues, there are two types of Voice head; Active and non-active. An active Voice head which is  $\phi$ -complete and a non-active/passive Voice head which is  $\phi$ -incomplete, if we combine Kratzer's proposal with Selection in (57). More specifically, an active Voice head selects the verb which is  $\phi$ -complete, and a passive Voice head selects a verb which is  $\phi$ -incomplete. Here, I basically follow the *Alternative 2* in Chomsky's (2001; 8-9) discussion of the locus Case and I assume that the locus of accusative case is the verb.<sup>16</sup> He notes that "if the light verb  $v$  is  $\phi$ -incomplete (passive), then  $V$  is defective" (Chomsky 2001; 9). Furthermore, the light verb  $v$  is  $\phi$ -complete, "then the verb must be  $\phi$ -complete for convergence" (Chomsky 2001; 9). The  $\phi$ -feature set of the verb is valued and deleted via agreeing with its internal argument.

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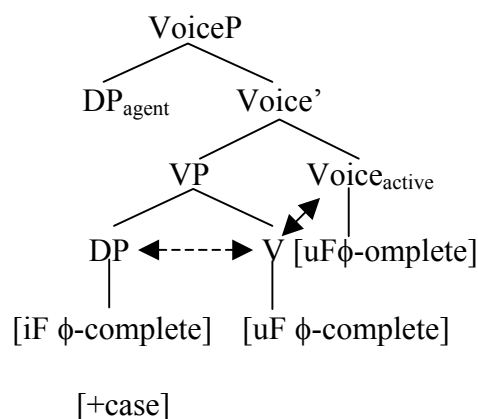
<sup>16</sup> Under *Alternative 1* in Chomsky (2001; 7-8), the light verb,  $v$ , not the verb, assigns accusative case.



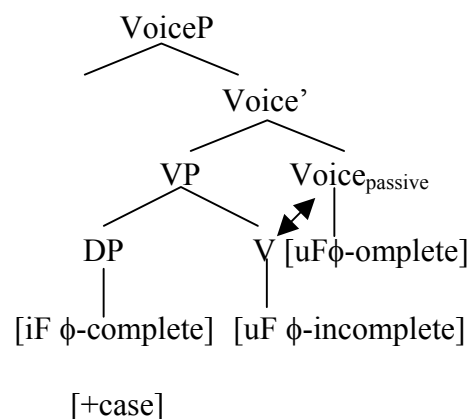
The uninterpretable/unvalued  $\phi$ -features on the verb selected by the active Voice head agrees with the internal argument.<sup>17</sup> The verb selected by the non-active Voice head, i.e., a passive Voice head, has an incomplete  $\phi$ -feature set and thus, this “partial  $\phi$ -feature cannot value and deletes Case in N, which still has to satisfy the Case Filter” (Chomsky 2001; 8).

The illustrative derivations of (53) are given below. (For the sake of simplicity, I use [+case] to indicate that a given DP needs Case.)

(58) a. Active



b. Passive



In (58a), the active Voice selects the verb with a complete  $\phi$ -feature set, and the non-active/passive Voice selects the verb with a partial  $\phi$ -feature set in (58b). The difference between (58a) and (58b) is that the verb in (58a), being  $\phi$ -complete,

<sup>17</sup> In the system of Derivation by Phase (Chomsky 1998, 2001), Case is ancillary to agreement (cf. George and Kornfilt 1981). Structural Case is not responsible for driving syntactic movement, but, rather, is always checked as a free-rider in conjunction with agreement and EPP-driven movement.

successfully agrees with the DP and assigns accusative case, while the verb in (58b), being  $\phi$ -incomplete, fails to do so. Therefore, the DP in (58b) moves to the subject position and becomes nominative.

Now that the correlation between the presence of an external argument and accusative case is accounted for, let us turn to the multiple accusative structure. The recursive VP structure contains more than one verb, and each verb has the capability of assigning accusative case. The active Voice head agrees with the higher verb, *affect*, satisfying the requirements of the Voice head. The active Voice head, therefore, does not have to enter into agreement with the lexical verb. However, under the principle in (59), the active Voice head agrees with the lexical verb, if the environment permits, which will be seen shortly.<sup>18</sup> The well-formed structure of an IAP is illustrated in (60).

(59) Maximize matching effects.

(Chomsky 2001; 15)

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<sup>18</sup> Alternatively, the Voice head never agrees with  $V_{\text{lexical}}$ .

The diagram illustrates the syntactic structure of the sentence "The cat sat on the mat". The root node is **VoiceP**, which branches into **DP<sub>agent</sub>** ("The cat") and **Voice'**. **Voice'** branches into **VP1** and **Voice<sub>active</sub>**. **VP1** branches into **DP<sub>possessor</sub>** ("The mat") and **V1'**. **V1'** branches into **VP2** and **V<sub>affect</sub>**. **VP2** branches into **DP<sub>possessee</sub>** ("The cat") and **V<sub>lexical</sub>**. Both **V<sub>affect</sub>** and **V<sub>lexical</sub>** are marked as **[uF  $\phi$ -complete]**. Arrows indicate feature movement: a solid arrow from **V<sub>affect</sub>** to **Voice<sub>active</sub>**, a dashed arrow from **V<sub>affect</sub>** to **DP<sub>possessor</sub>**, and a solid arrow from **V<sub>lexical</sub>** to **V<sub>affect</sub>**.

In addition to the well-formed structure in (60), there are three more that are ruled out independently. (The head-complement order is ignored, either [uF  $\phi$ -complete] or [uF  $\phi$ -incomplete]. For the sake of simplicity, and [-case] are used, respectively.)

a. No Agree

$$*[\text{VoiceP DP}_{\text{agent}} [\text{Voice'} \text{Voice}_{\text{active}} [\text{VP1 DP1} [\text{V1'} \text{V}_{\text{affect}} [\text{VP2 DP2} \text{V}_{\text{lexical}} ]]]]]]$$

[uF  $\phi$ -complete]

[-case]

[-case]

### b. Locality Violation

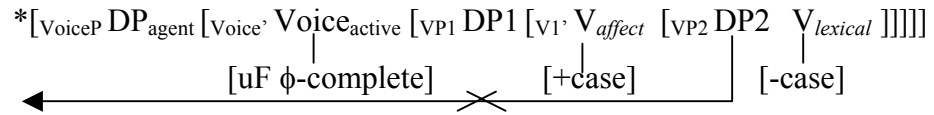
$$*[\text{VoiceP DP}_{\text{agent}}[\text{Voice}' \text{Voice}_{\text{active}} [\text{VP}_1 \text{DP}_1 [\text{V}_1 \text{V}_{\text{affect}} [\text{VP}_2 \text{DP}_2 \text{V}_{\text{lexical}} ]]]]]$$

[uF  $\phi$ -complete]

[-case]

[+case]

c. Superiority Violation



Obviously, (61a) is ruled out because of a failure to agree. (61b) is ruled out, at least, because it cannot satisfy the selectional requirement of the active Voice. One might consider that the active Voice head may enter into Agree with  $V_{\text{lexical}}$ . This option, however, is not available. First, what the active Voice head selects is  $V_{\text{affect}}$ , not  $V_{\text{lexical}}$ . Second,  $V_{\text{lexical}}$  in (61b) has the [+case] feature (i.e., [uF  $\phi$ -complete]) that can agree with the Voice head, but the Voice head cannot agree with  $V_{\text{lexical}}$ , skipping  $V_{\text{affect}}$ . This is because the agreement relation between the Voice head and the verb requires strict identity (uF-uF matching), unlike structural case which requires nondistinctness (uF-iF matching). Thus, I assume that [uF  $\phi$ -**complete**] does not match with [uF  $\phi$ -**incomplete**]. Thus, Selection must satisfy the Locality condition under the strict identity requirement.

(62) Locality

$\alpha$  cannot agree with  $\beta$  if there is a more local element with which  $\alpha$  does not agree.

The structure in (61c) also crashes, but it is not because of the failure of Agree. Since Voice successfully agrees with  $V_{affect}$ , the requirement of the Voice is satisfied, and the derivation in (61c) converges in terms of agreement. Instead, (61c) exhibits superiority effects (Chomsky 1973).<sup>19</sup> The standard implementation of the Superiority Condition is very close to Chomsky's original observation that no element may move across another element of the same type from the same clause, namely in terms of Shortest Move (Chomsky 1993) or Minimal Link Condition (Chomsky 1995; 311):

(63) Minimal Link Condition

K attracts  $\alpha$  only if there is no  $\beta$ ,  $\beta$  closer to K than  $\alpha$ ,  
such that K attracts  $\beta$

The higher DP (the possessor) is closer to the landing site, such as the subject position, than any lower DP (the possessee). Since  $V_{lexical}$ , being specified with [-case] (i.e., [ $\text{uF } \phi\text{-incomplete}$ ]), cannot satisfy the case requirement of DP2 (the possessee), the DP2 has to move to the next available case checking position, i.e., the nominative case

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<sup>19</sup> Chomsky (1973: 246) formulates the Superiority Condition as follows:

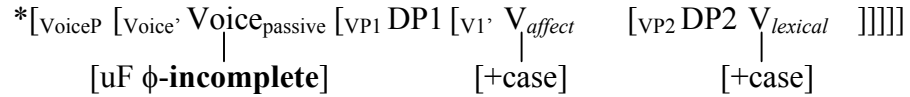
(i) *Superiority Condition*

- i. No rule can involve X, Y in the structure ... X ... [ $\alpha$  ... Z ...—WYV] ... where the rule applies ambiguously to Z and Y, and Z is superior to Y.
- ii. The category A is 'superior' to the category B if every major category dominating A dominates B as well but not conversely.

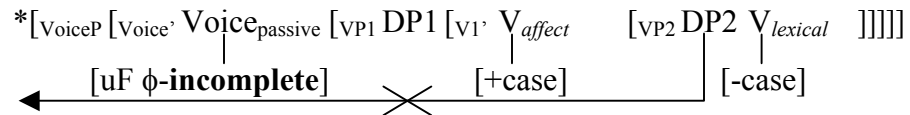
checking position. Since Korean allows multiple nominatives,<sup>20</sup> this is an available option, as we will see shortly in passives. In this movement, however, the DP2 (the possessee), which is in the most deeply embedded VP, crosses the DP1 (the possessor), violating the Superiority Condition/Minimal Link Condition.

The separation of the agent introducing head from the accusative case checking mechanism, and the agreement relation holding between them provide a more satisfactory account for the NOM-ACC alternation of the possessee DP in passives. Let us consider the following ill-formed structures with the non-active/passive Voice head.

- (64) a. \*the ACC<sub>possessor</sub>-ACC<sub>possessee</sub> pattern: **No Agree**



- b. \*the NOM<sub>possessee</sub>-ACC<sub>possessor</sub> pattern: **Locality, Superiority**

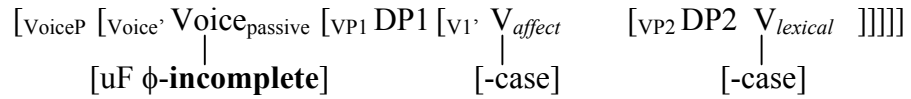


<sup>20</sup> As for the nominative case assignment/checking, I assume that Korean allows multiple specifiers of TP and nominative case is assigned to these specifiers (Jang, Youngjun 1998, Moon, Gui-Sun 2000, Yang, Dong-Whee 1998, Yim, Young-Jae 1982, Yoon 1987, and many others). If we were able to maintain the one-to-one correspondence for structural case assigner and assignee with respect to nominative case, it would be the most desirable situation. Unfortunately, various types of multiple nominative structures in Korean make such an attempt almost impossible. See Chapter 3, and 6 for the data and relevant discussion.

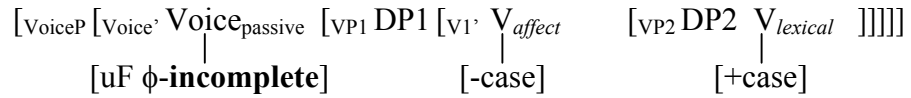
The derivations in (64a) and (64b) are eliminated for the same reason as their active counterparts. Basically these derivations do not fulfill the selectional requirement that  $V_{affect}$  have [-case] (i.e., [uF  $\phi$ -**incomplete**]), since the passive Voice head has [-case] (i.e., [uF  $\phi$ -**incomplete**]). On the contrary,  $V_{affect}$  is specified with [+case] (i.e., [uF  $\phi$ -**complete**]), and thus, the strict identity is violated. This failure is lethal to these derivations. In addition, in the derivation in (64b), movement of the DP2 (the possessee) to the subject position causes a violation of the Superiority condition/Minimal Link Condition such that movement must target the closest potential position.

Now let us consider the well-formed derivations.

(65) a. the NOM<sub>possessor</sub>-NOM<sub>possessee</sub> pattern



b. the NOM<sub>possessor</sub>-ACC<sub>possessee</sub> pattern



In (65a), non-active Voice successfully agrees with  $V_{affect}$  with [-case]. Since all verbs are specified as [-case] (i.e., [uF  $\phi$ -**incomplete**]), the verbs cannot satisfy the case

requirement of DPs. Thus, both DPs move to the subject position and are marked with nominative case, yielding the NOM-NOM pattern. The derivation in (65b) shows that the passive Voice head agrees with  $V_{affect}$ , satisfying the selectional requirement. The passive Voice head, however, cannot agree with  $V_{lexical}$ , because of the strict identity requirement imposed on Selection. On the other hand,  $V_{lexical}$  is specified with [+case] (i.e., [uF  $\phi$ -complete]), and it agrees with DP2 (the possessee), satisfying its own requirements as well as the case requirement of DP2. Consequently, DP2 remains within VP, while DP1 (the possessor) moves to the subject position for case, resulting in the NOM-ACC pattern. The well-formed structures in (65a) and (65b), therefore, account for the NOM-ACC alternation of the possessee DP in passivization.

The current analysis has many desirable consequences. For instance, the Swahili IAP shows multiple object structure as in (2), but its passive lacks the NOM-NOM pattern. This is due to a general lack of the multiple nominative option in the language (i.e., no multiple SPEC for TP). Since only one nominative position is available, only one of the internal arguments becomes nominative. Therefore, a derivation such as (65b), in which the possessor is nominative and the possessee is accusative, is the only option, as shown in (55) (repeated as (66a)). In contrast, in (66b), the possessee occupies the subject position, while the possessor remains in its base-generated position. It is hard to tell whether this derivation crashes because of the failure of Select. However, it is clear that the possessee moved across the possessor.



Since this movement violates the Superiority condition/Minimal Link Condition, the derivation results in ungrammaticality.

- (66) a. mtoto a-li-funik-wa miguu.  
1child 1-PAST-cover-PASS 4legs  
'The child's legs were covered.'  
(Keach and Rochemont 1992, p.83)
- b. \*miguu i-li-funik-wa mtoto.  
4legs 4-PAST-cover-PASS 1child  
'The child's legs were covered.'  
(Keach and Rochemont 1992, p.84)

To summarize, the recursive VP structure provides positions that a possessor and a possessee can occupy. The agreement relation between the Voice head and the verb with respect to the case feature accounts for the case assignment. The Voice head must agree with the verb, *affect* under the strict identity, since the voice selects the verb. An active voice head selects the verb which is  $\phi$ -complete, and a passive Voice head selects a verb which is  $\phi$ -incomplete. The possessor which is the argument of the verb, *affect*, selected by the Voice head, therefore, has to be accusative in the active, and nominative in the passive. In the passive, the possessee can be either nominative or accusative, depending on the  $\phi$ -completeness of the lexical verb. When the lexical verb has [uF  $\phi$ -**complete**], the possessee becomes accusative. When the lexical verb has [uF  $\phi$ -**incomplete**], the possessee moves to the subject position and becomes nominative if the language allows multiple nominatives.

Another welcome result of the current analysis is that the presence of the non-active Voice head in passives automatically accounts for the claim that passive VPs are phases (Legate 2003). Based on the parallelism between ordinary transitive sentences and passive/unaccusative sentences with respect to diagnostic tests such as wh-reconstruction effects, quantifier raising in Antecedent Contained Deletion, parasitic gap licensing, and stress assignment, Legate shows convincingly that unaccusative and passive VPs are phases. The current analysis for passives goes along with her claim. More details on this issue will be discussed in Chapter 4.

## **2.8 Conclusion**

There are languages in which the inalienable possession (IAP) relation holds between two accusative DPs, while a genitive counterpart does not necessarily express the IAP relation.

Languages like Korean, Swahili, and Sotho express the IAP relation using a multiple accusative structure. The attempt to relate the multiple accusative pattern and its genitive counterpart turned out to be unsuccessful. One alternative would be a complex predicate approach, in which the lexical verb and the possessee form a complex predicate and the resulting complex predicate takes the possessor as its argument. The possessee's syntactic and semantic behavior, however, shows that this approach is also unsatisfactory. The possessee behaves just like a normal object.

Therefore, I have proposed an event semantic analysis for the inalienable possession construction. The IAP relation is represented in syntax as a recursive VP structure with two different verbs. The lower verb is a lexical verb which takes the possessee as its argument, and the higher verb is a phonologically silent verb, *affect*, which takes the possessor as its argument. The inalienable possession interpretation has its roots in a material part-whole relation between events, rather than in a direct thematic relation between the whole and part DPs. The lower event, represented by a lexical verb and the possessee, is a material part of the higher event with the possessor and the verb *affect*. To ensure the possessee to be a material part of the possessor, some additional constraints on event argument were made.

The recursive VP structure provides an account for the multiple occurrence of identical case morphology in the IAP multiple accusative structure. Since two verbs are involved, and each verb assigns accusative case, accordingly both the possessor and the possessee DPs are assigned structural case, which is realized in the form of the accusative case morphology. The proposed structure also accounts for the fact that the possessee can retain accusative case in the passive, with an additional assumption that there is a selectional relation between Voice heads and verbs, expressed by means of agreement. The Voice head selects the verb, *affect*, and agrees with it under the strict identity. A verb selected by the active Voice head is  $\phi$ -complete, and a verb selected by a passive Voice head is  $\phi$ -incomplete. Since the Voice head selects the verb, *affect*, the possessor is accusative in the active, and

nominative in the passive. The possessee can be either nominative or accusative in the passive, depending on the  $\phi$ -completeness of the lexical verb. When the lexical verb is  $\phi$ -complete, the possessee becomes accusative, and when the lexical verb is  $\phi$ -incomplete, the possessee moves to the subject position and becomes nominative. In languages that allow multiple subjects such as Korean, the possessee shows a NOM-ACC alternation, while in languages that lack the multiple subject options like Swahili, the possessee must remain in-situ and bears accusative case.

DPs that agree with the Probe, V, are assigned abstract case, and are realized with accusative case morphology. Therefore, multiple occurrences of accusative case morphology in IAP are instances of abstract case. However, not all instances of accusative case morphology are abstract case. Syntactic object that do not enter into Match/Agree with the Probe, V, can also bear accusative case morphology by being motivated by some semantic/pragmatic requirement. Assuming that licensed syntactic objects can be realized with case morphology in the domain they occupy, syntactic object licensed by other than abstract case can bear case morphology. In the next chapter, I examine another type of multiple accusative structure, in which the accusative case morphology is not an instance of abstract case.

## CHAPTER 3

### Zooming-In Topic-Comment Structure

#### 3.1 Introduction

In the previous discussion of the inalienable possession structure I showed that IAP employs a recursive VP structure with two different verbs, a phonologically silent verb, *affect*, and a lexical verb. I also showed that both accusative DPs in an IAP are arguments of the verbs. In Korean, we also find a superficially similar pattern. Consider the following example.

- (1)        Yoda-ka        kwail-ul        sakwa-lul        mek-ess-ta.  
            Yoda-NOM    fruit-ACC    apple-ACC    eat-PAST-DECL  
            ‘As for fruits, Yoda ate apples.’

The sentence in (1) contains two accusative DPs. At first glance, the sentence in (1) resembles the IAP type of multiple accusative structure as in (2).

- (2)        Chelswu-ka        Sunhee-lul        son-ul        cap-ass-ta.  
            Chelswu-NOM    Sunhee-ACC    hand-ACC    grab-PAST-DECL  
            ‘Chelswu grabbed Sunhee by the hand.’

The relation between the two accusative DPs in (1) and that of the two accusative DPs in (2) is similar in that the second DP denotes a smaller portion or a part of the first DP. That is, a part-whole relation is observed between the two DPs with the accusative case morphology, since *the hand* is a physical part of *Sunhee* and *apples* is a subset of *fruits*.

In addition, the two accusative DPs do not form a single constituent on the surface in these two constructions. For instance, a postpositional phrase, such as *in the car*, or an adverb like *always*, may occur between the two accusative DPs, as illustrated below:

(3) a. IAP

Chelswu-ka Sunhee-lul cha-ese pal-ul palp-ass-ta.  
 Chelswu-NOM Sunhee-ACC car-at foot-ACC step.on-PAST-DECL  
 ‘Chelswu stepped on Sunhee’s foot in the car.’

b. The pattern in question

Chelswu-ka kwail-ul hangsang sakwa-lul mek-ess-ta.  
 Chelswu-NOM fruit-ACC always apple-ACC eat-PAST-DECL  
 ‘As for fruits, Chelswu always eats apples.’

Based on these similarities, one might attempt to apply the recursive VP structure with two verbs that were used for the IAP type to the multiple accusative structure in question. However, as we will see in the next section, the pattern in question is quite different from the IAP type, indicating that the recursive VP structure is not applicable to the sentence in (1).

Then, the multiple accusative structure in (1) calls for an explanation. Despite the fact that the verb, *mek* ‘eat’, is a two-place predicate with an Agent and a Theme, the sentence in (1) contains three DPs. Clearly, one of the accusative DPs does not fit into the subcategorization frame of the verb. It is puzzling how an additional accusative DP occurs in a sentence. More specifically, two questions can be asked: i) How does the extra DP occur in the sentence? ii) Why and how does it bear accusative case morphology?

This chapter attempts to provide an answer to these puzzles. In the following section, I demonstrate that this type of multiple accusative structure cannot be analyzed as the IAP type, by showing that they exhibit different semantic and syntactic behavior. In Section 3.3, I compare the ordinary topic-comment structure with the multiple accusative structure in question, and show that the first accusative DP that occurs within VP is a topic. In Section 3.4, I show that the accusative case morphology on this VP-internal topic is not abstract case. I argue that there is a certain semantic/pragmatic device that introduces a topic within the domain of the VP, and that the introduced topic has to be ‘properly linked’ to the syntactic constituent that corresponds to a comment in the syntax, just like the topic-marked topics are linked to the sentence. Legitimately linked topics are realized with accusative case morphology. In Section 3.5, I propose that the topic within VP moves to the left periphery of the sentence at LF. In addition, the left periphery of the sentence is scrutinized in relation to relative clauses and conditionals. Based on the observation that there are some

phenomena observed only in root clauses, I claim that among the two topic positions in Rizzi (1997), the higher topic position, where topic-marked topics are generated, is truncated in non-root contexts. In Section 3.6, the multiple nominative counterparts of the multiple accusative structure with a topic are examined. Then, a series of unsolved problems will be presented with working hypotheses. Section 3.7 provides some data on cross-linguistic variation. Section 3.8 concludes the chapter.

### 3.2 This mysterious type is NOT the Inalienable Possession Structure

We have seen that the mysterious type of multiple accusative structure in (1) is similar to the IAP type. Despite their similarities, they also exhibit different syntactic and semantic behavior. In the discussion of IAP in the previous chapter, we saw that IAP often exhibits an entailment relation. This entailment relation is captured by the recursive VP structure with two verbs, *affect* and a lexical verb. For instance, the sentence in (2) has the following entailment relation: *Chelswu's grabbing the hand* entails *Chelswu's affecting Sunhee*. The sentence in (1) seems to show an entailment relation too, since *eating the apple* entails *eating the fruit*. There are, however, predicates with which the entailment relation does not hold. For instance, in the following, *hating apples* does not entail *hating fruits*.



- (4) Chelswu-ka kwail-ul sakwa-lul silhe-ha-ass-ta.  
 Chelswu-NOM fruit-ACC apple-ACC hate-do-PAST-DECL  
 ‘As for fruits, Chelswu hated apples.’

The sentence in (4) can neither have an interpretation like *Chelswu hated fruits* does not evoke any obvious sense of affectedness on the part of fruits. This sentence conveys the meaning that *among fruits, Chelswu hated apples*, and thus, an inference such as *Chelswu liked bananas* may be available, depending on the context.

Another difference between the two multiple accusative structures comes from NPI licensing. In the IAP type of multiple accusative structure, the external argument in (5a) and both the possessor and the possessee DPs in (5b) and (5c) can be replaced by an NPI in the presence of sentential negation, indicating that they are in the NPI licensing domain.<sup>1</sup>

(5) IAP

- a. **Amwu-to** Yoda-acc phal-ul an cap-ass-ta.  
 anyone-TO Yoda-ACC arm-ACC NEG grab-PAST-DECL  
 ‘Nobody grabbed Yoda by the arm.’
- b. Chelswu-ka **amwu-to** phal-ul an cap-ass-ta.  
 Chelswu-NOM anyone-TO arm-ACC NEG grab-PAST-DECL  
 ‘Chelswu did not grab anyone’s arm.’
- c. Chelswu-ka Yoda-acc **amwu-de-to** an cap-ass-ta.  
 Chelswu-NOM Yoda-ACC any-place-TO NEG grab-PAST-DECL  
 ‘Chelswu did not grab any parts of Yoda.’

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<sup>1</sup> NPIs in Korean require a particle *-to*, which is often categorized as one of the focus particles. This particle cannot co-occur with case morphology.

In contrast, in the multiple accusative structure of (1), the first accusative DP cannot be replaced by an NPI, *amwu kes-to*, as shown in (6b), while the subject position and the second accusative position are in the NPI licensing domain, as shown in (6a) and (6c).<sup>2</sup>

- (6) a. **Amwu-to**    *tambay-lul*    *malboro-lul*    *an*    *phiu-ess-ta*.  
          anyone-TO    cigarette-ACC    Marlboro-ACC NEG    smoke-PAST-DECL  
          ‘As for cigarettes, no one smoked Marlboro.’
- b. \**Chelswu-ka*    **amwu kes-to**    *malboro-lul*    *an*    *phiu-ess-ta*.  
          Chelswu-NOM any    thing-TO Marlboro-ACC NEG    smoke-PAST-DECL  
          ‘As for anything, Chelswu did not smoke Marlboro.’
- c. *Chelswu-ka*    *tambay-lul*    **amwu kes-to**    *an*    *phiu-ess-ta*.  
          Chelswu-NOM cigarette-ACC any    thing-TO NEG    smoke-PAST-DECL  
          ‘As for cigarettes, Chelswu did not smoke anything.’

In addition, the IAP type of multiple accusative structure allows the possessee DP in the passive to bear either nominative (*-ka*) or accusative case morphology (*-lul*), as we have seen in the previous chapter. This option is not available in the type in question. Both DPs must be marked with nominative case morphology, as shown in (7b).

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<sup>2</sup> *kes* ‘thing’ can be replaced by any referential noun such as *sangpyo* ‘brand’. This replacement does not affect the grammaticality.

- (i) *Chelswu-ka*    *tambay-lul*    **amwu sangpyo-to**    *an*    *phiu-ess-ta*.  
          Chelswu-NOM cigarette-ACC any    brand-TO    NEG    smoke-PAST-DECL  
          ‘As for cigarettes, Chelswu did not smoke any brand.’

(7) a. IAP

Sunhee-ka son-i/-ul cap-hi-ess-ta.  
 Sunhee-NOM hand-NOM/-ACC grab-PASS-PAST-DECL  
 'Sunhee's hand was grabbed.'

b. Mysterious type

Koki-ka piraemi-ka /\*-lul cap-hi-ess-ta.  
 fish-NOM small.fish-NOM/-ACC grab-PASS-PAST-DECL  
 'As for fish, small ones were caught.'

A further difference between the two constructions is found in relativization. The two DPs with the IAP relation are arguments and thus either one of the two DPs can be the head noun of a relative clause, as in (8). Again, this option is not available in the mysterious type. Neither of the DPs can be relativized, as shown in (9):

(8) IAP

- a. [Chelswu-ka  $t_i$  ppam-ul ttali-n ] Sunhee<sub>i</sub>  
 Chelswu-NOM cheek-ACC hit-REL Sunhee  
 'Sunhee whose cheek Chelswu hit'
- b. [Chelswu-ka Sunhee-lul  $t_i$  ttali-n] ppam<sub>i</sub>  
 Chelswu-NOM Sunhee-ACC hit-REL cheek  
 'The cheek where Chelswu hit Sunhee'

(9) Mysterious type

- a. \*[Chelswu-ka  $t_i$  piraemi-lul cap-un ] mulkoki<sub>i</sub>  
 Chelswu-NOM small.fish-ACC catch-REL fish  
 'lit. the fish that Chelswu caught a small fish'
- b. \*[Chelswu-ka mulkoki-lul  $t_i$  cap-un ] piraemi<sub>i</sub>  
 Chelswu-NOM fish-ACC catch-REL small.fish  
 'lit. the small fish that Chelswu caught a fish'

I conclude that the multiple accusative structure of the second type cannot be equated with the IAP type multiple accusative structure. This type of multiple accusative structure does not evoke an entailment relation or affectedness observed with the IAP type, and NPIs are not allowed in the first accusative DP position. Neither DP may undergo relativization and both DPs must bear nominative case morphology in passives. Given these syntactic and semantic differences, I conclude that the multiple accusative structure of (1) is different from that of the IAP type. That is, it is not possible to use the recursive VP structure for this mysterious type.

The two accusative DPs in this mysterious type have an interpretive zooming-in relationship such that the choice narrows down from the first accusative DP to the second accusative DP. In a photographic analogy, the camera zooms in, in the order of the DPs. Thus, let us call this mysterious type the *zooming-in* type of multiple accusative structure, following Brunson's (1992) characterization of the generic 'as for' topic constructions in English, which will be discussed shortly.

Intuitively, the first accusative DP is a topic (cf. Yang, In-Seok 1972, Kuroda 1992), as the English translations suggest. Furthermore, NPIs are not allowed in the position where the first DP occurs. The intuition and the distribution of NPIs lead us to consider the possibility that the first accusative DP is a topic. If the first accusative DP shows the same behavior as a topic-marked DP does, then it is reasonable to say that they belong to the same category, a topic. In the next section, I

present the behavior of *–(n)un* marked topics in comparison with the zooming-in type of multiple accusative structure.

### 3.3 Zooming-in Topic–Comment Structure

Zooming-in topics can also occur in sentence-initial position with a topic marker *–(n)un*. By showing that the zooming-in accusative DP and the topic-marked topic behave similarly, I claim that the zooming-in accusative DP is a topic that occurs within VP.

#### 3.3.1 Zooming-in Topics In the Out-Field Topic Zone

Brunson (1992) observes that languages like English can have a topic-comment structure without a gap in the comment part. One example of such non-gap topic constructions is the one that uses ‘as for’.<sup>3</sup> Among ‘as for’ topic constructions in English, Brunson claims that generic ‘as for’ topic constructions have the zooming-in relation. A more general expression occurs with ‘as for’, and a more specific

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<sup>3</sup> Brunson (1992) identifies three types of ‘as for’ topics in English, illustrated by the following examples. The type relevant to the discussion at hand is the generic ‘as for’ type in (iii).

- |       |                        |      |                                    |
|-------|------------------------|------|------------------------------------|
| (i)   | Discourse ‘as for’     | e.g. | As for the meeting, I’m exhausted. |
| (ii)  | Coreferential ‘as for’ | e.g. | As for John, I like him.           |
| (iii) | Generic ‘as for’       | e.g. | As for fruits, I like bananas.     |

expression ‘doubles’ the generic expression within the clause. For example, in (10), ‘as for’ introduces a topic, *dogs*, and a specific instance of the topic, *Dobermans*, occupies the object position.<sup>4</sup>

- (10) As for dogs, I like Dobermans.

Similarly, languages like Korean, Japanese, and Chinese have non-gap topic constructions where a generic expression is used as a topic and a more specific expression occupies a sentence-internal position. As illustrated below, the sentence-initial position is filled with a DP, *fruits*, and a more concrete instance of the topic, *apples*, occupies the object position. I will use *zooming-in topic* to refer to the generic expression and *associate expression* to refer to the more specific expression.

- (11) a. Korean

Kwail-un Yoda-ka sakwa-lul cohaha-n-ta.  
 fruit-TOP Yoda-NOM apple-ACC like-PRES-DECL  
 ‘As for fruits, Yoda likes apples.’

- b. Japanese<sup>5</sup>

Kudamono-wa Yoda-ga ringgo-wo tabetta.  
 fruit-TOP Yoda-NOM apple-ACC ate  
 ‘As for fruits, Yoda ate apples.’

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<sup>4</sup> These types of topics are also known as ‘hanging topics’ in the literature (Cinque 1977, Chomsky 1977, Ross 1967, among others).

<sup>5</sup> Thanks to Kotani Sachie, Yurie Hara, I was able to have Japanese data and use them without citation in this chapter.

c. Chinese<sup>6</sup>

Shuiguo    Yoda    hen    xihuan    pingguo.  
 fruit       Yoda    very like    apple  
 ‘As for fruits, Yoda likes apples very much.’

Semantically the zooming-in relation is determined by the semantic content of a zooming-in topic and its associate expression. For instance, if a word like *linguistics* replaces either the zooming-in topic or the associate DP in (11), the resulting sentence becomes incomprehensible.<sup>7</sup>

(12) Korean

- a. \*Enekhak-un      Yoda-ka    sakwa-lul      cohaha-n-ta.  
      linguistics-TOP   Yoda-NOM apple-ACC   like-PRES-DECL  
      ‘As for linguistics, Yoda likes apples.’
- b. \*Kwail-un        Yoda-ka    enekhak -lul      cohaha-n-ta.  
      fruit-TOP        Yoda-NOM linguistics -ACC   like-PRES-DECL  
      ‘As for fruits, Yoda likes linguistics.’

Syntactically, the topic-marked zooming-in topic occurs in the canonical topic position, above TP. Frey (2000), in his work on German, proposes that topics can occur in two different positions: In the domain of CP, and in the domain of TP. He calls these Pre-Field topics and Middle-Field topics, respectively. Following his

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<sup>6</sup> Chinese data without citation come from Li-May Sung.

<sup>7</sup> The sentence in (12a) can be acceptable if *sakwa* ‘apple’ is understood as one of the areas of linguistics like syntax, semantics, etc. The sentence in (12a) can also be acceptable if *enekhak* ‘linguistics’ is one of the kind of fruits.

terminology, I use the term ‘Out-Field topic’ (Pre-Field for Frey) to refer to topics with the topic marker *-(n)un* in the canonical topic position, to avoid any unnecessary confusion. Other concepts such as ‘Middle Field topic’ and ‘In-Field topic’ will be introduced in due course.

The presence of the Out-Field zooming-in topics in (11) supports the intuition that the first accusative DP in this type of multiple accusative structure is a topic, rather than an argument. In order to prove this intuition, I will present in the next section the semantic and syntactic behavior of *-(n)un* marked zooming-in topics in comparison with the multiple accusative structure in question.

### 3.3.2 Out-Field/In-Field Zooming-in Topics

In general, a topic is what is being or has been talked about in the utterance context.<sup>8</sup> Therefore, it is discourse-old, GIVEN, or the common background (cf. Prince 1981). This property of a topic prohibits it from being replaced by a WH-phrase. In an ordinary WH-question, the non-WH portion of the sentence constitutes the background against which the question is asked. For instance, in the question *Who did Yoda hit?*, the proposition of the form ‘*Yoda hit X*’ is already available as part of the

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<sup>8</sup> The topic-comment structure has been described by a variety of researchers under a number of different names: presupposition and focus (Chomsky 1971, Jackendoff 1972), theme and rheme (Firbas 1972), topic and comment (Gundel 1974, 1978), open proposition and focus (Ward 1985 and Prince 1986), and ground and focus (Vallduvi 1990).



common ground. WH-phrases, on the other hand, are focused, and NEW. Thus, replacing a topic with a WH-phrase results in a contradiction: The topic position requires an expression that is discourse old, GIVEN, and background, while the WH-phrase is focus, and NEW. Therefore, WH-phrases cannot occur in the topic position. The sentence in (13) confirms this.

(13) Out-Field Topics

\*Mwues-un Chelswu-ka sakwa-lul mek-ess-ni?  
 what-TOP Chelswu-NOM apple-ACC eat-PAST-Q  
 ‘As for what, Chelswu ate apples?’

A similar effect is found with the zooming-in type of multiple accusative structure. The first accusative DP cannot be replaced with the WH-phrase, *mwues*, as shown in (14b), while a WH-phrase can occur in the second accusative DP position, as in (14a). In this respect, the first accusative DP has a topic-like property.

(14) Zooming-in Accusative

- a. Chelswu-ka kwail-ul mwues-ul mek-ess-ni?  
 Chelswu-NOM fruit-ACC what-ACC eat-PAST-Q  
 ‘As for fruits, what did Chelswu eat?’
- b. \*Chelswu-ka mwues-ul sakwa-lul mek-ess-ni?  
 Chelswu-NOM what-ACC apple-ACC eat-PAST-Q  
 ‘As for what, Chelswu ate apples?’

A topic is generally believed to be definite or at least specific. This property of topics prevents NPIs from occurring as topic, since NPIs have been traditionally considered to be ‘indefinites’ (e.g., Heim 1982). As shown below, the sentence external position is not compatible with an NPI, *amwu kes-to* ‘anything’, while the internal argument position is compatible with it.

(15) Out-Field Topics

- a. \**Amwu kes-to Yoda-ka sakwa-lul an cohaha-n-ta.*  
any thing-TO Yoda-NOM apple-ACC NEG like-PRES-DECL  
‘As for anything, Yoda does not like apples.’
- b. *Kwail-un Yoda-ka amwu kes-to an cohaha-n-ta.*  
fruit-TOP Yoda-NOM any thing-TO NEG like-PRES-DECL  
‘As for fruits, Yoda does not like anything.’

The zooming-in type multiple accusative structure in (16) shows a similar contrast, as shown earlier. The NPI, *amwu kes-to*, cannot occur in the first accusative position, as shown in (16a), while it can occur in the second accusative position, as in (16b).

(16) Zooming-in Accusative

- a. \**Chelswu-ka **amwu kes-to** malboro-lul an phiu-ess-ta.* (=6b)  
Chelswu-NOM any thing-TO Marlboro-ACC NEG smoke-PAST-DECL  
‘As for anything, Chelswu did not smoke Marlboro.’
- b. \**Chelswu-ka **amwu tambay -to** malboro-lul an phiu-ess-ta.*  
Chelswu-NOM any cigarette-TO Marlboro-ACC NEG smoke-PAST-DECL  
‘As for any cigarette, Chelswu did not smoke Marlboro.’

- c. Chelswu-ka *tambay-lul* **amwu kes-to** an *phiu-ess-ta*. (=6c)  
 Chelswu-NOM cigarette-ACC any thing-TO NEG smoke-PAST-DECL  
 'As for cigarettes, Chelswu did not smoked anything.'

Another property of the topic-comment structure is that the comment part is an assertion about the topic (Kuno 1972, Huang 1984, Krifka 1992, Rizzi 1997, Brunson 1992, Frey 2004, among others). This means that a topic is excluded from the scope of assertion. Since negation is part of the assertion, if an element is a topic, it must not be affected by negation. Korean has two syntactic constructions expressing negation. Examples of the two types of negation, which are called “Short Form” and “Long Form,” are given below, with an Out-Field zooming-in topic, *tambay* ‘cigarette’.

(17) a. Short Form Negation

**Tambay-nun** Chelswu-ka *malboro-lul* an *phiu-ess-ta*.  
 cigarette-TOP Chelswu-NOM Marlboro-ACC NEG smoke-PAST-DECL  
 ‘As for cigarettes, Chelswu did not smoke Marlboro.’

b. Long Form Negation

**Tambay-nun** Chelswu-ka *malboro-lul* *phiu-ci* ani *ha-ess-ta*.  
 cigarette-TOP Chelswu-NOM Marlboro-ACC smoke-CI NEG do-PAST-DECL  
 ‘As for cigarettes, Chelswu did not smoke Marlboro.’

In (17), regardless of the form of negation, the assertion is *Chelswu did not smoke Marlboros*, and this assertion is about the topic, *tambay* ‘cigarette’. The negation in the assertion does not affect the topic, *tambay* ‘cigarette’, as the English translation

suggests. That is, the sentences are judged to be true in a situation where Chelswu smoked another brand of cigarette, such as ‘Camel’.

The zooming-in type multiple accusative exhibits the same fact. The sentences in (18) convey the same meaning as the sentences in (17). Just like the Out-Field topic, the first accusative DP, *tambay-lul* ‘cigarette-ACC’, does not fall under the scope of negation.

(18) a. Short Form Negation

Chelswu-ka      **tambay-lul**    malboro-lul    an    phiu-ess-ta.  
 Chelswu-NOM    cigarette-ACC   Marlboro-ACC   NEG   smoke -PAST-DECL  
 ‘As for cigarettes, Chelswu did not smoke Marlboro.’

b. Long Form Negation

Chelswu-ka      **tambay-lul**    malboro-lul    phiu-ci    ani    ha-ess-ta.  
 Chelswu-NOM   cigarette-ACC   Marlboro-ACC   smoke-CI   NEG   do-PAST-DECL  
 ‘As for cigarettes, Chelswu did not smoke Marlboro.’

It is also worth reminding ourselves that predicates with negative connotations such as *silhe-hata* ‘hate’, *miwehata* ‘hate’, and *hyemohata* ‘hate’ do not induce the kind of entailment that is often found with the IAP type of multiple accusative .

(19) a.    **Tambay-nun**    Chelswu-ka    malboro-lul      silhe-ha-n-ta.  
                  cigarette-TOP    Chelswu-NOM   Marlboro-ACC    hate-DO-PRES-DECL  
                  ‘As for cigarettes, Chelswu hates Marlboro.’

b.    Chelswu-ka      **tambay-lul**    malboro-lul      silhe-ha-n-ta.  
      Chelswu-NOM    cigarette-ACC   Marlboro-ACC    hate-DO-PRES-DECL  
      ‘As for cigarettes, Chelswu hates Marlboro.’

In (19), Chelswu hates Marlboro among cigarettes, but the sentence does not lead to the conclusion that Chelswu hates other cigarettes, or cigarettes in general. This fact has the same root as the phenomenon of scope of negation: Topics are not part of the asserted content.

In addition to the semantic differences outlined thus far, Out-Field zooming-in topics block relativization. It has been observed that the position which the topic DP occupies is an A'-position (Chomsky 1977, Rizzi 1997, among others). Consequently, it is predicted that the topic blocks A'-movement such as relativization. This prediction is borne out.<sup>9</sup>

(20) Korean

- a. \*[Kwail-un Yoda-ka t<sub>i</sub> cohaha-n-un] sakwa<sub>i</sub>  
fruit-TOP Yoda-NOM like-PRES-REL apple  
‘apples that, as for fruits, Yoda likes.’
- b. \*[t<sub>i</sub> Yoda-ka sakwa-lul cohaha-n-un] kwail<sub>i</sub>  
Yoda-NOM apple-ACC like-PRES-REL fruit  
‘fruits that Yoda likes apples.’

(21) Chinese

- a. \*[Shuiguo Yoda hen xihuan t<sub>i</sub> de] pingguo<sub>i</sub>  
fruit Yoda very like COMP apple  
‘apples that, as for fruits, Yoda likes very much.’
- b. \*[t<sub>i</sub> Yoda hen xihuan apple de] shuiguo<sub>i</sub>  
Yoda very like pingguo COMP fruit  
‘Fruits that Yoda likes apples very much.’

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<sup>9</sup> Since clefting also involves A'-movement, the impossibility of forming cleft constructions can also be a diagnostic for the zooming-in topic structure.

In (20) and (21), the Out-Field zooming-in topic blocks its associate DP from undergoing relativization, and the zooming-in topic itself may not undergo relativization. As we have seen earlier, neither of the DPs undergo relativization in the zooming-in type of multiple accusative structure.<sup>10</sup>

- (22) a. \*[Chelswu-ka      mulkoki-lul     $t_i$               cap-un ] piraemi<sub>i</sub>  
           Chelswu-NOM    fish-ACC                      catch-REL   small.fish  
           ‘lit. the small fish that Chelswu caught among a fish’
- b. \*[Chelswu-ka               $t_i$       piraemi-lul              cap-un ] mulkoki<sub>i</sub>  
           Chelswu-NOM                      small.fish-ACC    catch-REL   fish  
           ‘lit. the fish among which ` Chelswu caught a small fish’

As the description ‘zooming-in’ indicates, a rather obvious property that both Out-Field topics and the multiple accusative counterparts share is the requirement of the relative word order between the zooming-in DP and its associate expression. Descriptively, a zooming-in topic must precede its associate DP. If the sentence external zooming-in topic fails to precede its associate DP, the sentence becomes ungrammatical.

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<sup>10</sup> On the surface, we cannot tell where exactly the operator originated in (20b) and (22b). However, Chinese sentence in (21b) shows the base-generated position of the relative operator.

(23) Korean

- a. Kwail-cwu-nun Yoda-ka photo-cwu-lul cohaha-n-ta.  
fruit-liquor-TOP Yoda-NOM grape-liquor-ACC like-PRES-DECL  
'As for fruit liquor, Yoda likes wine.'
- b. \*Photo-cwu-nun Yoda-ka kwail-cwu-lul cohaha-n-ta.  
grape-liquor-TOP Yoda-NOM fruit-liquor-ACC like-PRES-DECL

Chinese

- c. Shuiguo-jio Yoda hen xihuan putao-jio.  
fruit-liquor Yoda very like grape-liquor  
'As for fruit liquor, Yoda likes wine very much.'
- d. \*Putao-jio Yoda hen xihuan Shuiguo-jio.  
grape-liquor Yoda very like fruit-liquor  
'As for wine, Yoda likes fruit liquor very much.'

In (23), when *fruit-liquor* precedes *grape-liquor*, the sentences are grammatical, while the opposite order results in unacceptability. The sentences in (23b), and (23d) are ungrammatical, because the precedence relation is reversed.

Similarly, if the sentence-internal zooming-in topic fails to precede its associate DP, the sentence becomes ungrammatical. In (24a), *fruit-liquor* precedes *grape-liquor*, and the sentence is grammatical. In contrast, *grape-liquor* does not precede *fruit-liquor* in (24b), and thus, the sentence is ill-formed.

- (24) a. Yoda-ka kwail-cwu-lul photo-cwu-lul cohaha-n-ta.  
Yoda-NOM fruit-liquor-ACC grape-liquor-ACC like-PRES-DECL  
'As for fruit liquor, Yoda likes wine.'

- b. \*Yoda-ka photo-cwu-lul kwail-cwu-lul cohaha-n-ta.  
 Yoda-NOM grape -liquor-ACC fruit -liquor-ACC like-PRES-DECL  
 ‘As for wine, Yoda likes fruit liquor.’

The precedence relation can be interpreted as structural hierarchy, if we follow Kayne’s (1994) proposal:

- (25) Linear order is determined by hierarchical structure, such that different linear orders must be associated with different hierarchical structures.

Then, a zooming-in DP must be structurally higher than its associate DP. In fact, the precedence relation is not sufficient, since there are cases where the precedence relation is satisfied but the sentence is still ungrammatical.

- (26) \*Yoda-ka kwail-cwu-lul photo-lul cohaha-n-ta.  
 Yoda-NOM fruit-liquor-ACC grape-ACC like-PRES-DECL  
 ‘As for fruit liquor, Yoda likes grapes.’

In (26), the noun compound, *fruit-liquor*, precedes *grape*, but the sentence is unacceptable. The head noun of the noun compound is *liquor*, not *fruit*, and thus, the zooming-in relation cannot be established.<sup>11</sup> In contrast, the hierarchy requirement correctly predicts that *fruit* and *grape* cannot have a zooming-in relation, since they do

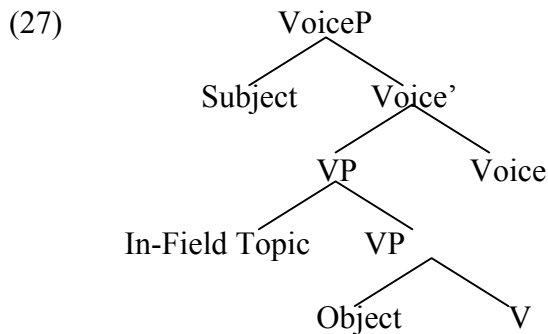
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<sup>11</sup> If there is a speaker who can interpret *grape* as *wine*, this sentence would be acceptable. So far, however, none of my consultants could have such a reading.



not have any hierarchical order by themselves.<sup>12</sup> Therefore, a zooming-in DP must occur in a structurally higher position than its associate DP.

We have so far observed that an Out-Field zooming-in topic (i.e., a *(n)un*-marked topic) shares a number of core properties with the first accusative DP in the zooming-in multiple accusative. I interpret this strong parallelism between the two to mean that the first accusative DP is a topic. It also means that the position where the accusative zooming-in topic occurs is not in the Out-Field. If case morphology (i.e., accusative) is any indication, this position is VP-internal. In order to distinguish these accusative topics from the topic-marked topics in the Out-Field topic position, I will refer to the accusative topic as an In-Field Topic (i.e., VP-internal topic), and I propose the following structure in which the In-Field topic occupies a position below VoiceP.




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<sup>12</sup> Whether a structural principle like c-command plays a role or not is an interesting and related issue. However, it is impossible to test it, because of the syntactic status of a zooming-in DP. See Section 3.4 for the syntactic status of a zooming-in DP.

The In-Field topic position in (27) hosts zooming-in topics within the domain of VP, and zooming-in topics in the In-Field topic position bear accusative case morphology. Now it is time to move on to the second question: How does the In-Field topic bear the accusative case morphology?

### **3.4 In-Field Topics**

This section explores how an In-Field topic, which is not an argument, can be realized with accusative case morphology. With the structure given in (27), I show that In-Field topics have to satisfy certain requirements. Once the requirements are satisfied, In-Field topics can be realized with accusative case morphology unless there is a lexically specified morphological particle. Then, I compare my analysis with a conceivable alternative analysis.

#### **3.4.1 Accusative Case Morphology**

Topics are introduced into a sentence to satisfy some semantic/pragmatic requirement such as information structure. Once the topic is introduced, it has to be structurally linked to or integrated into the sentence structure corresponding to an assertion. For instance, zooming-in topics in the Out-Field topic position are linked to the sentence by occupying the Out-Field topic position and by bearing the topic marker *–(n)un* in

Korean, or *-wa* in Japanese.<sup>13</sup> Similarly, ‘as for’ in English introduces a topic and is integrated into sentence structure as an adjunct. In-Field topics are also introduced to satisfy some semantic/pragmatic requirement, and they have to be properly linked to the sentence. The examples examined so far show that zooming-in topics in the In-Field topic position bear accusative case morphology. This seems to indicate that In-Field topics are linked to the assertion by occupying the In-Field topic position and by bearing accusative case morphology.

A question arises as to whether the accusative case morphology on the In-Field topic is abstract case realized with accusative case morphology. So far, all the examples of the zooming-in topic in the In-Field topic position have had their associate DP in internal argument position.

- (28)      Yoda-ka      swul-ul      maykcwu-lul   masi-ess-ta.  
              Yoda-NOM   liquor-ACC   beer-ACC        drink-PAST-DECL  
              ‘As for liquors, Yoda drank beer.’

In (28), it is clear that the case morphology on the associate DP, *maykcwu* ‘beer’, is an instance of abstract case, since it is the argument of the verb.<sup>14</sup> The argument licensing mechanism licenses the DP and thus, the DP bears case morphology. However, it is not likely that the accusative case morphology on the zooming-in topic is an instance

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<sup>13</sup> Zooming-in topics in the Out-Field topic position in Chinese remain unmarked.

<sup>14</sup> As argued in Chapter 2, uninterpretable features of the verb, which agree with the Voice head under the strict identity, agree with the interpretable features of the argument and assign abstract case.

of abstract case. First of all, an In-Field topic is not an argument of a predicate. Since it is generally believed that abstract case is assigned to an overt DP in an A-position, to assign abstract case to a non-argument, especially to a topic, is beyond our expectations in addition to assigning abstract case to an argument.<sup>15</sup> Topics are believed to occupy an A'-position, rather than an A-position.

In addition, Korean also allows a topic-comment relation between two locatives in the In-Field topic zone. Consider the following examples.

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<sup>15</sup> In some languages, abstract case, especially nominative case, can be assigned to a topic. For instance, in languages like Indonesian and Javanese, the subject position of a sentence is a topic position. Thus, an indefinite DP or a WH-phrased cannot occur in the subject position in Indonesian (thanks to Yassir Tjung for judgments for the following sentences).

- (i) a. Anak itu memangan apel.  
       child this N-eat apple  
       'This child ate the apple.'
- b. \*Anak memangan apel.  
       child N-eat apple  
       'A child ate the apple.'
- c. \*Siapa memangan apel.  
       who N-eat apple  
       'Who ate the apple?'

The definite DP, *anak itu* 'this child' can occur in the subject position, as in (ia), while the indefinite DP, *anak* 'child' and the WH-phrased *siapa* 'who' cannot occur in the subject position. Therefore, it is not the case that abstract case cannot be assigned to a topic. However, the point is whether a single case assigner can assign abstract case to both an argument and a non-argument.

- (29) a. Yoda-nun **mikuk-ey** hanttay **sepu-ey** sal-ass-ta.  
 Yoda-TOP **America-at** sometime.ago **west-at** live-PAST-DECL  
 ‘Yoda used to live in the western part of America.’
- b. Yoda-nun **mikuk-eyse** caknyen-ey **sepu-eyse**  
 Yoda-TOP **America-from** last.year-at **west-from**  
 ssal-ul sa-(a)ss-ta.  
 rice-ACC buy-PAST-DECL  
 ‘Yoda bought the rice from the western part of America last year.’

The two PPs, *mikuk-ey* ‘America-at’ and *sepu-ey* ‘west-at’ in (29a), and *mikuk-eyse* ‘America-from’ and *sepu-eyse* ‘west-from’ in (29b), have the zooming-in relation between them: The choice narrows down from America to the western part of America. Just like accusative zooming-in topics, these PPs do not form a constituent. The zooming-in PPs that occur in the In-Field topic position have the same postposition as their associate PPs. Marking such an In-Field topic with accusative case morphology results in unacceptability, as shown below.

- (30) a. \*Yoda-nun **mikuk-ul** **sepu-ey** sal-ass-ta.  
 Yoda-TOP **America-acc** **west-at** live-PAST-DECL
- b. \*Yoda-nun **mikuk-ul** **sepu-eyse** ssal-ul sa-(a)ss-ta.  
 Yoda-TOP **America-acc** **west-from** rice-ACC buy-PAST-DECL

Thus, the sentences in (30) show that an In-Field topic must have the same particle as its associate expression. Now, it becomes clear that the issue at hand is not just about the accusative morphology, but about the morphological matching between In-Field topics and their associates.

Locative arguments of locomotion verbs also employ an In-Field topic–comment structure. For instance, a verb like *go* allows its locative argument to alternate between a postposition and accusative case morphology.<sup>16, 17</sup>

- (31) a. Yoda-ka      **roma-ey**    ka-(a)ss-ta.  
           Yoda-NOM    Rome-to    go-PAST-DECL  
           ‘Yoda went to Rome.’
- b. Yoda-ka      **roma-lul**    ka-(a)ss-ta.  
           Yoda-NOM    Rome-ACC   go-PAST-DECL  
           ‘Yoda went to Rome.’

Accordingly, the In-Field topic-comment structure with locative arguments shows an alternation in case morphology.

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<sup>16</sup> I gloss *-ey* as a postposition here, not as dative. In constructions like ditransitives, however, *-ey* behaves as dative.

<sup>17</sup> In the sentences in (31), it is hard to find any difference in meaning associated with the alternation between case morphology and a postposition. There are, however, cases where the differences in meaning become evident. For instance, the accusative case morphology encodes a path, while the postposition counterpart denotes a manner.

- (i) a. Yoda-ka      kolmok-eyse    tol-ass-ta.  
           Yoda-NOM    corner-at      turn-PAST-DECL  
           ‘Yoda turned (turned around in a circular motion) at the corner.’
- b. Yoda-ka      kolmok-ul      tol-ass-ta.  
           Yoda-NOM    corner-ACC    turn-PAST-DECL  
           ‘Yoda took a turn at the corner.’

This contrast, therefore, indicates that the choice of case morphology may involve a different argument structure, or at least a different in interpretation.

- (32) a. Yoda-ka **ithalia-ey** **roma-ey** ka-(a)ss-ta.  
 Yoda-NOM Italy-to Rome-to go-PAST-DECL  
 ‘As for Italy, Yoda went to Rome.’
- b. Yoda-ka **ithalia-lul** **roma-lul** ka-(a)ss-ta.  
 Yoda-NOM Italy-ACC Rome-ACC go-PAST-DECL
- c. \*Yoda-ka **ithalia-lul** **roma-ey** ka-(a)ss-ta.  
 Yoda-NOM Italy-ACC Rome-to go-PAST-DECL
- d. \*Yoda-ka **ithalia-ey** **roma-lul** ka-(a)ss-ta.  
 Yoda-NOM Italy-to Rome-ACC go-PAST-DECL

When the associate locative is a PP, the zooming-in locative in the In-Field must be a PP, as in (32a), and the zooming-in topic and its associate locative bear the accusative case morphology in (32b). Of particular interest it that mismatching particles such as *accusative-PP* (32c) or *PP-accusative* (32c) are not allowed. The examples in (32), thus, show that an In-Field topic and its associate expression must have the same postposition/case morphology. The accusative case morphology on the In-Field topics, then, is a part of the larger scheme of structural licensing of In-Field topics. Let us summarize the core properties of In-Field topics:

- (33) a. An In-Field topic must precede its associate expression.
- b. An In-Field topic and its associate expression have a zooming-in relation.
- c. An In-Field topic must have a morphological particle (case morphology, or postpositions) that is identical to its associate expression.

These properties in (33), then, are necessary conditions for In-Field topics. The property in (33c) is unique to the In-Field topic zone, since the Out-Field topics have the topic marker  $-(n)un$ , rather than an identical morphological particle, as shown below.

- (34)      **Ithalia-nun**    Yoda-ka      **roma-ey**    ka-(a)ss-ta.  
          Italy-top      Yoda-NOM    Rome-to    go-PAST-DECL  
          ‘As for Italy, Yoda went to Rome.’

Why do we have the property in (33c) at all? Topics have to be structurally linked to a syntactic constituent. For instance, Out-Field topics are introduced and linked to a clause by occupying the Out-Field topic position. Properly linked Out-Field topics are realized with the topic marker  $-(n)un$  in morphology.<sup>18</sup> Occupying the In-Field topic position, however, is not sufficient for the In-Field topic to be properly linked, since VP is not the canonical topic host domain. Therefore, In-Field topics are subject to stricter requirements than those in the canonical Out-Field topic position. Once the requirements in (33) are satisfied, the topic is properly linked to the syntactic constituent.

The identical morphological particle requirement has some impact on morphology. For instance, the property in (33c) requires multiple occurrences of

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<sup>18</sup> Out-Field topics in languages like Chinese do not have any morphological realization, because of the general lack of morphological particles.



identical case morphology/postpositions. Because of the lack of its own morphological resources to mark a topic, the In-Field topic utilizes available morphological resources within VP. I claim that the available morphological resources within VP are postpositions, and accusative case morphology. Postpositions are lexically specified elements. In the morphology, a morphological particle with a specific property is realized over accusative case morphology according to the Elsewhere Condition (Kiparsky 1973, 1982).

- (35) Elsewhere Condition
- Rules A and B in the same component apply disjunctively to a form  $\theta$  iff
- a. The structural description of A (the specific rule) properly includes the structural description of B (the general rule).
  - b. The result of applying A to  $\theta$  is distinct from the result of applying B to  $\theta$ .
- In that case A is applied first, and if it takes effect, then B is not applied.
- (Kiparsky 1982).

Therefore, in order to satisfy the matching requirement for morphological particle, the postposition is realized instead of accusative case morphology.

In the absence of lexically specified elements, the choice of the morphological resource is dependent on the morphological default of the domain. Since case morphology is domain specific, I claim that each domain such as TP and VP has its own morphological default. The morphological default is not *assigned*;

rather, it is *used to spell out* a nominal that occupies a terminal node of the syntactic tree (c.f., Schütze 2001b). Crucially, the presence of default case morphology is invisible to the syntax. An In-Field topic is a nominal element that occupies the terminal node. Therefore, in the morphological component, the In-Field topic is realized with accusative case morphology, which is the available morphological resource in the domain of VP.

Here, I assume that case morphology must be distinguished from abstract case. As far as arguments are concerned, abstract case and case morphology coincide. Abstract case is assigned by the case assigner, T or V. The morphological realization of abstract case depends on the domain where the case assignee occurs. Within VP, the case assignee is realized with accusative case morphology, and it is realized with nominative case morphology outside VP. The coincidence between abstract case and case morphology indicates that the case assigner and the position of the case assignee happen to be in the local domain. Korean has domain specific case morphology, nominative case morphology for the domain of TP and accusative case morphology for the domain of VP. Abstract case of an argument, thus coincides with case morphology of the domain.

Syntactic objects other than arguments can bear case morphology. Case morphology on In-Field topics, for instance, is not the morphological realization of abstract case. Semantically/pragmatically motivated expressions such as topics occur in a certain position of a sentence and are properly linked to the sentence structure.

Once this linking is done successfully, topics are realized with the topic marker, *-(n)un*, or the domain specific case morphology, i.e., accusative case morphology, *-ul/-lul*. This instance of case morphology, therefore, involves neither a case assigner nor a case assignee. Rather, this is an instance of maximizing the use of case morphology taking advantage of its domain specific property. Considering the domain specificity of case morphology, then, the accusative case morphology on the zooming-in topics functions as a position indicator that the zooming-in topic is in the domain of VP.

### 3.4.2 An Alternative Analysis?

So far, I implicitly assume that the In-Field topic is base-generated in its In-Field topic position. However, one might consider the possibility that the zooming-in topic and its associate might form a constituent at some level of derivation and the zooming-in topic raises to some position. This is the analysis that Kuroda (1992) claims in his analysis of the Japanese sentences in (36).

- (36) a. Tanaka-ga    ano kaigo    ni    **Huransu-zin-wa**    **gengogakusya-o**  
           Tanaka-nom    that meeting to    French-person-top    linguist-acc  
           yond.  
           invite  
           ‘Tanaka invited linguists, so far as the French are concerned,  
           to the meeting.’

- b. Tanaka-ga ano kaigo de **Huransu-zin-ni-wa gengogakusya-ni**  
 Tanaka-nom that meeting at French-person-at-top linguist-at<sup>19</sup>  
 atta.  
 met  
 ‘Tanaka met linguists, so far as the French are concerned, at the meeting.’

Kuroda (1992 p. 37).

The topic-marked DPs and the accusative and dative case marked DPs have the zooming-in relation. The sentences in (36), thus, seem to allow a sentence-internal zooming-in topic with a different morphological realization. Kuroda argues that the zooming-in topics (‘mini-topics’ in Kuroda’s term) and their associates are constituents at the level of Deep Structure, constituting a topic-comment relation, as shown in (37).

(37) a. [[*Huransu-zin-wa*] gengogakusya]-o

b. [[*Huransu-zin-wa*] gengogakusya]-ni

Kuroda claims that in (37), the zooming-in topic, *Huransu-zin* ‘French person’, has the topic marker, *-wa*, indicating that noun phrases (and postpositional phrases) have their own topics at some level. In the course of derivation, the case marker *-ni* or *-o* is attached to these DPs in deep structure and later distributed to *Huransu-zin-ni-wa*, while the case accusative marker *-o* does not surface due to the Double-*O* Constraint.

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<sup>19</sup> Kuroda (1992) glosses *-ni* as *at*, rather than dative.

If Kuroda's analysis is on the right track, then, Japanese does allow zooming-in topic structures in the domain of DP, but not in the domain of VP.

Kuroda's claim is based on the *-ni* sharing in (36b). However, it is not clear how *-ni* occurs closer to the root than the topic marker *-wa*. If *-ni* is distributed to the *-wa* marked DP, *-ni* is expected to attach to *Huransu-zin-wa*, resulting in *Huransu-zin-wa-ni*, rather than *Huransu-zin-ni-wa*, under the Mirror Image hypothesis (Baker 1996, Pollock 1997). Furthermore, Japanese allows the Out-Field counterparts of (36), which convey the similar reading.

- (38) a. **Huransu-zin-wa** Tanaka-ga ano kaigo ni **gengogakusya-o**  
 French-person-top Tanaka-nom that meeting to linguist-acc  
 yond.  
 invite  
 'As for the French, Tanaka invited linguists to the meeting.'
- b. **Huransu-zin-ni-wa** Tanaka-ga ano kaigo de **gengogakusya-ni**  
 French-person-at-top Tanaka-nom that meeting at linguist-at  
 atta.  
 met  
 'As for the French, Tanaka met linguists at the meeting.'

The only difference between the sentences in (36) and (38) is the word order. Thus, if we follow Kuroda's analysis, zooming-in type topics in the Out-Field topic position in Japanese have to be derived from movement such as topicalization rather than base-generated.<sup>20</sup>

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<sup>20</sup> It is also possible that the sentences in (36) are cases where the subjects and PPs are scrambled in front of the *-wa* marked zooming-in topic.

Going back to Korean, the In-Field topic does not have the contrastive topic reading at all, which indicates that direct application of Kuroda's analysis is inadequate. Recall that the zooming-in topic and its associate expression do not form a constituent, at least, on the surface.

On the surface, independently the zooming-in topic and its associate do not form constituent of any possible type. Korean does not allow either the form of genitive (cf. Yang, In-Seok, 1972), as shown in (39 a-b), or they form a noun compound, as illustrated in (39 c-d).

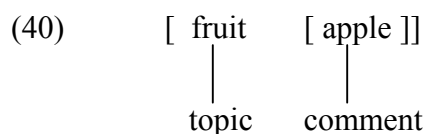
- (39) a. \*kwail-euy sakwa  
fruit-gen apple  
'fruits' apples'
- b. \*sakwa-euy kwail  
apple-gen fruit  
'apples' fruits'
- c. \* [kwail sakwa]  
fruit apple
- d. \* [sakwa kwail]  
apple fruit

The absence of the genitive counterpart and the noun compound counterpart indicates that if they form a constituent at some level, one has to assume either i) some kind of case sharing mechanism to ensure the accusative case morphology on the zooming-in topic, or ii) movement to a certain position within VP,

like a zooming-in topic version of possessor-raising. In either case, since they do not show constituency on the surface, one has to assume obligatory movement. Under the current analysis, an In-Field topic position is already available, and the occurrence of case morphology is attributed to the interaction of the proper linking of a topic to syntactic structure and the morphological component. The constituency analysis basically has to have similar mechanisms and an additional movement requirement. If we put aside the movement requirement, both analyses are quite similar.

Furthermore, the constituency analysis also has to assume that a zooming-in relation has to be imposed onto the topic-comment structure, in order to avoiding overgenerating. Otherwise, a sequence like ‘Sean – apple’ would be allowed, which it is not.

One seeming advantage of the constituency analysis is that the topic-comment relation could be directly captured between a zooming-in topic and its associate expression without the verb denotation.<sup>21</sup>



The overt counterpart of the topic-comment structure in (40), if it could exist, would be the following.

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<sup>21</sup> This may work for a contrastive topic. The accusative zooming-in topic does not convey the contrastive topic reading, however, I will not consider it for the moment.

- (41)      \*Kwail-un/-i      sakwa-i-ta.  
              fruit-TOP/-NOM   apple-be-DECL  
              ‘As for the fruit, it is an apple.’

However, as the ungrammaticality shows, this type of topic comment relation is not possible.<sup>22</sup> However, with the help of a verb denotation, it is not difficult to make a conceivable topic-comment relation such that *fruit* is a topic and the VP denotation, i.e., [apple + verb], is a comment.

To summarize, both the current analysis and the constituency analysis have to assume that there is a position available for a zooming in topic below the subject position. Both analyses have to assume that the zooming-in requirement exists for a topic and its associate. Whether the verb denotation is included in the comment part or not, at best, does not show any preference to both analyses. The constituency analysis, but not the current analysis, has to assume obligatory movement of the zooming-in topic below the subject. Other than the additional requirement of movement, there is no crucial evidence in favor of either analysis. Since the

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<sup>22</sup> The ungrammaticality in (41) does not mean that DP cannot be in the comment part. As shown below, a DP can be a comment. Notice that the sub-kind, *sakwa* ‘apple’ is topic-marked and the kind, *kwail* ‘fruit’ is in the comment part.

- (i)      Sakwa-un/\*-ka      kwail-i-ta.  
              apple-TOP/-NOM   fruit-be-DECL  
              ‘As for apples, they are fruits.’

This sentence seems to be a problem to the current analysis. However, this ‘definition’ type of sentence does not allow the sub-kind to bear nominative case morphology, indicating that it is different type of construction.



constituency analysis is no better than the current analysis, I maintain the current analysis. However, further research is required to have a conclusive answer.

### **3.5 In-Field Topics and the Left Periphery**

Since the In-Field topic is located below VoiceP, structurally, the In-Field topic position is under the scope of negation. In this section, I show how the In-field topic is not affected by negation, and how that position is exempted from the NPI licensing domain. The left periphery of a sentence is also dissected. One possible alternative analysis to the current analysis is discussed and discarded.

#### **3.5.1 Lack of Relativized Minimality Effects**

As Chomsky (1977), Rizzi (1997) and others noted, the topic position is believed to be an A-bar position. We have seen that In-Field topics block relativization of their associate DPs, just like *-(n)un*-marked topics do in the Out-Field topic zone. Topics are in principle A-bar elements, and the position the topic occupies is an A-bar position. We have also seen that an associate expression can be replaced with a WH-phrase. If the In-Field topic position is an A-bar position, it is expected that the position would show Relativized Minimality (RM) effects (Rizzi 1991, 2001), if we

assume that WH in-situ moves to the specifier position of CP at LF (e.g., Beck and Kim 1997, Choe 1984, Chung, Daeho 1996, Ko, Hee-Jeong to appear).

- (42) a. Y is in a Minimal Configuration (MC) with X iff there is no Z such that
- (i) Z is of the same structural type as X, and
  - (ii) Z intervenes between X and Y.

(Rizzi 2001)

- b. Z intervenes between X and Y iff Z c-commands Y  
and Z does not c-command X

The same structural type in Rizzi (1991) is either (i) head or specifier, or (ii) A or A-bar. Specifically, Korean is a WH-in-situ language and a WH-phrase moves to the specifier position of CP at LF.<sup>23</sup> Thus, the presence of the A-bar element should prohibit WH-phrases from occurring in the associate DP position. As shown earlier, however, WH-phrases can occur in the internal argument position.

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<sup>23</sup> Under the ‘Unselective Binding’ approach, WH-phrases are translated as open expressions, which gain quantificational force by having their variable bound by a c-commanding operator, as Kamp (1981), and Heim (1982) argued. Under this approach, WH-phrases are essentially interpreted in situ, and in particular WH-phrases do not move (e.g., Chung, Daeho 2000, Kim, Yeon-Seung 2001). Therefore, the issue at hand may not arise. However, it seems that whether WH-phrases undergo LF movement or not is still controversial.

- (43) a. [CP **WH** C<sup>0</sup> [TP Subject [VP **In-Field topic** [VP t V ]]]]
- ↑
- X
- b. Chelswu-ka kwail-ul mwues-ul mek-ess-ni? (=14a)  
 Chelswu-NOM fruit-ACC what-ACC eat-PAST-Q  
 ‘As for fruits, what did Chelswu eat?’

The grammatical sentence in (43b), which seemingly violates RM, indicates that topics do not trigger RM effects with respect to WH-in situ. In fact, this is not uncommon. Grohmann (2005) claims that a WH-phrase moves over a preposed topic in German, and Rizzi (2001) argues that topics are not affected by other A-bar specifiers and that topics do not act as interveners for other A-bar elements. These claims lead to a finer classification of A-bar specifiers rather than the simple version of the A/A-bar distinction. Rizzi (2001) claims the following classifications for A-bar specifiers:<sup>24</sup>

- (44) a. Quantificational: WH, Neg, measure, focus, etc.  
 b. Modifier: evaluative, epistemic, Neg, frequentative, measure, manner, etc.  
 c. Topic

<sup>24</sup> Rizzi (2001) includes ‘argumental’ in his classification, which corresponds to A in the simple version.

Some quantificational adverbs and negation are cross-classified, because, for instance, negation might be expressed by a special adverbial element such as French *pas*.

The ‘same structural type’ in ‘Z is of the same structural type as X’ is the classification in (44). Since WH-phrases and topics belong to different subclasses, their co-occurrence in a sentence does not trigger RM effects. Therefore, the presence of the In-Field topic does not cause any problem with respect to the RM when the WH-phrase moves at LF.

If this is the case, we wonder why neither DP can be relativized. More specifically, what blocks an associate DP from undergoing relativization, since relative operators and topics do not belong to the same structural type? We have seen that a zooming-in topic must be structurally higher than its associate. When the associate undergoes relativization, the relative operator moves across the In-Field topic position. This cross-over does not cause any problem with respect to RM. However, in the resulting configuration, the associate DP occupies the higher position than its topic counterpart, as illustrated below.

- (45) \*<sub>[NP [ CP Op<sub>i</sub> [ TP Chelswu-ka mulkoki-lul ti cap-un ] ] piraemii] (=22a)</sub>
- Chelswu-NOM fish-ACC catch-REL small.fish
- ‘lit. the small fish that Chelswu caught among a fish’

Therefore, the associate expression cannot be relativized. The impossibility of relativizing the zooming-in topic will be discussed in section 3.5.3, after the discussion of the structure of the left periphery of the sentence.

### 3.5.2 LF Movement

The In-Field topic, however, has its own problem. We have seen that In-Field topics do not fall under the scope of negation. We have also seen that NPIs cannot occur in the In-Field topic zone.

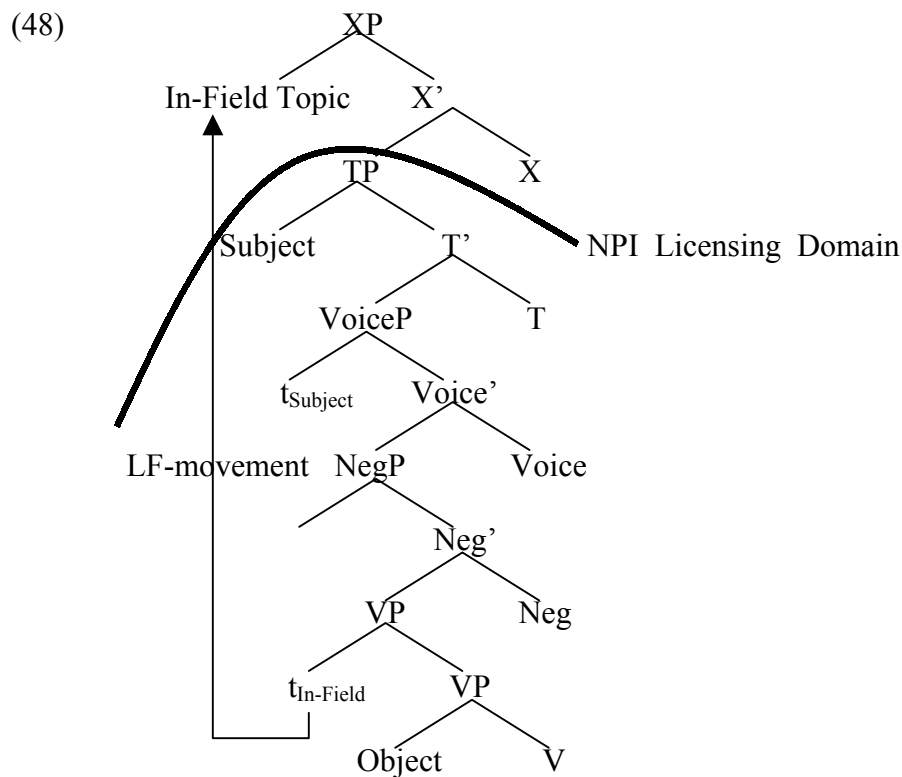
- (46) a. Chelswu-ka      **tambay-lul**    malboro-lul    an    phiu-ess-ta. (=19a)  
Chelswu-NOM    cigarette-ACC    Marlboro-ACC    NEG    smoke -PAST-DECL  
'As for cigarettes, Chelswu did not smoke Marlboro.'
- b. \*Chelswu-ka    **amwu kes-to**    malboro-lul    an    phiu-ess-ta. (=17a)  
Chelswu-NOM    any thing-TO    Marlboro-ACC    NEG    smoke-PAST-DECL  
'As for anything, Chelswu did not smoke Marlboro.'

These facts seem to follow from the current analysis, since NPIs cannot be topics. However, there is one more fact that we have to consider. Korean allows NPIs in the subject position, which indicates that the subject position is in the NPI licensing domain.

- (47)      **Amwu-to**      tambay-lul      malboro-lul      an      phiu-ess-ta. (=8a)  
anyone-TO      cigarette-ACC    Marlboro-ACC    NEG    smoke-PAST-DECL  
'As for cigarettes, no one smoked Marlboro.'

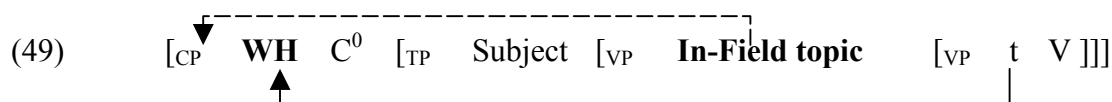
In the current analysis, the In-Field topic occurs below the subject position, which falls within the NPI licensing domain. That is, structurally, the NPI licensing domain should include the In-Field topic position. In order to resolve this

contradictory situation, I propose that the In-Field topic moves to the Out-Field topic position at LF. If the In-Field topic moves to the Out-Field at LF, the In-Field topic will no longer be in the scope of negation or the NPI licensing domain. A welcome result of LF movement of the In-Field topic is that by moving the In-Field topic to the Out-Field, the topic does not fall under the scope negation. The structure below illustrates the NPI licensing domain (the head X will be discussed in the next subsection).



### 3.5.3 Left Periphery

To which positions do WH-phrases and In-Field topics move at LF? It has been assumed that the WH-phrase moves to the specifier position of CP. I claimed that the In-Field topic moves to the Out-Field topic zone. The question is whether the Out-Field topic position is the specifier position of CP. The first possibility is that these two positions are provided by an identical head, i.e., both are the specifier positions of CP.



However, this option is ruled out once we consider what triggers the covert WH-movement. The [WH] feature on  $C^0$  is the trigger of LF WH-movement. However, this [WH] feature on  $C^0$  is incompatible with a topic. Topics are GIVEN and old, while the WH-phrase moved by the [WH] feature is NEW, and a focus. These incompatible properties between the two moved elements, thus, make it dubious that they occupy the positions provided by a single head, i.e.,  $C^0$ .

Furthermore, a  $-(n)un$  marked topic can co-occur with an in-situ WH-phrase. In the following sentence, the subject is  $-(n)un$  marked and occurs in the Out-Field, and a WH-phrase remains in-situ.

- (50) **Yoda<sub>i</sub>-nun** **e<sub>i</sub>** mwes-lul mek-ess-ni?  
 Yoda-TOP what-ACC eat-PAST-Q  
 ‘What did Yoda eat?’

Here, I follow Choe, Hyon-Sook's (1995) proposal that topics with the  $-(n)un$  marker are base-generated in the Out-Field topic position rather than moved there. For instance, a  $-(n)un$  marked topic does not exhibit Weak Cross-Over effects (Choe, Hyon-Sook 1995, Jung, Yeun-Jin 2001, cf. Lasnik and Stowell 1991, Rizzi 1997).

- (51)      John<sub>i</sub>-un    ku<sub>j</sub>-euy chinkwu-ka    e<sub>i</sub>       cengmallo cohaha-n-ta.  
                John-TOP he-GEN friend-NOM                     truly           like-PRES-DECL  
‘As for John<sub>i</sub>, his<sub>i</sub> friend truly likes him.’  
(Jung, Yeun-Jin 2001; 307)

The  $-(n)un$  marked topic is coindexed with the empty category. Similarly, the zooming-in topic in the Out-Field topic position does not show WCO effects. However, the In-Field topic does show WCO effects, confirming that an In-Field topic undergoes LF movement.

- (52) a. **Koki**<sub>i</sub>-nun **ku**<sub>i</sub>-tul-euy chencek-i                      pimaymi-lul cap-ass-ta.  
fish-TOP he-PL-GEN natural.enemy-NOM small.fish-ACC grab-PAST-DECL  
'As for fish, their natural enemy caught the small ones.'
- b. \***Ku**<sub>i</sub>-tul-euy chencek-i                      **koki**<sub>i</sub>-lul pimaymi-lul cap-ass-ta.  
He-PL-GEN natural.enemy-NOM fish-ACC small.fish-ACC grab-PAST-DECL  
'As for fish, their natural enemy caught the small ones.'



If the Out-Field topic position is the specifier position of CP, conflicts between NEW and GIVEN, topic and focus, etc., would be expected, which ultimately would make the sentence unacceptable. The perfectly acceptable sentence in (51), thus, indicates that the head that hosts a WH-phrase is different from the head that hosts a topic.

Suppose that there is a head whose projection hosts a topic and that head is distinguishable from the head that hosts a WH-phrase (cf. Rizzi 1997). Then, the problem concerning the conflicts between a topic and a WH-phrase is solved. The question that follows is whether the In-Field topic that undergoes LF movement occupies the position provided by the head that hosts the Out-Field topic.

A *-(n)un* marked topic can co-occur with the In-Field topic. As illustrated below, the topic with the topic marker, *-(n)un*, occurs in the Out-Field, while the In-Field topic position is filled with a zooming-in topic with accusative case morphology.

- (53)      **Cemshim-un** Yoda-ka    **phica-lul** Domino-lul    mek-ess-ta.  
              lunch-TOP      Yoda-NOM pizza-ACC Domino-ACC eat-PAST-DECL  
              ‘As for lunch, as for pizza, Yoda ate Domino’s.’

If the head  $X^0$  is the head hosting an Out-Field topic, i.e., *-(n)un* marked topic, it is likely that the head can provide an additional specifier position for the In-Field topic, as in (54a). Alternatively, it is conceivable that there is another head  $Y^0$  that provides a position to which the In-Field topic may move to at LF, as in (54b).

- (54) a. [XP **Out-Field topic** [XP **In-Field topic** X<sup>0</sup> ]]
- b. [XP **Out-Field topic** X<sup>0</sup> [YP **In-Field topic** Y<sup>0</sup> ]]

In the literature tracing back to the 1970s, it has been claimed that there exists a range of phenomena that are observed in root clauses and embedded clauses with root properties.<sup>25</sup> The topic-comment structure, i.e., topicalization, for instance, is generally believed to be one of these root phenomena (Emonds 1970, 2004, Hooper and Thompson 1973, Anderson 1975, Haegeman 1984, 1991, 2001, Heycock 1994, Tomioka 2001, 2004 and many others). In Korean, for instance, *-(n)un* marked topics cannot occur inside relative clauses (Yang 1990, Han 1998, among others) or conditionals (Whitman 1989).<sup>26</sup>

- (55) a. \*John-i [Mary<sub>i</sub>\*-nun e<sub>i</sub> t<sub>j</sub> coaha-nun] saram<sub>j</sub>-ul man-ass-ta.  
 John-NOM Mary-TOP like-REL person-ACC meet-PAST-DECL  
 ‘John met a person who Mary likes.’
- b. John-i [Mary-ka t<sub>j</sub> coaha-nun] saram<sub>j</sub>-ul man-ass-ta.  
 John-NOM Mary-NOM like-REL person-ACC meet-PAST-DECL
- c. \*Swul<sub>i</sub>-un Yoda-ka e<sub>i</sub> masi-myen,  
 liquor-TOP Yoda-NOM drink-if  
 Leia-nun ama kippe-ha-l kes-i-ta.  
 Leia-TOP probably happy-do-FUT KES-BE-DECL  
 ‘If Yoda drinks, Leia will probably be happy.’

<sup>25</sup> As Tomioka (2001) notes, ‘attitude’ verbs allow a topic-marked subject in the embedded clause.

<sup>26</sup> In (55d), to show the contrast more clearly, I use the sentence in which the internal argument, *swul-ul* ‘liquor-ACC’ is scrambled in front of the subject. The non-scrambled counterpart is also perfectly grammatical.

- d. **Swul-ul<sub>i</sub>**      Yoda-ka    t<sub>i</sub> masi-myen,  
      liquor-ACC    Yoda-NOM    drink-if  
      Leia-nun    ama            kippe-ha-l    kes-i-ta.  
      Leia-TOP    probably    happy-do-FUT   KES-BE-DECL

The contrasts between the topic-marked DPs and the ones with ordinary case morphology show that the head hosting an Out-Field topic is not allowed in relative clauses and conditionals.

These constructions along with the incompatibility of *-(n)un* marked topics provide a tool to test the two hypothesis in (54), whether there is only one head hosting a topic or more than one. The two hypotheses in (54) make different predictions with respect to In-Field topics. If there is only one head  $X^0$ , it is expected that the In-Field topic cannot occur in these constructions. If the In-Field topic moves to the specifier position provided by another head  $Y^0$ , it is expected that an In-Field topic can occur in these constructions. With these two different predictions, consider the following sentences with In-Field topics.

- (56) a. \*John-i      [**cemshim-un** t<sub>j</sub> phica-lul    mek-un]    saram<sub>j</sub>-ul  
      John-NOM    lunch-TOP            pizza-ACC    eat-REL    person-ACC  
      man-ass-ta.  
      meet-PAST-DECL  
      ‘John met a person who, as for lunch, ate pizza.’
- b.    John-i      [ t<sub>j</sub> **cemshim-ul**      phica-lul    mek-un]    saram<sub>j</sub>-ul  
      John-NOM            lunch-ACC      pizza-ACC    eat-REL    person-ACC  
      man-ass-ta.  
      meet-PAST-DECL

- c. \***Swul-un**      Yoda-ka    maykcwu-lul   masi-myen,  
          liquor-TOP    Yoda-NOM beer-ACC    drink-if  
          Leia-nun    ama           kippe-ha-l    kes-i-ta.  
          Leia-TOP    probably    happy-do-FUT KES-BE-DECL  
          ‘As for liquor, if Yoda drinks beer, Leia will probably be happy.’
- d.    Yoda-ka    **Swul-ul<sub>i</sub>**           maykcwu-lul   masi-myen,  
          Yoda-NOM liquor-ACC    beer-ACC    drink-if  
          Leia-nun    ama           kippe-ha-l    kes-i-ta.  
          Leia-TOP    probably    happy-do-FUT KES-BE-DECL

The examples in (56) show that an In-Field topic with accusative case morphology can occur in relative clauses and conditionals, while a zooming-in topic with the topic marker, *-(n)un*, cannot. If there were only one head  $X^0$ , and the In-Field topic moved to the position provided by that head, the sentences in (56) would be expected to be ungrammatical. Therefore, the position where the In-Field topic moves at LF must be distinguishable from the position where *-(n)un* marked topics occur.

So far, three different positions in the domain of CP are justified: the position where WH-phrases move, the position where In-Field topics move, and the position where *-(n)un* marked topics occur. These three different positions of the left periphery of a sentence, thus, provide a place for each element to occupy.

Root clauses allow *-(n)un* marked topics, while relative clauses and conditionals do not. This contrast between the clause types, thus, indicates that the position where *-(n)un* marked topics occur is missing in relative clauses and conditionals (cf. Beninca and Poletto 2001, Frascarelli and Hinterhölzl 2003, Haegeman 2004). Therefore, the missing position of the left periphery of the non-root

clauses is responsible for the impossibility of *–(n)un* marked topics in relative clauses and conditionals.

Another question to answer relates to the order between the three positions in the left periphery. Rizzi (1997), in his analysis of Italian, assumes that topical phrases must be moved to the specifier position of the functional projection TopP where they satisfy the Topic Criterion (which is similar to the WH-Criterion of Rizzi (1991),<sup>27</sup> and proposes that the CP domain has the structure in (58).

(57) Topic Criterion

- A. A topical phrase must be in a Spec-Head configuration with Top°;
- B. Top° must be in a Spec-Head configuration with a topical phrase.

(58)  $[_{\text{ForceP}} \text{ Force}^0 [_{\text{TopP}^*} \text{ Top}^0 [_{\text{FocP}} \text{ Foc}^0 [_{\text{TopP}^*} \text{ Top}^0 [_{\text{FinP}} \text{ } ]]]]]$

In (58), a head  $\text{Force}^0$  expresses the fact that a sentence is a question, a declarative, a relative, etc. (cf. the Clausal Typing hypothesis of Cheng 1991).  $\text{Top}^0$  is the head of a topic phrase and  $\text{Foc}^0$  is the head of a focus phrase. Rizzi claims that a  $\text{Top}^0$  head

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<sup>27</sup> Rizzi (1997) does not formalize the Topic Criterion, but he ‘assume[s] that a constituent endowed with topic or focus features must end up in a Spec/head configuration with Top or Foc, respectively; in other words, there are Topic and Focus Criteria, reminiscent of the Wh and Neg Criteria’ (Rizzi 1997, p. 287).

(i) WH-CRITERION (Rizzi 1991)

- A. A WH Operator must be in a Spec-Head configuration with  $X^\circ$  [+ WH];
- B. An  $X^\circ$  [+ WH] must be in a Spec-Head configuration with a WH Operator.

projects its own X-bar schema with the functional interpretation such that its specifier is the topic and its complement is the comment.

Following Rizzi's proposal, I assume that the left periphery in Korean has a structure similar to (58). Then, a WH-phrase that undergoes LF movement occupies the specifier position of Force<sup>0</sup>; the *-(n)un* marked topic occupies the specifier position of the higher Top<sup>0</sup>; and the In-Field topic undergoes LF movement to the specifier position of the lower Top<sup>0</sup>.

The observation that *-(n)un* marked topics cannot occur in relative clauses and conditionals is related to the higher topic position. If the higher topic position is not projected in non-root environments, it follows that the *-(n)un* marked topic cannot occur in such clauses. Therefore, I propose that in non-root contexts, the higher topic position that hosts the *-(n)un* marked topic is missing, while the lower topic position is projected (cf. Haegeman 2004). Whether or not the higher topic position is present, thus, determines the occurrence of the *-(n)un* marked topic. The left periphery for root and non-root clauses is given below. Since the focus position is not directly related to the discussion, I omit that position.

- (59) a: root                      Force > Top-*-(n)un* > Top-In-Field > TP  
       b: non-root                Force > Top-In-Field > TP

Going back to the impossibility of relativizing the In-Field topic, now it becomes clear why it cannot be relativized.

- (60)      \* $[\text{Chelswu-ka} \quad t_i \quad \text{piraemi-lul} \quad \text{cap-un}] \text{ mulkoki}_i$  (=22b)  
             Chelswu-NOM                      small.fish-ACC    catch-REL    fish  
             ‘lit. the fish among which Chelswu caught a small fish’

The In-Field topic moves to the lower topic position at LF. If the In-Field topic is relativized, however, the relative operator must occupy the specifier position of ForceP, but not the lower Topic position. The conflict between the two positions, therefore, makes relativizing the In-Field topic unacceptable.

### 3.5.5 Summary

The In-Field topic does not trigger RM effects, indicating that the A/A-bar distinction is not sufficient. A finer distinction, as proposed by Rizzi (2001), is necessary. For instance, the A' status of a topic should be distinguished from the A-bar status of WH-phrases. Furthermore, an In-Field topic moves to the lower topic position of the Out-Field at LF. Because of LF movement, the In-Field topic is outside the NPI licensing domain and it does not fall under the scope of negation. The target position of LF movement in the Out-Field topic zone is the lower topic position, which is present in both root and non-root clauses. The higher topic position of the Out-Field hosts a –

(*n*)*un* marked topic, and is projected in root clauses. In relative clauses and conditionals, the higher topic position is truncated.

If a language allows topics within VP as well as topics in the canonical topic position, then, it would be likely that the language allow topics in the domain of TP. In the next section, I will discuss topics in TP.

### **3.6 Middle-Field Topics and Unsolved Problems**

In this section, I show that the zooming-in topic comment relation is also available in the domain of TP. However, since some other grammatical devices are also operating in this domain, the situation is rather more complicated than that of the domain of VP. There are patterns that cause problems to which I do not have clear solutions. I present these patterns with some working hypotheses.

#### **3.6.1 Middle-Field Topics**

One of the characteristics of an In-Field topic is the identical morphological particle requirement including the case morphology. Therefore, in passives in which the internal argument moves to the surface subject position, the zooming-in topic must bear the nominative case morphology to satisfy the identical morphological particle requirement. In addition, the zooming-in topic must occur in a position higher than its associate expression.



- (61) a. Koki-ka/\*-lul ecey phiraymi-ka cap-hi-ess-ta.  
 fish-NOM/-ACC yesterday small.fish-NOM grab-PASS-PAST-DECL  
 ‘As for fish, small ones were caught yesterday.’
- b. \*Phiraymi-ka koki-ka/-lul cap-hi-ess-ta.  
 small.fish-NOM fish-NOM/-ACC grab-PASS-PAST-DECL

Thus, in (61a), the zooming-in topic cannot bear accusative case morphology, and it cannot occur below the surface subject, as in (61b). Following Frey (2000), I call topics in the TP domain Middle-Field topics.

Independent of passives, a zooming-in topic can occur with the nominative case morphology in the Middle-Field topic zone when its associate DP is the surface subject.

- (62) **Kwail-i sakwa-ka** pissa-ta.  
 fruit-NOM apple-NOM expensive-DECL  
 ‘As for fruit, apples are expensive.’

In the literature, this type of nominative structure has been claimed to be a sub-pattern of the multiple subject construction (Yang, In-Seok 1972, Kang, Young-Se 1986, Kim, Young Joo 1990, Yoon, James 1987, among others). Since Yang, In-Seok (1972) noted that these two nominative DPs have the *type-subtype* relation, various proposals for the first nominative DP have been made: from ‘aboutness’ DP (Kuno 1972) to focus (Kim Young-Joo 1990), to Major subject construed as a topic (Yoon, James to appear). As shown below, the first nominative DP shows the characteristics

of zooming-in topics: it cannot be questioned, and it is outside the NPI licensing domain.

- (63) a. \***Mwues-i** sakwa-ka pissa-ni?  
 what-NOM apple-NOM expensive-Q  
 ‘As for what, apples are expensive?’  
 b. \***Amwu kes-to** sakwa-ka an pissa-ta.  
 any thing-TO apple-NOM NEG expensive-DECL  
 ‘As for anything, apples are not expensive.’

The examples so far show that Korean allows Middle-Field topics. The situation, however, is a little more complicated with the zooming-in locatives outside the domain of VP. Consider the following examples with locative existential type of verbs like *occur*, which also allow alternation between dative and nominative.

- (64) a. **Mikwuk-ey**      *cicin-i*      *na-(a)ss-ta*.  
America-at      earthquake-NOM      occur-PAST-DECL  
‘An earthquake occurred in America.’
- b. **Mikwuk-i**      *cicin-i*      *na-(a)ss-ta*.  
America-NOM      earthquake-NOM      occur-PAST-DECL  
(Maling and Kim 1992: 40)

As we have seen before, locatives can employ the zooming-in topic-comment structure in the In-Field topic zone, and they observe the identical morphological particle requirement. Thus, it is expected that the locatives in the Middle-Field topic zone show the same behavior. Unlike the zooming-in locative in the In-Field,

however, the identical morphological particle requirement does not hold, as shown below.

- (65) a. **Mikwuk-ey sepu-ey** cicin-i na-(a)ss-ta.  
 America-at west-at earthquake-NOM occur-PAST-DECL  
 ‘An earthquake occurred in the western part of America.’
- b. **Mikwuk-i sepu-ka** cicin-i na-(a)ss-ta.  
 America-NOM west-NOM earthquake-NOM occur-PAST-DECL
- c. **Mikwuk-i sepu-ey** cicin-i na-(a)ss-ta.  
 America-NOM west-at earthquake-NOM occur-PAST-DECL
- d. (?) **Mikwuk-ey sepu-ka** cicin-i na-(a)ss-ta.  
 America-at west-NOM earthquake-NOM occur-PAST-DECL  
 (Maling and Kim 1992: 40-42)

The patterns in (65a) and (65b) are expected under the current analysis. However, the patterns in (65c) and (65d) are rather surprising. The zooming-in locative topic and its associate locative can bear different case morphology. It appears that the VP domain is more restricted than the TP domain with respect to the tolerance of mismatching case morphology. For these apparent exceptions to the current analysis, my working hypothesis is that the freedom that the TP domain enjoys is related to the topicality of nominative case morphology. It has been claimed that so-called Major Subjects can bear nominative case morphology (Tateishi 1994, Yoon, James to appear, Shibatani 1999, among others).<sup>28</sup> Major Subjects refer to non-subcategorized DPs with

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<sup>28</sup> The proposal of Major Subject has a close relation with the ‘Sentential Predicate’ analysis (Yim, Young-Jae 1985, Jang, Youngjun 1998, Moon, Gui-Sun

nominative case morphology. For the proponents of Major Subjects, Middle-Field topics also belong to the category of Major Subject, even though their syntactic behavior is quite different. For instance, the first nominative DP in the following sentence is a Major Subject.

- (66)      **Delaware-ka**    maykcwu-ka    pissa-ta.  
              Delaware-NOM   beer-NOM       expensive-DECL  
              ‘As for Delaware, beer is expensive (there).’

The Major Subject in (66) can be *interpreted* as a topic. Nevertheless, as shown below, a WH- phrase and an NPI can occur in that position.

- (67) a.    **Eti-ka**        maykcwu-ka    pissa-ni?  
              where-NOM beer-NOM       expensive-Q  
              ‘Where is beer expensive.’
- b.    **Amwu te-to**    maykcwu-ka    an    pissa-ta.  
              any    place-TO beer-NOM       NEG expensive-DECL  
              ‘As for any place, beer is not expensive.’

Furthermore, Major Subjects and thematic subjects can undergo relativization.<sup>29</sup>

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2000, Yoon to appear). Under this analysis, the Major subject is predicated by the rest of the sentence. That is, the second nominative and the predicate form a complex predicate.

<sup>29</sup> It has been claimed that the thematic subject cannot be relativized. The example below is judged to be marginal, at best.

- (i)    ??/\*[**Delaware-ka**    pissa-n]        maykcwu-nun    Miller-i-ta.  
          Delaware-NOM   expensive-REL beer-TOP       Miller-BE-DECL  
          ‘The beer which is really expensive in Delaware is Miller.’

- (68) a. [maykcwu-ka pissa-n]        **Delaware**  
          beer-NOM       expensive-REL Delaware  
          ‘Delaware where beer is expensive’
- b. [**Delaware**-ka cengmallo pissa-n]        maykcwu-nun Miller-i-ta.  
      Delaware-NOM really       expensive-REL beer-TOP       Miller-BE-DECL  
      ‘The beer which is really expensive in Delaware is Miller.’

It is not a trivial issue to argue that Middle-Field topics are Major Subjects, because of their differing syntactic behavior. Nonetheless, under the Major Subjects approach, mismatching case morphology is the result of imposing the nominative case morphology on the locative in order to make it a Major Subject. By replacing the first nominative DP with a WH-phrase, we find that the nominative case morphology on the WH-phrase is acceptable, while the dative counterpart is not.

- (69) a. \***Eti-ey**        **sepu-ey**        cicin-i        na-(a)ss-ni?  
          where-at       west-at       earthquake-NOM occur-PAST-Q  
          ‘In the western part of where did an earthquake occur?’
- b. ?**Eti-ka**        **sepu-ka**        cicin-i        na-(a)ss-ni?  
          where-NOM       west-NOM       earthquake-NOM occur-PAST-Q

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However, the sentence in (68b) does allow the thematic subject to be relativized. It has an adverbial expression like *cengmallo* ‘really’ in the relative clause. In contrast, the sentence in (i) does not have such an adverb and thus, it seems that the thematic subject cannot be relativized. It is unlikely that the presence of the adverb determines the possibility of relativization. Thus, the contrast between (68a) and (i) indicates that the sentence in (i) involves some other factors such as processing complexity (cf. Shin, Kyungsook 2004).

- c.    **Eti-ka**            **sepu-ey**    cicin-i            na-(a)ss-ni?  
          where-NOM    west-at    earthquake-NOM    occur-PAST-Q
- d.    \***Eti-ey**            **sepu-ka**    cicin-i            na-(a)ss-ni?  
          where-at        west-NOM    earthquake-NOM    occur-PAST-Q

The acceptability of the Middle-Field topics with nominative case morphology, thus, indicates that some other mechanism such as Major Subjects is involved. To have a conclusive answer, however, a more detailed examination is necessary.

Further complications come from the behavior of Middle-Field topics in the Raising to Object/ECM context. A Middle-Field topic can bear accusative case morphology when the sentence is embedded in a Raising to Object/ECM context. Consider the following examples from Yoon, James (to appear).

- (70)    **Pihayngki-ka/\*-lul**    747-i            khu-ta.  
          airplane-NOM/-ACC    747-NOM    big-DECL  
          ‘As for airplanes, 747 is big.’
- (71)    Na-nun **pihayngki-ka/-lul**    747-i            khu-ta-ko            mit-ess-ta  
          I-TOP    airplane-NOM/-ACC    747-NOM    big-DECL-COMP    believe-PAST-DECL  
          ‘I believed that, as for airplanes, the 747 is big.’

As shown in (70), the Middle-Field topic in the TP domain, *pihayngki* ‘airplane’, cannot bear accusative case morphology. In the Raising to Object/ECM context, however, it can bear accusative case morphology, as shown in (71), indicating that

Middle-Field topics and their associate expressions can have different case morphology.<sup>30</sup>

One might consider the possibility that the Middle-Field zooming-in topic, *airplanes*, raises to the In-Field topic position of the matrix clause cyclically through the specifier position of CP. In such a case, the head of the chain is in the matrix In-Field and the tail is in the Middle-Field of the embedded clause, and the zooming-in topic-comment relation is formed via a chain.

If this type of topicalization to the In-Field topic position is an available option, it is expected that an In-Field topic will be able to undergo topicalization to the Middle-Field topic position, which is not allowed at all.

- (72)      \*Swul-i      Yoda-ka      maykcwu-lul   masi-ess-ta.  
              liquor-NOM Yoda-NOM      beer-ACC      drink-PAST-DECL  
              'As for liquor, Yoda drank beer.'

Thus, it seems that there is no topicalization to the In-Field topic position. However, considering Major Subjects, it is not conclusive yet. It is clear that in ordinary transitive sentences, topicalizing the In-Field topic to the Middle-Field topic position is not possible. In passives, a zooming-in topic must occupy the Middle-Field topic position, due to the requirement that a zooming-in topic must be in a structurally

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<sup>30</sup> The embedded clause contains an overt complementizer, *-ko*. Thus, Raising to Object/ECM has taken place across the complementizer. However, this phenomenon is not a Korean specific property. The presence of an overt complementizer in the ECM context has been observed before in the literature: Kuno (1976) for Japanese, Zidani-Eroglu (1997) for Turkish, Bruening (2001) for Passamaquoddy, etc.

higher position than its associate. However, it is conceivable that the zooming-in topic occupies the In-Field topic position at some level of derivation and moves to the Middle-Field topic position, instead of being base-generated in the Middle-Field topic position.

- (73) a.    Cha-ka      Ford-ka              phal-i-ess-ta.  
              car-NOM    Ford-NOM              sell-PASS-PAST-DECL  
              ‘As for cars, a Ford was sold.’
- b.    car-NOM            Ford-NOM<sub>j</sub>    [VP            t<sub>j</sub>    sell-PASS]
- c.    car-NOM<sub>i</sub>            Ford-NOM<sub>j</sub>    [VP            t<sub>i</sub> t<sub>j</sub>    sell-PASS]

If both derivations in (73) are possible, a restricted version of topicalization from one topic position to another is allowed, as well as the option of base-generation. Notice that this type of topicalization, if it is possible, requires that no potential associate DP be in the domain of TP prior to DP-movement, as was shown in (72).

In the Raising to Object/ECM context, just like passives, there is no potential associate DP in the matrix VP. Then, the restricted version of topicalization from the Middle-Field topic position to the In-Field topic position can take place. This, however, does not rule out the possibility of the option of base-generation. To have a conclusive answer for this type of topicalization, further study is necessary.

Regardless of whether the zooming-in topic is topicalized or base-generated in the In-Field topic position of the matrix clause, Raising to Object/ECM constructions show that the zooming-in topic can have different case morphology from



its associate expressions. Thus, let us reconsider the requirement of identical morphological particle requirement on the zooming-in topics. Case morphology is domain specific. Thus, the accusative case morphology on the zooming-in topic is a position indicator, indicating that the zooming-in topic is in the In-Field topic position of the matrix clause. Its associate DP, however, is in the embedded clause. Crucially, no other potential associate DP is present between the zooming-in topic, *pihayngki* ‘airplane’, and the associate DP, 747 in (71). The sentence in (72) is ungrammatical because the nominative zooming-in topic, *swul* ‘liquor’, is in the domain of TP and in that domain, a potential associate DP, *Yoda*, which cannot establish the zooming-in relation with the liquor, is present. This means that, functionally speaking, the case morphology on the zooming-in topic states that the zooming-in topic and its associate DP is in the local domain. If there is no potential associate DP in the local domain, however, the domain is expanded by means of a mechanism applied to the Raising to Object/ECM context. Therefore, the case morphology on the zooming-in topic indicates the position where the topic occurs in a sentence.

### 3.6.2 *Know-Type Multiple Accusative Structure*

In the previous chapter, we saw that there are some verbs that have no clear affectedness implications such as *alta* ‘know’, but seemingly allow the IAP multiple accusative structure, as illustrated in (74).

- (74) a. Sunhee-nun pemin-ul elkul-ul a-n-ta.  
 Sunhee-TOP criminal-ACC face-ACC know-PRES-DECL  
 ‘Sunhee knows the criminal’s face.’
- b. (?)Na-nun Sunhee-lul apeci-lul a-n-ta.  
 I-TOP Sunhee-ACC father-ACC know-PRES-DECL  
 ‘I know Sunhee’s father.’

I showed that the sentences in (74), however, are not the IAP type of multiple accusative, but have some other type of multiple accusative structure, based on semantic and syntactic differences.

One might consider that this *know*-type multiple accusative belongs to the In-Field type multiple accusative. On closer examination, however, this type of multiple accusative involves more complicated properties. For instance, a WH-phrase can occur in the first accusative position. A WH-phrase with a body-part interpretation can occur in the second accusative position, while a WH-phrase with a kinship interpretation cannot.

- (75) a. Sunhee-nun nwukwu-ul elkul-ul a-ni?  
 Sunhee-TOP who-ACC face-ACC know-Q  
 ‘Whose face does Sunhee know?’
- b. Sunhee-nun pemin-ul etten elkul-ul a-ni?  
 Sunhee-TOP criminal-ACC which face-ACC know-Q  
 ‘Which of the criminal’s faces does Sunhee know?’
- c. \*Sunhee-nun pemin-ul etten tongsayng-ul a-ni?  
 Sunhee-TOP criminal-ACC which brother-ACC know-Q  
 ‘Which brother of the criminal does Sunhee know?’

In addition, the first accusative DP can be relativized. The second accusative DP can be relativized, if it has a body-part interpretation, while one with a kinship interpretation cannot.

- (76) a. [Nay-ka t<sub>i</sub> apeci-lul a-nun] haksayng<sub>i</sub>-un ceki-ey iss-ta.  
 I-NOM father-ACC know-REL student-TOP there-at be-DECL  
 ‘The student that I know (his) father is there’
- b. [Nay-ka ku haksayng-ul t<sub>i</sub> a-nun] elkul<sub>i</sub>-un  
 I-NOM that student-ACC know-REL face-TOP  
 sip nyen cen-euy elkul-i-ta.  
 ten year ago-GEN face-be-DECL  
 ‘The face of that student that I know is the face from 10 years ago.’
- c. \*[Nay-ka ku haksayng-ul t<sub>i</sub> a-nun] apeci<sub>i</sub>-un  
 I-NOM that student-ACC know-REL father-TOP  
 twu pen ccay apeci-i-ta.  
 2 time ORDINAL father-be-DECL  
 ‘The father of that student that I know is his second father (step father).’

These properties indicate that we are dealing with a multiple accusative structure that is different from the zooming-in type. My current working hypothesis is that the *know*-type multiple accusative involves several different factors such as the individual predicate properties, aboutness, etc., and some possible unknown factors. The complicated nature of this type of multiple accusative structure requires further research to have a substantial solution.

### 3.7 Cross-linguistic variation

Cross-linguistically, the availability of the sentence-internal zooming-in topic structure depends on language specific constraints. Whether a language allows the zooming-in topic licensing mechanism in a given domain is determined by a language specific constraint on its morphological component. If a language maximizes the use of the morphological form in that domain, that language allows the multiple occurrence of identical case morphology, as we have seen in Korean. If a language has limited numbers of a certain morphological particle, like accusative case morphology in Japanese, such a language uses that morphological form minimally.<sup>31</sup> Under the current analysis, case morphology can function as a position indicator, which is distinguishable from abstract case. In order for case morphology to be used in such a way, a language allowing multiple occurrences of identical morphology is a prerequisite, independent from the zooming-in topic comment structure at the sentence level. If a language allows multiple identical case markings in a certain domain, the sentence internal zooming-in topic structure is likely to occur in that domain. For instance, Korean and Japanese allow multiple nominative constructions. The existence of multiple nominative constructions, therefore, provides an environment for the

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<sup>31</sup> The choice of available morphological forms in a certain domain of a language, however, is not predictable. The choice, however, has some consequence in the grammar with respect to whether a certain form of construction is allowed or not.

Middle-Field topic-comment structure to occur. Indeed, these languages have the Middle-Field topic-comment structure.

Consider the Middle-Field topic comment structure in Japanese.

- (77)      Nihon-no tabemono-ga sakana-ga umai.  
            Japan-gen food-nom    fish-nom    good  
            ‘As for Japanese food, fish are good’      (Tateishi, 1994, p. 26)

The sentence in (77) contains two nominative DPs, and the first nominative DP has all the properties that sentence-internal zooming-in topics have in Korean. *Nihon-no tabemono-ga* c-commands *sakana-ga*, and it is not affected by negation. Neither of them undergoes relativization, as Kuno (1973) noted.

If a language does not allow the multiple identical case construction, the sentence-internal zooming-in topic structure is not likely to be employed. For instance, Japanese does not allow the multiple accusative structure in the VP domain, because of the Double-*O* constraint, which prohibits more than one occurrence of accusative case morphology at surface (Harada 1973). Consequently, Japanese does not have the In-Field topic-comment structure in the form of multiple accusatives. Instead, Japanese employs the In-Field topic-comment structure with the topic marker *-wa*.

Korean and Japanese allow the Out-Field zooming-in topic structure. In addition, Korean and Japanese allow the sentence-internal zooming-in topic structure in different domains. Korean and Japanese, which have overt case morphology, allow the Middle-Field topic comment structure. Korean allows multiple accusative

constructions, while Japanese does not. Thus, Korean, but not Japanese, has the In-field topic comment structure in the domain of VP. Therefore, there is a correlation between case morphology and sentence-internal zooming-in topic structure, as the table in (67) shows.

(78)		Multiple nominative	Multiple accusative	CP Out-Field	TP Middle-Field	VP In-Field
	Korean	√	√	√	√	√
	Japanese	√	*	√	√	*

The table in (78) shows that: 1) If a language allows multiple nominatives, zooming-in topics can occur in TP, 2) If a language allows multiple accusatives, zooming-in topics can occur in VP.

However, there are certain ways to avoid the requirement of case morphology. One conceivable way to avoid the case morphology problem is Noun Incorporation in languages like Onondaga (Chafe 1970, Woodbury 1975), Mohawk (Mithun 1984, 1986) and Tuscarora (Williams 1976). Consider the following sentences, in which the incorporated noun and the external phrase are ‘doubling’.

- (79) a. Onondaga (Woodbury 1975, p.11)  
           Hati-hnek-aets       o-v:ta:k-iʔ.  
           3m.pl-liquid-gather pre-syrup-suf  
           ‘They gather maple syrup.’

- b. Mohawk (Mithun 1986, p. 34)  
 onu:taʔ waʔ-k-hnek-I:ra.  
 milk past-1s-liquid-consume  
 'I drank milk.'
- c. Tuscarora (Williams 1976, p.63)  
 Ae-hra-taskw-ahk-hwaʔ haʔ tsi:r.  
 du-3m-domestic.animal-pickup-asp prt dog  
 'He regularly picks up dogs [he is a dog-catcher].'

In the sentences above, *liquid* doubles *syrup* in (79a), *milk* specifies *liquid* in (79b), and *dog* goes with *domestic animal* in (79c). There is a fairly uncontroversial semantic restriction on doubling that has been reported in the literature on noun incorporation (Baker 1988, Chafe 1970). Whenever there is an external phrase that doubles the incorporated noun, the external phrase must be more specific than the incorporated noun. Consider (80).

- (80) Onondaga (Chafe 1970, p.61)
- a. ʔo-nohs-akayoh.  
 pre-house-old  
 'The house is old.'
- b. ʔo-nohs-akayo neke ka-nohs-aʔ.  
 pre-house-old this pre-house-suf  
 'This house is old.'
- c. \*ʔo-nohs-akayo ka-nohs-aʔ.  
 pre-house-old pre-house-suf  
 'The house is old.'

The sentence in (80a) shows an ordinary incorporated noun without doubling. In (80b), doubling of the incorporated noun with a full DP that is more specific is allowed. However, if the external phrase is not more specific than the incorporated noun, the sentence becomes ungrammatical, as in (80c). This semantic restriction on doubling is identical to that of a zooming topic. Therefore, it is plausible to consider incorporated nouns zooming-in topics. Since polysynthetic languages do not exhibit either the multiple nominative structure or the multiple accusative structure, a zooming-in topic in these languages has to be incorporated into the verb.<sup>32</sup>

### 3.8 Conclusion

This chapter examined sentence-internal zooming-in topic constructions, in which two accusative DPs show a zooming-in relation. The first accusative DP, which is not subcategorized for by the predicate, behaves just like the *-(n)un* marked counterpart, indicating that it is a topic.

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<sup>32</sup> Baker (1995) proposes the Polysynthesis Parameter as a trigger for Noun Incorporation. Informally, this parameter states that every argument of a head must be related to a morpheme in the word containing that head (Baker 1995: 14). This parameter is formalized as the Morphological Visibility Condition (MVC) which states that a phrase X is visible for theta-role assignment from a head Y only if it is coindexed with a morpheme in the word containing Y via (i) an agreement relationship or (ii) a movement relationship (Baker 1995: 17). The MVC puts incorporated roots and agreement affixes into the same systematic relation with the verb and is thus satisfied either by agreement morphology or by NI.



An Out-Field topic is introduced by semantic/pragmatic device, and the topic is linked to the syntactic unit by occupying the topic position. Then, the topic is realized with the topic marker *–(n)un* in morphology. An In-Field topic is introduced into a sentence into VP and occupies the In-Field topic position. The In-Field topic position, however, is not the canonical topic position. Thus, occupying the topic position within VP is not sufficient for the In-Field topic to be properly linked to the syntactic constituent. By having the morphological form identical to its associate expression, the In-Field topic is properly linked to its comment part. Therefore, when an associate expression is a PP, the In-Field topic position is filled with a PP which has a zooming-in relation with the associate PP. When an associate expression is an internal argument, the zooming-in topic is realized with the case morphology of the domain it occupies. In this sense, the case morphology on the zooming-in topic functions as a place indicator where it occurs. This function enables the zooming-in topics to be related to the potential associate DP in the local domain such as TP, or VP.

A verb agrees with an internal argument and assigns accusative case. The internal argument is realized with accusative case morphology in the morphological component. This instance of case morphology is abstract case. In addition, a zooming-in topic bears accusative case morphology, only if it is successfully linked to the syntactic constituent, VP, or TP. This instance of case morphology cannot be considered abstract case. Rather it is closer to a place indicator, if we consider its

function. Therefore, not all instances of case morphology are instances of abstract case. By separating abstract case from case morphology, it becomes possible to account for a wide range of data involving case morphology. More data with different properties will be examined in the next chapter.

Following Rizzi (1991), the left periphery of a sentence is considered a structured zone with two different topic positions.  $-(n)un$  marked topics occupy the higher topic position, while the In-Field topics move to the lower topic position at LF. Following the claim that there are phenomena that pertain to root clauses, I proposed that the higher position of the Out-Field topic zone is truncated in relative clauses and conditionals based on the fact that a  $-(n)un$  marked topic cannot occur. The lower topic position, however, is not truncated, and thus the In-Field topic can occur in relative clauses and conditionals.

A zooming-in topic in the domain of TP is realized with nominative case morphology if its associate expression is the surface subject. However, unlike the domain within VP, the TP domain has other mechanisms such as Major Subjects, and that is why semantic relations other than zooming-in are allowed for a nominative topic and its associate. The *know*-type multiple accusative also shows intriguing syntactic behaviors of its own. These cases require further detailed research.

Cross-linguistic differences with respect to the availability of sentence-internal zooming-in topic structure are related to the availability of the multiple identical case structure. Whether a language allows a domain specific default case

determines the domain where the zooming-in topic can occur. The zooming-in topic-comment structure may be realized in the domain of CP, TP, or VP. The domain of CP is the available option for most of the languages. Languages that allow multiple nominatives exhibit the zooming-in topic structure within TP. Languages that allow multiple accusatives exhibit the zooming-in topic structure within VP. This correlation between case morphology and the existence of sentence-internal topics provides an account for the cross-linguistic variations.

## CHAPTER 4

### Measure Expressions

#### 4.1 Introduction

In Chapter 2 and Chapter 3, I showed that accusative case morphology can be used in two different ways: One is the realization of abstract case, and the other is maximizing the use of case morphology taking advantage of its domain specificity. Since case morphology can be used in different ways, it is likely there is another use of it. In this chapter, I show that case morphology can be used to measure expressions and that case morphology indicates the position to which a certain function of semantic interpretation applies. The expressions that bear case morphology are measure expressions including measure phrase (classifier phrases and amount phrases), and measure adverbials (duratives, frequency adverbials, and distance/path adverbials).

Languages like Korean use measure phrases (henceforth MPs) such as classifier phrases (CIPs) and amount phrases (AmPs) to measure the nominal. These

MPs can be separated from the nominal and can bear case morphology, *-ka* or *-lul*, known as split MPs<sup>1</sup>, as in (1).

- (1) a. Leia-ka chinkwu-lul achim-ey ney myeng-ul man-ass-ta.  
 Leia-NOM friend-ACC morning-at four Cl<sub>person</sub>-ACC meet-PAST-DECL  
 ‘Leia met four friends in the morning.’
- b. Leia-ka mwul-ul achim-ey sam lithe-lul masi-ess-ta.  
 Leia-NOM water-ACC morning-at three liter-ACC drink-PAST-DECL  
 ‘Leia drank three liters of water in the morning.’

The occurrence of the accusative case morphology on the ClP and the AmP in (1) seems to be problematic for the Case Filter (Chomsky 1981), if these *-lul* suffixes are realizations of abstract case. As far as ClPs are concerned, it is not easy to tell whether they have abstract case. By comparing with AmPs, however, I show that these *-lul* suffixes are NOT the morphological realization of abstract case, but a morphological default assigned to an expression which is associated with a certain function of semantic interpretation. Case morphology is domain specific in Korean. This domain specificity makes it possible to indicate the position where the ClPs and AmPs occur in a sentence.

Semantically, ClPs and AmPs are subject to a monotonicity constraint (Schwarzschild 2002). The entities that measure expressions must be able to provide a non-trivial part-whole relation with respect to the scheme that the measure expressions

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<sup>1</sup> In the literature, mostly focused on the classifier phrases, these types of constructions are often called ‘Floated Numeral Quantifiers’, ‘Floating (Numeral) Classifiers’, etc.

measure. In this respect, CIPs and AmPs are indistinguishable. It is this semantic indistinguishableness that enables us to interpret the Split MPs uniformly.

On the other hand, intuitively CIPs and AmPs are not the same. CIPs are used to measure the natural unit of discrete entities and AmPs measure the certain dimension of entities such as height, weight, etc. This intuition, I show, can be correlated with the case morphology on MPs in passives and unaccusatives, and thus, CIPs and AmPs are distinguishable in the syntax. This difference also affects the semantic interpretation.

In addition to MPs, certain types of adverbials can also bear accusative case morphology in active sentences.

- (2) a. Luke-ka maykcwu-lul twu pen-ul masi-ess-ta.  
 Luke-NOM beer-ACC two time-ACC drink-PAST-DECL  
 ‘Luke drank the beer twice.’
- b. Yoda-ka maykcwu-lul twu shikan-(tongan)-ul masi-ess-ta.  
 Yoda-NOM beer-ACC two hour-(period)-ACC drink-PAST-DECL  
 ‘Luke drank the beer for two hours.’
- c. Luke-ka san kil-ul sam mail-ul kel-ess-ta.  
 Luke-NOM mountain trail-ACC three mile-ACC walk-PAST-DECL  
 ‘Luke walked the mountain trail by three miles.’

The accusative case morphology on frequency adverbials, as in (2a), duratives, as in (2b), and distance/path adverbials, as in (2c) is closely related to the semantic interpretational device for MPs. These adverbials measure the events. There are events denoted by verbs and these adverbials measure the number of occurrences, the run

times of events, and the distance covered by events, respectively. This event measuring property distinguishes these measure adverbials from other adverbials like manner adverbials, which cannot bear case morphology.<sup>2</sup>

- (3)        \*Luke-ka    maykcwu-lul   ppali-lul       masi-ess-ta.  
              Luke-NOM beer-ACC      quickly-ACC    drink-PAST-DECL  
              ‘Luke drank the beer quickly.’

The link between split MPs in (1) and measure adverbials in (2) is found in Nakanishi (2003, 2004). She proposes that MPs indirectly measure the host noun by directly measuring out the event denoted by the verb, using a device called homomorphisms. A homomorphism is a function that maps some structural relation of a domain to another similar relation of the range (Krifka 1998, Jackendoff 1996, Nakanishi 2004). For instance, in (2b), we want to say *for two hours* measures the Yoda’s-beer-drinking-event, but *for two hours* cannot directly measure the Yoda’s-

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<sup>2</sup> There is one apparent exception in which the manner adverb *ppali* with the accusative case morphology is allowed.

- (i)    Na-nun   Seoul-ey-lul   **ppali-lul**       ka-ko    sip-ta.  
        I-TOP    Seoul-to-ACC   quickly-ACC    go-KO    want-DECL  
        ‘I want to go to Seoul soon.’

(Yoon, Jong-Yurl 1989 p. 384)

However, notice that the meaning of *ppali* is slightly different from manner interpretation, as the English translation indicates. *ppali* in (i) is used to denote the time span rather than manner. The sentence has the inferences such as ‘I cannot wait that long for my departure’ or ‘I want to shorten the travel time by taking an airplane rather than a ship’. Typically, this ‘soon’ meaning emerges when *ppali* occurs with *X-ko sip-ta* ‘want to do the action of X’.

beer-drinking-event, because the event is not a time-interval. Therefore, as Krifka (1989) noted, *for two hours* measures a run time of the event and relates the measured run time with the time-interval of event. This task is done by an assumption that there is a mapping from events to event run time. This assumption is formalized by Krifka (1989) such that there is a homomorphism  $h$  from the lattice of events to the lattice of event run times.

Following Nakanishi (2003, 2004), I show that the same interpretational device can be applied to split MPs in Korean. I also show that ClPs and AmPs exhibit different syntactic behaviors with respect to case morphology in passives and unaccusatives. Based on this difference, I argue that the case morphology on MPs determines the primary choice of homomorphism. I further show that by using different homomorphisms, measure adverbials measure the events directly and measure the run times, path etc indirectly.

Measure expressions (Split MPs and Measure Adverbials) measure events, and can bear case morphology. Given that non-measure adverbials cannot have case morphology (cf. (3)), I claim that the case morphology on measure expressions functions as a place indicator that indicates where measure expressions occur in a sentence (i.e., within VP or outside VP). I also suggest that case morphology reveals an important aspect of a syntactic agreement relation between a host noun and a measure expression, a notion which is applicable to classifiers but crucially not to amount expressions.



This chapter is organized as follows. Section 2 explores the syntax and semantics of classifier phrases and amount phrases. After presenting their similarities and differences, I propose that a sentence has two distinct positions which MPs occupy, and that the difference between CIPs and AmPs comes from the presence or the absence of an agreement relation in the syntax. The case morphology on MPs is related to the position in which they occur in Split MP constructions. The positional difference, under the phase based syntactic theory, accounts for the difference in the case morphology on MPs. Since Korean also allows bare MPs, the distributions and properties of bare MPs will be discussed. More specifically, I show that a lack of case morphology on MPs causes some impact on semantics, and leads to processing complexity. In Section 3, based on the analysis of MPs, I will provide an account for the distribution of measure adverbials (MAs). The peculiar distribution of duratives and spatial length expressions will also be discussed. In Section 4, the licensing mechanism for the measure expressions and its relation to case morphology will be discussed. Section 5 will conclude the chapter.

## **4.2 Measure Phrases**

Classifier phrases and amount phrases seem to constitute a semantic natural class, since both employ the same semantic interpretative device developed by Nakanishi

(2003, 2004). However, they behave differently in passives and unaccusatives with respect to case morphology.

#### 4.2.1 Classifier Phrases and Amount Phrases

MPs are used to measure their host nominals. They can form a constituent with the nominal that they measure using genitive case, as in (4), or they can form a noun compound, as in (5).<sup>3</sup> Alternatively, they can be separated from the nominal and can bear case morphology, as in (6).<sup>4</sup>

- (4) a.    Leia-ka    [ney    kay-euy    sakwa]-lul    mek-ess-ta.  
          Leia-NOM   four   Cl<sub>unit</sub>-GEN   apple -ACC   eat -PAST-DECL  
          ‘Leia ate four apples.’
- b.    Leia-ka    [sam    kiro-euy    sakwa]-lul    mek-ess-ta.  
          Leia-NOM   three   kilogram-GEN apple-ACC   eat-PAST-DECL  
          ‘Leia ate three kilograms of apples.’

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<sup>3</sup> No adverbials or PPs can intervene the host noun and the MP in (4) and (5).

- (i) a.    \*Leia-ka    [ney    kay-euy    ecey    sakwa]-lul    mek-ess-ta.  
          Leia-NOM   four   Cl<sub>unit</sub>-GEN   yesterday   apple -ACC   eat -PAST-DECL  
          ‘Leia ate four apples yesterday.’
- b.    \*Leia-ka    [sakwa    ecey    ney    kay]-ul    mek-ess-ta.  
          Leia-NOM   apple   yesterday   four   Cl<sub>unit</sub> -ACC   eat -PAST-DECL

<sup>4</sup> Dative arguments do not allow floating CIPs, unless either the host noun or the floating CIP carries some additional marker such as *-man* ‘only’, *-to* ‘also’, *-cohca* ‘even’ etc. See Hong Ki-Sun (1990) for details.

- (5) a. Leia-ka [sakwa ney kay]-ul mek-ess-ta.  
 Leia-NOM apple four Cl<sub>unit</sub> -ACC eat -PAST-DECL
- b. Leia-ka [sakwa sam kiro]-lul mek-ess-ta.  
 Leia-NOM apple three kilogram -ACC eat -PAST-DECL
- (6) a. Leia-ka sakwa-lul ecey ney kay -ul mek-ess-ta.  
 Leia-NOM apple-ACC yesterday four Cl<sub>unit</sub> -ACC eat -PAST-DECL  
 ‘Leia ate four apples yesterday.’
- b. Leia-ka sakwa -lul ecey sam kiro-lul mek-ess-ta.  
 Leia-NOM apple-ACC yesterday three kilogram-ACC eat-PAST-DECL  
 ‘Leia ate three kilograms of apples yesterday.’

When an MP and a nominal that the MP measures (i.e., a host DP) form a constituent, as in (4) and (5), the MP can directly measure the nominal. In a Split pattern, as in (6), however, an MP cannot measure the nominal directly, because of the non-constituency. To overcome this problem, there has been a claim that a Split MP and its host DP forms a constituent at some level and the host DP moves away from the base-generated position to some other position (Sportiche 1988, Merchant 1996, Cho, Seng-Eun 2000, among others).

However, numerous researchers have claimed that there is no derivational relation between the Split pattern and other possible patterns such as the Genitive pattern, based on various syntactic and semantic differences between them (Bobaljik 1995, Junker 1995, Downing 1996, Doetjes 1997, Nakanishi 2004, among others).

One of the tests is modification. If the Split MP construction in (7b) has a derivational relation with the Genitive pattern (7a) or the noun compound pattern (7b),

the sentences are expected to have the same meaning, which is not correct.

- (7) a. Kyengchal-i [tocuha-n-un [twu tay-euy cha-lul]]  
 police-NOM run.away-PRES-REL two CL<sub>unit</sub>-GEN car-ACC  
 cap-ass-ta.  
 catch-PAST-DECL  
 ‘The police caught two cars that were running away.’  
 The number of cars that were running away = 2
- b. Kyengchal-i [tocuha-n-un [cha twu tay-lul]]  
 police-NOM run.away-PRES-REL car two CL<sub>unit</sub>-ACC  
 cap-ass-ta.  
 catch-PAST-DECL  
 ‘The police caught two cars that were running away.’  
 The number of cars that were running away = 2
- c. Kyengchal-i [tocuha-n-un cha-lul] twu tay-lul  
 police-NOM run.away-PRES-REL car-ACC two CL<sub>unit</sub>-ACC  
 cap-ass-ta.  
 catch-PAST-DECL  
 ‘The police caught two of the cars that were running away.’  
 The number of cars that were running away  $\geq$  2

As shown in (7c), the split CIP has the zooming-in effects, while the genitive counterpart exhibit no such effects.<sup>5</sup> If a Split CIP and its host DP form a constituent

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<sup>5</sup> Even though the sentence in (7c) shows the zooming-in effects, it cannot be equated with the zooming-in type of multiple accusative structure. Recall that the zooming-in topic cannot be relativized. The host DP of the Split MP, however, can be relativized.

- (i) a. Yoda-ka photocwu-lul twu pyeng-ul masi-ess-ta.  
 Yoda-NOM wine-ACC two Cl<sub>bottle</sub>-ACC drink-PAST-DECL  
 ‘Yoda drank two bottles of wine.’
- b. [Yoda-ka t<sub>i</sub> twu pyeng-ul masi-ess-ten] photocwu<sub>i</sub>  
 Yoda-NOM two Cl<sub>bottle</sub>-ACC drink-PAST-REL wine  
 ‘The wine that Yoda drank two bottles’

at some level, a modifier is expected to modify that constituent. However, in (7c), the modifier, *tochuha-n-un* ‘run.away-PRES-REL’, only modifies the host noun, *cha* ‘car’. The Split ClP, therefore, measures the cardinality of cars that were running away. In contrast, in (7a) and (7b), *two cars* is modified by the modifier. Thus, this semantic difference challenges the derivational analysis.

Denying a derivational relation between an MP and its host DP raises a question about how the MP measures its host DP. Nakanishi (2003, 2004) answers this question by proposing that MPs indirectly measure the host noun by measuring out the event denoted by the verb, using homomorphism in (8). Roughly speaking, the homomorphism ensures the measurement of event to correspond to the measurement of individuals of the events.

- (8) The indirect measure function  $\mu'$  is monotonic relative to the domain E iff:  
 For events  $e_a, e_b$  in E: If  $h(e_a)$  is a proper subpart of  $h(e_b)$ ,  
 then  $\mu'(h(e_a)) < \mu'(h(e_b))$ , where  $h$  is a homomorphism from E to I  
 such that  $h(e_1 \cup_E e_2) = h(e_1) \cup_I h(e_2)$

( $h$ : homomorphism,  $\mu$ : measure function E: event I: Individual)

(Nakanishi 2003)

By introducing an event argument (Davidson 1967) and by defining lattice structures of events (Link 1983, Kirfka 1989, Landman 2000), the homomorphism

connects the semantic parallelism between the nominal and verbal domains. Both the mass/count distinction in the nominal domain and the telic/atelic distinction in the verbal domain use a lattice of individuals and events, respectively.

This parallelism between the nominal and verbal domains also captures the Nakanishi's (2003, 2004) claim that Split MPs in each nominal and verbal domain are subject to the same monotonicity constraint in (8).<sup>6</sup>

(9)  $\mu$  is monotonic relative to domain I iff: For individuals x, y in I:

If x is a proper subpart of y, then  $\mu(x) < \mu(y)$

(Schwarzschild 2002)

Schwarzschild (2002) claims that a measure function is monotonic relative to the denotation of some element if and only if it tracks part-whole structures of the element. For instance, in the AmP, *sam kiro* '3 kilogram' in (6b), there is a function that gives kilogram measurements and it "is monotonic because if **a** is part of **b** and **a** weighs **n** ounces and **b** weighs **m** ounces, then **n** is less than **m**" (Schwarzschild, 2002; 3). This gives the scheme to measure 3 kilograms. It is also noteworthy of Schwarzschild's (2002) claim that the relevant measure scheme is determined by different factors such as world knowledge, context, etc. For instance, the

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<sup>6</sup> The monotonicity constraint of Schwarzschild (2002) is based on Lønning's (1987) monotonicity.

measurement scheme is ‘length’ in *Sean’s hair is 3 inches long*, and it is ‘depth’ in *the ice froze 3 inches thick*.

Thus, *sip do* ‘10 degree’ can be used to measure out the temperature (10a), because the measure function  $\mu$ : Temperature is monotonic to  $[[10 \text{ degree}]]$ . If the temperature last night was 60 degree and the temperature this morning is 70 degree, then the measure function  $\mu$ : Temperature measures the scheme and gives 10 degree. In contrast, the measure function  $\mu$ : Temperature cannot be used to measure out water (10b), because the measure function  $\mu$ : Temperature is not monotonic to  $[[\text{water}]]$ . The relevant measure scheme for *water* is ‘weight’ or ‘volume’, rather than ‘temperature’.

- (10) a. Kion-i cinan pam-ey sip do ol-ass-ta.  
temperature-NOM last night-at ten degree increase-PAST-DECL  
‘The temperature increased by 10 degrees last night.’
- b. \*Mwul-i cinan pam-ey sip do nemchi-ess-ta.  
water-NOM last night-at ten degree overflow-PAST-DECL  
‘The water overflowed by 10 degrees last night.’

With the help of homomorphisms, Split MPs can measure their host DP indirectly. Let us consider the examples in (6).

- (11) a. Leia-ka sakwa -lul ecey ney kay -ul mek-ass-ta. (=6a)  
Leia-NOM apple -ACC yesterday four Cl<sub>unit</sub> -ACC eat -PAST-DECL  
‘Leia ate four apples yesterday.’
- b. Leia-ka sakwa -lul ecey sam kiro-lul mek-ass-ta. (=6b)  
Leia-NOM apple-ACC yesterday three kilogram-ACC eat-PAST-DECL  
‘Leia ate three kilograms of apples yesterday.’

In (11a), the CIP, *ney kay* ‘4  $Cl_{unit}$ ’ cannot directly measure the host noun, *sakwa* ‘apple’, since the CIP and the host noun are generated separately. The AmP, *sam kiro* ‘3 kilograms’ in (11b) cannot directly measure the host noun, either. Thus, in (11a) the CIP measures the cardinality of the events and maps the measurement to the cardinality of the host noun. Roughly, there were Leia’s-apple-eating-yesterday-events and that events have the measurement of 4 units. A homomorphism relates the measurement of 4 units to the cardinality of apples. The sentence (6a), thus, is interpreted such that there is a plural event  $e$  of Leia’s eating  $x$  such that  $x$  is an apple/apples and  $\mu$ : cardinality-of-individuals applied to  $h(e)$  yields an interval on the cardinality-of-individuals scale that has the property  $[[four-individuals]]$ , where  $h$  is the  $[[eat]]$ . Similarly, in (11b), there were Leia’s-apple-eating-yesterday-events and that events involve the measurement of 3 kilograms. By using a homomorphism, the measurement of 3 kilograms is mapped to the measure scheme of weight of the host noun, *apples*. Thus, the interpretation is that there is a plural event  $e$  of Leia’s eating  $x$  such that  $x$  is an apple/apples and  $\mu$ : weight applied to  $h(e)$  yields an interval on the weight scale that has the property  $[[three-kilograms]]$ , where  $h$  is the  $[[eat]]$ .

In this sense, CIPs and AmPs form a natural class in semantics. The similarity between CIPs and AmPs is extended to the syntax. They can bear case morphology and they have similar syntactic representations. Based on their similar behavior in ordinary transitive sentences, the syntactic structure for split MPs will be



proposed in the next subsection. Then, their syntactic and semantic differences will be presented.

#### 4.2.2 The Structure of Split MP Constructions

CIPs and AmPs can bear case morphology.<sup>7</sup> Thus, in an ordinary transitive clause, an internal argument-oriented CIP bears the accusative case morphology, and an external argument-oriented CIP bears the nominative case morphology, as in (12).

- (12)      Haksayng-tul-i    twu    myeng-i            chinkwu-tul-ul    ney    myeng-ul  
              student- PL-NOM   two   Cl<sub>person</sub>-NOM    friend-PL-ACC   four Cl<sub>person</sub>- ACC  
              man-ass-ta.  
              meet-PAST-DECL  
              ‘Two students met four friends.’

Amount phrases, just like CIPs, can bear case morphology. An internal argument-oriented AmP can bear accusative case morphology, and an external argument-oriented AmP can bear nominative case morphology, as shown in (13).

- (13)      Kangmwul-i        sam    thon-i        kangttuk-ul        sip    mithe-lul  
              river.water-NOM   three   ton-NOM        river.bank-ACC    ten    meter-ACC  
              mwunettuli-ess-ta.  
              break.down-PAST-DECL  
              ‘Three tons of water broke down ten meters of the bank.’

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<sup>7</sup> Dative arguments do not allow floating CIPs, unless either the host noun or the floating CIP carries some additional marker such as *-man* ‘only’, *-to* ‘also/even’, *-cohca* ‘even’ etc. See Hong, Ki-Sun (1990) for details.

Another property that Split CIPs and AmPs share is that Split MPs must be c-commanded by their host noun. As shown below, non-c-commanding potential antecedents cannot be the host DP for Split MPs.

- (14) a.    Leia-ka    [haksayng<sub>i</sub>-tul-euy    chinkwu<sub>j</sub>-tul-ul] ecey  
           Leia-NOM student-PL-GEN            friend-PL-ACC    yesterday  
           twu\*<sub>i/j</sub>    myeng-ul            man-ass-ta.  
           two        Cl<sub>person</sub> -ACC    meet -PAST-DECL  
           ‘Leia met two friends of the students.’  
           \*‘Leia met friends of the two students.’
- b.    Leia-ka    [sakwa<sub>i</sub>-euy            kkepcil<sub>j</sub>-ul] ecey  
           Leia-NOM apple-GEN            peel -ACC    yesterday  
           sam\*<sub>i/j</sub>    kiro-lul            mek-ess-ta.  
           three    kilogram-ACC eat-PAST-DECL  
           ‘Leia ate three kilograms of peel of the apple.’  
           \*‘Leia ate peel of three kilograms of the apple.’

The examples so far show that CIPs and AmPs behave similarly in the syntax, and thus, I assume that they have similar syntactic representations. How the split MP structure is represented in the syntax has been one of the important issues in the analysis of the split MP structure and there has been a general consensus that a Split MP associated with an external argument and a Split MP associated with an internal argument are at different locations with some variations among researchers with respect to the exact location (Sohn, Keun-Won 1993, Miyagawa 1989, Fujita 1994, Kim, Sun-Woong 1996, Nakanishi 2003, among others). The placement of VP adverbs supports this claim that there are two different positions for MPs. For

instance, external argument oriented CIPs cannot occur below VP adverbs such as *caymisskey* ‘interestingly’.<sup>8</sup>

- (15) a. \*Haksayng-i *caymisskey* twu myeng-i chayk-ul ilk-ess-ta.  
 student-NOM with.interest two Cl<sub>person</sub>-NOM book-ACC read-PAST-DECL  
 ‘2 Students read the book with interest.’
- b. Haksayng-i twu myeng-i *caymisskey* chayk-ul ilk-ess-ta.  
 student-NOM two Cl<sub>person</sub>-NOM with.interest book-acc read- PAST-DECL

The ungrammatical sentence in (15a) shows that external argument-oriented CIPs cannot occur in a position below the position that VP adverbs occupy. The internal argument oriented CIP in (16), in contrast, occurs in a position lower than the VP adverb.

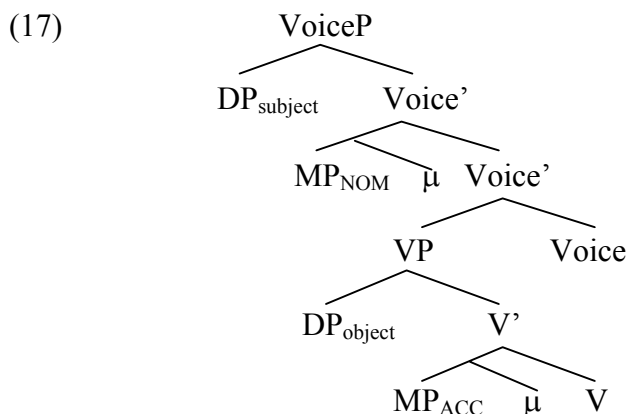
- (16) Haksayng-i *caymisskey* chayk-ul twu kwen-ul ilk-ess-ta.  
 student-NOM with.interest book-ACC two Cl<sub>book</sub>-ACC read-PAST-DECL  
 ‘Students read 2 books with interest.’

Now it is clear that the position where external-argument-oriented MPs occur in is distinct from the position that internal-argument-oriented MPs occupy. Let us suppose that external-argument-oriented CIPs are generated outside VP and the internal-argument-oriented CIPs are generated inside VP. This hypothesis, then, has

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<sup>8</sup> The plural marker *-tul* is optional in Korean.

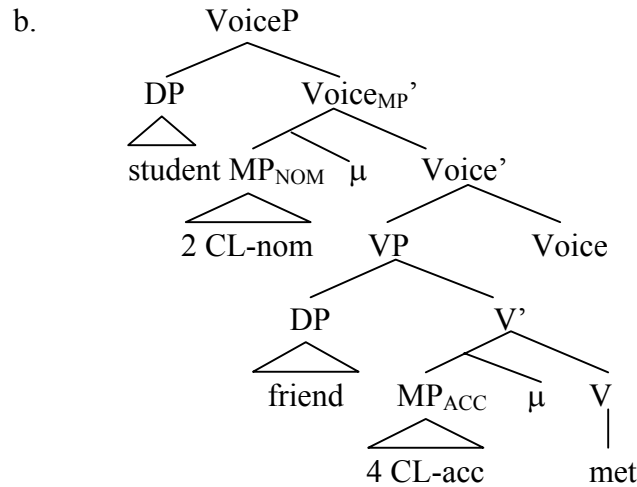
the syntactic representation for Split MPs illustrated below, in which split MPs are c-commanded by their host DPs.



In (17), an external argument is introduced by the functional head, Voice (Kratzer 1996), and the related MP is generated within the projection of Voice. The internal argument is generated in the specifier position of VP and the related MP is generated within the domain of VP. The measure function  $\mu$  in (17), which is a measurement scheme obtained from the relation between an MP and a measured element (Nakanishi 2004), is not present in the syntax but combines with the MP in the semantics. The structure in (17) contains the semantic measure function for the illustrative purpose.

The sentence in (12), repeated here as (18a), then, has the structure in (18b). The external argument oriented MP, *sam thon-i*, occupies the VP external position and the internal argument oriented MP, *sip mithe-lul*, occupies the VP internal position.

- (18) a. Haksayng-tul-i twu myeng-i chinkwu-tul-ul ney myeng-ul  
 student- PL-NOM two Cl<sub>person</sub>-NOM friend-PL-ACC four Cl<sub>person</sub>- ACC  
 man-ass-ta.  
 meet-PAST-DECL  
 ‘Two students met four friends.’



To summarize, split CLPs and AmPs behave similarly in the syntax. They can bear case morphology and their syntactic representations are similar. In the syntactic representation, two distinct positions are available for MPs. The external argument oriented MPs occupy the position outside the domain of VP, and the internal argument oriented MPs occupy the position within the domain of VP.

Following Nakanishi (2004), I assume that the measure function has the following denotation.<sup>9</sup>

<sup>9</sup> Nakanishi (2004) follows Montague's notation for type theory: *e* (the type of individuals) and *t* (the type of truth values) are the basic types. She also makes use of *d* (the type of degrees) and *v* (the type of events). If  $\sigma$  and  $\tau$  are semantic types, then  $\langle \sigma, \tau \rangle$  is a semantic type.

(19) The denotation of Measure Function<sup>10</sup>

$$[[\mu]] = \lambda D_{\langle d, t \rangle}. \lambda P_{\langle e, vt \rangle}. \text{MON}(\mu, P). \lambda x_e. \lambda e_v. P(x)(e) \wedge D(\mu(e))$$

Nakanishi (2004; 185)

In Chapter 2, we have seen that the Agent role is cumulative but the Theme role isn't (Kratzer forthcoming, Krifka 1986). However, the denotation of the measure function in (19) that combines an internal argument oriented MP with the internal argument requires that the Theme argument be cumulative. This contradictory situation is solved, if we follow Kratzer's (forthcoming) claim that verb denotations are cumulative. For instance, if  $e_1$  is a planting-roses event and  $e_2$  is a planting-trees event, the sum of these two events is an event of planting roses and trees. Therefore, the cumulative nature of verb denotations allows for internal argument oriented MPs to combine with the denotation of the VP using denotation in (19).

The compositional semantics for the sentence in (18) is given below.<sup>11</sup>

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<sup>10</sup> For Nakanishi (2004), the measure function for the external argument-oriented MPs occur at the VP level. She uses the following denotation of the measure function to combine the external argument-oriented MPs with the denotation of VP.

(i)  $[[\mu_{VP}]] = \lambda D_{\langle d, t \rangle}. \lambda P_{\langle v, t \rangle}. \text{MON}(\mu, P). \lambda e_v. P(e) \wedge D(\mu(e))$

<sup>11</sup> Here, I follow Nakanishi's semantics, which is slightly different from the Neo-Davidsonian semantics that I used in Chapter 2. The verb denotation  $\lambda x_e. \lambda e_v. *met(e)=x$  is represented as  $\lambda x_e. \lambda e_v. *met(e) \ \& \ Theme(e, x)$ , and the Agent denotation  $\lambda y_e. \lambda e_v. Agent(e)=y$  is represented as  $\lambda y_e. \lambda e_v. Agent(e, y)$  in Neo-Davidsonian semantics. The '\*' in  $*met(e)=x$  is an operator that semantically pluralizes the verb denotation (Link 1983).

$$\begin{aligned}
(20) \quad & [[\textit{met}]] = \lambda x_e. \lambda e_v. *met(e)=x \\
& [[\textit{four-CL}]] = \lambda I_d. \textit{four-individuals}(I) \\
& [[\mu_{V'}]] = \lambda D_{\langle d, t \rangle}. \lambda P_{\langle e, vt \rangle}: MON(\mu, P). \lambda x_e. \lambda e_v. P(x)(e) \wedge D(\mu(e)) \\
& [[\textit{four-CL}+\mu]] = \lambda P_{\langle e, vt \rangle}: MON(\textit{card.}, P). \lambda x_e. \lambda e_v. P(x)(e) \wedge \\
& \quad \textit{four-individuals}(\textit{cardinality}(h(e))) \\
& [[V']] = \lambda x_e. \lambda e_v. *met(e)=x \wedge \textit{four-individuals}(\textit{cardinality-of-individuals} \\
& \quad (h(e))) \\
& [[NP]] = \textit{friend} \quad \text{type } e \text{ (kind)} \\
& [[VP]] = \lambda x_e. \lambda e_v. *met(e)=x \wedge \textit{four-individuals}(\textit{card.-of-ind.}(h(e)))(\textit{friend}) \\
& [[\textit{Voice}]] = \lambda y_e. \lambda e_v. \textit{Agent}(e)=y \\
& [[\textit{Voice}']] = \lambda y_e. \lambda e_v. \textit{Ag}(e)=y \wedge \exists x[\textit{friend}(x) \wedge *met(e')=x \wedge \textit{four-ind.} \\
& \quad (\textit{card.}(h(e')))] \\
& [[\textit{two-CL}]] = \lambda I_d. \textit{two-individuals}(I) \\
& [[\mu_{\textit{Voice}'}]] = \lambda D_{\langle d, t \rangle}. \lambda P_{\langle e, vt \rangle}: MON(\mu, P). \lambda x_e. \lambda e_v. P(x)(e) \wedge D(\mu(e)) \\
& [[\textit{two-CL}+\mu]] = \lambda P_{\langle e, vt \rangle}: MON(\textit{card.}, P). \lambda x_e. \lambda e_v. P(x)(e) \wedge \textit{two-individuals} \\
& \quad (\textit{cardinality}(h(e))) \\
& [[\textit{Voice}_{MP}']] = \lambda x_e. \lambda e_v. \textit{Ag}(e)=y \wedge \textit{two-individuals}(\textit{cardinality}(h(e))) \wedge \\
& \quad \exists x[\textit{friend}(x) \wedge *met(e')=x \wedge \textit{four-ind.}(\textit{card.}(h(e')))] \\
& [[\textit{student}]] = \textit{student} \quad \text{type } e \text{ (kind)} \\
& [[\textit{VoiceP}]] = \lambda e_v. \textit{Ag}(e)=\textit{student} \wedge \textit{two-individuals}(\textit{cardinality}(h(e))) \wedge \\
& \quad \exists x[\textit{friend}(x) \wedge *met(e')=x \wedge \textit{four-ind.}(\textit{card.}(h(e')))]
\end{aligned}$$

The final interpretation is read as there is a plural event  $e$  of  $x$ 's meeting  $y$  such that  $x$  is a student/students and  $y$  is a friend/friends and  $\mu$ : cardinality-of-individual applied to  $h(e')$  yields an interval on the cardinality-of-individual scale that has the property  $[[four-individuals]]$ , and  $\mu$ : cardinality-of-individual applied to  $h(e)$  yields an interval on the cardinality-of-individual scale of the Agent that has the property  $[[two-individuals]]$ , where  $h$  is the  $[[meet]]$ .<sup>12</sup> Given this interpretation, it is not necessary to posit an underlying constituent in order to compute the measurement.

#### 4.2.3 However, CIPs are different from AmPs

So far, we have seen the syntactic and semantic similarities between CIPs and AmPs. However, there also have been claims that classifiers and amount expressions are different. Classifiers correspond to an atomic discrete entity with specific properties such as a particular shape, human, non-human, etc. (Lønning 1987, Krifka 1986, Krifka 1989, Cheng and Sybesma 1992, Downing 1996, Chierchia 1998a, Chierchia 1998b, among others). For instance, *myeng* is used to count the number of humans, *mari* for the number of animals, *kay* for the quantity of inanimate objects and so on.

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<sup>12</sup> See 4.2.5 for the two homomorphisms: one based on the verb denotation and the other based on the neo-Davidsonian Agent function.



Therefore, the relationship between a classifier and its host noun is arbitrary and the choice of a classifier is dependent upon the host noun (Krifka 1986, 1989).

Amount expressions, in contrast, measure out a certain domain of entities, based on some properties, such as length, weight, volume, degree etc. (Schwarzschild 2002). Since the measure function of AmPs is independent of the host noun (Krifka 1986, 1989), AmPs apply to an entity that is compatible with them. For instance, an AmP, *kilogram*, can be used in reference to any entity that has weight measurable by kilograms. Since the host noun does not determine the choice of an amount phrase, the relationship between them is not closer than that of a classifier and its host noun.

This difference between a CIP and an AmP has an impact in syntax in terms of case morphology. In ordinary active sentences, it is hard to find any syntactic difference. However, in unaccusatives and passives, CIPs and AmPs show a sharp contrast: CIPs *must* bear the same case morphology as the host noun, as shown in (21), while AmPs can bear either *-ka* or *-lul*, as in (22).<sup>13</sup> (Note: *must* in this chapter means ‘if a measure expression bears case morphology, that case morphology has to be realized.’ MPs without case morphology are also acceptable in (21) and (22). See Section 4.6 for the details.)

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<sup>13</sup> There are speakers who do not like the *-lul* marked measure phrases in passives and unaccusatives. See section 4.2.6 for details.

(21) a. Unaccusatives

Elum-i      **twu cokak-i** / \***twu cokak-ul**      el-ess-ta.  
 ice-NOM    two Cl<sub>piece</sub>-NOM    two Cl<sub>piece</sub>-ACC    freeze-PAST-DECL  
 ‘Two pieces of ice were frozen.’

b. Passives

Kaykwuri-ka **twu mari-ka** / \***twu mari-lul**  
 frog- NOM    two Cl<sub>animal</sub>- NOM    two Cl<sub>animal</sub>-ACC  
 cap-hi-ess-ta.  
 catch-PASS-PAST-DECL  
 ‘Two of the frogs were caught.’

(22) a. Unaccusatives

Elum-i      **sip inchi-ka** / **sip inchi-lul**      el-ess-ta.  
 ice- NOM    ten inch- NOM    ten inch- ACC    freeze-PAST-DECL  
 ‘The water froze 10 inches thick.’

b. Passives

Ttang-i      **sam mithe-ka** / **sam mithe-lul**      pha-i-ess-ta.  
 ground- NOM    three meter- NOM    three meter- ACC dig-PASS-PAST-DECL  
 ‘3 meters of the ground were dug.’

In (21) and (22), when the internal argument moves to the subject position, ClPs must bear the same case morphology (nominative) as their hosts do, while the AmPs can bear either nominative or accusative case morphology. This contrast shows that ClPs are different from AmPs.

To summarize so far, classifier phrases behave differently from amount phrases. The relationship between a ClP and its host noun is much closer than that of an AmP and its host noun. This difference can be overtly realized as different behaviors with respect to case morphology. ClPs, if they bear case morphology, must

bear the same case morphology as their host DP, while AmPs endure mismatching case morphology in passives and unaccusatives.

#### 4.2.4 Case Morphology on MPs

The presence of the accusative case morphology on AmPs in passives and unaccusatives, as in (21) and (22), denies the possibility that accusative case morphology serves as a morphological realization of abstract case. In unaccusatives and passives, the verb lacks the ability to assign abstract case. The internal argument, therefore, moves to the subject position in the course of derivation, as shown in (23), and is nominative marked. If it is accusative, the sentence is ungrammatical.

- (23) Elum-i /\*elum-lul nok-ass-ta.  
ice-NOM /ice-ACC melt-PAST-DECL  
'The ice melt.'

Unlike the argument, an AmP can bear accusative case morphology as well as nominative case morphology, as we have seen earlier. This indicates that the case morphology on AmPs is not related to abstract case. Rather, the case morphology on AmPs is related to the position where they occur. As shown below, the AmP, *sam inchi* '3 inches', can bear either nominative or accusative case morphology.

- (24) a. Elum-i cinan pam-ey tantanhakey sam inchi-lul el-ess-ta.  
 ice-NOM last night-at solid three inch-ACC freeze-PAST-DECL  
 ‘3 inches of ice was frozen solid yesterday.’
- b. \*Elum-i sam inchi-lul tantanhakey el-ess-ta.  
 ice-NOM three inch-ACC solid freeze-PAST-DECL
- c. ??/\*Elum-i tantanhakey sam inchi-ka el-ess-ta.  
 ice-NOM solid three inch-NOM freeze-PAST-DECL
- d. Elum-i cinan pam-ey sam inchi-ka tantanhakey el-ess-ta.  
 ice-NOM last night-at three inch-NOM solid freeze-PAST-DECL

Crucially, the relative ordering of the AmP and the VP adverb, *tantanhakey* ‘solid’, has a grammatical impact, resulting in the contrast between (24a) and (24b), and (24c) and (24d). The AmP with accusative case morphology must occur below the VP adverb, while the one with nominative case morphology must occur above the VP adverb. The contrasts in (24), therefore, show that the nominative/accusative case morphology on AmPs indicates the position where they occur in a sentence rather than the morphological realization of abstract case. Abstract case is assigned by a case assigner. Unaccusative predicates in Korean, however, never allow an accusative internal argument, indicating that they lack the accusative case assigning ability. Then, the presence of accusative case morphology on AmPs in (24a) cannot be the case that the unaccusative predicates retain the accusative case assigning ability and assign it to an AmP. Otherwise, one has to assume that unaccusative predicates can assign accusative case only if an AmP, but nothing else, is present, which is unlikely. As was shown in Chapter 1, case morphology in Korean is domain specific and each domain,

TP and VP, has its own default morphological particle, which happens to be identical to case morphology. In the morphological component, AmPs are realized with default morphological particle of the domain (see also the discussion of MAs in Section 4.3).

One might consider the possibility that the *-ka* and *-lul* markers on AmPs are situational delimiters. Delimiting an event, however, is distinguished from measuring an event. Delimitedness refers to the property of an event's having a distinct, definite and inherent end point in time (Tenny 1994). For instance, if *-ka* in (24d) is a situational delimiter, it is expected that the-ice-freezing-event was over, when the event resulted in 3 inch deep frozen ice. This is, however, incorrect, since 3 inches only refers to the ice that was frozen solid. Therefore, the case morphology on MPs is not a morphological realization of abstract case or a situational delimiter.

Since case morphology is domain specific, as we have seen in Chapter 2 and 3, the case morphology on MPs indicates the position of MPs. An MP within the domain of VP bears accusative case morphology and an MP outside the domain of VP bears nominative case morphology.

The common properties that CIPs and AmPs share are that syntactically they occur in the same position and that semantically they indirectly measure the host DP by measuring out the events directly. Case morphology on MPs functions as a place indicator, and relates the syntactic position to measuring events. The presence of case morphology on MPs has some consequence in semantics, which we will see in Section 4.2.7.

#### 4.2.4 The Agreement Relation

We have seen that an AmP exhibits a *-ka/-lul* alternation in passives and unaccusatives, while a CIP must bear the same case morphology (nominative) as its host DP. Where does this difference come from? The choice of a classifier is determined by its host noun. An AmP, on the other hand, can be used to measure the host noun as long as the measurement scheme is compatible with the host. Thus, it is highly likely that a classifier agrees with its host DP, at least in semantics (e.g., Miyagawa 1989, Nakanishi 2004). For instance, the classifier *myeng* ‘Cl<sub>person</sub>’ is semantically compatible with humans, but it is not semantically compatible with pencils. To count pencils, *caru* ‘Cl<sub>unit</sub>’ must be used. If a classifier and its host noun are in a semantic agreement relation, why not a syntactic one? This is the idea I want to argue. In the syntax, a CIP is in an agreement relation with its host noun, while an AmP is not in such an agreement relationship. Then the presence or absence of the agreement relation results in the absence or presence of the alternation of case morphology. Matching case morphology does not clearly show whether there is an agreement relation, since both CIPs and AmPs allow it. The mismatch of case morphology, in contrast, is significant. As shown in (24), CIPs and AmPs show a contrast in whether or not they bear accusative case morphology. A CIP does not allow mismatching case morphology with its host noun, while an AmP does.

(25)

Matching case morphology		
ice-ka	√ 2 piece-ka	√ 3 inch-ka
Mismatching case morphology		
ice-ka	<b>*2 piece-lul</b>	√ 3 inch-lul

What does the mismatch of case morphology show? First of all, it shows that the MP and its host DP are in different domains. The host DP moves to the subject position in passives and unaccusatives, and becomes nominative. If we assume that accusative case morphology is morphological default within the domain of VP, the nominative host and the accusative MP are not in the same domain. Therefore, a CIP requires its host to be in the local domain, while an AmP does not. I show in the following discussion that this locality is related to agreement, and thus, argue that the mismatching case morphology indicates whether the agreement relationship is established or not. More specially, an AmP is NOT in an agreement relation with its host DP, while a CIP IS in an agreement relationship with its host DP. This agreement relation between a CIP and its host DP prohibits the CIP from bearing mismatching case morphology. An AmP, in contrast, allows the mismatching case morphology due to the lack of agreement.

Why does a CIP require a local relation? The choice of a classifier is dependent on its host noun. This dependency and the locality requirement provide a good basis for which to assume that a CIP and its host DP are in an agreement relation. Suppose that a classifier has a formal feature [F] which agrees with the host DP,

similar to the morphological agreement between host DP and a floating quantifier observed in languages like French, German, and Hebrew. The feature that a classifier has can be a phi-feature set. Among the features [person], [number] and [gender], it is plausible to posit the [number] feature on a classifier that agrees with its host noun, since a ClP contains a numeral and quantifies the host DP indirectly. The [gender] feature is plausible in a classifier. In many languages of various families (Niger-Congo, Caucasian, Sino-Tibetan, Oceanic, Australian, Amerindian, etc.) nominal items are formally divided by diverse means, according to criteria that have to do either with “natural” categories such as being a human (of either sex), or a plant, or an animal, or a dangerous thing, or with descriptive properties of the denoted object, like being elongated, or flat, or liquid, and so forth. Even though there are differences between noun classification and classifiers (Dixon 1986), the intuitive idea is that the noun classification and classifiers are related to each other with respect to a certain feature. I will use this feature [gender] for the sake of simplicity. If a classifier agrees with its host noun in [number] and [gender], then the mismatch in case morphology shows that there is a failure of agreement.

Now, consider the sentence in (21a), repeated as (26).

- (26)      Elum-i      twu   cokak-i   /   \* twu   cokak-ul      el-ess-ta.  
          ice-NOM   two   Cl<sub>piece</sub>-NOM /   two   Cl<sub>piece</sub>-ACC      freeze-PAST-DECL  
          ‘Two pieces of ice were frozen.’



In (26), the internal argument, *elum* ‘ice’, moves to the subject position and agrees with its ClP. The ungrammaticality of the sentence in which the ClP bears the accusative case morphology indicates that the agreement relation must be established in the local domain where identical case morphology is available. In the discussion of IAP passives in Chapter 2, we have seen that the non-active Voice head is present in passives. The case morphology on ClPs shows that the head Voice is present in unaccusatives, too. This goes along with Legate’s (2003) claim that unaccusative and passive VPs exhibit phasehood, as are *v*P (=VoiceP) and CP. Based on the parallelism between ordinary transitive sentences and passive/unaccusative sentences with respect to diagnostic tests such as *wh*-reconstruction effects, etc., Legate shows convincingly that unaccusative and passive VPs are subject to the PIC. The presence of case morphology on a ClP in passives and unaccusatives in Korean follows from her claim.<sup>14</sup>

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<sup>14</sup> Legate (2003) uses reconstruction effects as a diagnostic for intermediate traces of *wh*-movement at the phase edge. In order for a *wh*-word to be visible to movement operations during a subsequent phase, it must move to the edge of its phase, in accordance with the PIC. Thus, successive cyclic WH-movement must leave copies at every intermediate CP and *v*P (=VoiceP). The interaction between binding and reconstruction shows that intermediate copies are in CP and *v*P (Lebeaux 1988, Fox 1998). Consider the sentences in (i).

- (i) a. [Which of the papers that he<sub>i</sub> gave Mary<sub>j</sub> ] did every student<sub>i</sub> √ ask her<sub>j</sub> to read \*carefully?
- b. \* [Which of the papers that he<sub>i</sub> gave Mary<sub>j</sub>] did she<sub>j</sub> \*ask every student<sub>i</sub> to revise \*?  
(Fox 1998:157)

In addition to the presence of phase boundary, Frampton and Gutmann (2000, 2001) claim that the syntactic agreement relation induces feature sharing, including case features. If this is the case, a Split ClP and its host DP need to share the case feature and thus, they bear the identical case morphology.

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The WH-phrase contains a pronoun, *he*, and an R-expression, *Mary*. In a given sentence, the pronoun, *he*, has to be bound by *every student*, while *Mary* must not be bound by the pronoun *her/she*. Thus, the position to which the WH-phrase reconstructs must be the one below *every student* and above *her/she*. If we assume that the WH-phrase stops by and leaves an intermediate copy in an adjoined position to the *vP*, *ask her to read*, the sentence in (ia) has such a position. Therefore, the WH-phrase is successfully reconstructed and the sentence is grammatical. In contrast, (ib) does not have such a position for the WH-phrase to reconstruct without any violation. In order for *he* to be bound by *every student*, the WH-phrase must reconstruct to its merged position. In this position, however, the pronoun, *she*, c-commands and binds the R-expression, *Mary*, resulting in a Condition C violation. Thus, the sentence is ungrammatical.

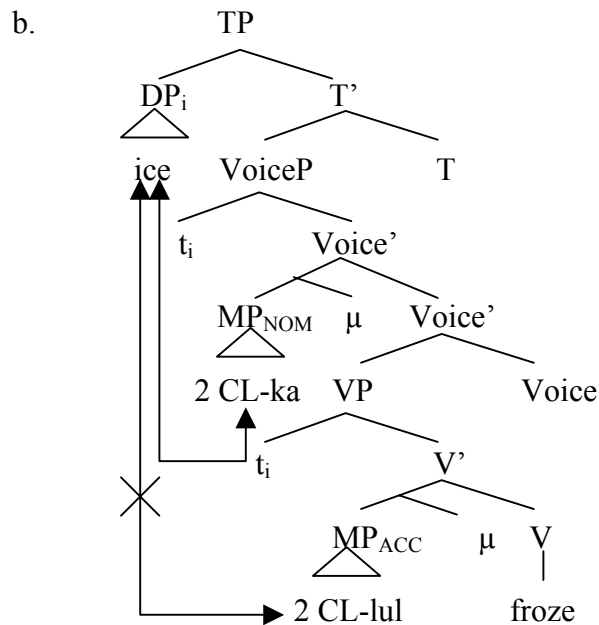
Legate (2003) applies this test to unaccusatives, using an unaccusative verb with two internal arguments; *escape* meaning ‘forget’.

- (ii) a. [At which conference where  $he_i$  mispronounced the invited speaker $_j$ ’s name] did every organizer $_i$ ’s embarrassment  $\sqrt{\quad}$  escape  $her_j$   $\_$  ?
- b. \*[At which conference where  $he_i$  mispronounced the invited speaker’s name $_k$ ] did  $it_k$   $\_$  escape every organizer $_i$  entirely  $\_$  ?  
(Legate 2003: 508)

Again, the WH-phrase contains a pronoun, *he*, and an R-expression, *the invited speaker’s name*. The pronoun, *he*, has to be bound by *every organizer*, while *the invited speaker’s name* must not be bound by the pronoun *her/it*. The grammaticality of (iia) shows that there must be a position available for reconstruction of the WH-phrase between *every organizer* and *her*. Such a position exists if we assume that the unaccusative VP forms a phase. In (iib), in contrast, the surface subject, *it*, c-commands and binds the R-expression, *the invited speaker’s name*, regardless of the positions where the WH-phrase undergoes reconstruction. Hence, the sentence is ungrammatical because of the Condition C violation. Based on the contrast between (iia) and (iib), Legate concludes that there is a reconstruction site at the level of the unaccusative VP. Reconstruction effects, therefore, support the presence of the Voice head in unaccusatives as well as in passives.

Since unaccusatives have the non-active Voice head (Kratzer 1996), the sentence in (26) has the following structure.

- (27) a. Elum-i      twu    cokak-i    / \* twu    cokak-ul      el-ess-ta. (=26)  
 ice-NOM    two    Cl<sub>piece</sub>-NOM /    two    Cl<sub>piece</sub>-ACC      freeze-PAST-DECL  
 ‘Two pieces of ice were frozen.’



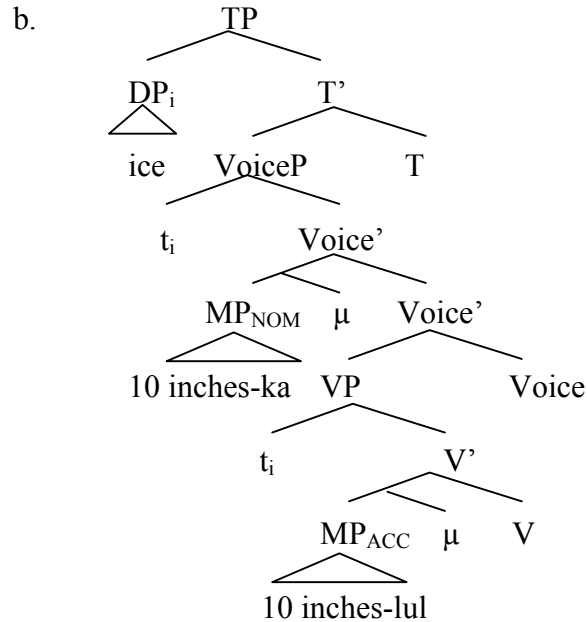
There are two positions where a ClP can be generated, as shown in (27b). However, only one of the positions is available for a ClP in unaccusatives. Due to the presence of VoiceP, unaccusative and passive VPs are subject to the PIC. Therefore, the internal argument, *elum* ‘ice’, moves to the phase edge before the unaccusative VP in (27) is spelled out. The nominative ClP, *twu cokak -ka* ‘2 Cl<sub>piece</sub>-NOM’, which is generated within VoiceP, is at the edge of a phase, and thus, successfully agrees with

its host DP, *elum* ‘ice’. In contrast, the accusative CIP, *twu cokak-ul* ‘2 Cl<sub>piece</sub>-ACC’, is in the domain of VP and its host DP is outside of the phase. Consequently, the CIP cannot agree with its host DP, *elum* ‘ice’ due to the PIC. One might consider the possibility that the trace (i.e., copy) of the internal argument within VP agrees with the accusative CIP. In principle, it is possible. However, if we follow Frampton and Gutmann’s (2000, 2001) proposal that syntactic agreement is feature sharing, the accusative CIP and the chain formed by movement of the host DP, *ice*, share the same case feature. Apparently, the CIP has different case morphology from its host DP, indicating that syntactic agreement is not established.

A CIP agrees with its host DP with respect to the number and the gender features in syntax, and syntactic agreement results in feature sharing between the two syntactic objects in the agreement relation. Two different positions are available for a CIP to occur and, thus, the agreement relation between a CIP and its host is established without resorting any type of movement of the CIP. Since passive and unaccusative VPs are subject to the PIC, and the internal argument moves the subject position, the CIP in the VoiceP successfully establishes an agreement relation with its host DP, while the CIP within VP cannot. Consequently, the CIP must bear nominative case morphology.

An AmP, unlike a CIP, is not in an agreement relationship with its host noun in the syntax. The lack of agreement allows an AmP to bear the mismatching case morphology, as in (22a), repeated as (28).

- (28) a. Elum-i sip inchi-ka / sip inchi-lul el-ess-ta.  
ice- NOM 10 inch- NOM 10 inch- ACC freeze-PAST-DECL  
‘The water froze 10 inches thick.’



If an AmP has to be in an agreement relation with its host DP, it is predicted that the AmP with accusative case morphology is not allowed. This prediction is not borne out. The AmP, *sip inchi* ‘10 inches’ in (28), shows the *-ka/-lul* alternation. The nominative AmP is at the phase edge, and thus it does not cause any problem. In contrast, the accusative AmP is in the domain of VP. After VoiceP is constructed, the VP undergoes Spell-Out. Due to the PIC, the AmP within VP is not visible to further syntactic operations. Thus, if an AmP must agree with its host DP, the AmP must be at the phase edge, allowing the nominative AmP only. However, this is not the case. Therefore, an AmP does not require the agreement relation with its host DP in syntax.

Since it combines with a compatible DP in semantics, it can occur outside or within the domain of VP, exhibiting the *–ka/-lul* alternation.

To summarize, the fact that MPs have case morphology indicates that they are generated in a certain position where the proper case morphology is available, i.e., inside VP and outside VP. In passive and unaccusative constructions, a ClP and its host DP must have identical case morphology, while an AmP can bear either nominative or accusative case morphology. Since unaccusatives and passives have VoiceP, which is a phase, the host DP cannot agree with a ClP within the domain of VP due to the PIC. Unlike a ClP, an AmP allows the *–ka/-lul* alternation, because an AmP is not in an agreement relation with its host DP.

#### **4.2.5 Semantic Difference between ClPs and AmPs**

In the compositional semantics of split MP structure, MPs directly measure out the events and indirectly measure the host DP using homomorphisms. The external argument-oriented MPs are related to the homomorphism of the neo-Davidsonian agent function (29a) from events to individuals. The internal argument-oriented MPs are related to the homomorphism of the verb denotation understood as a functional relation between events and individuals (29b).

- (29) Homomorphism (based on Nakanishi 2004, 172-173)
- a. Homomorphism 1:  $\forall e_1, e_2 \in D_E [Agent(e_1 \cup_E e_2) = Agent(e_1) \cup_I Agent(e_2)]$
  - b. Homomorphism 2:  $\forall e_1, e_2 \in D_E [verb(e_1 \cup_E e_2) = verb(e_1) \cup_I verb(e_2)]$

I use two types of Voice heads for the analysis of split MP structures, following Kratzer (1996). In this subsection, I argue that the choice of homomorphism for ClPs is subject to the Elsewhere Condition (Kiparsky 1973). More specifically, the nominative ClP within active Voice Phrase selects the homomorphism based on the agent function. Elsewhere, the homomorphism based on the verb denotation is applied. On the other hand, AmPs combine with the licensed DP in the compositional semantics, showing a different behavior from ClPs.

#### 4.2.5.1 The Default Homomorphism

Since the case morphology on MPs indicates the position where they occur, it is expected that there is no problem in associating the Split MP with its host DP in a sentence where arguments are scrambled. This prediction is correct for ClPs, as shown in (30).

- (30) Haksayng-tul-i chinkwu-tul-ul<sub>i</sub> twu myeng-i t<sub>i</sub> man-ass-ta.  
 student-PL-NOM friend-PL-ACC two Cl<sub>person</sub> -NOM meet-PAST-DECL  
 ‘√2 students met friends.’ ‘\*Students met 2 friends.’

In (30), the internal argument is scrambled above the VoiceP and below the subject position. The CIP, *twu myeng-i*, is in the VoiceP, which is active. The active Voice head, which has a full semantic denotation such as  $[\lambda y_e. \lambda e_v. \text{Agent}(e, y)]$ , forces the measure function  $\mu$  within its projection to choose a semantically compatible homomorphism to its event description. Therefore, the homomorphism based on the agent function is forced to apply, and the CIP unambiguously associates with the external argument.

In a sentence in which the type of Voice head is non-active, then, the Voice head does not determine the choice of the homomorphism, since the non-active Voice head has a minimal semantic denotation like  $[\lambda e_s [\text{event proper } (e)]]$  (Kratzer 1996). Thus, the Voice head does not determine the type of the homomorphism. Now the choice of the homomorphism is open. Consider the following passive sentence.

- (31) a. Kaykwuri-ka<sub>i</sub> twu mari-ka t<sub>i</sub> cap-hi-ess-ta.  
 frog-NOM two Cl<sub>animal</sub>-NOM catch-PASS-PAST-DECL  
 ‘Two of the frogs were caught.’
- b. Elum-i sip inchi-ka / sip inchi-lul el-ess-ta.  
 ice-NOM ten inch-NOM / ten inch-ACC freeze-PAST-DECL  
 ‘The water froze 10 inches thick last night.’

The application of the homomorphism based on the agent function depends on the type of the Voice head, and the position of an MP. In (31), if the homomorphism of the agent function in (29a) is selected for the interpretation of the MPs, the interpretation fails due to the absence of the agent. If the homomorphism based on the



verb denotation is selected, the MPs are successfully associated with their host DP. Therefore, I propose that the homomorphism based on the lexical verb meaning is used as a default. Unless syntactically and semantically specified, the default homomorphism is applied.

If the homomorphism in (29b) (the verb denotation understood as a functional relation between events and individuals) is the default homomorphism to be applied for the split CIP interpretation, the accusative CIP is expected to use the homomorphism in (29b) without exception. This prediction is borne out. Consider the following sentence in which the internal argument oriented CIP remains within VP and the internal argument is scrambled in front of the sentence.

- (32) Chinkwu-tul-ul<sub>i</sub> haksayng-tul-i t<sub>i</sub> twu myeng-ul man-ass-ta.  
 friend-PL-ACC student- PL-NOM two Cl<sub>person</sub> -ACC meet-PAST-DECL  
 ‘\*2 students met friends.’ ‘√Students met 2 friends.’

In (32), the accusative CIP is unambiguously associated with the scrambled internal argument, showing that the homomorphism in (29b), the verb denotation understood as a functional relation between events and individuals, is applied in the interpretation of that CIP.

#### 4.2.5.2 Peculiarity of Amount Phrases

AmPs, unlike CIPs, show intriguing results with the choice of the homomorphism. First, the intervening internal argument between the external argument and a nominative AmP makes the sentence ungrammatical, as shown in (33).

- (33) ??/\*Haytokcey-ka tokyak-ul<sub>i</sub> sam guraym-i t<sub>i</sub> cwunghwasiki-ess-ta.  
 antidote-NOM poison-ACC three gram-NOM neutralize-PAST-DECL  
 ‘3 grams of the antidote neutralized the poison.’

If the intervening DP is a human/animate entity, in contrast, the AmP successfully associates with its host DP, as shown below.

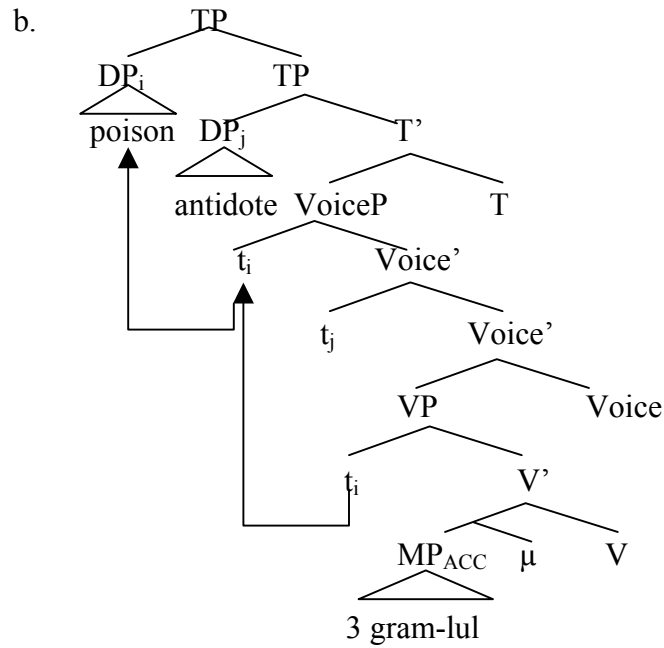
- (34) ?Haytokcey-ka Sunhee-lul<sub>i</sub> sam guraym-i t<sub>i</sub> sali-ess-ta.  
 antidote-NOM Sunhee-ACC three gram-NOM save-PAST-DECL  
 ‘3 grams of the antidote saved Sunhee.’

In the sentences in (33) and (34), there are two potential DPs that the AmP can combine with. The contrast between the two sentences shows that AmPs combine with the closest semantically compatible DP. Since a discrete entity such as human does not provide a non-trivial part-whole relation (Schwarzschild 2002), the AmP cannot be combined with *Sunhee*, in (34). The next potential host DP is the external argument, which is monotonic to weight. In addition, it satisfies the agent requirement of the homomorphism of (29a). Therefore, the nominative AmP successfully associates with the external argument.

Recall that the nominative CIP successfully associates with the host DP, even in the presence of an intervening potential host DP. The nominative AmP, in contrast, combines with the closest semantically compatible DP. Thus, CIPs and AmPs behave differently in the semantics, as well as in the syntax. This difference between them comes from the requirement of agreement. CIPs with case morphology must agree with their host DP, while AmPs with case morphology do not. The agreement relation, then, forces the CIP to be associated with its agreeing DP. In contrast, the AmP, which is not in an agreement relation with its host DP, has liberty to combine with closest semantically compatible DP.

So far, we have seen that the nominative AmP combines with the closest semantically compatible DP. An accusative AmP, however, exhibits a different behavior. It does not combine with an intervening semantically compatible DP. Consider the following sentence.

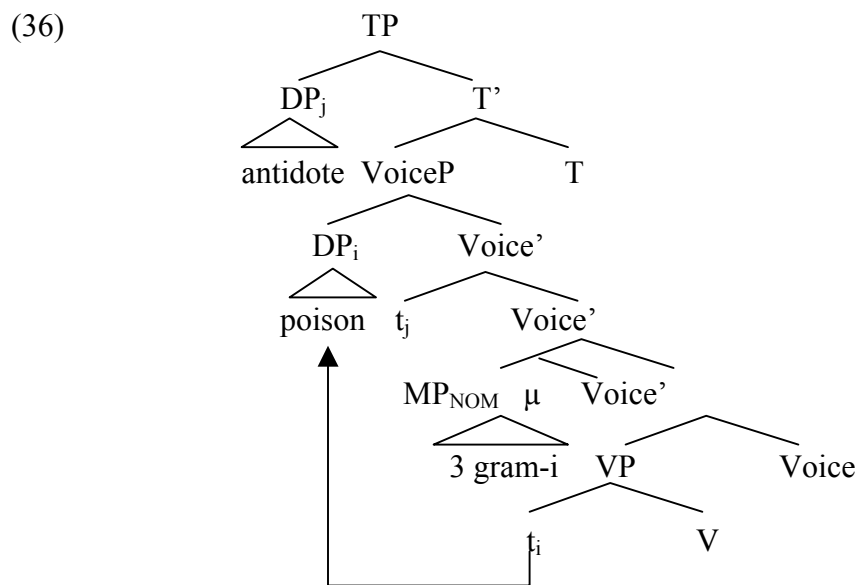
- (35) a. Tokyak-ul<sub>i</sub> haytokcey-ka t<sub>i</sub> sam guraym-ul cwunghwasiki-ess-ta.  
 poison-ACC antidote-NOM three gram-ACC neutralize-PAST-DECL  
 ‘√The antidote neutralized 3 grams of the poison.’  
 ‘\*The 3 grams of antidote neutralized the poison.’



In (35), the internal argument is scrambled in front of the external argument, and the external argument, which is semantically compatible with the AmP, *gram*, intervenes between the AmP and its host DP. Nevertheless, the AmP, *sam guraym-ul*, is interpreted in association with the scrambled internal argument.

This difference in behavior between the nominative AmP and the accusative AmP, I argue, originates from whether or not the potential DP is licensed in the syntax. Notice that the scrambled internal argument in (35) leaves a trace in the position where accusative case is assigned. The closest potential host, then, is the trace of the scrambled internal argument. The closest potential host, then, is the trace of the scrambled internal argument, and the AmP, *sam guraym-ul*, combines with the trace of the internal argument. Upon a closer examination, the trace of the internal argument is licensed in the syntax i.e., it occupies the case position. Going back to

(33) and (34), where the scrambled internal argument intervenes between the host DP and the nominative AmP, there is a trace of the external argument in the specifier position of the VoiceP, which can serve as the potential host. However, as we have seen, the AmP does not combine with the trace in the specifier position of VoiceP. Rather, it combines with the scrambled internal argument, which is already licensed.



A following question is about the situation where the scrambled internal argument in (36) is further scrambled in front of the external argument. In this context, the trace of the internal argument in VoiceP is the closest potential host for the nominative AmP to combine with. This trace, however, is not in the case position. Thus, the question is whether or not a trace in a non-case position can serve as a host

for the AmP. Consider the following sentence where both the external and internal argument are scrambled across the sentential adverb, *pwunmyenghi* ‘evidently.’

- (37) a. Tokyak-ul<sub>i</sub> haytokcey-ka<sub>j</sub> pwunmyenghi t<sub>j</sub> sam guraym-i t<sub>i</sub>  
 poison-ACC antidote-NOM evidently three gram-NOM  
 cwunghwasiki-ess-ta.  
 neutralize-PAST-DECL  
 ‘\*The antidote neutralized 3 grams of the poison.’  
 ‘√The 3 grams of antidote neutralized the poison.’
- b. Haytokcey-ka<sub>j</sub> tokyak-ul<sub>i</sub> pwunmyenghi t<sub>j</sub> sam guraym-i t<sub>i</sub>  
 antidote-NOM poison-ACC evidently three gram-NOM  
 cwunghwasiki-ess-ta.  
 neutralize-PAST-DECL  
 ‘\*The antidote neutralized 3 grams of the poison.’  
 ‘√The 3 grams of antidote neutralized the poison.’

The nominative AmPs in (37) are related to the external argument, but not the internal argument. These unambiguous interpretations indicate that the AmPs in (37) do not combine with the trace of the internal argument in the VoiceP. The AmPs, on the contrary, combine with the trace of the external argument, which is in a case position. Therefore, a trace in a case position counts as a potential host, while one that is in a non-case position does not.

To summarize, an AmP with case morphology combines with the closest semantically compatible DP due to lack of agreement. The compatible DPs for an AmP include syntactically licensed DPs and the trace in the case position where the argument licensing mechanism operates.

The last peculiarity of AmPs is regarding the bare AmP. An AmP can occur without case morphology in Korean. Of interest, the external argument oriented split AmP must bear nominative case morphology. Consider the following example.

- (38)      \*Haytokcey-ka *sam guraym* Sunhee-lul      sali-ess-ta.  
               antidote-NOM three gram      Sunhee-ACC      save-PAST-DECL  
               ‘3 grams of the antidote saved Sunhee.’

In (38), nothing intervenes between the host DP and the bare AmP, and thus, it is expected that the AmP would successfully associate with its host. However, the sentence is ungrammatical. Clearly, it is not because the AmP is incompatible with the Agent function. For an unknown reason, an external argument-oriented bare AmP is not allowed. This vague restriction, nevertheless, has some consequence such that all instances of bare AmPs are internal argument-oriented. I hope to return with further research to reveal the exact nature of this restriction.

#### 4.2.6 The Lack of Agreement and Disagreement of AmPs

So far, the discussion concerning AmPs is based on the alternation of case morphology in passives and unaccusatives. Furthermore, I claimed that the agreement relationship is not required between an AmP and its host DP. This claim has an implicit assumption that an AmP does not agree with its host DP. Now consider the sentences in (21), repeated as (39), which show the *-ka /-lul* alternation.

- (39) a. Unaccusatives  
 Elum-i sip inchi-ka / sip inchi-lul el-ess-ta.  
 ice- NOM ten inch- NOM / ten inch- ACC freeze-PAST-DECL  
 ‘The water froze 10 inches thick.’
- b. Passives  
 Ttang-i sam mithe-ka / sam mithe-lul pha-i-ess-ta.  
 ground- NOM three meter- NOM / three meter- ACC dig-PAST-DECL  
 ‘3 meters of the ground were dug.’

However, it is not true that all Korean speakers allow this alternation in passives and unaccusatives. While there is no variation in the judgments with the accusative AmP in the ordinary transitive sentences, some speakers do not allow AmPs with the accusative case morphology i.e., *-lul*, in passives and unaccusatives. For those speakers, the sentences with the accusative AmPs in (39) are ungrammatical, while those with the nominative AmPs are perfectly acceptable.

More interestingly, bare AmPs (i.e., AmPs without case morphology) are acceptable in both dialects, as illustrated in (40).

- (40) a. Elum-i sip inchi el-ess-ta.  
 ice- NOM ten inch freeze-PAST-DECL  
 ‘The water froze 10 inches thick.’
- b. Ttang-i sam mithe pha-i-ess-ta.  
 ground- NOM three meter dig-PAST-DECL  
 ‘3 meters of the ground were dug.’

As summarized in (41), the difference between the two dialects comes from the accusative case morphology in passives and unaccusatives. Dialect B does



not tolerate the mismatching case morphology on AmPs, while it allows matching case morphology, and the null case morphology. Dialect A, on the other hand, allows the mismatching case morphology on AmPs, as well as matching and null case morphology. Neither dialect, however, allows mismatching case morphology on CIPs.

(41)

	Nominative Host DP in passives/unaccusatives	Case morphology on AmP		
a.	Dialect A	√AmP-Ø	√AmP-nom	√AmP-acc
b.	Dialect B	√AmP-Ø	√AmP-nom	*AmP-acc
c.	Dialect A/B	√CIP-Ø	√CIP-nom	*CIP-acc

At first glance, the situation of Dialect B (41b) is similar to that of CIPs (41c). Based on the surface similarity, one might consider that the AmPs with case morphology are CIPs in Dialect B. Given the semantic differences between AmPs and CIPs we have seen so far, this would mean that Dialect B ignores these differences. Although such a possibility cannot be dismissed as utterly impossible, I find it neither plausible nor desirable.

Alternatively, we may consider the possibility to view the agreement relation with a three-way distinction: agreement, lack of agreement, and disagreement. There are cases in which the grammatical/ungrammatical distinction depends on the surface realization in a situation where agreement apparently fails. If a sentence lacks agreement, a default form emerges, and the sentence becomes grammatical. However,

if a sentence involves a form that is neither an agreeing form nor a default form, it is ungrammatical. This is the case of disagreement.

For instance, in Belfast English, unlike Standard English, a plural subject optionally agrees with a verb in number, while a singular subject must agree in number.

(42) a. These cars goes/go very fast.

b. The eggs is/are cracked.

(Henry 1995)

Henry (1995) argues that the sentences in (42) show two agreement patterns: agreement, and lack of agreement. When the agreement relation is established, the verb does not have the third person singular suffix. In addition, Belfast English allows lack of agreement, and thus, the verb has the third person singular suffix, which is default. In contrast, if the subject is singular, the verb must be marked with the third person singular suffix.

(43) a. \*This car go very fast.

b. \*The egg are cracked.

The ungrammatical sentences in (43) show that the occurrence of the third person singular suffix in Belfast English is not a free choice. Since the absence of *-s* is not default, this cannot be a case of lack of agreement. Rather, this is a case of disagreement. That is, lack of agreement is tolerable, but disagreement is intolerable.

The dialectal variations in Korean fit into this three-way distinction. The mismatching case morphology on AmPs indicates disagreement. The absence of the case morphology on AmPs shows a case of lack of agreement. However, drawing a conclusion based on matching case morphology on AmPs requires caution. The examples that we have examined so far show that the matching case morphology on AmPs does not mean that AmPs agree with their host DPs. Therefore, I claim that the matching case morphology on AmPs is also an instance of lack of agreement. Then, whether or not disagreement is tolerable determines the dialectal variations. Dialect A tolerates disagreement, in addition to allowing lack of agreement for AmPs. Dialect B, in contrast, allows lack of agreement, but it does not tolerate disagreement.

(44) Amount Phrases

Dialect A:        (Agreement)    √Lack of agreement    √Disagreement

Dialect B:        (Agreement)    √Lack of agreement    \*Disagreement

Considering the absence of case morphology as the case of lack of agreement also warrents caution, since CIPs can surface without case morphology in

Korean. The observation made so far indicates that CIPs agree with their host DPs, and the case morphology on CIPs provides supporting evidence. The question is, when case morphology is absent, is a bare CIP still in an agreement relationship with its host DP? I show in the next subsection that a bare CIP is in an agreement relationship with its host DP. Thus, a bare CIP does not indicate lack of agreement.

(45) Classifier Phrases

Dialect A/B:      $\sqrt{\text{Agreement}}$    (Lack of agreement)     \*Disagreement

Because the overt indication with which a bare CIP agrees is absent, however, the situation is complicated and leads to processing complexity.

#### 4.2.7 Bare CIPs

In the absence of case morphology, there is no overt indication with which to decide whether or not a bare CIP is in an agreement relation. One clear indication can be the c-command requirement on split CIPs. A split CIP must be c-commanded by its host DP. This means that if a bare CIP c-commands a DP, that DP cannot be the host noun of the CIP. For instance, as shown in (46), the CIP, *ney myeng* ‘4 CL<sub>human</sub>’, c-commands the internal argument. Therefore, this CIP cannot be associated with the internal argument.

- (46) Haksayng-tul-i *ney myeng* maykcwu-lul masi-ess-ta.  
 student-PL-NOM four CL<sub>person</sub> beer-ACC drink-PAST-DECL  
 ‘4 students drank beer.’

However, this c-command requirement is not sufficient to account for the full range of data. Due to scrambling, the internal argument can appear in a position that c-commands the bare CIP. In such a case, the c-command relation does not provide any clue for the bare CIP with which it has to associate. Consequently, bare CIPs exhibit different behaviors from the CIPs with case morphology.


Unlike the CIP with case morphology, the long distance association cannot be established between a bare CIP and a subject, as shown below.

- (47) \*Haksayng-tul-i i maykcwu-lul *ney myeng* masi-ess-ta.  
 student-PL-NOM this beer-ACC four CL<sub>person</sub> drink-PAST-DECL  
 ‘4 students drank this beer.’

In (47), the bare CIP can occupy the position either within or outside the domain of VP. If the bare CIP in (47) is inside VP, this sentence becomes ungrammatical because the agreement relationship cannot be established between *yel myeng* ‘10 CL<sub>human</sub>’ and the potential host DP, *maykcwu* ‘beer’.

If the bare CIP is outside VP, and the internal argument is scrambled below the surface subject position, as illustrated in (48), the derivation crashes due to a

failure of agreement, since the closest c-commanding DP is the scrambled internal argument.<sup>15</sup>

- (48) [TP students<sub>sub</sub> [VoiceP t<sub>sub</sub> beer<sub>obj</sub> 4 Cl<sub>person</sub> [VP t<sub>obj</sub> drank ]]]
- 

Now consider the sentences in (47) with sentential adverbials like *pwunmyenghi* ‘evidently’. The sentences in (49a) and (49b) with an adverbial in front of the sentence and between the external argument and the internal argument, respectively, are unacceptable. However, the sentence in (49c) with the adverbial below the internal argument is perfectly acceptable.

- (49) a. ??/\*Pwunmjenghi haksayng-tul-i i maykcwu-lul ney myeng  
 evidently student-PL-NOM this beer-ACC four Cl<sub>person</sub>  
 masi-ess-ta  
 drink-PAST-DECL  
 ‘Evidently, 4 students drank this beer.’
- b. ??/\*Haksayng-tul-i pwunmjenghi i maykcwu-lul ney myeng  
 student-PL-NOM evidently this beer-ACC four Cl<sub>person</sub>  
 masi-ess-ta.  
 drink-PAST-DECL

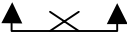

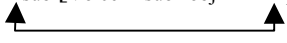
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<sup>15</sup> Recall that when the CIP bears the nominative case morphology, the sentence is grammatical.

- (i) **Haksayng-tul-i** i maykcwu-lul **ney myeng-i** masi-ess-ta.  
 student-PL-NOM this beer-ACC four Cl<sub>person</sub>-NOM drink-PAST-DECL  
 ‘4 students drank this beer.’

- c. Haksayng-tul-i i maykcwu-lul pwunmjenghi ney myeng  
 student-pl-nom this beer-ACC evidently four Cl<sub>person</sub>  
 masi-ess-ta.  
 drink-PAST-DECL

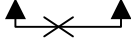
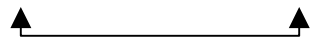
Thus, the contrast in (49) shows that the position of an adverbial plays an important role. If we assume that the position of adverbial expressions is fixed, the sentences in (49b) and (49c) involve scrambling of the phrases that come to the left of the adverb, while the sentence in (49a) does not. The bare ClP, *ney myeng* ‘4 CL<sub>human</sub>’, occupies a position outside the domain of VP. If the ClP is within VP, the derivation crashes because of failure of agreement. In (49a) and (49b), since the internal argument takes a position higher than the ClP, the internal argument is scrambled below the subject. In addition, in (49b), the external argument is scrambled across the sentential adverb. In (49c), both of the internal and external argument underwent scrambling across the sentential adverb. The structures are illustrated below.

- (50) a. [TP evidently [TP student<sub>sub</sub> [VoiceP t<sub>sub</sub> beer<sub>obj</sub> 4 Cl<sub>person</sub> [VP t<sub>obj</sub> drank ]]]]  

- b. [XP student<sub>sub</sub> [TP evidently [TP t<sub>sub</sub> [VoiceP t<sub>sub</sub> beer<sub>obj</sub> 4 Cl<sub>person</sub> [VP t<sub>obj</sub>  
 drank ]]]]]]  

- c. [XP student<sub>sub</sub> [XP beer<sub>obj</sub> [TP evidently [TP t<sub>sub</sub> [VoiceP t<sub>sub</sub> t<sub>obj</sub> 4 Cl<sub>person</sub> [VP t<sub>obj</sub>  
 drank ]]]]]]]]  


In the absence of case morphology, a bare CIP agrees with the closest licensed DP. Syntactically licensed DPs include case marked DPs, and a trace in a case position. In (50a) and (50b), the closest licensed DP is the scrambled internal argument, and the bare CIP fails to agree with it due to a feature mismatch. In (50c), the closest potential host is the trace of the external argument in the subject position. In this derivation, the trace of the internal argument cannot be the host, since it is not in a case position. Therefore, the CIP successfully agrees with the trace of the external argument.

The structure in (50c) leads us to reconsider the ungrammatical sentence in (47). Now, we expect that the sentence is ambiguous between (51a) and (51b).

- (51) \*Haksayng-tul-i i maykcwu-lul ney myeng masi-ess-ta. (=47)  
 student-PL-NOM this beer-ACC four Cl<sub>person</sub> drink-PAST-DECL  
 ‘4 students drank this beer.’

- a. [TP students<sub>Sub</sub> [VoiceP t<sub>sub</sub> beer<sub>obj</sub> 4 Cl<sub>person</sub> [VP t<sub>obj</sub> drank ]]]  

- b. [XP students<sub>Sub</sub> [XP beer<sub>obj</sub> [TP t<sub>sub</sub> [VoiceP t<sub>sub</sub> t<sub>obj</sub> 4 Cl<sub>person</sub> [VP t<sub>obj</sub> drank]]]]]  


The structure in (51a) is ruled out due to a failure of agreement. In contrast, the CIP in (51b) successfully agrees with the trace of the external argument and thus, it is expected that the sentence is grammatical. Contrary to the prediction, however, the sentence is unacceptable. Therefore, the sentence in (51) seems to constitute a



counterexample to the current analysis. A closer examination, however, reveals that this is not the case.

The contradiction between the prediction and the judgment has its root in sentence processing. Sohn Keun-Won (1993) rightfully claims that external argument oriented bare CIPs involves processing complexity. The idea is that there is a means of recovery when the human sentence parsing mechanism (the parser) fails. Specifically, Frazier (1979, 1978, 1987) proposes that the parser computes a unique analysis of a structurally ambiguous word string using the fewest non-terminal nodes. That is, as each word is received, the parser selects the structure that integrates the word into the previous structure with minimal structural change. If this analysis eventually does not prove to be correct, the parser must perform a relatively costly reanalysis. If this is on the right track, the parser chooses the structure in (51a) instead of the structure in (51b), and due to the failure of agreement, the sentence is judged as ungrammatical. Therefore, unless there is a strong clue to employ the structure in (51b) such as case morphology, the parser uses the structure in (51a). The bare Split CIP structure, thus, involves processing complexity when the CIP is c-commanded by both the external and internal arguments. To process the correct structure, an additional linguistic device is required such as case morphology, the c-command relation, sentential adverbials, etc.

There is another factor that makes the situation complicated in addition to the processing complexity. In the absence of these linguistic cues, bare CIPs choose

the homomorphism based on the verb denotation, rather than the homomorphism based on the Neo-Davisonian agent function. This default homomorphism creates an intriguing situation with a bare CIP, *myeng* ‘Cl<sub>person</sub>’ in a certain discourse context (Ishii 1999, Takami 2001). Consider (52).

- (52) A: i chayk cal phal-i-ni?  
 this book well sell-PASS-Q  
 ‘Does this book sell well?’
- B: onul Haksayng-tul-i i chayk-ul ney myeng sa-ka-ass-e.  
 today student-PL-NOM this book-ACC four Cl<sub>person</sub> buy-go-PAST-DECL  
 ‘4 students bought a copy of this book today.’

In isolation, (52B) is not acceptable. In this context, however, (52B) is perfectly acceptable. Furthermore, the CIP, *ney myeng* ‘4 Cl<sub>person</sub>’, is used to measure the popularity of the book. The popularity of the book can be estimated either by the number of copies of the book that were sold or by the number of people who bought it. In this context, the popularity is calculated based on the number of the people who bought a copy of the book. That is, the bare CIP combines with the verb and measures the selling-the-book event.<sup>16</sup> Crucially, if the bare CIP is replaced with the nominative CIP, *ney myeng-i* ‘4 Cl<sub>human</sub>-nom’, it becomes difficult to have the interpretation under discussion. Therefore, the working hypothesis is that this use of a bare CIP is the result of an interaction between two or more modules of grammar such as semantics and pragmatics. To have a conclusive answer, however, further study is necessary.

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<sup>16</sup> Alternatively, using a suffix *-ina* ‘as many as’ as in *ney myeng-ina* ‘4 Cl<sub>human</sub>-as many as’, we can have a reading similar to the one under discussion.

To summarize, a bare CIP agrees with its host DP, just like a CIP with case morphology. Because of the absence of the cue for the host DP, the locality requirement for agreement determines the grammaticality. In the presence of adverbial expressions which have a fixed position, the relative ordering affects the grammaticality, indicating that a syntactic operation like scrambling has taken place. Furthermore, the Split bare CIP construction involves processing complexity.

### **4.3 Measure Adverbials with Case Morphology**

Measure phrases directly measure out the event denoted by a verb and indirectly measure the noun with a homomorphism. Since Split MPs occupy the adjunct positions of VoiceP and VP, they behave just like adverbs (Miyagawa 1989, Sohn Keun-Won 1993, Nakanishi 2004, among others). This property of Split MPs makes a prediction that Measure Adverbials (MAs) that denote a frequency or duration of an event will show behaviors similar to those of Split MPs. This prediction is borne out in Korean. Korean allows certain adverbials to bear case morphology. As illustrated below, frequency adverbials (53a), and durative adverbials (53b) can bear accusative case morphology.

- (53) a. Luke-nun **twu pen-ul** maykcwu-lul masi-ess-ta.  
 Luke-TOP two time-ACC beer-ACC drink-PAST-DECL  
 'Luke drank the beer twice.'
- b. Yoda-nun **twu shikan-(tongan)-ul** maykcwu-lul masi-ess-ta..  
 Yoda-TOP two hour-(period)-ACC beer-ACC drink-PAST-DECL  
 'Luke drank the beer for two hours.'

However, it is not the case that all adverbials can bear accusative case morphology (e.g., Maling 1989, Kang Young-Se 1991, Wechsler and Lee 1996). Non-measuring adverbials such as locating adverbials (both locative and temporal), and manner adverbials are incompatible with accusative case morphology, as shown in (54).<sup>17</sup>

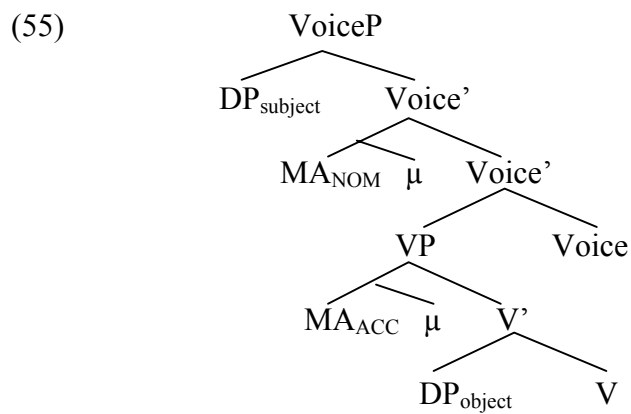
- (54) a. John-un Mary-lul **Seoul-ese-(\*lul)** manna-ess-ta  
 John-TOP Mary-ACC Seoul-in-ACC meet-PAST-DECL  
 'John met Mary in Seoul'
- b. John-un Mary-lul **se-shi-ey-(\*lul)** manna-ess-ta  
 John-TOP Mary-ACC three-O'clock-at-ACC meet-PAST-DECL  
 'John met Mary at three O'clock'
- c. John-nun **ppali-(\*lul)** kel-ess-ta.  
 John-TOP quickly-ACC walk-PAST-DECL  
 'John walked quickly'

The contrast between measuring and non-measuring adverbials shows that accusative case morphology is restricted to adverbials that use the measure function  $\mu$ ,

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<sup>17</sup> The MAs arguably belong to the nominal category. In contrast, non-MAs are more like to be adverbs and PPs. It is not clear whether this distinction plays a role in bearing the accusative case morphology.

which measures out the events directly. Now MAs are similar to MPs, since both employ the measure function  $\mu$ . Then, it is not surprising that they share a similar structure. One noticeable difference between MPs and MAs is that MPs must be c-commanded by their host DP, while MAs are not subject to such a requirement because MAs do not have host expressions. Therefore, the position of the MA does not have to be below the internal argument. The structure for the Split MA constructions is given below.



In (55), an MA within the domain of VP bears accusative case morphology, and it is expected that the MA outside the domain of VP will bear nominative case morphology, which will be discussed shortly.

### 4.3.1 Measurement of Measure Adverbials

Just like MPs, MAs employ the measure function  $\mu$ . The measure function  $\mu$  measures the scheme that is expressed by the MA. Thus, frequency adverbials measure the cardinality of events, and duratives measure the time length of events.

Frequency adverbials measure the cardinality of events, and thus, no homomorphism is required. To measure the cardinality of events, a number of discrete singular entities must exist. Plurality of events is achieved by using a lattice of events with event arguments (Krifka 1989, Landman 1996, 2000, among others). The event argument of a lattice is associated with a VP. That is, a VP denotes a lattice of events. With the covert \*-operator (Link 1983), a VP can always be understood as being semantically pluralized. Thus, a plural VP denotes a set containing atomic events and their sums. For instance, suppose that the denotation of a VP *caught the frog* is  $\{e_1, e_2, e_3\}$ . Then the extension of the pluralized VP *\*caught the frog* is the lattice containing  $e_1, e_2, e_3$  and their sums, as shown in (56).

- (56) a. singular VPs:  $[[\text{caught the frog}]] = \{e_1, e_2, e_3\}$   
 b. Plural VPs:  $[[*\text{caught the frog}]] = \{e_1, e_2, e_3, e_1 \cup_E e_2, e_2 \cup_E e_3, e_1 \cup_E e_3, e_1 \cup_E e_2 \cup_E e_3\}$

Therefore, with the plural event  $e$ , the measure function  $\mu$  applies to the cardinality of events to  $e$ . The sentence (53a), repeated below, thus, is interpreted such that there is a plural event  $e$  of drinking beer and the agent of the event is Luke and  $\mu$ : cardinality-of-events applied to  $e$  yields  $[[2 \text{ times}]]$ .

- (57)      Luke-nun    **twu**    **pen-ul**      maykcwu-lul      masi-ess-ta. (=53a)  
              Luke-TOP   two   time-ACC   beer-ACC      drink-PAST-DECL  
              ‘Luke drank the beer twice.’

Duratives do not measure time, but rather events (Krifka 1989, 1992, 1998, Lasersohn 1995, Nakanishi 2004). As Krifka (1989) notes, time is not itself measured; rather time provides the dimension according to which events are measured. Duratives like *for two hours*, for instance, measure temporal length (run time) of events, rather than directly measuring time. Furthermore, an event cannot be directly measured by a temporal scheme. Instead, *for two hours* indirectly measures the event by measuring a run time of the event. In order to achieve the measurement of duratives, therefore, a homomorphism from events to their run times is required. Krifka (1989) proposes that the temporal trace function  $\tau$  assigns to each eventuality  $e$  the time  $t$  that  $e$  takes up, its temporal trace, as defined in (58).

- (58)      Temporal trace function  $\tau$  (homomorphism from events to their run times)  

$$\forall e_1, e_2 \in D_E [\tau(e_1 \cup_E e_2) = \tau(e_1) \cup_T \tau(e_2)]$$

(Link 1987, Krifka 1989, 1992, 1998, Nakanishi 2004)

That is, for any two events  $e_1$  and  $e_2$ , the sum of their temporal traces equals the temporal trace assigned to the sum of these events (additivity). Given that  $\tau$  is a homomorphism from events to times, we can measure events by the time they take. The sentence (53b), repeated below, thus, is interpreted such that there is a plural event  $e$  of Luke's drinking beer and  $\mu$ : temporal length applied to  $h(e)$  yields an interval on the cardinality-of-temporal length scale that has the property *[[for 2 hours|]*, where  $h$  is the *[[drank the beer|]*.

- (59)        Yoda-nun   **twu   shikan-(tongan)-ul**   maykcwu-lul   masi-ess-ta. (=53b)  
               Yoda-TOP   two   hour-(period)-ACC   beer-ACC        drink-PAST-DECL  
               'Luke drank the beer for two hours.'

#### 4.3.2    MAs in Passives and Unaccusatives

Recall that an AmP with case morphology shows the *-ka/-lul* alternation in passives and unaccusatives, due to the availability of two distinct positions in the sentence. If MAs can also occupy these two positions, then, the *-ka/-lul* alternation is expected in passives and unaccusatives. It turns out that this prediction is correct for frequency adverbials, and incorrect for duratives.



### 4.3.2.1 Frequency Adverbials

Frequency adverbials, which measure the cardinality of events of VP, cannot bear nominative case morphology in an ordinary active sentence with an external agent, regardless of their position, as shown below.

- (60) a. \*Luke-nun maykcwu-lul **twu pen-i** masi-ess-ta.  
Luke-TOP beer-ACC two time-NOM drink-PAST-DECL  
'Luke drank the beer twice.'
- b. \*Luke-nun **twu pen-i** maykcu-lul masi-ess-ta.  
Luke-TOP two time-NOM beer-ACC drink-PAST-DECL

This observation that frequency adverbials cannot bear nominative case morphology extends to unergative predicates as well. For instance, sentences with unergative verbs like *talita* 'run' allows the accusative frequency adverbial, as in (61a), but do not allow nominative case morphology, as shown in (61b).

- (61) a. Luke-ka **twu pen-ul** tali-ess-ta.  
Luke-NOM two time-ACC run-PAST-DECL  
'Luke ran twice.'
- b. \*Luke-ka **twu pen-i** tali-ess-ta.  
Luke-NOM two time-NOM run-PAST-DECL

The property that the sentences in (60) and (61) share is that they have external arguments. That is, the Voice head is active (Kratzer 1996). In such a situation, the measure function in the VoiceP takes the homomorphism based on the

Neo-Davidsonian agent function, as was shown earlier. However, a frequency adverbial with nominative case morphology requires the measure function that measures the cardinality of events of VP. This conflicting result makes the sentence ungrammatical.

Therefore, in sentences without external arguments like passives and unaccusatives, it is expected that frequency adverbials can exhibit the *-ka/-lul* alternation. This prediction is borne out, as shown in (62).

- (62) a. Kaykuri-ka    **twu pen-i**    /    **twu pen-ul**    cap-hi-ess-ta.  
 Frog-NOM      two time-NOM / two time-ACC    catch-PASS-PAST-DECL  
 ‘The frog was caught twice.’
- b. Elum-i      **twu pen-i**    /    **twu pen-ul**    el-ess-ta.  
 ice-NOM    two    time-NOM / two    time-ACC    freeze-PAST-DECL  
 ‘The ice was frozen twice.’

The Voice head in passives and unaccusatives is non-active, and the non-active Voice does not introduce an external argument. Since the semantic denotation of the non-active Voice is minimal, selecting eventualities that are neither actions nor states. Therefore, the measure function  $\mu$  that measures the cardinality of events of VP can be applied.

### 4.3.2.2 Duratives

Unlike frequency adverbials, duratives cannot bear the nominative case morphology at all. As shown below, in sentences with external arguments, duratives cannot bear nominative case morphology.

- (63) a. \*Luke-ka maykcwu-lul han shikan-(tongan)-i masi-ess-ta.  
 Luke-NOM beer-ACC one hour-(period)-NOM drink-PAST-DECL  
 ‘Luke drank the beer for an hour.’
- b. \*Luke-ka han shikan-(tongan)-i maykcwu-lul masi-ess-ta.  
 Luke-NOM one hour-(period)-NOM beer-ACC drink-PAST-DECL
- (64) a. Luke-ka han shikan-(tongan)-ul tali-ess-ta.  
 Luke-NOM one hour-(period)-ACC run-PAST-DECL  
 ‘Luke ran for an hour.’
- b. \*Luke-ka han shikan-(tongan)-i tali-ess-ta.  
 Luke-NOM one hour-(period)-NOM run-PAST-DECL

So far, duratives show a behavior similar to frequency adverbials. However, even in passives and unaccusatives, duratives cannot bear nominative case morphology, as shown in (65) and (66).

- (65) a. \*Kaykuri-ka han shikan-(tongan)-i cap-hi-e iss-ess-ta.  
 Frog-NOM one hour-(period)-NOM catch-PASS-E be-PAST-DECL  
 ‘The frog was being caught for an hour.’
- b. Kaykuri-ka han shikan-(tongan)-ul cap-hi-e iss-ess-ta.  
 Frog-NOM one hour-(period)-ACC catch-PASS-E be-PAST-DECL

- (66) a. \*i elum-un han shikan-(tongan)-i el-e iss-ess-ta.  
           this ice-TOP one hour-(period)-NOM freeze-E be-PAST-DECL  
           ‘This ice was in the state of being frozen for an hour.’
- b. i elum-un han shikan-(tongan)-ul el-e iss-ess-ta.  
     this ice-TOP one hour-(period)-ACC freeze-E be-PAST-DECL

As shown above, duratives cannot bear nominative case morphology. This fact seems to be puzzling at first glance. The current analysis posits two distinct positions where measure expressions can occur: one within VP and the other in VoiceP. Accordingly, it is expected that duratives could occur in the position in VoiceP, contrary to the fact.

Notice that in (65) and (66), the perfective aspectual marker *-a/e iss-* is used. Without the aspectual marker, the sentences become ungrammatical, as shown below.

- (67) a. \*Kaykuri-ka han shikan-(tongan)-ul cap-hi-ess-ta.  
           Frog-NOM one hour-(period)-ACC catch-PASS-PAST-DECL
- b. \*i elum-un han shikan-(tongan)-ul el-ess-ta.  
     this ice-TOP one hour-(period)-ACC freeze-PAST-DECL

Recall that measure phrases are subject to the monotonicity constraint. A measure function is monotonic relative to the denotation of some element if and only if it tracks part-whole structures of the element. Duratives can be used to measure the temporal length of an event, if the event has a time interval (duration). However, if the event happens at an instant, such as being caught, such an eventuality does not provide a non-trivial part-whole relation. Thus, as Kim and Maling (1998) noted, the instant

event requires an aspectual marker to be compatible with duratives. This sensitivity to the aspects of predicates, thus, requires the duratives to occur within the domain of VP, not outside the domain of VoiceP. Consequently, duratives cannot bear nominative case morphology.

This fact also indicates that among those conceivable repertoires of homomorphisms for the measure function in VoiceP, the homomorphism from events to their run times is not available.

#### 4.3.4 Spatial-Length Expressions

The last case to be examined is the spatial-length expressions with accusative case morphology, as shown below.

- (68) Luke-ka san kil-ul **sam mail-ul** kel-ess-ta.  
 Luke-NOM mountain trail-ACC three mile-ACC walk-PAST-DECL  
 ‘Luke walked the mountain trail by three miles.’

Just like duratives or other measure adverbials, spatial-length expressions like *three miles* measure spatial-length of events, and thus require a homomorphism from events to paths. The homomorphism measures the spatial-length intervals over which the events occur with. Thus, *three miles* in (68) measures out the Luke’s walking event, rather than directly measuring the event. This is because an event

cannot be directly measured by a spatial-length scheme. Then, we have the following function from events to their paths (the extension of spatial-length).

(69) Path trace function  $\sigma$  (homomorphism from events to their paths)

$$\forall e_1, e_2 \in D_E [\sigma(e_1 \cup_E e_2) = \sigma(e_1) \cup_T \sigma(e_2)]$$

(Lasersohn 1995, Krifka 1998)

Given that  $\sigma$  is a homomorphism from events to paths, sentence (68) is interpreted such that there is an event  $e$  of Luke's walking the mountain trail and  $\mu$ : spatial length applied to  $h(e)$  yields an interval on the cardinality-of-spatial length scale that has the property  $[[three\ miles]]$ , where  $h$  is the  $[[Luke's\ walking\ the\ mountain\ trail\ ]]$ .

One of the peculiarities of spatial-length measure expressions is that they occur with motion denoting unergative predicates such as *run*, *walk*, etc. Since these predicates cannot be passivized, spatial length measure expressions do not exhibit the alternation of case morphology.

### 4.3.3 Summary

Measure adverbials can occupy the positions where MPs occur, and consequently bear case morphology. Non-measure adverbials, in contrast, cannot occupy those positions, and thus, they cannot bear case morphology. Frequency adverbials measure the

cardinality of events, and thus, no homomorphism is required. Furthermore, frequency adverbials show a behavior similar to that of an AmP with case morphology, exhibiting the *-ka/-lul* alternation in passives and unaccusatives. Duratives, in contrast, measure the temporal length of events, and thus require a homomorphism from events to temporal trace. The homomorphism measures the time intervals over which the events occur. Duratives are sensitive to aspects of predicates, and this sensitivity to aspects requires duratives to occur in the domain of VP, not in the domain of VoiceP. Consequently, duratives cannot bear nominative case morphology even in passives and unaccusatives. Spatial length measure expressions occur with the motion denoting unergatives, and thus, they also lack the nominative counterpart.

#### **4.4 Syntactic Category of Measure Expressions**

So far, I have characterized the distribution of the accusative case morphology on measure expressions in semantic terms. Nonetheless, it is tempting to consider an account based on the syntactic category of these expressions such that only DPs can bear accusative case morphology, while the phrases that do not belong to DP cannot. Consider the following examples.

- (70) a. Luke-nun **twu pen-ul** maykcwu-lul masi-ess-ta. (=53a)  
 Luke-TOP two time-ACC beer-ACC drink-PAST-DECL  
 'Luke drank the beer twice.'
- b. Yoda-nun **twu shikan-(tongan)-ul** maykcu-lul masi-ess-ta..  
 Yoda-TOP two hour-(period)-ACC beer-ACC drink-PAST-DECL  
 'Luke drank the beer for two hours.'

The frequency adverbial in (70a) has *pen* 'time', whose syntactic category can be considered to be nominal rather than adverbial. The durative in (70b) also contains the nominal expression, *sikan* 'hour'. These nominal elements seem to make the whole expression to be a DP that can bear accusative case morphology. Under the category based account, the temporal and manner adverbials in (71) are not DPs, and thus cannot bear accusative case morphology. *se-shi-ey* 'at three O'clock' in (71a) is a PP, and *ppali* 'quickly' in (71b) is an adverb.

- (71) a. Yoda-nun Leia-lul **se-shi-ey>(\*lul)** manna-ess-ta(=54b)  
 Yoda-TOP Leia-ACC three-O'clock-at-ACC meet-PAST-DECL  
 'Yoda met Leia at three O'clock'
- b. John-nun **ppali>(\*lul)** kel-ess-ta.  
 John-TOP quickly-ACC walk-PAST-DECL  
 'John walked quickly'

As Wechsler and Lee (1996) noted, however, this category based account is not tenable. First, locative PP can bear accusative case morphology in addition to



the postposition, which is known as case stacking (Gerdts and Youn 1998, Hong, Ki-Sun 1991, Schütze 1996, 2001, Yoon, Jong-Yerl 1989, and many others).

- (72) a. Yoda-nun **hakkyo-ey/-lul** ka-(a)ss-ta.  
 Yoda-TOP school-to/-ACC go-PAST-DECL  
 ‘Yoda went to school.’
- b. Yoda-nun **hakkyo-ey-lul** ka-(a)ss-ta.  
 Yoda-TOP school-to-ACC go-PAST-DECL  
 ‘Yoda went to school.’

The locative in (72a) shows that it can bear either the postposition or accusative case morphology. As shown in (72b), it can have both.

Secondly, Korean has a certain group of frequency adverbials that cannot bear accusative case morphology. *May sikan* ‘each hour’, *may pen* ‘each time’ *may il* ‘each day’, *may cwu* ‘each week’, *may tal* ‘each month’ *may nyen* ‘each year’, etc. belong to this group. These frequency adverbials specify how often an event occurs rather than measuring out the events.

- (73) a. Yoda-ka **may shikan(\*-ul)** swul-ul masi-ess-ta.  
 Yoda-nom each hour(-acc) liquor-acc drink-past-decl  
 ‘Yoda drank the liquor every hour.’
- b. Yoda-ka **may pen(\*-ul)** swul-ul masi-ess-ta.  
 Yoda-nom each time(-acc) liquor-acc drink-past-decl  
 ‘Yoda drank the liquor every time.’

This special group of frequency expressions in (73) contains the same nominals, *sikan* ‘hour’, and *pen* ‘time’, as the accusative frequency adverbial and the accusative durative in (70). If the frequency expressions in (70) are DPs, so are those in (73). Therefore, the account based on the syntactic category cannot be maintained.

#### 4.5 Conclusion

Measure expressions can bear case morphology, and they are subject to the monotonicity constraint. Since measure expressions discussed cannot measure the entities that they aim to measure, they measure the event, and thus indirectly measure the target entities with the help of homomorphisms. Frequency adverbials are distinguishable from other measure expressions because they measure the cardinality of events without the help of the homomorphism.

The position within VP can host the full range of measure expressions, while the position within the Voice phrase shows some restrictions. When the Voice head is active, only MPs which are semantically compatible with the agent semantics are allowed to occur. The non-active Voice head, in contrast, is more flexible than the active counterpart and thus, allows more measure expressions. Duratives and spatial-length expressions have their own requirements and peculiarities, and thus, they occur in the position within VP, which is more flexible.

Case morphology is domain-specific. Thus, the case morphology on measure expressions functions as a place indicator where measure expressions occur in a sentence. Within the domain of VP, measure expressions bear accusative case morphology and outside the domain of VP, they bear nominative case morphology.

One of the interesting properties of measure expressions is that case morphology is completely optional. The optionality is closely related to the phenomenon known as *case-drop*. It is well known that languages like Korean and Japanese allow case-drop, especially accusative case. Even if the case morphology is not realized, we don't want to say that the DP is not licensed. With a similar idea, the absence of case morphology on measure expressions does not mean that they are not licensed. Morphology uses the option not to pronounce the case morphology on them. As we have seen earlier, this option may cause some processing complexity.

The case morphology on MPs distinguishes CIPs from AmPs in syntax. A CIP agrees with its host DP in syntax with respect to the features [number] and [gender]. An AmP, in contrast, is not in an agreement relation with its host DP, and combines with the closest semantically compatible, syntactically licensed DP or a copy of DP. This difference between CIPs and AmPs shows up in the syntax as the alternation of case morphology in passives and unaccusatives. Frequency adverbials also exhibit the *-ka/-lul* alternation when the Voice head is non-active. Duratives, on the other hand, due to their sensitivity to different aspects of verbs, must occur in the position within VP.

## CHAPTER 5

### Other Types:

#### Ditransitives, Causatives, and Resultatives

##### 5.1 Introduction

In Chapter 2, I proposed that the inalienable possession type of multiple accusative employs a recursive VP structure with two different verbs. Both the possessor and the possessee are arguments, and each verb assigns accusative case. Korean also allows other types of multiple accusatives with two accusative arguments: Ditransitives, morphological causatives and resultatives, as illustrated below.

(1) a. Ditransitives

Yoda-ka	Leia-lul	chayk-ul	cwu-ess-ta.
Yoda-NOM	Leia-ACC	book-ACC	give-PAST-DECL

‘Yoda gave Leia a book.’

b. Morphological causatives<sup>18</sup>

Yoda-ka	Leia-lul	chayk-ul	ilk-hi-ess-ta.
Yoda-NOM	Leia-ACC	book-ACC	read-CAUS-PAST-DECL

‘Yoda made Leia to read a book.’

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<sup>18</sup> The causative suffix in Korean is realized in various forms, such as *i*, *-hi*, *-li*, *-ki*, *-wu*, *-ku* and *-khu*. These suffixes are also used as a passive morpheme, causing ambiguity in some sentences. See Kim and Pires (2003) for relevant discussions.

c. Resultatives

Yoda-ka	pap-ul	ttek-ul	mantul-ess-ta.
Yoda-NOM	boiled.rice-ACC	rice.cake-ACC	make-PAST-DECL

‘Yoda made the boiled rice into rice cake.’

In (1), the second accusative is the Theme. In ditransitives, the first accusative is the Goal, while in morphological causatives, the first accusative is the causee. In resultatives (1c), the first accusative is interpreted as a source and the second accusative is interpreted as a result.

It would seem that these constructions also involve recursive VP structure, just like the IAP type. Recent analyses, however, reveal that the structure of these constructions is slightly different. As argued by Harley (2002), Pytkkanen (2000) and many others, the predicate of these constructions decomposes into more than one head and these heads are spelled out as a single verb, while the IAP type involves two different verbs. More specifically, these constructions have a lexically decomposed structure with the head CAUSE which gives the causative interpretation. This lexically decomposed structure has some impact on syntax and semantics.

This chapter aims to show how the current analysis of the multiple occurrences of identical case morphology can be extended to these constructions. However, this chapter has a lot of weaknesses. The analyses in this chapter are based upon already existing proposals, and most often the time these analyses are preliminary, and stipulative. Further study is required to evidence the structures I propose. In Section 5.2, I show the decomposed structure with CAUSE and HAVE of

ditransitives (Beck and Johnson 2004, Harley 2002, among others). In Section 5.3, based on works by Son, Minjeong (2004a, 2004b) and others, I show the syntactic and semantic properties of morphological causatives. In Section 5.4, I show that resultatives involve event decomposition of the predicates CAUSE and BE. Section 5.5 concludes the chapter.

## **5.2 Ditransitives**

Various analyses have been proposed to account for the syntactic and semantic behavior of ditransitive constructions in English. In this subsection, I briefly review some recent lexical decomposition analyses and suggest a possible analysis about the ditransitive type of the multiple accusative structure in Korean.

### **5.2.1 Lexical Decomposition**

Since Larson's (1988) VP shell analysis of the double object constructions in English, it is generally believed that the structure of VP with ditransitives is rather complex. It also has been claimed that there is no derivational relation between the double object structure in (2a) and the *to*-dative structure in (2b).

- (2) a. John sent a letter to Mary.  
b. John sent Mary a letter.

First, the double accusative structure, but not the *to*-dative, is associated with a causative interpretation (Beck and Johnson 2004, Harley 1995, Larson 1988, Oerhle 1976, Pesetsky 1995, Pinker 1989, Pylkkanen 2002, Richards 2001, and many others).

- (3) a. \*This chapter gave a headache to me.  
b. This chapter gave me a headache.

The double object structure in (3b) has the interpretation that my reading/writing this chapter *caused* the headache, while the *to*-dative structure in (3a) does not have this causative-like interpretation. If the causative reading is viewed as arising from the argument structure of the double object structure, and the absence of such a reading in the *to*-dative structure is the reflection of its different argument structure from the one of the double object, one is led to an analysis in which the two structures have different sources and are not being derivationally related. Also consider the sentences of (4) from Kayne (1975).

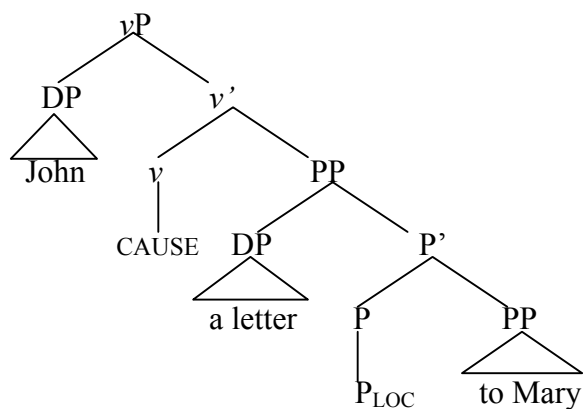
- (4) a. I knitted this sweater for our baby.  
b. I knitted our baby this sweater.

According to Kayne, the meaning of (4a) is different from that of (4b). He notes that the double object structure in (4b) has the implication that the female speaker may not have a baby yet; she might still be pregnant or only plan to have one. With the *to*-dative structure in (4b), there is a strong implication that the baby has been born and is present. Again, the contrast in (4), along with the contrast in (3), indicates that the source of the double object structure is different from that of the *to*-dative.

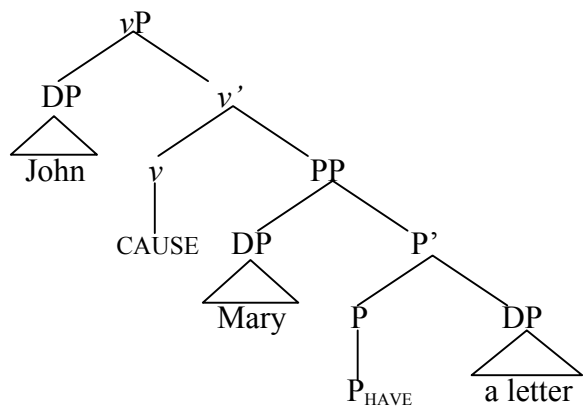
Building on these differences, Harley (2002) proposes that double object verbs like *give* involves a decomposition into CAUSE and P<sub>HAVE</sub>. Harley claims that CAUSE is an external argument selecting head and P<sub>HAVE</sub> is a prepositional element. P<sub>HAVE</sub> represents the possession relation such that a DP in the specifier of P<sub>HAVE</sub> possesses the complement of P<sub>HAVE</sub>. In the *to*-dative structure, the PP is headed by an abstract locative preposition, P<sub>LOC</sub>, with the theme as its specifier and the goal as its complement. P<sub>LOC</sub> represents the location relation such that the Theme is located in the complement. Both P<sub>HAVE</sub> and P<sub>LOC</sub> raise to CAUSE, and are realized as *give* in the morphology. Thus, the structures for (2a) and (2b) in Harley's analysis are those shown in (5) and (6) respectively.



(5) The structure for (2a): John sent a letter to Mary.



(6) The structure for (2b): John sent Mary a letter.



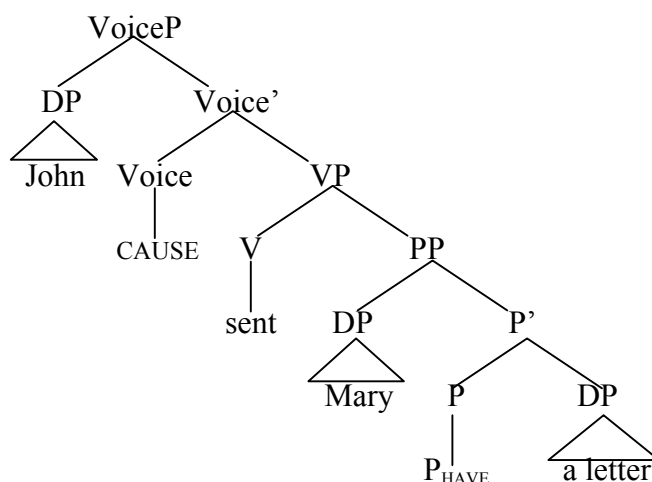
The structure in (5) has the interpretation of ‘John CAUSED a letter to be LOCATED on Mary’, and the structure in (6) is interpreted as ‘John CAUSED Mary to HAVE a letter’.

While Harley’s structure in (6) provides an account for the possession relation of the double object structure neatly, it is not clear how the  $P_{HAVE} + V_{CAUSE}$  complex is realized as the form of the verb that the sentence has. Harley’s proposal is

that, assuming a Late Insertion approach to phonological realization (Halle and Marantz 1993, Halle and Marantz 1994, and Harley and Noyer 1999), any verb that is compatible with the  $P_{HAVE} + V_{CAUSE}$  frame such as *give*, *send*, etc. can be inserted at the terminal node  $P_{HAVE}$ . It is unclear how this Late Insertion approach of Harley's relates the phonological realization of a verb to its denotation in the semantics.

In order to solve this vagueness, I modify her structure in (6) into the following (I use Voice instead of the light verb *v*).

(7) The structure for (2b): John sent Mary a letter.



The structure in (7) is similar to that of Beck and Johnson (2004). In the structure of Beck and Johnson, the **CAUSE** is not projected independently, but it is part of the denotation of the verb. As for the position of **CAUSE**, however, I follow Harley's proposal that **CAUSE** occupies the Voice head.

The PP in (7) represents the result state of the causing event, it corresponds to BECOME in semantics. The semantic denotation of the sentence in (7) is given below, with the informal descriptions of CAUSE and BECOME from Beck and Johnson (2004; 108).

- (8)  $\lambda e.$  Agent (e, John) & sent (e) &  $\exists e'[\text{BECOME}(e')(\lambda e''. \text{Goal}(e'', \text{Mary})$   
 & Theme (e'', a letter) & HAVE (e'')]] & CAUSE (e') (e)

- (9)  $[[\text{BECOME}]](P)(e) = 1$  iff e is the smallest event such that P is not true of  
 the prestate of e but P is true of the result state of e.

(Beck and Johnson 2004; 108, (27))

- (10)  $[[\text{CAUSE}]](e')(e) = 1$  iff e' occurred, e occurred and if e had not occurred,  
 then e' would not have occurred.

(Beck and Johnson 2004; 108, (28))

As Jung and Miyagawa (2004) argued, Harley's analysis can be extended to Korean. In addition to the accusative Goal DP in (1a), Korean also allows a dative Goal DP. Consider the following Korean sentence. In addition to the accusative Goal DP in (1a), Korean also allows a dative Goal DP.

- (11) a. Yoda-ka      Leia-lul      chayk-ul      cwu-ess-ta. (=1a)  
           Yoda-NOM   Leia-ACC   book-ACC   give-PAST-DECL  
           ‘Yoda gave Leia a book.’
- b. Yoda-ka      Leia-eykey      chayk-ul      cwu-ess-ta.  
           Yoda-NOM   Leia-DAT      book-ACC   give-PAST-DECL  
           ‘Yoda gave a book to Leia.’

Under Harley’s proposal, the sentence in (11a) has the interpretation that Yoda CAUSED Leia to HAVE the book, while the sentence with the dative Goal in (11b) has the interpretation that Yoda CAUSED the book to be LOCATED on Leia. Jung and Miyagawa (2004) claim that this difference leads to a contrast in terms of implication. Suppose that Leia did not have the book. The dative Goal in (11b) is compatible with this situation, while the accusative Goal is not.<sup>19</sup>

In addition to the implicational difference, there is a well-known claim that the accusative Goal has to be animate, but not the dative Goal (Arad 1998, Green 1974, Harley 2002, Oherle 1976, among others).<sup>20</sup>

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<sup>19</sup> However, if a book is LOCATED on Leia, it is possible that Leia possesses the book. In a situation in which Leia actually possesses the book, the dative Goal in (7b) is still true. In this situation, therefore, no difference between (7a) and (7b) is found in terms of possession. If we follow Beck and Johnson (2004), the to-dative pattern is a PP that can attach to either *vP* or *V'*. Then, whether the Theme is possessed or not is reduced to a structural ambiguity. Since the main focus of this chapter is accusative case morphology, I will put aside this issue.

<sup>20</sup> Arad (1998; 87) notes that there are some exceptions to the animacy requirement.

- (i) We gave the matter some thought (and decided to go for it).

- (12) a. \*Mary-ka      hakkyo-lul      ton-ul      cwu-ess-ta.  
          Mary-NOM   school-ACC   money-ACC   give-PAST-DECL  
          ‘Mary gave money to the school.’
- b. Mary-ka      hakkyo-ey      ton-ul      cwu-ess-ta.  
          Mary-NOM   school-DAT   money-ACC   give-PAST-DECL  
          ‘Mary gave money to the school.’  
    (Jung and Miyagawa 2004; (15a))

To summarize, ditransitives have the causation interpretation due to CAUSE, and the accusative Goal is subject to the animacy restriction. These properties distinguish ditransitive type multiple accusative structure from the IAP type of multiple accusative structure.

### 5.2.2 Comparison with the IAP Type

As we have seen in Chapter 2, the IAP type of multiple accusative structure never has the causative-like interpretation. It is quite clear that the semantics of the IAP is different from the semantics of the ditransitives. In ditransitives, there is no material part-whole relation in the denotation. The presence or absence of CAUSE and BECOME is another noticeable difference.

These differences in the semantic denotation result in a further difference. The IAP structure requires that the possessee must be attached to the possessor, while the ditransitive structure does not. Consider the following examples.

(13) a. IAP

Yoda-ka	Leia-lul	paci-lul	cap-ass-ta.
Yoda-NOM	Leia-ACC	pants-ACC	grab-PAST-DECL

‘Yoda grabbed Leia by the pants.’

b. Ditransitive

Yoda-ka	Leia-lul	paci-lul	cwu-ess-ta.
Yoda-NOM	Leia-ACC	pants -ACC	give-PAST-DECL

‘Yoda gave Leia the pants.’

With the IAP structure, as in (13a), the pants must be attached to Leia’s body, i.e., Leia wore the pants. Thus, the sentence cannot describe a situation where the pants are in the closet. The ditransitive structure in (13b), in contrast, is compatible with such a situation as long as the pants are in Leia’s possession.

In addition, the accusative Goal in ditransitive structures is subject to an animacy restriction, while the possessor in the IAP structure is not.

(14) IAP

Yoda-ka	chayksang-lul	tari-lul	cap-ass-ta.
Yoda-NOM	table-ACC	leg-ACC	grab-PAST-DECL

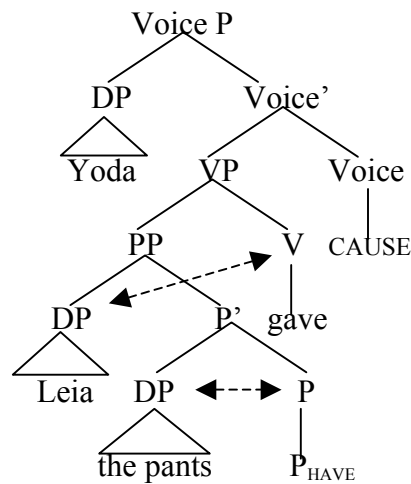
‘Yoda grabbed the table’s leg.’

Ditransitives are semantically and syntactically different from the IAP type of multiple accusative structure. Nonetheless, the two accusative DPs in both constructions are arguments and thus, with respect to case, they behave similarly.

### 5.2.3 Accusative Case Morphology

In the discussion of the IAP multiple accusative structure, I proposed that there is a selectional relation between the Voice head and the verb. Consider the structure for the sentence in (7a).

(15) The structure for (13b)



The Voice head is filled with CAUSE, which selects a verb that has uninterpretable features. The uninterpretable features of the verb agree with the interpretable features of the Goal. Consequently, the Goal is assigned abstract case. The P<sub>HAVE</sub> head assigns abstract case to the Theme DP. The abstract case on these DPs is realized in the form of accusative case morphology in the morphological component.

#### **5.2.4 Summary**

The ditransitive type of multiple accusative structure decomposes into CAUSE and HAVE heads, in addition to a lexical verb. Under this decompositional analysis, the accusative case morphology on a Goal DP and a Theme DP is an instance of abstract case that is assigned by a lexical verb and a decomposed HAVE head, respectively.

### **5.3 Morphological causatives**

Morphological causative constructions in Korean also have been received a lot of attention. In Korean morphological causatives, a causee exhibits a dative-accusative alternation. Since most of researchers' concern is to reveal the causation relation, the case alternation received little attention. Thus, I speculate a structure to account for the case alternation based on previous works.

#### **5.3.1 Two Types of Morphological Causatives**

In Harley's decomposition analysis of ditransitives in English, the CAUSE in the Voice head is realized as a null affix. In Korean, the CAUSE Voice head is overtly realized in morphological causatives. Morphological causatives are formed by adding a causative



morpheme, *-hi*, to a verb root.<sup>21</sup> When the causative morpheme occurs on the verb root, an additional argument, a causee, is added. As Son, Minjeong (2004a, 2004b) claims, morphological causatives are divided into at least two different groups, depending on the interpretation of the causee: Agentive type and non-agentive type. Consider the agentive type first.

- (16) a.    Liea-ka        chayk-ul        ilk-ess-ta.  
               Leia-NOM    book-ACC    read-PAST-DECL  
               ‘Leia read the book.’
- b.    Yoda-ka        **Leia-eyeky**    chayk-ul    ilk-**hi**-ess-ta.  
               Yoda-NOM    Leia-DAT    book-ACC    read-CAUS-PAST-DECL  
               ‘Yoda made Leia read the book.’

The sentence in (16a) is an ordinary transitive with an Agent and a Theme. The causative counterpart in (16b) contains a causative morpheme *-hi*, a causer, *Yoda* and

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<sup>21</sup> In addition to morphological causatives, Korean has another type of causative construction, known as periphrastic causatives, as illustrated below.

- (i)        Yoda-ka        Leia-eykey/-lul    os-ul        ip-ke        ha-yess-ta.  
               Yoda-NOM    Leia-DAT/-ACC    clothes-ACC    put.on-KE    do-PAST-DECL  
               ‘Yoda made Leia to put the clothes on.’

It is generally accepted that periphrastic causatives are biclausal.

- (ii)        Yoda-ka<sub>i</sub>    Leia-eykey/-lul<sub>j</sub> [**caki-ka**<sub>\*i/j</sub> os-ul        ip-ke]        ha-yess-ta.  
               Yoda-NOM    Leia-DAT/-ACC    self-NOM    clothes-ACC    put.on-KE    do-PAST-DECL  
               ‘Yoda made Leia to put the clothes on by herself.’

The overt reflexive, *caki* ‘self’, in (ib), which is known as a long-distance anaphor, confirms the biclausal status, I put aside this type of causative construction.

a causee, *Leia*. The causee, *Leia*, in (16b) is interpreted as the Agent of the reading event caused by Yoda. As Um, Hye-Young (1995), and Son, Minjeong (2004a, 2004b) claim, this agentive type of morphological causative exhibits scope ambiguities with respect to manner adverbs like *ppali* ‘quickly’.

- (17) Mary-ka thongsayng-eykey chayk-ul *ppali* ilk-hi-ess-ta.  
 Mary-NOM sister-DAT book-ACC *quickly* read-CAUS-PAST-DECL  
 a. ‘Mary made her sister quickly read the book.’  
 b. ‘Mary quickly made her sister read the book.’  
 (Son, Min-Jeong 2004a; (1))

The adverb, *ppali* ‘quickly’, can modify either the caused event, as in (17a) or the causing event (17b). This scope ambiguity indicates that this type is decomposable and involves two events: a causing event and a caused event.

In non-agentive morphological causatives, in contrast, the causee does not participate in the caused event as an agent. Rather, it behaves as a goal of the caused event.

- (18) Emma-ka ai-eykey sinpal-ul *ppali* sin-ki-ess-ta.  
 mother-NOM child-DAT shoes-ACC *quickly* put.on-CAUS-PAST-DECL  
 a. ‘Mother quickly put the shoes on the child.’  
 b. \*‘Mother caused the shoes to be quickly put on the child.’  
 (Son, Minjeong 2004a; (2))

The causee, *ai* ‘child’ in (18) is interpreted as the target of the action, putting the shoes on, by the causer, *emma* ‘mother’. The causing event can be modified by the adverb,

*quickly*, while the caused event cannot. This lack of scope ambiguity seems to show that the non-agentive morphological causative cannot be decomposed, as claimed by Um, Hye-Young (1995). However, Son, Minjeong (2004a, 2004b) shows that this type is decomposable. The crucial test is the scope ambiguity of adverb, *tasi* ‘again’, invented by von Stechow’s (1995, 1996) claim that *again* creates different readings and thus, it can serve as a probe into the syntactic and semantic structures of predicates. *Again* modifies the property of events and indicates that repetition of the event is characterized by that property. Consider the following example.

- (19) Emma-ka ai-eykey sinpal-ul ***tasi*** sin-ki-ess-ta  
 mother-NOM child-DAT shoes-ACC again put.on-CAUS-PAST-DECL  
 a. ‘Mother made [the child put on his shoes again].’  
 b. ‘Mother again made the child put on his shoes.’  
 (Son, Minjeong 2004a; (5))

The reading in (19a) is known as the restitutive reading: The child is wearing the shoes and that had happened before. Under this reading, the causer, Mother, may or may not have been involved in the shoes-wearing-by-the-child event. In contrast, the repetitive reading in (19b) necessarily involves the causer in the repeated events: Mother made the child put on his shoes, and she had done that before. The ambiguity in (19) indicates that non-agentive morphological causatives are decomposable.

Now both types of causatives are decomposable into two events: a causing event and a caused event. The denotations of agentive and non-agentive causative are given below. (The adverb *quickly* is ignored.)

- (20) Agentive Morphological Causative (=18)  
 $\lambda e.$  Agent (e, Yoda) &  $\exists e'. [ \text{Agent } (e', \text{Leia}) \ \& \ \text{Theme } (e', \text{the book})$   
 $\& \ \text{read } (e') ] \ \& \ \text{CAUSE } (e') (e)$
- (21) Non-Agentive Morphological Causative (=16b)  
 $\lambda e.$  Agent (e, mother) &  $\exists e'. [ \text{Goal } (e', \text{child}) \ \& \ \text{put on } (e') \ \&$   
 $\text{Theme } (e', \text{shoes}) ] \ \& \ \text{CAUSE } (e') (e)$   
(Son, Minjeong 2004a; (16))

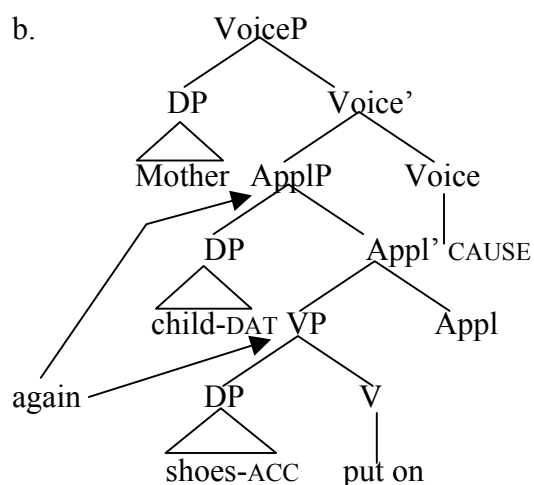
Following Son, Minjeong (2004a, 2004b), I assume that this decomposition is reflected in the syntax. In the next subsection, the syntactic structures and case assignment will be discussed.

### 5.3.2 Syntactic Representation and Case

It has been claimed that the causee is introduced by an applicative head, *Appl*, and that the causer is introduced by the Voice head, CAUSE (Anagnostopoulou 1999, Collins 1997, McGinnis 1998, Pylkkänen 2000, Son, Minjeong 2004a, 2004b, and many others), with slightly different structures and semantics. According to Son, Minjeong

(2004a, 2004b), the sentence in (19) have the structure given below, where *tasi* ‘again’ can attach to either the ApplP or the VP.

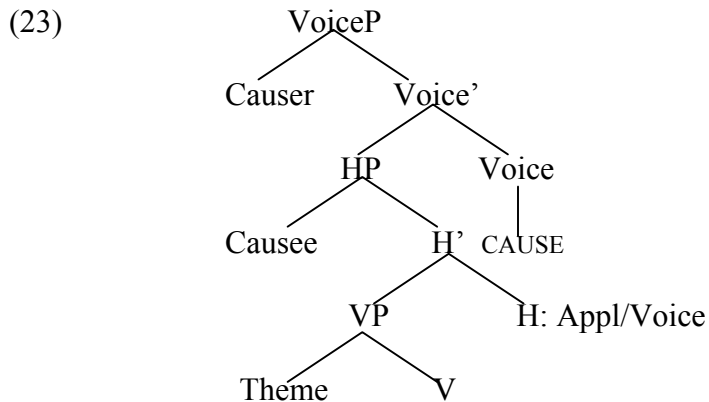
- (22) a. Emma-ka ai-eykey sinpal-ul ***tasi*** sin-ki-ess-ta  
 mother-NOM child-DAT shoes-ACC again put.on-CAUS-PAST-DECL  
 ‘Mother made [the child put on his shoes again].’  
 ‘Mother again made the child put on his shoes.’  
 (Son, Minjeong 2004a; (5))



In agentive causatives, the causee is the agent of the event denoted by the lexical verb. Under the assumption that the agent function is related to the Voice head, Son, Minjeong (2004a, 2004b) claims that the *Appl* head in (22) is a Voice head. Thus, in agentive causatives, two Voice heads are projected. The causee is introduced by the lower Voice head and thus, the causee is agentive. Then, the morphological

causatives have the following structure, where the head H is either *Appl*, or *Voice*.

Non-agentive causatives select *Appl* and agentive causatives select *Voice*.



With the structure in (23), it seems that case assignment is simple: The head H assigns dative case to the causee and the verb assigns accusative case. However, the situation becomes a little complicated if we recall the selectional property between the *Voice* head and the head of its complement.

In (23), the *CAUSE Voice* head selects the head H. The selectional relation is established by means of Match/Agree under strict identity, as discussed in Chapter 2. The uninterpretable features of the *CAUSE Voice* head agree with the uninterpretable features of the head H.

(24) Selection (based on Chomsky 2001:8)

If  $\alpha$  selects  $\beta$ , the  $\phi$ -features of  $\alpha$  with uninterpretable features must be deleted under Agree by  $\beta$ .

The CAUSE Voice head is  $\phi$ -complete and the head H selected by the CAUSE Voice head is  $\phi$ -complete. The head H, in turn, introduces a causee DP, which has to satisfy the Case Filter. The uninterpretable features of the head H agree with the interpretable features of the causee DP and assign dative case. The verb assigns abstract case to the Theme DP.

A complication comes from the accusative-dative case alternation of the causee DP. As shown below, both agentive and non-agentive causatives allow both dative and accusative causee DPs.

- (25) a. Yoda-ka      **Leia-lul/-eykey**    chayk-ul      ilk-hi-ess-ta.  
Yoda-NOM    Leia-ACC/-DAT    book-ACC      read-CAUS-PAST-DECL  
'Yoda made Leia to read a book.'
- b. Yoda-ka      **Leia-lul/-eykey**    os-ul      ip-hi-ess-ta.  
Yoda-NOM    Leia-ACC/-DAT    clothes-ACC    put.on-CAUS-PAST-DECL  
'Yoda put the clothes on Leia.'

Since it is extremely difficult to pin down any difference between the two case morphologies, I put aside the issue of whether there is any semantic difference

depending on the choice of case morphology.<sup>22</sup> Furthermore, until proven otherwise, I assume that dative causees occupy the same position as accusative causees.

Then, in (23), the uninterpretable features of the head H, which is selected by the  $V_{\text{CAUSE}}$ , agree with the interpretable features of the causee DP, and assign abstract case which is realized as accusative case morphology in the morphological component, in addition to dative case. In this situation, a causee DP is assigned two different instances of case by the identical head. Dative case is known as inherent case, which is determined by the verb thematically (cf. Chomsky 1986). Given this, the uninterpretable features of the head H still need to be valued.

The above situation, however, is not uncommon. Constructions known as Dative Subject Constructions/Nominative Object Constructions, as exemplified below, show a similar pattern.

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<sup>22</sup> Jung and Miyagawa (2004; (26a)) claim that there is a case where accusative case is unavailable. In non-agentive causatives, if the causee is inanimate, it seems that the causee cannot bear accusative case morphology.

- (i)      John-i      catongcha-ey/\*-lul      waks-lul      mek-i-ess-ta.  
          John-NOM   car-DAT/-ACC      wax-ACC      eat-CAUS-PAST-DECL  
          ‘John coated the car with wax.’

However, it turns out that the contrast comes from the idiosyncratic properties of the verb, *mek* ‘eat’. With a verb *ip* ‘put on’, the causee can bear accusative case in addition to dative.

- (ii)      John-i      catongcha-ey/-lul      waks-lul      ip-hi-ess-ta.  
          John-NOM   car-DAT/-ACC      wax-ACC      put.on-CAUS-PAST-DECL  
          ‘John coated the car with wax.’



- (26) a. Yoda-eykey paym-i mwusep-ta.  
           Yoda-DAT snake-NOM afraid-DECL  
           ‘Yoda is afraid of the snake.’
- b. Yoda-ka paym-i mwusep-ta.  
           Yoda-NOM snake-NOM afraid-DECL  
           ‘Yoda is afraid of the snake.’

The experiencer in (26) can be either dative or nominative, without changing the meaning. It has been claimed that the dative experiencer occupies the surface subject position, as does its nominative counterpart (Gerdtz and Jhang 1995, Gerdtz and Youn 1990, Gerdtz and Youn 2004, and Youn 2001). If so, dative case cannot be purely inherent case determined by the verb, since the EPP feature of T needs to be checked off. There also has been a claim that dative case is quirky case (Harley 1995, Shutze 1997, Ura 1996).<sup>23</sup> DPs with quirky case behave just like DPs with abstract case: They have the same A-movement requirements. Icelandic quirky subjects are a typical example. Thus, if we assume that dative case on the causee is quirky case, which is understood to be inherent case with an additional abstract case feature (Arad 1998, Chomsky 2000, 2001, Harley 1995, Schutze 1997, Ura 1996), the uninterpretable features of the head H are successfully checked by agreeing with the dative causee.

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<sup>23</sup> Dative case may have different properties depending on languages. There have also been claims that dative case is just inherent case (e.g., Hermon 1981).

### 5.3.3 Morphological Causatives with the IAP Structure

One of the sub-types of the non-agentive morphological causative is the one with the IAP type of multiple accusative structure. Consider the following example.

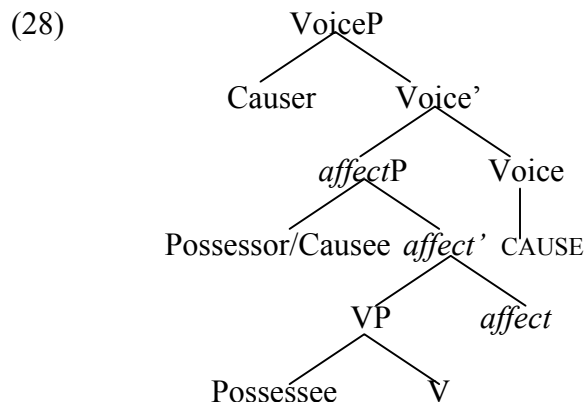
- (27) a. Yoda-ka      **Leia-lul/\*-eykey** son-ul      ssis-ki-ess-ta.  
Yoda-NOM      Leia-ACC/-DAT      hand-ACC      wash-CAUS-PAST-DECL  
'Yoda washed Leia's hand.'
- b. Yoda-ka      **Leia-lul/\*-eykey** moca-lul      pes-ki-ess-ta.  
Yoda-NOM      Leia-ACC/-DAT      hat-ACC      take.off-CAUS-PAST-DECL  
'Yoda took off Leia's hat.'

The first accusative DP cannot bear dative case and it is interpreted as a possessor of the second accusative DP. Furthermore, the two accusative DPs exhibit all the characteristics of the IAP type of multiple accusative structure that we have discussed in Chapter 2.

The analysis that I proposed for the IAP type of multiple accusative involves a recursive VP structure. The higher verb is a phonologically silent verb, *affect*. On the other hand, the analysis for the morphological causatives involves an applicative head which introduces a causee. What position does the first accusative DP occupy, i.e., by which head is the DP introduced? One of the characteristics of the applicative head is that it allows dative-accusative case alternation. Thus, if the applicative head introduced the first accusative DP, a dative-accusative alternation is

expected, which is not true, as shown in (27). In contrast, if the first accusative DP is the argument of the verb, *affect*, a dative DP is not expected, which is correct. Therefore, the first accusative DPs in (27) are arguments of the verb, *affect*.

The next question is whether the applicative head is projected or not. I claim that the Voice head, CAUSE, selects the verb, *affect*, rather than the applicative head. Recall that the event description of the verb, *affect*, is general enough and that it is compatible with the various lexical verbs. This property of the verb, *affect*, enables the Voice head, CAUSE, to select it. Thus the IAP type causatives have the following structure.



The IAP type of causative is different from its non-causative counterparts with respect to the type of Voice head. The former has the CAUSE Voice head, while the latter has the ordinary Voice head: active and passive.

#### 5.4 Resultatives with Multiple Accusative Structure

The resultative type of the multiple accusative structure has been analyzed as a ‘small clause’ type (Kim, Young-Joo 1990, Mailing and Kim 1993), and thus there has not been little attention to reveal the syntactic and semantic properties of this type if multiple accusative structure. I analysis I suggest here, again, is based on speculations, rather than empirically motivated.

Verbs like *make* are known as ‘creation verbs’. A verb of creation expresses that after the event of creation is completed, the appropriate object will come into existence. Take the example below.

- (29)      Yoda-ka      chayksang-ul      mantul-ess-ta.  
              Yoda-NOM      table-ACC      make-PAST-DECL  
              ‘Yoda made the table.’

The object, *chayksang* ‘table’, did not exist prior to the making event, but exists after the event. That is, Yoda did something and that led the table to be in the state of existence. This verb, interestingly enough, can take an additional accusative DP.

- (30)      Yoda-ka      pap-ul      ttek-ul      mantul-ess-ta. (=1c)  
              Yoda-NOM      boiled.rice-ACC      rice.cake-ACC      make-PAST-DECL  
              ‘Yoda made the boiled rice into rice cake.’

- (31)      Yoda CAUSE [boiled rice [BECOME rice cake]]

With the additional DP, the verb, *mantul* ‘make’, denotes a change of state. Yoda did something, and that action caused the first accusative DP (the original state) to become the second accusative DP (a result state). The change of state between the two accusative DPs indicates that these sentences are a kind of ‘causative’.<sup>24</sup> Beck and Johnson (2004), in their analyses of ditransitives, propose that there are three types of result states: i)  $\lambda e. \lambda x. \lambda y. \text{HAVE}_e(x, y)$ , ii)  $\lambda e. \lambda x. \lambda y. \text{AT}_e(x, y)$ , and iii)  $\lambda e. \lambda y. \exists x [y_e(x)]$ .  $\text{HAVE}_e$  and  $\text{AT}_e$  are similar to  $\text{PHAVE}$  and  $\text{PLOC}$  of Harley’s (2002), while the third result state (iii) represents the meaning such that the Theme comes into existence. To these inventories of result states, I would like to add one more result state such that  $\lambda e. \lambda x. \lambda y. \text{BE}_e(x, y)$ . The sentence in (30), then, has the following denotation.

- (32)  $\lambda e. \text{Agent}(e, \text{Yoda}) \ \& \ \text{make}(e) \ \& \ \exists e' [\text{BECOME}(e')(\lambda e''). \text{Theme}(e'')$ ,  
 $\text{boiled rice}) \ \& \ \text{Theme}(e'', \text{rice cake}) \ \& \ \text{BE}(e''))] \ \& \ \text{CAUSE}(e')(e)$

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<sup>24</sup> A similar meaning can be conveyed using an instrumental PP.

- (i) a. Yoda-ka      pap-ul              **ttek-ulo**      mantul-ess-ta.  
          Yoda-NOM    boiled.rice-ACC   rice.cake-INST   make-PAST-DECL  
          ‘Yoda made the boiled rice into rice cake.’
- b. Inho-ka      ku      ai-lul              **chinkwu-lo**      sam-ass-ta.  
          Inho-NOM    that   child-ACC   friend-INST    make-PAST-DECL  
          ‘Inho made that child a friend.’  
    (Kim, Young-Joo 1990)

As claimed by Kim, Young-Joo (1990), only two verbs, *matul* ‘make’ and *sam* ‘make’ employ this type of multiple accusative structure in Korean.<sup>25</sup>

- (33) Inho-ka ku ai-lul chinkwu-lul sam-ass-ta.  
 Inho-NOM that child-ACC friend-ACC make-PAST-DECL  
 ‘Inho made that child a friend.’  
 (Kim, Young-Joo 1990)

- (34)  $\lambda e$ . Agent (e, Inho) & make (e) &  $\exists e'$ [BECOME (e') ( $\lambda e''$ . Theme (e''),  
 the child) & Theme (e''), a friend) & BE (e'')]] & CAUSE (e') (e)

This resultative type of multiple accusative structure is analyzed as having a small clause structure in Kim, Young-Joo (1990), and Maling and Youn (1991). However, considering the semantic interpretation, the structure of this construction may be more complex. I argue that this type of multiple accusative structure contains a CAUSE Voice head, an *Appl* head and a lexical verb. The Voice head is the CAUSE

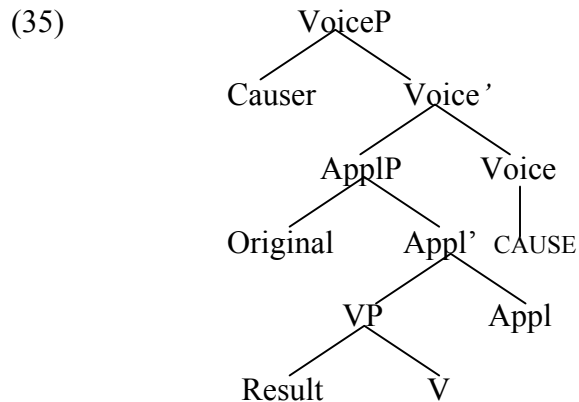
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<sup>25</sup> The verb, *sam* ‘make’, is stricter in the choice of DPs than *mantul* ‘make’. Except some idiomatic expressions, it does not allow non-animate entities.

- (i) a. \*Inho-ka pap-ul ttek-ul sam-ass-ta.  
 Inho-NOM boiled.rice-ACC rice.cake-ACC make-PAST-DECL  
 ‘Yoda made the boiled rice into rice cake.’  
 b. Yoda-ka pam-ul nac-ul sam-a nol-ass-ta.  
 Yoda-NOM night-ACC day-ACC make-A play-PAST-DECL  
 ‘Yoda played day and night.’

For instance, *pam-ul nac-ul sam-a* is interpreted as *day and night*. In this case, no change of state is involved.

head, just as in ditransitives and causatives. An applicative head introduces a DP that denotes the original state, and the verb introduces the DP that denotes the result.



The selectional relation between the CAUSE Voice head and the *Appl* head leads the *Appl* to be  $\phi$ -complete with uninterpretable features. The uninterpretable features of the *Appl* head agree with the interpretable features of the higher DP, and assigns abstract case. The verb assigns abstract case to the lower DP. In the morphology, both DPs are realized with accusative case morphology.

## 5.5 Concluding Remarks

Based on analyses proposed by other researchers, I used a lexical decomposition analysis for the three types of multiple accusatives discussed in this chapter:

ditransitives, morphological causatives and resultatives. The accusative case morphology on DPs in these constructions is a morphological realization of abstract case assigned by the Probe, V and the *Appl* head. In the case of ditransitives, I assumed that the verb assigns abstract case to the Goal DP, while the decomposed head HAVE assigns abstract case to the Theme DP. The analyses for each type of multiple accusative structure, however, need more close examination, because of the preliminary nature and stipulations.

One of the advantages of employing the CAUSE Voice head is that it accounts for the impossibility of the morphological passive with a passive morpheme *-hi* with these three types. In addition to morphological passive, Korean allows another type of passive employing an auxiliary *-ci* (Choe, Hyon-Sook 1988, Hong, Ki-Sun 1991, Park, Sang-Doh 2001, among others).<sup>26</sup>

(36) Ditransitives

- a. \*Leia-ka chayk-i cwu-hi-ess-ta.  
       Leia-NOM book-NOM give-PASS -PAST-DECL  
       ‘The book was given to Leia.’
- b. Leia-ka chayk-i cwu-e ci-ess-ta.  
       Leia-NOM book-NOM give-E CI-PAST-DECL  
       ‘The book was given to Leia.’

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<sup>26</sup> For unknown reasons, *-ci* passives do not allow any instance of the accusative case morphology. See Hong, Ki-Sun (1991), Park, Sang-Doh (2001) for relevant discussion.



(37) Morphological causatives

- a. \*Leia-ka os-i ip-hi-hi-ess-ta.  
Leia-NOM clothes-NOM put.on-CAUS-PASS-PAST-DECL  
'The clothes were put on Leia.'
- b. Leia-ka os-i ip-hi-e ci-ess-ta.  
Leia-NOM clothes-NOM put.on-CAUS-E CI-PAST-DECL  
'The clothes were put on Leia.'

(38) Resultatives<sup>27</sup>

- a. \*Pap-i ttek-ulo mantul-hi-ess-ta.  
boiled.rice-NOM rice.cake-INST make-PASS-PAST-DECL  
'The boiled rice was made into rice cake.'
- b. Pap-i ttek-ulo mantul-e ci-ess-ta.  
boiled.rice-NOM rice.cake-INST make-E CI-PAST-DECL  
'The boiled rice was made into rice cake.'

The Voice head is filled with CAUSE in these constructions and thus, the passive Voice head cannot occur. Therefore, in order to be passivized, a passive forming auxiliary – *ci* is employed, instead of the passive morpheme –*hi*.

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<sup>27</sup> For an unclear reason, the DP denoting result state must be an instrumental PP. It cannot bear either nominative or accusative case morphology.

## **CHAPTER 6**

### **Conclusions**

#### **6.1 Summary**

##### **6.1.1 Case Morphology**

There are languages where non-arguments, in addition to arguments, are realized with case morphology. Korean is one of those languages. The occurrence of case morphology is not limited to argument DPs. Non-subcategorized DPs with a topic like interpretation, and measure expressions such as classifiers, duratives, frequency adverbials also bear case morphology. One of the aims of this dissertation was to understand the nature of case morphology on arguments and non-arguments in Korean, especially focusing on accusative case morphology.

One general conclusion that is drawn in this study is that not all instances of case morphology are the morphological realization of abstract case. Rather the use of case morphology as abstract case is part of the general use of case morphology. The multiple occurrence of identical case morphology, therefore, involves an interaction

between more than one module of grammar such as syntax, semantics/pragmatics, and morphology.

Abstract case is determined by a case assigner, T and V, in the syntax. The  $\phi$ -feature set of a Probe is valued and deleted via agreeing with its Goal. If the Probe is T, nominative case is assigned, and if the Probe is a verb, accusative case is assigned. In morphology, DPs with abstract case are realized with case morphology. If there is more than one verb in a single sentence, then, abstract case can be multiply assigned, resulting in multiple occurrences of accusative case morphology. I showed in Chapter 2 that the inalienable possession type of multiple accusative structure is such a case. The IAP type of multiple accusative structure employs a recursive VP structure with two different verbs. The higher verb is the phonologically silent verb, *affect*, and the lower verb is the lexical verb. The verb, *affect*, takes the possessor as its complement and assigns abstract case. The lexical verb takes the possessee as its complement and assigns abstract case. The abstract case on the possessor and the possessee is realized with accusative case morphology in the morphology. I also showed in Chapter 5 that multiple accusative structures such as ditransitives, causatives, and resultatives also multiply assign abstract case. These constructions employ a lexically decomposed structure in which a lexical verb and a decomposed head such as an applicative head are involved. Just like the IAP type, the lexical verb and the decomposed head assign abstract case to their complements. These four types of multiple accusative structures,

therefore, exhibit multiple occurrences of accusative case morphology within the domain of VP.

In addition to the morphological realization of abstract case, I showed in Chapter 3 that accusative case morphology can be used to link a topic within the VP domain to a syntactic constituent such as VP, just like the topic marker *–(n)un*. Topics are one of the important parts of the informational structure. When a topic is introduced into a sentence by a semantic/pragmatic device, it must be properly linked to the syntactic constituent that is interpreted as a comment. This structural integration mechanism of the topic to the comment requires the topic to occupy a certain position in a clause. The canonical position for a topic to occur is the left periphery of a clause, which I called an Out-Field topic position. Being a canonical topic position, topics are successfully linked to the rest of the clause by occupying that position (cf. Rizzi 1997). The topic in the Out-Field topic position is realized with the topic marker *–(n)un* in the morphology. Topics can also be introduced into a non-canonical topic position in a sentence. For instance, a zooming-in topic can occur within VP, i.e., in the In-Field topic position. This topic must be properly linked to the syntactic constituent VP, too. Unlike topics in the Out-Field topic position, occupying the In-Field topic position is not sufficient for an In-Field topic to be properly linked to a clause. Additional requirements are imposed on the In-Field topic. The In-Field topic must have its associate expression which is a specific subpart of the topic, i.e., a zooming-in relationship must be established. In addition, the In-Field topic must have

a morphological form that matches its associate expression. If the associate expression is a PP, then the In-Field topic must be a PP with an identical postposition. If the associate expression is a DP, the In-Field topic must be a DP. Once these additional requirements are satisfied, the In-Field topic is properly linked to VP. As far as case morphology is concerned, it is domain specific. Within the domain of VP, accusative case morphology is the default. Unless specified otherwise such as by a postposition, a properly linked In-Field topic is realized with accusative case morphology. The associate DP, on the other hand, is an argument of a predicate, and thus, it is assigned accusative case. The two DPs in the zooming-in type of multiple accusative structure bear accusative case morphology on the surface. The sources of each accusative case morphology, however, are different: One instance of accusative case morphology is syntactically motivated (i.e., abstract case) and the other is semantically/pragmatically motivated (i.e., the requirements for In-Field topics are satisfied).

The domain-specificity of case morphology serves as a position indicator. Since a syntactic object within the domain of VP can bear accusative case morphology, measure expressions use case morphology to indicate the position that they occupy. In Chapter 4, I showed that two distinct positions are available for measure expressions to occur in a sentence: one is within VP, and the other is outside VP (more specifically, within VoiceP). Measure expressions include measure phrases (MPs: classifier phrases and amount phrases), and measure adverbials (MAs: duratives, frequency adverbials, and distance/path adverbials). These measure

expressions measure the event directly and, with the help of homomorphism, they indirectly measure the scheme of their host noun, run time, path etc. Crucially, MPs exhibit positional effects. The position that they occupy determines the semantic computation. Therefore, case morphology is employed to mark position: within VP, and outside VP. When MPs occupy a position within VP, they bear accusative case morphology. When MPs occur in a position outside VP, they bear nominative case morphology. Accordingly, the case morphology on MPs reflects the primary choice of homomorphism. MAs cannot occur in the position outside VP in an active sentence. When an external argument is introduced, the position outside of VP (more specifically, within VoiceP) is subject to the agentive semantics, and thus, MAs in that position have to involve the measurement of an Agent, which is not compatible with the semantics of MAs. In passives and unaccusatives which do not involve an Agent, MAs can occupy the position outside VP and they are realized with nominative case morphology. I showed that the distribution of case morphology and positional effects indicate the presence of a semantically motivated use of case morphology. The absence of case morphology, therefore leads to processing complexity.

Case morphology on In-Field topics and measure expressions shows that at least three different modules of grammar are involved: syntax, morphology, and semantics/pragmatics. A conspiracy between these three modules results in case morphology on the non-arguments. The core part of this conspiracy is the domain specificity of case morphology. In addition, language specific properties such as

maximizing the use of case morphology also play an important role. For instance, languages like Korean and Japanese have both nominative and accusative case morphology. As was shown in Chapter 3, Japanese allows the multiple nominative structure, but not the multiple accusative structure, while Korean allows both multiple nominative/accusative structures. Japanese does not allow more than one occurrence of accusative case morphology, known as the Double-*O* constraint (Harada 1973). This language specific constraint has an effect of minimizing the use of accusative case morphology, and thus, MPs do not bear accusative case morphology, not to mention the lack of multiple accusatives in the zooming-in type constructions. It is conceivable that with nominative case morphology, the position of MPs can be marked, rendering bare MPs to be in the domain of VP. However, Japanese discards this option completely, possibly because the nominative MP implicates the presence of the accusative MP.<sup>1</sup> Therefore, maximizing/minimizing the use of the domain specific case morphology is subject to language specific properties/constraints. Furthermore, if a language does not have at least two domain specific case morphology, just like Japanese, no MPs are expected to bear case morphology among languages categorized classifier languages.

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<sup>1</sup> In the literature, it has been claimed that bare MPs in the Split MP construction in Japanese are adverbs adjoined to VP (Fukushima 1991, Fujita 1993, Miyagawa 1989, Nakanishi 2004, among others).

### 6.1.2 Case Morphology and Syntax

So far, I claimed that the morphological realization of abstract case is separated and distinguishable from the case morphology on non-arguments. The abstract case assigned to an argument is realized as case morphology of the domain the argument occupies. Case morphology on non-arguments is the result of interaction between the syntax and semantics/pragmatics. When zooming-in topics, Split MPs and measure adverbials occur in a sentence, their position in a sentence has some semantic/pragmatic effect. Since case morphology is domain specific, the grammar uses case morphology to indicate the position these non-arguments occupy.

In addition to the approach that I pursued, I submitted two more possible approaches: i) *Syntactic features determine the realization of case morphology*, and ii) *Semantically licensed syntactic objects can bear case morphology*.

The first alternative approach states that the syntax is responsible for the realization of case morphology. In order for the syntax to realize case morphology on syntactic objects, there must be a licensing mechanism for the syntactic object, which eventually leads to the morphological realization. Case morphology on arguments is not a problem, since there is an abstract case assigner to an argument such as T/Infl, V, or a head like an applicative head. In-Field topics and measure expressions, however, provide some challenge to this approach. What syntactically licenses these syntactic objects? One might assume an underlying constituency, which I argued against.



Furthermore, measure adverbials bear case morphology, which is not likely to have any possible underlying constituent like a CIP might have. Alternatively, one might posit that there are some functional heads that host zooming-in topics and measure expressions. This option raises the issue of whether a purely semantic function like a measure function has to be syntactically present in the form of a functional head, because if there is a head that hosts measure expressions, that head must be related to the measure function. It is not rare that a sentence structure involves a semantically motivated functional head, but it is unclear how this head is related to case morphology. As argued in Chapter 4, case morphology is used to indicate the domain, and is not assigned by a special functional head. To posit a functional head that hosts an In-Field topic raises the opposite situation. A functional head that hosts an In-Field topic does not participate in a compositional semantics. As was seen earlier, an In-Field topic moves to the lower topic position of the Out-Field topic position at LF. Thus, if there is a topic head within VP, it is semantically vacuous. Furthermore, the Voice head has to combine with a semantically vacuous projection headed by that topic head. This first alternative, therefore, has a fairly complicated syntax, in addition to the independently necessary semantics for each type of multiple accusative structure. In this dissertation, I showed that the phenomena with multiple occurrences of accusative case morphology are accounted for without the complicated system under the first alternative. Furthermore, in the absence of independent evidence for the

complicated syntax, the simpler theory of grammar is preferred. Therefore, the first alternative is less preferable.

The second alternative states that semantically licensed syntactic objects are realized with case morphology. Semantic licensing mechanisms can include argumenthood of a predicate, a topic-comment relation, and event measurement. A syntactic object licensed by one of these semantic licensing mechanism bears case morphology. In this approach, the role of syntax is minimized such that the syntax provides a position and triggers movement, but no syntactic case assignment is necessary. As far as nominative and accusative case morphology is concerned, this radical approach is attractive, since it reduces some redundancies in the grammar. The semantic licensing mechanisms are independently necessary, and case morphology is determined by the structure. Therefore, it is not necessary to posit abstract case in the syntax. This rather radical approach, however, must be restricted to nominative and accusative case morphology only. For dative case morphology to be realized as it is in the morphological component, the morphology must be able to access to some information about the specific case morphology. Otherwise, either nominative or accusative case morphology will be realized. Other morphological resources such as postpositions also require the morphology to have access some information about the morphological realization. Therefore, this radical approach still has to admit the role of syntax with respect to the realization of morphological resources in general. Then, the difference between this approach and my approach is whether abstract case is

present or absent in the syntax. The replacement of abstract case by some other syntactic feature like the EPP feature, however, warrants caution. As was seen in Chapter 4, the Split ClP is sensitive to the case marked position. Since replacing this kind of phenomenon referring to the case position with some other syntactic device is not an easy task, I leave this radical approach as an open question. Further study is necessary to provide a conclusive answer to the question of whether this radical approach is preferred to the approach that I pursued.

### **6.1.3 Multiple Accusative Structures and Further Research**

#### ***Inalienable Possession Structure***

In Chapter 2, I proposed an analysis based on event semantics for the inalienable possession construction. Employing a recursive VP structure, I claimed that the inalienable possession interpretation comes from a material part-whole relation between events, rather than from a direct thematic relation between the whole and part DPs. In order to link the material part-whole relation between events to the material part-whole relation between the possessor and the possessee, some constraints on event arguments were also proposed such that the denotation of the higher VP with the verb, *affect*, is a set of minimal eventualities in the sense of Kratzer (1989), or eventualities that exemplify the proposition in Kratzer (2002). A presupposition that

relates the material part-whole relation to the material part-whole relation between the possessor and the possessee comes with Modified Event Composition.

This material part-whole relation between eventualities can be applied to the IAP constructions of other languages. For instance, roughly speaking, the *Yoda's grabbing the hand* event is a material part of the *Yoda's grabbing Leia* event in the following English sentence, even though it is not a trivial issue to establish an English counterpart of the verb, *affect*.

(1)           Yoda grabbed Leia by the hand.

I submit two possible analyses with untested speculations for the English type IAP. The first possible analysis is to employ the phonologically silent verb, *affect*. Suppose that the silent verb, *affect*, takes a possessor, *Leia*, as its argument. Further suppose that *affect* selects a lexical verb that takes a PP as its complement. Alternatively, suppose that the verb in the English IAP decomposes into *affect*, which also takes the case assigning capability, and a lexical verb. Again, *affect* takes the possessor as its argument and assigns accusative case to it. The residue of the verb, which lacks case assigning abilities, takes a PP as its complement. Both analyses provide a structure to use the current semantics to embody the material part-whole relation between the possessor and the possessee.

### *Zooming-in Topic Structure*

I proposed that the left periphery of a sentence has two different topic positions (cf. Rizzi 1991). *–(n)un* marked topics occupy the higher topic position, while the In-Field topics move to the lower topic position at LF. Based on the claim that there are phenomena that occur only in root clauses, I further proposed that the higher position of the Out-Field topic zone is truncated in relative clauses and conditionals, while the lower topic position is not truncated, and thus the In-Field topic can occur in relative clauses and conditionals.

As noted in Chapter 3, the current analysis of the Middle-Field topic is not fully satisfactory. I speculated that some other grammatical device is operating in the domain of TP, where Major Subjects occur. Since the notion of Major Subjects is designed to cover all types of multiple nominative structures including the Middle-Field topic types, the differing syntactic and semantic behavior of the subtypes of Major Subjects make the situation extremely complicated. The complicated situations themselves, nevertheless, are sufficient to show that at least more than one grammatical mechanism is involved in the domain of TP. I hope someday I am able to return to multiple nominative structures with better ideas and achieve a greater understanding of the behavior.

### ***Measure Expressions***

In Chapter 4, I proposed that a sentence has two positions where a measure expression can occur: one within VP and the other outside VP. These positions are semantically active: The measure function  $\mu$  combines the measure expressions with the verb denotation or the denotation of Voice-bar. The position within VP can host the full range of measure expressions, while the position within the Voice phrase shows some restrictions. When the Voice head is active, only MPs that are semantically compatible with agent in semantics are allowed to occur. The non-active Voice head, in contrast, is more flexible than the active counterpart and, thus, allows more measure expressions. Duratives and spatial-length expressions have their own requirements and peculiarities, and thus, they only occur in the position within VP, which is more flexible.

#### **6.1.4 Cross-Linguistic Differences**

So far, I showed that there are three semantic mechanisms closely related to case morphology: i) An argument licensing mechanism, ii) an event measurement licensing mechanism, and iii) an In-Field topic licensing mechanism. Syntax provides positions for the elements, and moves them to another position, if necessary. Morphology realizes the morphological particles from the available morphological resources.

In this perspective, cross-linguistic differences may come mainly from the semantics and morphology. Japanese, for instance, has the three semantic mechanisms like Korean. Importantly, Japanese and Korean share the multiple nominative structure, exhibiting quite similar properties. However, Japanese has a limited set of morphological resources, compared to Korean. In particular, Japanese allows only one accusative case morphology realization per sentence, which is known as the Double-*O* constraint (Harada 1973). As Poser (2002) argues, however, this Double-*O* constraint can be divided into two distinguishable sets of sub constraints: A Deep double-*O* constraint and a Surface double-*O* constraint. The Deep double-*O* constraint roughly means that a certain type of the multiple accusative structure is not possible from the very beginning, while the Surface double-*O* constraint means that a particular type of multiple accusative structure indeed exists, but the poverty of morphological resources imposes a limitation on the surfacing of such a structure. As discussed in Chapter 3, Japanese allows In-Field topics, but these In-Field topics must be *-wa* marked. In fact, the Japanese counterparts of Korean accusative DPs are often allowed with *-wa*. Therefore, the difference between Korean and Japanese comes from the morphology. Korean has domain specific morphological particles and maximizes the use of them. Japanese also has domain specific morphological particles and minimizes the use of accusative case morphology.

The difference between Korean and English comes from the semantics, and morphology. The difference in the morphological resources is evident, since

English lacks case morphology. In addition, English lacks the In-Field topic-comment structure. It is clear that English has an argument licensing mechanism. Considering the measure expressions in English such as frequency adverbials like *n-times*, English does have an event measurement mechanism.

## 6.2 The Multiple Nominative Structure: Unsolved Problems

In each chapter of this dissertation, I articulated some unsolved problems. Those problems are mostly related to the multiple nominative structure.

The possessor and the possessee in the IAP type multiple accusative can employ the multiple nominative structure in passives. While the multiple nominative structure in passives is derived from the accusative counterpart, Korean also allows underived multiple nominative structures, independently. In the literature, it is often claimed that the IAP relation can be expressed with the multiple nominative structure. For instance, consider the following sentence.

- (2)        Yoda-ka    meri-ka    khu-ta.  
              Yoda-NOM head-NOM big-DECL  
              ‘Yoda has a big head.’

In (2), the two nominative DPs have the IAP relation. In addition, the predicate is adjectival, i.e., a stative predicate. Furthermore, the sentence in (2) does not involve



affectedness. This might be a problem for the current analysis, since no affectedness is involved and the predicate does not have event arguments.

However, there are sentences in which the IAP relation does not hold. Imagine that someone found a long hair on the floor and he knew that the hair belonged to Yoda. In such a situation, Yoda does not inalienably possess the hair. Nevertheless, the sentence in (3) can be used to describe such a situation.

- (3)        Yoda-ka    meri(kharak)-ka    kil-ta.  
              Yoda-NOM hair(string)-NOM    long-DECL  
              ‘Yoda’s hair is long.’

Imagine another situation where an extraordinary large head of a pig was severed and was put on the table. The sentence in (4) is perfectly fine to describe the situation.

- (4)        Toy-ci-ka    meri-ka    cengmal    khu-ta.  
              pig-NOM    head-NOM    indeed    big-DECL  
              ‘The pig’s head is really big.’

This type of interpretation is never possible in a multiple accusative structure. The sentences in (3) and (4), therefore, show that the IAP relation in (2) can be derived from semantic inferences, rather than structurally imposed.

Furthermore, we find that the multiple nominative structure can also express the alienable possession relation.

- (5)        Yoda-ka    cha-ka    khu-ta.  
              Yoda-NOM car-NOM    big-DECL  
              ‘Yoda has a big car.’

The relation between the possessor and the possessee is clearly alienable. Furthermore, no syntactic tests can distinguish the sentence in (5) from the one in (2).

The most challenging case is that any relation that a genitive structure can express is available in a multiple nominative form.

- (6)        Bulakwell-i        chayk-i        pissa-ta.  
              Blackwell-NOM    book-NOM    expensive-DECL  
              ‘Blackwell’s book is expensive.’

The relation between Blackwell and the book can be ‘the book that Blackwell publishes’, ‘the book that Blackwell sells’, ‘the book that Blackwell keeps in their storage’, etc.

The examples so far show that any type of possession relation can be expressed with the multiple nominative structure. While these examples present a challenge for the possessor-raising analysis, the current analysis for the IAP type multiple accusative based on event semantics is immune to these problems. These predicates do not have event arguments.

However, these examples do leave a problem to solve: the multiple nominative structure. To resolve this problem, there are a series of questions to be answered. The first question is which one is the subject. In the examples above, it is

clear that the second nominative is thematically related to the predicate. What is *big* is the *head* and what is *expensive* is the *book*. Accordingly, the syntactic status of the first nominative DP has been the main concern. In the literature, the first nominative is often called the ‘Major’ subject (Youn 1990, Yoon, James to appear, cf. Kuno 1973, Shibatani 1999, Doron and Heycock 1999). The idea behind this description is that both DPs are actually subjects. Unfortunately, however, it is still controversial whether both of them are actually subjects. Tests to identify the subject such as the ‘honorific test’ have not provided any substantial evidence (see Hong, Ki-Sun 1990 for details).

To make the situation more complicated, Korean also allows nominative-object/dative-subject constructions, as briefly discussed in Chapter 1, and Chapter 5. This type of construction involves psych predicates and typically takes a dative experiencer as a subject. The dative experiencer can also be nominative.

- (7) a. Yoda-eykey paym-i mwusep-ta.  
           Yoda-DAT snake-NOM afraid-DECL  
           ‘Yoda is afraid of the snake.’
- b. Yoda-ka paym-i mwusep-ta.  
           Yoda-NOM snake-NOM afraid-DECL  
           ‘Yoda is afraid of the snake.’

The nominative objects in (7) show that the nominative case assigner, presumably T/Infl, assigns nominative to Themes. The case alternation on the experiencer, thus, raises a problem. Dative case is believed to be an instance of inherent case. The general assumption is that inherent case, unlike abstract case, is linked to a theta role

(Haegeman 1991, Maling and Kim 1992, cf. Chomsky 1986). The nominative case on the experience, however, is not inherent case. Thus, there must be a source for the nominative case. If the assigner is T/Infl, a one-to-one correspondence between the nominative case assigner and the assignee is not possible, since it already assigned nominative to the theme. Then, is there more than one T/Infl to assign nominative? This is a possibility. However, considering the multiple nominative structures in general, this option is not plausible. Typically, the multiple nominative structure occurs with stative predicates and it is not compatible with an Agent role. If there is a nominative case assigner, we do not expect that the assigner is sensitive to the thematic role. Thus, more than one T/Infl option, if successful, has to make a reference to the thematic role. Then, the nominative case on the experiencer in (7b), or other nominative DPs in this section have the inherent case-like property, which is not likely.

For these reasons, I hypothesize that the nominative assigner is T/Infl and it can assign nominative case more than once, following Yoon, James (to appear). I hope to come up with better analyses for these problems with further research.

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