

Syntactic and Semantic Constraints on Caseless Numeral Quantifiers*

Doo-Won Lee
(Chungju National University)

Lee, Doo-Won. (2005). Syntactic and semantic constraints on caseless numeral quantifiers. *Language Research* 41(1), 143-178.

We observe that Caseless Numeral Quantifiers (NQs) can float from their host subject in the passive/unaccusative construction, whereas they cannot in the unergative or transitive one (see Miyagawa 1989, Radford 2004, Ko 2004, among others): Caseless NQs within VP can also be separated from their host object in the transitive construction. We need to note that in Korean, the distributive reading of Caseless NQs is much easier to obtain, regardless of whether they float from or occur with their host subject or object. Nakanishi (2003) suggests that in syntax, the distributive reading of an element within VP must directly combine with the monotonic verb. In this paper, based on these observations, we claim that in syntax, the distributive reading of the Caseless NQ of the type 'NP-Case NQ' in Korean must combine with the monotonic verbal predicate whose event has part-whole structures, when the NQ floats from the passive/unaccusative subject in [Spec, VP] and the transitive object in the VP-object position or when it occurs with its host object within VP. This is an ideal result that follows the general assumption in compositional semantics that semantic rules apply when elements are combined by syntactic rules. The accusative Case marker is a specificity one (Kim 1993, Lee and Cho 2003, Torrego 1998). The contrastively focused argument has only a specific reading (Schütze 2000, Jung 2001a). That is, the NQ with overt accusative Case and the contrastively focused NQ are both specific. Based on these observations of specificity, we argue that the NQ can induce a collective reading, only if it is specific. However, the collective reading of the NQ isn't subject to the monotonicity of the verbal predicate.

* Earlier versions of this paper were presented at the following three occasions: the 2004 LSK International Conference at Yonsei University, in July, 2004; the 2004 LSK Fall Conference at Chungnam Nat'l University, in October, 2004; and the 2004 Seoul Linguistics Forum at Language Education Institute, SNU, in December, 2004. My special thanks go to Chungmin Lee, whose insightful comments and scholarly suggestions helped me refine a variety of controversial points. I am also grateful to Sung-Ho Ahn, Chung-Kon Shi, Hang-Jin Yoon, Youngjoo Lee and anonymous reviewers of this journal for their discussions, comments and judgments. However, all errors are mine.

Key words: NQ (Numeral Quantifier), FQ (Floating Quantifier), monotonicity, distributive/collective readings, unaccusative/unergative/transitive constructions

1. Introduction

In this paper, we investigate why the Caseless NQ of the type 'NP-Case NQ' in Korean cannot appear outside VP and how its distributive reading must be associated with the monotonic verbal predicate. Let's first consider the distributive and collective readings of the NQs. It is well known that sentences such as (1) are ambiguous between so-called 'distributive' and 'collective' readings (Dowty 1986, Landman 1996):

(1) Three students found a book.

The sentence in (1) has the following two readings: One reading is that each of the three students found a book. Thus, three books were found. This reading is called a 'distributive' reading. The other reading is that three students found one book together, which is called a 'collective' reading.

This ambiguity can be observed in Korean. Sentences with NQs seem to be ambiguous between the distributive and collective readings toward the verbal predicate as in (2):

- (2) a. *haksayng-i ocen-ey sey-meyng-i tochakha-yess-ta.*
 student-Nom morning-in three-Cl-Nom arrive-Past-Dec
 'Three students arrived in the morning.'
 Case-marked NQ: distributive, collective
- b. *ye-haksayng-ul Chelswu-ka ocen-ey sey-myeng-ul*
 female-student-Acc C-Nom morning-in three-Cl-Acc
manna-ss-ta.
 meet-Past-Dec
 'Chelswu met three female-students in the morning.'
 Case-marked NQ: distributive, collective

Regardless of whether the NQ in the verbal object position floats from or occurs with its host NP as in (2) or (3) respectively, it has both dis-

tributive and collective readings toward the verbal predicate:

- (3) Chelswu-ka ocen-ey ye-haksayng-ul sey-myeng-ul
 C-Nom morning-in female-student-Acc three-Cl-Acc
 manna-ss-ta.
 meet-Past-Dec
 ‘Chelswu met three female-students in the morning.’
 Case-marked NQ: distributive, collective

Unlike the Case-marked NQ, however, the Caseless NQ seems to make it easier to get a distributive reading than a collective one as in (4):

- (4) a. haksayng-i ocen-ey sey-myeng tochakha-yess-ta.
 student-Nom morning-in three-Cl arrive-Past-Dec
 ‘Three students arrived in the morning.’
 Caseless NQ: distributive > collective
- b. maykcwu-lul Chelswu-ka ocen-ey sey-pyeng
 bear-Acc Chelswu-Nom morning-in three-Cl
 masi-ess-ta.
 drink-Past-Dec
 ‘Chelswu drank three bottles of beer in the morning.’
 Caseless NQ: distributive > collective

The collective reading of the Caseless NQ in (4), if it is ever available, is not as easy as that of the Case-marked NQ in (2) and (3) to obtain. It will be shown that the collective reading of the NQ is triggered by the specificity of the Case-marked NQ or the contrastively focused NQ, which plays the role of the D-feature to check off the EPP on *v*, when the nominal NQ undergoes object shift (OS).¹⁾ Unlike the Case-marked NQ within VP, the Case-marked NQ outside VP (i.e., in the OS or scrambled position) only allows a collective reading. The distributive reading, if it is available, is very difficult to obtain. Based on this observation, it

1) OS involves raising to the outer edge of the phase v^*P (v^*P is a strong phase with the EPP feature on its head *v*) (Chomsky 2001: 26). Chomsky (2004) recently claims that peripheral movements (i.e., here, OS) are non-Agree-driven movements, or free internal merges to the edge of a phase due to the edge feature of the phase head (see also Yang 2005). In this vein, the OS of the NQ with overt accusative Case is induced by the edge feature of the phase head *v*.

will be shown why the Caseless NQ cannot appear outside VP and thus isn't subject to the collective reading. With this point in mind, let's consider the contrast between (5a) and (5b):

- (5) a. Chelswu-ka ye-haksayng-tul-ul sey-myeng?*(-ul) ocen-ey
 Chelswu-Nom female-student-Pl-Acc three-Cl(-Acc) morning-in
 manna-ss-ta.
 meet-Past-Dec
 'Chelswu met three female-students in the morning.'
- b. ye-haksayng-tul-ul Chelswu-ka ocen-ey sey-myeng(-ul)
 female-student-Pl-Acc Chelswu-Nom morning-in three-Cl(-Acc)
 manna-ss-ta.
 meet-Past-Dec

The adverbial phrase *ocen-ey* 'morning-in' is adjoined to VP. So we suppose that the NQ preceding it in (5a) has already undergone movement outside VP. In Korean, the Caseless NQ tends to have a distributive reading, regardless of whether it floats from its host noun or not.²⁾ Note that the distributive reading of the Caseless NQ seems to be only available on the verbal domain (i.e., within VP). This seems to illuminate the contrast between the Caseless NQs in (5a) and (5b). We suppose that as shown in (5a) and (6), the Caseless NQs cannot appear outside VP, because their distributive reading is difficult to obtain outside VP.³⁾ This factor seems to render the sentences invalid:⁴⁾

2) Some previous studies claim that sentences with floating numeral quantifiers (FQs) only allow a distributive reading in Japanese (Terada 1990, Nakanishi 2003, among others). As an anonymous reviewer points out, Nakanishi (2003) focuses on the Caseless NQ floating from the type '[NP-NQ]-Case'. In this paper however, we deal with the Caseless NQ of the type 'NP-Case NQ': We show that the Caseless NQ floats from the NP-Nom or the NP-Acc. Note that in Korean, the distributive reading of the Caseless NQ, whether it floats or not, is easier to obtain than the collective reading on the verbal domain, if not given a special discourse context that affects the reading.

3) The NQ in (6), which floats from the transitive subject, occurs in [Spec, vP] (i.e., outside VP), as will be seen later. If this is correct, we can say that this shows that the NQ_{obj} preceding the NQ_{subj} has already moved outside VP.

4) We assume that the Case-marked NQ_{subj} in the unaccusative construction (2) and the transitive construction (6) remains in-situ in [Spec, VP] and [Spec, vP] respectively. Note that the nominative Case-marked argument can stay in situ in [Spec, VP] or [Spec, vP], if the nominative Case feature is not strong (cf. Miyagawa 2001: 300). This is just what the transitive subject in Icelandic that remains in-situ in [Spec, vP] even at Spell-Out shows (Chomsky 2001: 36). We need to note that structural Case is not a feature of the probes

- (6) a. sakwa-lul haksayng-tul-i sey-kay?*(-lul) sey-myeng-i
 apple-Acc student-Pl-Nom three-CI-Acc three-CI-Nom
 mek-ess-ta.
 eat-Past-Dec
 'Three students ate three apples in the morning.'
- b. haksayng-tul-i sakwa-lul sey-kay?*(-lul) sey-myeng-i
 apple-Acc student-Pl-Nom three-CI three-CI-Nom
 ocen-ey mek-ess-ta.
 morning-in eat-Past-Dec

The Case-marked NQ makes it easier to get a collective reading than a distributive one, when it occurs outside VP as in (6). It is well known in the literatures (see Lee 1989, among others) that the Caseless NQ cannot appear outside VP, even when it is not stranded by its host NP as in (6b).

On the other hand, there may be a different case. The examples in (7) are marginal at best, although the Caseless NQ is on the verbal domain (cf. Lee 1989: 478):

- (7) a. (?)Chelswu-ka Yenghi-eykey chayk-ul twu-kwen
 C-Nom Yenghi-Dat book-Acc two-CI
 mil-ess-ta.
 push-Past-Dec
 'Chelswu pushed two books to Yenghi.'
 Caseless NQ: distributive, verbal predicate: collective
- b. (?)chayk-ul Chelswu-ka Yenghi-eykey twu-kwen
 book-Acc C-Nom Yenghi-Dat two-CI
 mil-ess-ta.
 push-Past-Dec
 'Chelswu pushed two books to Yenghi.'
 Caseless' NQ: distributive, verbal predicate: collective

(T, v), but it is assigned a value under agreement, then removed by Spell-Out from the narrow syntax: Case itself deletes under matching of ϕ -features (Chomsky 2001: 6). The host subject's movement from [Spec, VP] or [Spec, vP] in (2) or (6) respectively to [Spec, TP] is triggered by the EPP-feature on T. At this point, the overt nominative Case of the host subject plays the D-feature to check off the EPP on T. The dominating DP (i.e., *haksayng(-tul)-i sey-myeng-i* 'student(Pl)-Nom three-CI-Nom') in (2) and (6) may move to [Spec, TP]. The overt Case of the NQ plays the D-feature to check off the EPP on T in this system.

Given the above observations of the Caseless NQ, the following questions arise: What is the difference, if any, between Case-marked NQs and Caseless NQs? How is the distributive reading of the Caseless NQ associated with the verbal predicate? In this paper, in order to answer these questions, we will examine the semantic constraints on Caseless NQs, and further explore their syntactic factors.

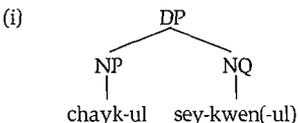
The examples in (8a,b) below are the type 'NP-Case NQ' and the type '[NP NQ]-Case' respectively:

- (8) a. chayk-ul sey-kwen(-ul)
 book-Acc three-Cl(-Acc)
 'three books'
- b. chayk sey-kwen-ul
 book three-Cl-Acc

In this paper, we focus on the type 'NQ-Case NQ' in (8a).⁵⁾ Nakanishi (2003) proposes to extend Schwarzschild's (2002) monotonicity constraint on the nominal domain, which will be introduced later, to the verbal domain. In this vein, she argues that the floating quantifiers from the type '[NP NQ]-Case' must satisfy the monotonicity constraint on the verbal domain. We seek to extend her analysis to the distributive reading of the Caseless NQ of the type 'NQ-Case NQ' in Korean. We will assume that the NQ_{obj} of the type 'NP-Case NQ' is generated with its host object in the Θ -position (cf. Chung (2004): CP and vP are phases in that the host object of the NQ undergoes successive cyclic movement phase by phase, stranding the NQ in the Θ -position or in the OS position. The overt Case of the host object of the type 'NQ-Case NQ' plays the D-feature to check off the EPP on v (Chomsky 1999; Lee 2003). This is why we focus on the type 'NQ-Case NQ' in (8a), not the type '[NP NQ]-Case' in (8b).

To pursue our object, we will also deal with the floating NQs

5) We assume that the type 'NP-Case NQ' in (8a) is base-generated as in (i) (cf. Ko 2004):

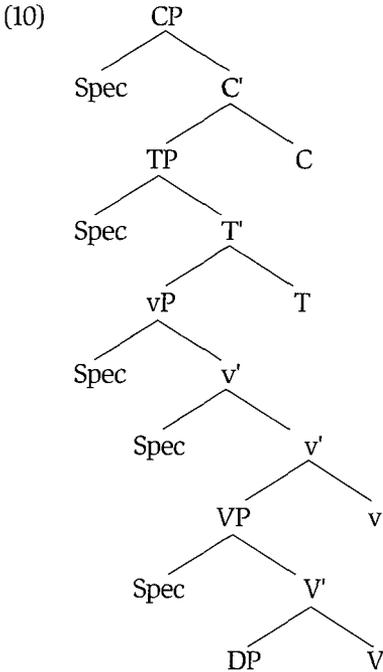


We will not explore the detailed structure of the type 'NP-Case NQ' in this paper.

(hereafter, FQs). There are several approaches to FQs, the most prominent of which is Sportiche’s (1988) stranding analysis (see also McCloskey 2000, Bošković 2004), in which the element (i.e., the host NP) an FQ modifies is generated as a constituent with the quantifier, the quantifier subsequently being stranded under the movement of the element, as in (9). This paper focuses on the stranding analysis:

(9) The students_i seem [all t_i] to know French.

The analysis put forward in this paper will be based on the Minimalist framework in (10) (Chomsky 2001):⁶⁾



6) There are three core functional categories C, T, and v: C = complementizer, T = tense, v = a light verb that introduces a verbal phrase (Chomsky 2001: 6).

- (12) a. ?_{TP} haksayng-i_i ecey [_{VP} [_{DP} t_i sey myeng] [_{VP} wul]]-ess]-ta.
 student-Nom yesterday three-Cl cry-Past-Dec
 ‘Two girls cried yesterday.’ (unergative)
- b. * ?_{TP} haksayng-i_i maykcwu-lul [_{VP} [_{DP} t_i sey myeng]
 student-Nom beer-Acc three-Cl
 [_{VP} masi]]-ess]-ta.
 drink-Past-Dec
 ‘Three students drank beer.’ (transitive)

We assume that the distributive reading of the NQ in (12) is impossible, because the NQ floats in [Spec, vP] (i.e., outside VP): The distributive reading of the NQ toward the verbal predicate is only available on the monotonic verbal domain (cf. Nakanishi 2003). If this is correct, the example in (5a), where the Caseless NQ floats outside VP, is ruled out, because the distributive reading of the Caseless NQ is not associated with the verbal predicate. This is also evidenced by the contrast between the Case-marked NQ and the Caseless NQ in (13):

- (13) a. Chelswu-ka chayk-ul twu-kwen? $\text{?}^*(-ul)$ pparun wuphyen-uro
 C-Nom book-Acc two-Cl(-Acc) quick mail-with
 Yenghi-eykey ponay-ss-ta.
 Yenghi-Dat send-Past-Dec
 ‘Chelswu sent two books to Yenghi by express.’
 NQ: collective > distributive
- b. chayk-ul Chelswu-ka twu-kwen? $\text{?}^*(-ul)$ pparun wuphyen-uro
 book-Acc C-Nom two-Cl(-Acc) quick mail-with
 Yenghi-eykey ponay-ss-ta.
 Yenghi-Dat send-Past-Dec
 NQ: collective > distributive

Each contrast in (13a,b) seems to occur, because the NQ makes it easier to obtain a collective reading than a distributive reading outside VP (i.e., in the OS position). That is, the collective reading of the NQ is preferred outside VP. The distributive reading of the NQ outside VP, if it is ever available, is not as easy to obtain.

2.2 Problems with Syntactic Constraints on Caseless NQs

The NQ can also be separated from its host object in the verbal object position *à la* McCloskey (2000) and Radford (2004). However, the example in (14b) shows that this observation is problematic in Korean:¹⁰⁾¹¹⁾

10) As will be seen later, the NQ can induce a collective reading only if it is specific. The overt accusative Case or the contrastive focus is related to the specificity of the NQ_{obj}. In this vein, if the Caseless NQ in (14) is assigned a contrastive focus, it would be specific, which may induce the collective reading of the NQ. In that case, it would become almost perfect. At this point, let's consider the following examples:

- (i) a. Chelswu-ka Yenghi-eykey kongchayk-i anila chayk-ul twu-kwen mil-ess-ta.
 C-Nom Y-Dat notebook-Nom not book-Acc two-Cl push-Past-Dec
 'Chelswu pushed two books, not a notebook, to Yenghi.'
 b. Chelswu-ka Yenghi-eykey chayk-ul sey-kwen-i anila twu-kwen mil-ess-ta.
 C-Nom Y-Dat book-Acc three-Cl-Nom not two-Cl push-Past-Dec
 'Chelswu pushed two books, not three books, to Yenghi.'

As an anonymous reviewer notes, the example in (ia) is (almost) perfect. In the example in (ib), the Caseless NQ *twu-kwen* 'two-Cl' is assigned a contrastive focus, which may render the NQ collective in this system. Similarly, the DP *chayk-ul twu-kwen* 'book-Acc two-Cl' in (ia) seems to be contrasted by the preceding DP *kongchayk-i* 'notebook-Nom.' If this is correct, it would be assigned a contrastive focus, which renders the Caseless NQ collective.

11) As examined by Lee (1989: 478), if overt Case is attached to the NQ in the examples in (14), the sentences get better. This case only induces a collective reading of the NQ toward the verbal predicate, because the verbal predicates in (14) only permit a collective reading. However, after considering the Caseless NQs in (14), an anonymous reviewer points out that the NQs may have a distributive reading, because the verbal predicate may be monotonic. At this point, let's consider the event structure of the verb. The verb 'walk' in (i) has aspectual polysemy (Pustejovsky 1992):

- (i) a. Mary walked.
 b. Mary walked to the store.
 c. Mary walked for 30 minutes.

The verb 'walk' is related to the process of Mary's walking in (ia), to the accomplishment of Mary's walking in (ib), and Mary's repeated walking for a limited time in (ic). If the verbal predicates in (14) appear with the adverbial expression like 'for 30 minutes' in (ic), they would get monotonic as in (ii):

- (ii) ✓chayk-ul Chelswu-ka sip-pwun-tonganey twu-kwen mil-ess-ta.
 book-Acc C-Nom 10-minute-for two-Cl push-Past-Dec
 'Chelswu pushed two books for 10 minutes.'
 Caseless NQ: distributive, verbal predicate: distributive

In (14), however, the distributive reading of the verbal predicates without any adverbial expression of the limited time is difficult to obtain. Nevertheless, if the verbal predicates in (14) are interpreted as a repeated action for a limited time as in (ic) and (ii), they could be monotonic, which seems to make the sentences much better as in (ii). The further research on this factor involved in event semantics will help the author refine the controversial point. In this paper, however, the event of the verbal predicates in (14) is restricted to that of accomplishment, which reduces pushing two books at a time. The event of accomplishment seems to be an atomic event without part-whole structures. If

- (14=7) a. (?)?Chelswu-ka Yenghi-eykey chayk-ul twu-kwen
 C-Nom Yenghi-Dat book-Acc two-Cl
 mil-ess-ta.
 push-Past-Dec
 ‘Chelswu pushed two books to Yenghi.’
 Caseless NQ: distributive, verbal predicate: collective

this is correct, it is only interpreted as a single event like ‘destroy the building’ in English and as a result induces a collective reading. The verbal predicate *milta* ‘push’ seems to be involved in a single event of accomplishment, whereas, for example, the verbal predicate *ponayta* ‘send’ seems to be ambiguous between a single event of accomplishment and the plural events of the repeated action. If this is on the right track, these distinct factors would render the former collective and the latter ambiguous between collective and distributive readings. Note that the subparts of ‘sending two books’ are to send a book twice and we obtain the meaning ‘sending two books’ by combining two events of sending a book. However, ‘pushing two books’ in Korean is difficult to obtain the meaning ‘pushing a book twice’ as its subparts. At this point, let’s consider the following contrast:

- (iii) a. √tol-ul Chelswu-ka yel sey-kay tenci-ess-ta.
 stone-Acc C-Nom 10 three-Cl throw-Past-Dec
 ‘Chelswu threw 13 stones.’
 NQ: distributive, the verbal predicate: distributive, collective
 b. ?tol-ul Chelswu-ka yel sey-kay mil-ess-ta.
 stone-Acc C-Nom 10 three-Cl push-Past-Dec
 ‘Chelswu pushed 13 stones.’
 NQ: distributive, the verbal predicate: distributive < collective

The verbal predicate *tencita* ‘throw’ implies ambiguity between a single event of accomplishment and the plural events of the repeated action, whereas the verbal predicate *milta* ‘push’ seems to have a preference of a single event of accomplishment to the plural events of the repeated action. Note that a single event corresponds to the collective reading and the plural events the distributive reading. This seems to induce the contrast between (iii)a) and (iii)b). Like the verbal predicate *tencita* ‘throw’ in (iii)a), the verbal predicates in (iv) are ambiguous between a collective reading and a distributive reading:

- (iv) a. kong-ul Chelswu-ka yel sey-kay cha-ss-ta.
 ball-Acc Chelswu-Nom 13-Cl kick-Past-Dec
 ‘Chelswu kicked 13 balls.’
 NQ: distributive, the verbal predicate: collective, distributive
 b. sakwa-lul Chelswu-ka yel sey-kay ccik-ess-ta.
 apple-Acc Chelswu-Nom 13-Cl poke-Past-Dec
 ‘Chelswu poked 13 apples.’
 NQ: distributive, the verbal predicate: collective, distributive

The distributive reading of the NQ in the examples in (iv) is only available on the monotonic verbal predicate (i.e., on the the verbal predicate which has a distributive reading). Note that this factor renders the sentences acceptable. However, this monotonicity seems to fail in the case of the verbal predicate *milta* ‘push’ in (14a,b).

- b. (?)*chayk-ul Chelswu-ka Yenghi-eykey twu-kwen
 book-Acc C-Nom Yenghi-Dat two-Cl
 mil-ess-ta.
 push-Past-Dec
 ‘Chelswu pushed two books to Yenghi.’
 Caseless NQ: distributive, verbal predicate: collective

Note that even when the Caseless NQ occurs with its host object in the verbal object position, the sentence is marginal as in (14a).¹²⁾

3. Semantic Constraint on the Distributive Reading of Caseless NQs

3.1 Nakanishi’s (2003) Monotonicity of NQ and Verbal Predicate

As for the distributive reading of the Caseless NQ, it is available only when the NQ is on the verbal domain and the verbal predicate is monotonic (cf. Nakanishi 2003). This is shown by the contrast between (15) and (16):

- (15) a. Chelswu-ka pparun wupyen-uro Yenghi-eykey chayk-ul
 C-Nom quick mail-with Yenghi-Dat book-Acc
 twu-kwen ponay-ss-ta.
 two-Cl send-Past-Dec
 ‘Chelswu sent two books to Yenghi by express.’
 Caseless NQ: distributive, verbal predicate: distributive/ collective
- b. chayk-ul Chelswu-ka pparun wupyen-uro Yenghi-eykey
 book-Acc C-Nom quick mail-with Yenghi-Dat
 twu-kwen ponay-ss-ta.
 two-Cl send-Past-Dec
 Caseless NQ: distributive, verbal predicate: distributive/ collective

12) We investigate the unacceptability of the examples in (14) from the fact that the distributive reading of the Caseless NQ cannot be associated with the collective reading of the verbal predicate.

- (16=14) a. (?)?Chelswu-ka Yenghi-eykey chayk-ul twu-kwen
 C-Nom Yenghi-Dat book-Acc two-Cl
 mil-ess-ta.
 push-Past-Dec
 ‘Chelswu pushed two books to Yenghi.’
 Caseless NQ: distributive, verbal predicate: collective
- b. (?)?chayk-ul Chelswu-ka Yenghi-eykey twu-kwen
 book-Acc C-Nom Yenghi-Dat two-Cl
 mil-ess-ta.
 push-Past-Dec
 ‘Chelswu pushed two books to Yenghi.’
 Caseless NQ: distributive, verbal predicate: collective

The distributive reading of the Caseless NQ in (16) cannot be available for the verbal domain, since the verbal predicate is not monotonic (i.e., collective or not distributive).

Landman (1996) and Nakanishi (2003) suggest that a collective predication is a singular predication, and a distributive predication is a plural predication. In (17), the verbal predicate may be collective or distributive, which is also the property of the Case-marked NQ toward the verbal predicate. The sentences can have both collective and distributive readings:

- (17) a. Chelswu-ka Yenghi-eykey chayk-ul twu-kwen-ul
 C-Nom Yenghi-Dat book-Acc two-Cl-Acc
 ponay-ss-ta.
 send-Past-Dec
 ‘Chelswu sent two books to Yenghi.’
 Case-marked NQ: collective/distributive, verbal predicate: distributive/collective
- b. chayk-ul Chelswu-ka Yenghi-eykey twu-kwen-ul
 book-Acc C-Nom Yenghi-Dat two-Cl-Acc
 ponay-ss-ta.
 send-Past-Dec
 Case-marked NQ: collective/distributive, verbal predicate: distributive/collective

In (18), the collective reading of the verbal predicate denotes a single

event of pushing two books at a time. The collective reading of the NQ can be associated with that of the verbal predicate:

- (18) a. Chelswu-ka Yenghi-eykey chayk-ul twu-kwen-ul
 C-Nom Yenghi-Dat book-Acc two-Cl
 mil-ess-ta.
 push-Past-Dec
 'Chelswu pushed two books to Yenghi.'
 Case-marked NQ: collective/distributive, verbal predicate: collective
- b. chayk-ul Chelswu-ka Yenghi-eykey twu-kwen-ul
 book-Acc C-Nom Yenghi-Dat two-Cl
 mil-ess-ta.
 push-Past-Dec
 'Chelswu pushed two books to Yenghi.'
 Case-marked NQ: collective/distributive, verbal predicate: collective

The verbal predicate of the examples in (18) only has a collective reading. Nakanishi (2003) argues that the extension of the collective reading is an atomic event without a part-whole structure, while the extension of the distributive reading is a part-whole structure of an event. She also proposes to extend Schwarzschild's (2002) monotonicity constraint on the nominal domain to the verbal domain.¹³⁾ In particular, she argues that the distributive reading of the quantifier must satisfy the monotonicity constraint on the verbal domain; that is, a measure function expressed by the quantifier must track uniform part-whole structures of the verbal predicate. Formally, the measure function μ is

13) Schwarzschild's (2002) monotonicity constraint on the nominal domain is as follows:

(i) The measure function μ is monotonic relative to the denotation of the host noun if it satisfies the following condition:

The measure function μ is monotonic relative to the domain I iff:

For individuals x, y in I :

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

(i) means that a measurement scheme is monotonic if and only if a measure obtained for an element x is larger than a measure obtained for a proper subpart of x . For example, 'weight' is monotonic for *meat*, since, if a quantity of *meat* has a certain weight, proper subparts of it will have lower weight.

monotonic relative to the definition of the verbal predicate if it satisfies the following condition:

- (19) The measure function μ is monotonic relative to the domain E iff:
 For individuals e_1, e_2 in E:
 If e_1 is a proper subpart of e_2 , then $\mu(e_1) < \mu(e_2)$

The measure function in (19) measures events denoted by the verbal predicate. The monotonicity constraint on the verbal predicate says that the verbal predicate must have a part-whole structure. The same analysis holds for the atelic verbal predicate *pile up*: subparts of a piling up event are piling up events and we obtain a piling up event by combining two piling up events. Assuming that *pile up* has a part-whole structure, it is possible for the measure function to apply monotonically. In contrast, *destroy that house* lacks a part-whole structure in that there is no proper subpart that denotes a destroying-that-house-event. As a result, monotonicity fails in the case of *destroy that house*.

Let's return to the distributive reading of the NQ in (15). It must be associated with the part-whole structures of events of the verbal predicate. This is available only if NQs are on the verbal domain. In this vein, we predict that in Korean, NQs are subject to a semantic constraint (i.e., a monotonicity constraint) on the verbal domain, because, in syntax, only the distributive reading of the NQ directly combines with the verbal predicate (cf. Nakanishi 2003). At this stage, we need to note that the verbal predicate must be monotonic. However, if the verbal predicate in (16) is followed by the distributive adverb *kakkak* 'distributively', the sentences would be ruled in as in (20):

- (20) a. Chelswu-ka Yenghi-eykey chayk-ul twu-kwen kakkak
 C-Nom Yenghi-Dat book-Acc two-Cl distributively
 mil-ess-ta.
 push-Past-Dec
 'Chelswu pushed two books to Yenghi.'
 Caseless NQ: distributive, verbal predicate: collective → distributive

- b. chayk-ul · Chelswu-ka Yenghi-eykey twu-kwen kakkak
 book-Acc C-Nom Yenghi-Dat two-Cl distributively
 mil-ess-ta.
 push-Past-Dec
 ‘Chelswu pushed two books to Yenghi.’
 Caseless NQ: distributive, verbal predicate: collective → distributive

The distributive adverb *kakkak* ‘distributively’ helps make the verbal predicate *mil-ess-ta* ‘pushed’ have a part-whole structure of an event. As a result, the verbal predicate has plural events of *Chelswu*’s repeated pushing of a book. The monotonic verbal predicate can directly combine with the distributive NQ. This factor renders the sentence perfect.

3.2 Nakanishi’s (2003) Problem in Korean

Nakanishi (2003) assumes that all FQs are adjoined to VP. It follows that FQs directly combine with the verbal predicate in syntax. This assumption is in accordance with the proposal that FQs are subject to the monotonicity constraint on the verbal predicate. However, this isn’t always correct. Under Nakanishi’s (2003) proposal, three examples in (21) should be all acceptable, because their verbal predicates are all monotonic:¹⁴⁾¹⁵⁾

14) As an anonymous reviewer points out, it is known in literature (Nakanishi 2003, among others) that the Japanese counterparts of the examples in (21b,c) are valid. In this case, Nakanishi’s (2003) system works without any problem. However, her system would be problematic if it applies to the Korean FQ constructions like the examples in (21b,c). We assume that the Caseless NQ_{subj} in the Korean unergative construction like the example in (21b) is base-generated and floats in the spec of v (i.e., outside VP) (Ko 2004). If this assumption is correct, the Caseless NQ_{subj} outside VP cannot be associated with the verbal predicate in this system. This factor induces the marginality of the unergative constructions like the examples in (21b, ia,b), where the Caseless NQ floats outside VP:

- (i) a. ?haksayng-i pwunmyenghi twu-myeng wus-ess-ta.
 student-Nom evidently two-Cl laugh-Past-Dec
 ‘Two students laughed evidently.’
 b. ?haksayng-i pwunmyenghi twu-myeng wul-ess-ta.
 student-Nom evidently two-Cl cry-Past-Dec
 ‘Two students cried evidently.’

15) The Caseless NQ and its host NP are base-generated as a constituent (Ko 2004, among others). Under our system, the Caseless NQ can be stranded within VP, but not outside VP. We suppose in this paper that the Caseless NQ stranded in (21b,c) is located in the spec of v (i.e., outside VP). Nevertheless, the reason why the transitive construction in (21c) is more degraded than the unergative one in (21b) seems that the shifted object in (21c) violates the cyclic linearization. If the canonical order of arguments is fixed once, it must be

- (21) a. catongcha-ka kangto-eykey twu-tay pwuswu-eci-ess-ta.
 car-Nom robber-Dat two-Cl break-Pass-Past-ta
 ‘Two cars were broken by a robber.’ [passive]
- b. ??haksayng-i pwunmyenghi twu-myeng cenhwaha-yess-ta.
 student-Nom evidently two-Cl telephone-Past-Dec
 ‘Two students telephoned evidently.’ [unergative]
- c. *haksayng-i tosilak-ul sey-myeng mek-ess-ta.
 student-Nom lunch-basket-Acc three-CL eat-Past
 ‘Three students ate each lunch basket.’ [transitive]

The passive construction in (21a) is perfect, whereas the unergative construction in (21b) and the transitive construction in (21c) are not acceptable, contrary to his prediction.

4. Proposals

4.1 Distributive Reading of NQs

Based on Nakanishi’s (2003) monotonicity constraint in (19), repeated in (22), we propose that in Korean, the distributive reading of the Caseless NQ is available toward the monotonic verbal predicate, only if the NQ is on the verbal domain:

- (22) The measure function μ is monotonic relative to the domain E iff:
 For individuals e_1, e_2 in E:
 If e_1 is a proper subpart of e_2 , then $\mu(e_1) < \mu(e_2)$

In this paper, in regard to the NQ, this means that the distributive reading of NQs must be associated with the part-whole structures of events in the verbal predicate. We predict that in Korean, the NQs on the verbal domain are subject to a semantic constraint (i.e., monotonicity constraint), because, in syntax, only the NQs within VP directly

preserved (Fox and Pesetsky 2003, Ko 2004). Note that the shifted object violates the canonical order of arguments (i.e., a subject and an object) fixed before the object undergoes OS (see Lee 2004a for more details). As a result, unlike in (21b), the host object and the adjacent Caseless NQ_{subj} in (21c) are regarded as a constituent, because the Caseless NQ cannot be stranded outside VP. In this system, this factor seems to render the example in (21c) more degraded than the example in (21b).

combine with the verbal predicate. This is the ideal result that follows the general assumption in the compositional semantics that semantic rules apply when elements are combined by syntactic rules. Thus, we can say that in syntax, the NQs, which float from the passive/unaccusative subject and the transitive object, or occurs with the transitive object within VP, can directly combine with the verbal predicate whose events have a part-whole structure.

4.2. Specificity and Collective Reading of NQs

Let's consider the specificity of the NQ, which, we argue, may induce a collective reading of the NQ. Before proceeding, let's examine the proposals that suggest the accusative Case marker or the contrastive focus is related to the specificity of the NQ_{obj}. According to Kim (1993), the accusative Case marker may be a specificity one. The object must have an accusative Case marker when it is introduced with adjectives interpreted as specific. As shown in the contrast in (23) below, the adjective *etten*, which means *a certain* in English, is only compatible with the object with overt Case:

- (23) a. Yenghi-ka [etten haksayng-ul] po-ass-ta.
 -Nom certain student-Acc see-Past-Dec
 'Yenghi saw a certain student.'
 b. ?*Yenghi-ka [etten haksayng] po-ass-ta.
 -Nom certain student see-Past-Dec

Thus, we can expect that the accusative Case marker has to do with specificity (see also Lee and Cho 2003 and Torrego 1998 for more information). We also assume that the contrastively focused argument has a specific reading (cf. Schütze 2000, Jung 2001a). If this is correct, the accusative Case-marked NQ and the contrastively focused NQ are both specific.¹⁶⁾ Based on these observations of specificity, we argue that the NQ can induce a collective reading, only if it is specific. This argument comes from the empirical evidence that an object can undergo OS, only if it is specific; and that as a result, the shifted object has only a collec-

16) Note that the Caseless NQ is specific, only if it is contrastively focused.

tive reading.¹⁷⁾ There may be two positions that induces the collective reading of NQs: within VP and in the EPP position of *v* (i.e., outside VP). At this point, let's consider Chomsky's (1999, 2001a) assumption: when OS applies in narrow syntax, Int is assigned to the peripheral configuration universally (Chomsky 2001: 33): The EPP position of *v**P is assigned Int.¹⁸⁾ That is, when OS occurs to check off the EPP on *v*, the shifted NQ gets Int,¹⁹⁾ which, we argue, necessarily corresponds to a collective reading in our system. This is shown by the contrast between the Case-marked NQ and the Caseless NQ in (24a) below:²⁰⁾

- (24) a. chayk-ul Chelswu-ka twu-kwen?*(-ul) pparukey sey-myeng-uy
 book-Acc C-Nom two-Cl(-Acc) quickly three-Cl-Gen
 yeca-eykey ponay-ss-ta.
 woman-Dat send-Past-Dec
 'Chelswu sent three women two books quickly.'
- b. chayk-ul Chelswu-ka pparukey sey-myeng-uy yeca-eykey
 book-Acc C-Nom quickly three-Cl-Gen woman-Dat
 twu-kwen(-ul) ponay-ss-ta.
 two-Cl-Acc send-Past-Dec
 'Chelswu sent three women two books quickly.'

The goal phrase is higher than the theme phrase in the base structure (Hoji 1985) and *pparukey* 'quickly' is a verbal adverb adjoined to VP. So we suppose that the object preceding the goal or the verbal adverb in (24a) has already undergone OS outside VP. It has been argued that the position is the outer spec of *v* (Chomsky 2001, Lee and Cho 2003). The case-marked NQ stranded in the spec of *v* in (24a) is the so-called FQ. We suggest that it is a nominal, which has more urgent or prominent information (cf. Choi 2004).²¹⁾ The D-feature of an object, when shifted,

17) This will be enlightened by the contrast between the Case-marked NQ and the Caseless NQ in (24a).

18) Int is an interpretive complex that encodes new information, specificity/definiteness, focus or topic, etc. (Holmberg 1999, Chomsky 1999, 2001a).

19) As a result, the shifted NQ gets [+Prom] information, which encodes topic or contrastive focus. This is a matter of my ongoing research (see also Lee 2004c for more information).

20) Note that overt accusative Case plays the D-feature of the shifted NQ.

21) Prominence information ([+Prom]) means discourse prominence and a discourse-prominent element receives a high pitch accent or is stressed *à la* Choi (2004: 150), which is realized

checks off the EPP on *v* and then the shifted object gets Int. As for the NQ, we suppose that the overt Case of the NQ plays a D-feature, which is testified by the contrast between the Case-marked NQ and the Caseless NQ in (24a). The Caseless NQ cannot appear in the OS position as in (24a), because it cannot check off the EPP on *v*. However, it can freely occur in the VP-object position as in (24b):²²⁾

As for the collective reading of the NQ_{obj}, the sentence with the Case-marked NQ within VP allows both collective and distributive readings.²³⁾ At this stage, however, we need to note that the sentence with the Case-marked NQ outside VP (i.e., in the OS or scrambled position) only allows a collective reading toward the verbal predicate. The distributive reading, if it is available, is very difficult to obtain. Note that the Caseless NQ cannot be stranded outside VP.

However, if OS does not apply and an NQ remains in situ in a trivial A-chain (i.e., within VP) as in (24b), then the same configuration is freely interpreted at LF, taking into account the inherent properties of the lexical items and the Θ -role (Chomsky 2001: 33).²⁴⁾ We assume that at this point, the NQ, only if it is specific, can have a collective reading at Domain Discourse, located at the edge of PF (cf. Jung 2001a, Kidwai 1999).²⁵⁾

4.2 FQ from Transitive Objects

The examples in (25) and (26) show that Caseless NQs must remain on the monotonic verbal domain to combine with:

at PF (i.e., Spell-Out) (Jung 2001b).

- 22) In (24b), the D-feature of the host object (i.e., the overt Case of *chayk-ul* 'book-Acc') checks off the EPP on *v*, when it stops by the OS position.
- 23) Under our system, the distributive reading of the Case-marked NQ must also combine with the verbal predicate whose events have a part-whole structure. However, if the verbal predicate of the sentence where the Case-marked NQ appears within VP doesn't permit monotonicity, the NQ has only a collective reading toward the verbal predicate.
- 24) The Θ -role is determined by the configuration of Obj (Chomsky 2001: 33): The Θ -role of the argument is determined by the position of first Merge—the configuration in which it takes.
- 25) As already indicated above, if the Caseless NQ is assigned a contrastive focus, it would be specific, which may induce the collective reading of the NQ. At this point, we assume that in-situ focus of the Caseless NQ is attained only if it is accented at Spell-Out (cf. Jung 2001b).

- (25) a. chayk-ul twu-kwen?*(-ul) Chelswu-ka sey-myeng-uy
 book-Acc two-Cl(-Acc) C-Nom three-Cl-Gen
 yeca-eykey send-Past-Dec
 woman-Dat ponay-ss-ta.
 ‘Chelswu sent three women two books.’
- b. chayk-ul Chelswu-ka twu-kwen?*(-ul) sey-myeng-uy
 book-Acc C-Nom two-Cl(-Acc) three-Cl-Gen
 yeca-eykey ponay-ss-ta.
 woman-Dat send-Past-Dec
- c. chayk-ul Chelswu-ka sey-myeng-uy yeca-eykey twu-kwen(-ul)
 book-Acc C-Nom three-Cl-Gen woman-Dat two-Cl(-Acc)
 ponay-ss-ta.
 send-Past-Dec
- (26) a. chayk-ul twu-kwen?*(-ul) Chelswu-ka pparukey
 book-Acc two-Cl(-Acc) Chelswu-Nom quickly
 ilk-ess-ta.
 read-Past-Dec
 ‘Chelswu read two books quickly.’
- b. chayk-ul Chelswu-ka twu-kwen?*(-ul) pparukey
 book-Acc Chelswu-Nom two-Cl(-Acc) quickly
 ilk-ess-ta.
 read-Past-Dec
- c. chayk-ul Chelswu-ka pparukey twu-kwen(-ul)
 book-Acc Chelswu-Nom quickly two-Cl(-Acc)
 ilk-ess-ta.
 read-Past-Dec
 ‘Chelswu read two books quickly.’

The host object in (25b,c) and (26b,c) moves successive-cyclically phase by phase. The contrast between (25a,b) and (26a,b) on the one hand and (25c) and (26c) on the other shows that the distributive reading of the Caseless NQ is only available within VP.

We assume that the NQ and its host subject in the following examples are in the inner spec of ν and [Spec, T] respectively as already shown.²⁶⁾ If this idea is correct, the FQ from the object in (27b) and

26) The respective position is shown in the structure (10).

(28b) is assumed to be in the OS position (i.e., in outer spec of *v*):

- (27) a. maykcwu-lul haksayng-i twu-pyeng-ul sey-myeng-i
 beer-Acc student-Nom two-CL_{bottle}-Acc three-Cl_{person}-Nom
 masi-ess-ta.
 drink-Past-Dec
 'Three students drank two bottles.'
- b. ??maykcwu-lul haksayng-i twu-pyeng sey-myeng-i
 beer-Acc student-Nom two-CL_{bottle} three-Cl_{person}-Nom
 masi-ess-ta.
 drink-Past-Dec
- c. ??haksayng-i maykcwu-lul twu-pyeng sey-myeng-i
 student-Nom beer-Acc two-CL_{bottle} three-Cl_{person}-Nom
 masi-ess-ta.
 drink-Past-Dec
- d. maykcwu-lul haksayng-i sey-myeng-i twu-pyeng
 beer-Acc student-Nom three-Cl_{person}-Nom two-CL_{bottle}
 masi-ess-ta.
 drink-Past-Dec
- (28) a. chayk-lul haksayng-i sey-kwen-ul sey-myeng-i
 book-Acc student-Nom three-CL_{book}-Acc three-Cl_{person}-Nom
 ilk-ess-ta.
 read-Past-Dec
 'Three students read three books.'
- b. ??chayk-lul haksayng-i sey-kwen sey-myeng-i
 book-Acc student-Nom three-CL_{book} three-Cl_{person}-Nom
 ilk-ess-ta.
 read-Past-Dec
- c. ??haksayng-i chayk-lul sey-kwen sey-myeng-i
 student-Nom book-Acc three-CL_{book}-Acc three-Cl_{person}-Nom
 ilk-ess-ta.
 read-Past-Dec
- d. chayk-lul haksayng-i sey-myeng-i sey-kwen
 book-Acc student-Nom three-Cl_{person}-Nom three-Cl_{book}
 ilk-ess-ta.
 read-Past-Dec

The distributive reading of the Caseless NQ_{obj} in (27b,c) and (28b,c) cannot be associated with the monotonicity constraint on the verbal predicate, because it is outside VP. This renders the sentences invalid. Note that the Caseless NQ in (27d) and (28d) is on the verbal domain. The Case-marked NQ in the OS position as in (27a) and (28a) seems to make it easier to get a collective reading than a distributive one.²⁷⁾

4.3 Passive/Unaccusative Subject

As mentioned above, it has been observed by Choi (2001) and Kang (2000, 2001) that the subject of passive/unaccusative verbs can be separated from the quantifier (see also Miyagawa 1989 for Japanese). At first glance, their observation could be correct. For example, an NQ_{subj} can float from its host NP in the passive/unaccusative construction as in (29):

- (29) a. catongcha-ka kangto-eykey twu-tay pwuswu-eci-ess-ta.
 car-Nom robber-Dat two-Cl break-Pass-Past-Dec
 ‘Two cars were broken by a robber.’ (=21a, passive)
- b. peley-ka thomatho-eyse two-mari ki-ko-iss-ta. (unaccusative)
 bug-Nom tomato-in two-Cl crawl-Prog-Dec
 ‘Two bugs are crawling on tomatoes.’

As already indicated, the extension of the distributive reading is related to the part-whole structure of events. The distributive reading of Caseless NQs in (29) shows the multiple events where each of the two cars are being broken and each of the two bugs are crawling. In (29), the NQ on the verbal domain satisfies the monotonicity constraint.

In contrast, the Caseless NQ cannot float from its host DP in the following unaccusative constructions, which shows that their observation isn't always correct.

- (30) ??totwuk-i ku pwuca cip-ey sey-myeng tul-ess-ta.²⁸⁾
 thief-Nom the rich house-in three-Cl enter-Past-Dec
 ‘Three thieves entered the house.’

27) The distributive reading of the Case-marked NQ outside VP, if it is ever available, is not so easy to obtain as it on the verbal domain.

28) According to Kim (1990) and Cho (1994), the Korean dyadic unaccusatives divide into major classes such as psych, existential and process constructions: (30) is an example of the process unaccusative constructions.

The verbal predicate in (30) has only a collective reading. These readings, if they are ever available, are very difficult to obtain. This cannot satisfy the monotonicity constraint on the verbal predicate, although the FQ is on the verbal domain. On the other hand, the FQ within VP in (31) seems to satisfy the monotonicity constraint on the verbal predicate, because the adverbial phrase *il nyen tonganey* ‘for one year’ makes the verbal predicate have a part-whole structure. That is, the verbal predicate *tul-ess-ta* ‘enter-Past-Dec’ involves a thief’s repeated entering of a rich house. At this stage, we need to note that the distributive reading of the Caseless NQ denotes multiple events of the thieves’ entering of a rich house, which can be associated with the part-whole structures that the event of the verbal predicate forms:

- (31) √totwuk-i ku pwuca cip-ey il nyen tonganey sey-myeng
 thief-Nom the rich house-in one year-for three-Cl
 tul-ess-ta.
 enter-Past-Dec
 ‘Three thieves entered the rich house for one year.’

Accordingly, the distributive reading of the FQ in (31) satisfies the monotonicity constraint on the verbal predicate:

4.4. Unergative/Transitive Subject

The unergative or transitive subject is base-generated in [Spec, *vP*], unlike the unaccusative subject. When the subject undergoes movement to [Spec, TP], the NQ merged as a sister of the subject can remain in situ (i.e., in [Spec, *vP*]). At this point, the NQ floats from its host NP outside VP. Following this line of thought, the FQ from the unergative or transitive subject cannot be subject to the monotonicity constraint on the verbal predicate, although the FQ has a distributive reading and the verbal predicate is involved in a part-whole structure of an event:²⁹⁾

29) The example in (33a) is more degraded than in (33b). We suppose that this is because the part-whole structures of the eating events in (33a), if any, are more difficult to obtain than that of submitting events in (33b). This is evidenced by the fact that the following sentences, where the verbal predicate is preceded by the distributive adverb *kakkak* ‘individually’, are improved, although they are still marginal.

- (32) a. ??haksayng-i pwunmyenghi twu-myeng
 student-Nom evidently two-Cl
 cenhwaha-yess-ta. (21b)
 telephone-Past-Dec
 ‘Two students telephoned evidently.’ [unergative]
- b. ??yeca ai-ka ocen-ey twu-myeng wul-ess-ta.
 girl-Nom morning-in two-Cl cry-Past-Dec
 ‘Two girls were crying in the morning.’
- (33) a. *haksayng-i tosirak-ul sey-myeng mek-ess-ta. (21c)
 student-Nom lunch-basket-Acc three-CL eat-Past
 ‘Three students ate each lunch basket.’
- b. ?*haksayng-i swukcey-lul sey-myeng ceychwulha-yess-ta.
 student-Nom homework three-Cl submit-Past-Dec
 ‘Three students submitted homework.’

The distributive reading of the Caseless FQ from the subject in (32) and (33) cannot be associated with the verbal predicate, because the Caseless FQ is located outside VP (i.e., in the inner spec of *v*).

4.5 Asymmetry of FQs from Transitive Subjects and Objects

We begin by examining the contrast between FQs from the transitive subject and the transitive object:

-
- (i) a. haksayng-i cemsim-ul sey-myeng??(-i) kakkak mek-ess-ta.
 student-Nom lunch-Acc three-CL(-Nom) individually eat-Past
 ‘Each student ate lunch.’
- b. haksayng-i maykcwu-lul sey-myeng??(-i) kakkak masi-ess-ta.
 student-Nom beer-Acc three-CL(-Nom) individually drink-Past-Dec
 ‘Each student drank beer.’

The Case-marked NQ appears freely, regardless of whether the NQ occurs with the distributive adverb or not. At this stage, we need to note that the marginality of the above examples where the Caseless FQ occurs is caused by the syntactic position of the FQ outside VP. What we want to show by examining these examples is that the syntactic position of the Caseless NQ is a crucial factor that triggers the distributive reading of the Caseless NQ, along with a semantic factor that the distributive reading of the Caseless NQ is only associated with the monotonic verbal predicate.

- (34) a. ?*ilpon haksayng-i kwacey-lul sey-myeng
 Japanese student-Nom homework-Acc three-Cl
 ceychwulha-yess-ta.
 submit-Past-Dec
 ‘Three Japanese submitted reports.’
- b. kwacey-ul ilpon haksayng-i sey-kay
 homework-Acc Japanese student-Nom three-Cl
 ceychwulha-yess-ta.
 submit-Past-Dec
 ‘A Japanese student submitted three reports.’

In (34a), the distributive reading of the Caseless NQ cannot be associated with the verbal predicate, because the FQ from the transitive subject is in the spec of *v* (i.e., outside of VP). In (34b), the distributive reading of the FQ from the object within VP satisfies the monotonicity constraint on the verbal predicate. It follows that FQs directly combine with the verbal predicate in syntax. This makes asymmetry occur between the FQs from the transitive subject and object.

5. Advantages and Solving Problems

5.1 Advantages

So far, we have investigated why the Caseless NQ only occurs on the verbal domain, regardless of whether it floats from or occurs with its host DP. As for the NQ float in the Minimalist view, there are several advantages of Sportiche’s (1988) stranding analysis, on which the element (i.e., the host NP) an NQ modifies is generated as a constituent with the NQ, the NQ subsequently being stranded under the movement of the element, as in (25b,c) and (26b,c): The dominating DP or the host NP of the NQ, which corresponds to *chayk-ul tuwu-kwen-ul* ‘book-Acc two-Cl-Acc’ or *chayk-ul* ‘book-Acc’ respectively, may move to the OS position and the NQ may be pied-piped along with its host NP (i.e., *chayk-ul* ‘book-Acc’) until we reach the stage of scrambling. We claim that when the dominating DP or the NQ undergoes OS, overt Case plays the D-feature to check off the EPP on *v* (Chomsky 2001, Lee 2003): As for the dominating DP, the overt Case of the NQ plays the D-feature

and as for the host NP, its overt Case plays the D-feature. The Caseless NQ cannot be brought with its host DP to the OS position, because the EPP on *v* cannot be checked by the dominating DP as in (28c), repeated in (35):

- (35) ??haksayng-i chayk-lul sey-kwen sey-myeng-i
 student-Nom book-Acc three-CL_{book}-Acc three-Cl_{person}-Nom
 ilk-ess-ta.
 read-Past-Dec
 ‘Three students read three books.’

The host NP in the OS position in (35) cannot move further as in (28b), repeated in (36), stranding the Caseless NQ, because the dominating DP in the OS position is not licensed as in (35):³⁰⁾

- (36) ??chayk-lul haksayng-i sey-kwen sey-myeng-i
 book-Acc student-Nom three-CL_{book} three-Cl_{person}-Nom
 ilk-ess-ta.
 read-Past-Dec

This is in accordance with the fact that the Caseless NQ cannot occur outside VP, because the distributive reading of the NQ outside VP cannot be associated with the verbal predicate. However, the Caseless NQ can float in the object position of the monotonic verbal predicate, because its distributive reading can be associated with the verbal predicate. In that case it doesn’t have to have the D-feature to check off the EPP on *v*. At this point, the host NP with overt Case (i.e., *chayk-ul* ‘book-Acc’) can move to the OS position as in (37):³¹⁾

- (37) haksayng-i chayk-lul sey-myeng-i sey-kwen
 student-Nom book-Acc three-Cl_{person}-Nom three-CL_{book}-Acc
 ilk-ess-ta.
 read-Past-Dec

30) We (Lee 2003) argue that an object undergoes scrambling via OS (see also Lee and Cho 2003).

31) The overt Case of the host NP in (37) plays the D-feature to check off the EPP on *v*.

The shifted host object can further undergo scrambling as in (38):

- (38) *chayk-lul haksayng-i sey-myeng-i sey-kwen*
 book-Acc student-Nom three-Cl_{person}-Nom three-CL_{book}-Acc
ilk-ess-ta.
 read-Past-Dec

Note that the sentences in (37) and (38) are both acceptable, although the overt Case is not attached to the NQ within VP.

As for the structure in (8b), unlike in (8a), the host NP of the NQ cannot undergo scrambling via OS as in (39):

- (39) a. ?**haksayng-i chayk sey-myeng-i sey-kwen-ul*
 student-Nom book three-Cl_{person}-Nom three-CL_{book}-Acc
ilk-ess-ta.
 read-Past-Dec
 ‘Three students read three books.’
 b. ?**chayk haksayng-i sey-myeng-i sey-kwen-ul*
 book student-Nom three-Cl_{person}-Nom three-CL_{book}-Acc
ilk-ess-ta.
 read-Past-Dec

That is, the host NP in (8b) (i.e., *chayk* ‘book’ in (39)) cannot undergo OS, because it cannot check off the EPP on *v*. The NQ in (8b) is necessarily pied-piped along with its host NP, when the host NP undergoes OS or scrambling as in (40):

- (40) a. *haksayng-i chayk sey-kwen-ul sey-myeng-i*
 student-Nom book three-CL_{book}-Acc three-Cl_{person}-Nom
ilk-ess-ta.
 read-Past-Dec
 ‘Three students read three books.’
 b. *chayk sey-kwen-ul haksayng-i sey-myeng-i*
 book three-CL_{book}-Acc student-Nom three-Cl_{person}-Nom
ilk-ess-ta.
 read-Past-Dec

That is, the overt Case of the NQ in the structure (8b) plays the

D-feature to check off the EPP on *v*, when it is pied-piped along with its host NP to the OS position.

The advantage of our system, among others, is that the semantic constraint that unlike the semantic constraint that characterizes the Case-marked NQ, only the Caseless NQ within VP has a distributive reading toward the monotonic verbal predicate is in accordance with the syntactic constraint that the Caseless NQ cannot occur outside VP in that under Chomsky's (2001) derivation by phase, the Caseless NQ cannot be pied-piped to [Spec, CP] via the OS position along with its host object, because it doesn't have the D-feature to check off the EPP on *v*. The Case-marked host NP of the Caseless NQ can undergo scrambling successive-cyclically phase by phase. This is an ideal result that co-relates the semantic rule with the syntactic one.

5.2. Solving Problems

As for the apparent problems, the Caseless NQ in (41a) makes it difficult to get a distributive reading toward the verbal predicate. Nevertheless, they are acceptable:

- (41) a. totwuk-_i ecey [_{VP} t_i sey-myeng hamkkey chimipha]-yess-ta.
 thief-Nom yesterday three-Cl together rush-in-Past-Dec
 'Three thieves rushed in together for committing robbery
 yesterday.'
- b. ??totwuk-_i ecey [_{VP} t_i sey-myeng chimipha]-yess-ta.
 thief-Nom yesterday three-Cl rush-in-Past-Dec
 'Three thieves rushed in for committing robbery yesterday.'

The contrast between (41a) and (41b) shows that the adverb *hamkkey* 'together' plays a role: the adverb makes the Caseless NQ have a collective reading. Note that the NQ can occur outside VP, if it has a collective reading. Note that this is what the Case-marked NQ shows. The adverb *hamkkey* 'together' seems to make the Caseless NQ have a collective reading, only when it follows the NQ immediately as in (41a).³²⁾

32) However, if the adverb *hamkkey* 'together' is separated from the Caseless NQ as in (ia), the distributive reading of the Caseless NQ seems to be preserved. The distributive reading of the Caseless NQ outside VP in (ia) cannot be associated with the verbal predicate as in (ib). Nevertheless, the reason why the example in (ib) is more degraded than the ex-

If this is correct, the collective reading of the NQ outside VP would render the sentence acceptable, because it doesn't have to be associated with the verbal predicate or stay within VP.

Next, let's consider the unaccusative constructions in (42):

- (42) a. ai-tul-i_i han sikan tonganey [VP t_i yel-myeng
 child-Pl-Nom one hour for ten-Cl
 moi]-ess-ta.
 gather-Past-Dec
 'Ten children were assembled for an hour.' (unaccusative)
- b. ai-tul-i_i ecey [VP t_i yel-myeng-i moi]-ess-ta.
 child-Pl-Nom yesterday ten-Cl-Nom gather-Past-Dec
 'Ten children were assembled yesterday.' (unaccusative)

The verbal predicate *moita* 'gather' in (42a) may denote every single child's gathering for a limited time (i.e., for an hour). In this case, the distributive reading of the Caseless NQ within VP can be associated with the monotonic verbal predicate. However, the example in (43) may be problematic under our system:

- (43) ai-tul-i_i ecey [VP t_i yel-myeng moi]-ess-ta.
 child-Pl-Nom yesterday ten-Cl gather-Past-Dec
 'Ten children were assembled yesterday.' (unaccusative)

It seems that the Caseless NQ in (43) would make it to get a distributive reading toward the verbal predicate. However, if compared with the Case-marked NQ in (42b), the Caseless NQ in (43) seems to make it easier to get the distributive reading in that every single child gathered for a limited time (i.e., for a day) as in (42a).

As for the Caseless NQ floating from or occurring with its host object, let's consider which reading the examples in (44a) and (45a) is easier to

ample in (ia) seems to be that the adverb *hamkkey* 'together' somewhat makes the NQ in (ia) collective (but not so collective as the NQ in (41a)), although the NQ in (ia) still has a distributive reading.

- (i) a. (?)[totwuk-i sey-myeng]_i ecey [VP t_i hamkkey chimipha]-yess-ta.
 thief-Nom three-Cl yesterday together rush-in-Past-Dec
 b. ?*[totwuk-i sey-myeng]_i ecey [VP t_i chimipha]-yess-ta.
 thief-Nom three-Cl yesterday rush-in-Past-Dec

get:

- (44) a. na-nun chayk-ul ecey sey-kwen mwuk-ess-ta.
 I-Top book-Acc yesterday three-Cl bind-Past-Dec
 ‘I bound three books yesterday.’
 b. na-nun chayk-ul ecey sey-kwen-ul mwuk-ess-ta.
 I-Top book-Acc yesterday three-Cl-Acc bind-Past-Dec
- (45) a. na-nun pheyinthu-lul ecey sey-thong sek-ess-ta.
 I-Top paint-Acc yesterday three-Cl mix-Past-Dec
 ‘I mixed three boxes of paint yesterday.’
 b. na-nun pheyinthu-lul ecey sey-thong-ul sek-ess-ta.
 I-Top paint-Acc yesterday three-Cl-Acc mix-Past-Dec

The distributive reading of the Caseless NQ toward the verbal predicate in (44a) and (45a) is much easier to get than in (44b) and (45b). However, there may be an example important to our issue as in (46):

- (46) na-nun maykcwu-lul 5,000-wen cwu-ko sey-pyeng sa-ss-ta.
 I-Top beer-Acc 5,000-Won pay-and three-Cl buy-Past-Dec
 ‘I paid 5,000 Won for three bottles of beer (a bottle of beer is 2,000 Won).’
 Caseless NQ: distributive→collective by the discourse context (the adverbial phrase *5,000-wen cwu-ko*), verbal predicate: collective, distributive

The example in (46) is acceptable, although the Caseless NQ cannot get a distributive reading toward the verbal predicate. Subsequently, our analysis may be in a dilemma. However, the discourse context (i.e., the adverbial phrase *5,000-wen cwu-ko* ‘5,000-Won pay-and’) in (46) seems to make the Caseless NQ assigned a contrastive focus. If this is correct, the contrastively focused NQ in (46) is specific, which may render the NQ collective. As a result, the sentence becomes acceptable.

6. Concluding Remarks

We have supposed that the passive/unaccusative subject originates in

[Spec, VP], whereas the unergative or transitive subject is base-generated in [Spec, *v*P] (Radford 2004, Ko 2004, among others). In Korean, Caseless NQs have a distributive reading (see also Terada 1990, Nakanishi 2003 for Japanese). The distributive reading of the NQ in (47) shows multiple events where the thieves' entering the rich house, which is in accordance with the part-whole structures of events of the verbal predicate:

- (47) ✓totwuk-i ku pwuca cip-ey il nyen tonganey sey-myeng
 thief-Nom the rich house-in one year-for three-CI
 tul-ess-ta. (31)
 enter-Past-Dec
 'Three thieves entered the rich house for one year.'

Based on Nakanishi's (2003) monotonicity constraint in (48), we have captured the distributive reading of the Caseless NQ toward the verbal predicate:

- (48) The measure function μ is monotonic relative to the domain E iff:
 For individuals e_1, e_2 in E:
 If e_1 is a proper subpart of e_2 , then $\mu(e_1) < \mu(e_2)$

The measure function in (48) measures events denoted by the verbal predicate. This means that the distributive reading of Caseless NQs must be associated with part-whole structures of events of the verbal predicate: This is available only if Caseless NQs are on the verbal domain. In this vein, we have predicted that in Korean, Caseless NQs are subject to a semantic constraint (i.e., monotonicity constraint) on the verbal domain, because, in syntax, the distributive reading of the NQs directly combines with the verbal predicate (cf. Nakanishi 2003). This is an ideal result that follows the general assumption in the compositional semantics that semantic rules apply when elements are combined by syntactic rules. Thus, we have suggested that in syntax, Caseless NQs from the passive/unaccusative subject and the transitive object can directly combine with the verbal predicate whose events have part-whole structures. The Caseless NQ within VP in (47) satisfies the monotonicity constraint on the verbal domain, because the PP *il nyen tonganey* 'for one year' makes the verbal predicate contain part-whole structures of events. Accordingly, the distributive reading of the NQ satisfies the monoto-

nicity constraint on the verbal domain. On the other hand, the part-whole structures of events, if they are ever available, are very difficult to form on the verbal domain in (49):

- (49) ??totwuk-i ku pwuca cip-ey sey-myeng
 thief-Nom the rich house-in three-Cl
 tul-ess-ta. ((=30), unaccusative)
 enter-Past-Dec
 'Three thieves entered the house.'

This cannot satisfy the monotonicity constraint on the verbal domain, although the Caseless NQ is within VP. This makes the sentences marginal at best.

As a result, we have shown that the semantic constraint that unlike the semantic constraint that characterizes Case-marked NQ, the Caseless NQ, which only allows a distributive reading on the verbal domain, cannot occur outside VP is in accordance with the fact that under Chomsky's (2001) derivation by phase, the Caseless NQ cannot be *pi*-*ed*-*pip*ed to [Spec, CP] via the OS position along with its host DP, because it doesn't have the D-feature to check off the EPP on *v*. This is an ideal result that co-relates semantic rules with syntactic ones.

References

- Bošković, Ž. (2004). Be careful where you float your quantifiers. *Natural Language and Linguistic Theory*.
- Cho, J.-M. (1994). Multiple Case Construction in Korean. M.A. Forum Paper. University of Toronto.
- Choi, H.-W. (2004). Binding and Discourse Prominence: Reconstruction in "Focus" Scrambling. In *Optimality-Theoretic Syntax*, ed. Geraldine Legendre, Jane Grimshaw, and Sten Vikner, 143-170. Cambridge, Mass.: MIT Press.
- Choi, K. (2001). The Structure and Interpretation of Non-gentive Numeral Classifier Constructions in Korean. *Language Research* 37: 445-482.
- Chomsky, N. (1995). *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, N. (2000). Minimalist Inquiries: the Framework. In *Step by*

Step:Essays on Minimalist Syntax in Honor of Howard Lasnik, ed. R. Martin, D. Michaels, and J. Uriagereka, 89-155. Cambridge, Mass.: MIT Press.

- Chomsky, N. (2001). Derivation By Phase, In *Ken Hale: A Life in Language*, ed. M. Kenstowicz, 1-52. Cambridge, Mass.: MIT Press.
- Chomsky, N. (2004). The Class Lecture Note of Fall 2004. MIT.
- Chung, S. and W. A. Ladusaw. (2004). *Restrictions and Saturation: Linguistic Inquiry Monograph 42*. Cambridge, Mass.: MIT Press.
- Dowty, D. (1979). *Word Meaning and Montague Grammar: The Semantics of Verbs and Times in Generative Semantics and Montague's PTQ*. Dordrecht: Reidel.
- Dowty, D. (1986). Colletive Predicates, Distributive Predicates, and *all*. *ESCOL* 86: 97-115.
- Fox, D. and D. Pesetsky. (2003). Cyclic Linearization and the Typology of Movement. Ms. MIT. [available at [http://web.mit.edu/linguistics/www/fox/July 19 handout.pdf](http://web.mit.edu/linguistics/www/fox/July%2019%20handout.pdf)].
- Halle, M. and A. Marantz. (1993). Distributed Morphology and the Pieces of Inflection. In *The View from Building 20*, ed. K. Hale and S. J. Keyser, 111-175. Cambridge, Mass.: MIT Press.
- Hoji, H. (1985). Logical Form Constraints and Configurational Structures in Japanese. Doctoral dissertation, University of Washington, Seattle.
- Holmberg, A. (1999). Remarks on Holmberg's Generalization. *Studia Linguistica* 53: 1-39.
- Jung, Y.-J. (2001a). Multiple Case Markings and Its PF Interpretation. *Korean Journal of Linguistics* 26: 239-268.
- Jung, Y.-J. (2001b). Thematization and Topic Interpretation. *Studies in Generative Grammar* 11: 303-337.
- Kang, B. (2000). Semantics and Pragmatics of Floating Quantifiers (written in Korean). *Enehak* 26: 3-41.
- Kang, B. (2002). Categories and Meaning of Korean Floating Quantifiers-with Some Reference to Japanese. *JEAL* 11: 375-38.
- Kidwai, A. (1999). Word Order and Focus Position in Universal Grammar. In *Grammar of Focus*, ed. G. Rebuschi and L. Tuller. New York: Oxford University Press.
- Kim, D.-B. (1993). The Specificity/Non-Specificity Distinction and Scrambling Theory. Seoul: Thaeahaksa.
- Kim, Y. (1991). Nominative Case-Marking in Korean. *Studies in*

Generative Grammar 2, 113-148.

- Ko, H. (2004). Cyclic Linearization and Asymmetry in Scrambling. *Proceedings of the 2004 LSK International Conference*, Vol 2: 231-240.
- Kuno, S. and K.-I. Takami. (2003). Remarks on Unaccusativity and Unergativity in Japanese and Korean. *Japanese and Korean Linguistics* 12: 280-294.
- Kuno, S. and S.-Y. Kim. (2004). On Syntactic Intervention. *Harvard Studies in Korean Linguistics* X: 3-34.
- Landman, F. (1996). Plurality. *Handbook of Contemporary Semantics*. 425-457.
- Lee, C. (1989). (In)Definites, Case Markers, Classifiers and Quantifiers in Korean. *Harvard Studies in Korean Linguistics* III: 469-488.
- Lee, D.-W. (2003). Two Types of Object and Object Shift. *Studies in Generative Grammar* 13: 565-596.
- Lee, D.-W. (2004a). Cyclic Spell-Out and Linearization of Subject and Object. *Proceedings of The 2004 LSK International Conference*, Vol 2: 250-259.
- Lee, D.-W. (2004b). Syntactic and Semantic Constraints on Floating Quantifiers. *Proceedings of The 2004 LSK Fall Conference*, 147-155.
- Lee, D.-W. (2004c). Collective Reading of Numeral Quantifiers in the Shifted Position. *Proceedings of 2004 Seoul Linguistics Forum*, 92-100. Language Education Institute, SNU.
- Lee, D.-W. (2004d). Noncanonical Displacement: Object Shift. Paper presented in the 60th Monthly Colloquium (12/18/04) of The Korean Generative Grammar Circle, Hanyang University.
- Lee, W. and S. Cho. (2003). Argument Scrambling and Object Shift. *Studies in Generative Grammar* 13: 39-59.
- McCloskey, J. (2000). Quantifier Float and Wh-Movement in an Irish English. *Linguistic Inquiry* 31: 57-84.
- Miyagawa, S. (1989). *Structure and Case Marking in Japanese: Syntax and Semantics* 22. San Diego, California: Academic Press.
- Miyagawa, S. (2001). The EPP, Scrambling, and Wh-in-Situ, In *Ken Hale: A Life in Language*, ed. Michael Kenstowicz, 293-338. Cambridge, Mass.: MIT Press.
- Nakanishi, K. (2003). Semantic Properties of (Non-)Floating Quantifiers and their Syntactic Implications. *Japanese and Korean Linguistics* 12: 365-376.

- Perlmutter, D. (1978). Impersonal Passives and the Unaccusative Hypothesis. *BSL* 4: 157-189.
- Pustejovsky, J. (1992). The Syntax of Event Structure. *Cognition* 41: 47-81.
- Radford, A. (2004). *Minimalist Syntax Exploring the Structure of English*. UK: Cambridge University Press.
- Schwarzschild, R. (2002). The Grammar of Measurement. *Proceedings of Semantics and Linguistics Theory XII*.
- Sportiche, D. (1988). A Theory of Floating Quantifiers and Its Corollaries for Constituent Structure. *Linguistic Inquiry* 19: 425-450.
- Schütze, T. C. (2000). Does Korean Really Have 'Case Satcking'? Paper presented at the 12th International Conference on Korean Linguistics, Prague, the Czech Republic.
- Terada, M. (1990). Incorporation and Argument Structure in Japanese. Doctoral Dissertation. University of Massachusetts, Amherst.
- Torrego, E. (1998). *The Dependencies of Objects*. Cambridge, Mass.: MIT Press.
- Yang, D.-W. (2005). Peripheral Movements, Free Merge, and Obligatory Reconstructions. Paper presented in The Workshop on Japanese and Korean Linguistics. MIT.

Doo-Won Lee
Department of English
Chungju National University
123 Geomdan-ri, Iryu-myeon
Chungju-si, Chungbuk

Received: Dec. 1, 2004

Revised version received: Feb. 2, 2005

Accepted: Feb. 23, 2005