Object Control in Korean: How Many Constructions?*

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Korean *seltukhata* 'persuade' and similar predicates that take a propositional complement (marked with *-tolok*) license three object control constructions: 1) accusative persuadee in the matrix clause precedes the embedded clause (ACC1); 2) accusative persuadee follows the embedded clause (ACC2); 3) persuadee in the nominative case appears in the embedded clause (NOM). Prior accounts treated these constructions as derivationally related, arguing either for semantic or syntactic analysis of control. Using primary data and processing results, we argue that ACC1 and ACC2 are structurally distinct, the former instantiating obligatory control, the latter, non-obligatory control. Additionally, we provide evidence that NOM may be an instance of non-obligatory control.

Keywords: control, obligatory control, non-obligatory control, Korean, complementation, scrambling, case, syntax, sentence processing

1. Introduction

Object control is a referential dependency between the object of a matrix clause and the subject of the embedded clause. In this dependency, the referential properties of the overt controller determine the identity of the silent controllee (represented as a gap below), as in (1).

(1) Kim persuaded Pat$_i$ [__$_i$ to run this race]
controller controllee

The degree of referential dependency between the controller and controllee

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varies from cases where the missing subject of the embedded clause must be identified with the overt controller in the matrix clause, as in (1), to cases where there can be more than one unique controller, as in (2) and (3), and even further to cases where the identity of the controllee is not limited to any unique or set of unique entities, as in (4). It should be noted that (4) is not an object control construction, nor is there a referential dependency between any constituent of the sentence and the null argument position. It does, however, demonstrate a third possible type of control condition:

(2) Kim_i asked Pat_j [$\_\_\_\_{}_{i+j}$ to meet in the lobby]

(3) Kim_i asked Pat_j [if it was time [$\_\_\_\_{}_{i,j,k}$ to believe in himself/herself/themselves/oneself]

(4) Kim_i wondered [how $\_\_\_\_{}_{arb}$ to exonerate oneself]

Different theories of control account for the range of possibilities available in the identification of the antecedent, from unique to arbitrary, by either positing different silent elements in infinitival structures, or by dividing control predicates into different lexical classes. Under the former approach, it is customary to distinguish between obligatory control (OC), as in (1) and non-obligatory control (NOC), as in (4), with various intermediary cases (Chomsky 1981, Koster 1984, Hornstein 2000, 2003, among many others). Each subtype is associated with a different type of empty category: in OC complements it is either PRO (Chomsky 1981, Koster 1984) or a trace of syntactic movement (Hornstein 2000, 2003), and in NOC, it is a null pronominal (*pro*). Under the latter approach, control predicates can be divided into those that force unique control (as in (1)) versus those that allow a wider range of controllers, as in (2) through (4) (Jackendoff and Culicover 2003, Russo in press). Regardless of the specific account, the difference between OC and NOC is connected to the difference in complement types and predicate types, with the underlying assumption that the meaning of the matrix predicate should determine the type of control.

In this paper, we examine three object control constructions in Korean. The first two differ only in surface word order. In one of the constructions, the accusative marked controller precedes the embedded clause, while in the other, the accusative marked controller follows the embedded clause. Contrary to earlier accounts of these constructions that treated them as derivationally related, we argue that the contrast between these constructions cannot be attributed to scrambling. Rather, it can be captured if one of them is analyzed as obligatory control and the other as instantiating non-obligatory control. After analyzing these two structures, which differ only in the order of the accusative

marked controller and the complement clause, we consider a third object control construction, one in which a nominative marked overt controller is clearly a constituent of the embedded clause. For this construction, we first show that there is evidence of a silent controllee in the matrix clause. Subsequently, we discuss the relationship between this construction and the two constructions with the accusative controller in the matrix clause.

Section 2 presents the two constructions with the accusative controller and summarizes their earlier analyses available in the literature. Section 3 provides a detailed discussion of differences between the two. Our proposal for analyzing these constructions, which we claim to be derivationally unrelated, is presented in section 4. Section 5 presents the third construction, one which has previously been analyzed as instantiating backward (inverse) object control. Instead, we propose that this construction instantiates a particular instance of non-obligatory control. Section 6 presents the conclusions of this study and sketches several outstanding questions related to the proposed structures.

2. Object Control in Korean

Object control in Korean is instantiated via a number of matrix control verbs, a subset of which are shown in (5), and a complement clause headed by the complementizer *-tolok* (see N-K Kim (1978, 1984) for evidence that it is actually a complementizer).

(5) *seltukhata* 'persuade', *kangyohata* 'force', *kwuenhata* 'recommend', *pwuthakhata* 'ask (as a favor)', *yokwuhata* 'ask, request', *congyonghata* 'urge/ coax', *cisihata* 'order', *thailuta* 'admonish'

The construction is illustrated in (6), with the missing argument represented atheoretically as a gap:

(6) Chelswu-nun Yenghuy$_i$-lul [_$_i$ tomangka-tolok] seltukhayssta
Chelswu-TOP Yenghuy-ACC run.away-COMP persuaded
'Chelswu persuaded Yenghuy to run away.' [*ACC1*]

This construction, which we refer to as ACC1, alternates with the ACC2 construction, illustrated in (7), where the complement clause precedes the accusative DP.

(7) Chelswu-nun [__$_i$ tomangka-tolok] Yenghuy$_i$-lul seltukhayssta
Chelswu-TOP run.away-COMP Yenghuy-ACC persuaded
'Chelswu persuaded Yenghuy to run away.' [*ACC2*]

Korean also has a backward (inverse) control construction where the overt controller appears in the embedded clause, and the matrix clause has a silent element, whose surface position is not clear:

(8) a. Chelswu-nun $\__i$ [Yenghuy$_i$-ka tomangka-tolok] seltukhayssta
Chelswu-TOP Yenghuy-NOM run.away-COMP persuaded
b. Chelswu-nun [Yenghuy$_i$-ka tomangka-tolok] $\__i$ seltukhayssta
Chelswu-TOP Yenghuy-NOM run.away-COMP persuaded
'Chelswu persuaded Yenghuy to run away.' [*NOM*]

For now, we set this construction aside and return to it in section 5. In addition, Korean has an object control construction with the controller in the dative, rather than accusative case. We do not discuss it in this paper. For an overview of that construction, see Gamerschlag (2007).

We assume as given, following the analysis in Monahan (2003) and Cormack and Smith (2002) that both ACC1 and ACC2 are biclausal and that they show evidence of control. Evidence for biclausality comes from the availability of independent event specifications, separate negations, and ellipsis. Evidence for control comes from selectional restrictions: inanimate, non-volitional objects are infelicitous in the constructions discussed here. In another manifestation of control, idiom chunks cannot be inserted in the constructions under discussion.

Assuming all these properties as given, the two constructions, ACC1 and ACC2, have previously been analyzed as either syntactic control or semantic control. Under both types of analyses that have been proposed in the literature, ACC1 and ACC2 were viewed as derivationally related.

Under the syntactic analysis, which treats control as raising into a theta-position, the matrix and embedded DP form an A-chain. In both accusative constructions (ACC1, ACC2), the tail of the chain is deleted, instantiating obligatory forward control. (An analysis in terms of PRO could also be pursued, but since recent syntactic work on these Korean constructions has relied on a control-is-movement approach (e.g., Hornstein 2000), this is what is represented here.)

(9) *ACC1*
John [$_{VP}$ Mary$_k$-ACC [$_{CP}$ [$_{TP}$ $\__k$ [$_{VP}$ leave]]-COMP] persuaded]
A-chain

(10) *ACC2* (possibly scrambled)
John [$_{XP}$ [$_{CP}$ [$_{TP}$ $\__k$ [$_{VP}$ leave]]-COMP]$_j$ [$_{VP}$ Mary$_k$-ACC t_j persuaded]]
A-chain

The semantic analysis of these constructions crucially relies on the fact that Korean has extensive subject *pro*-drop. This analysis assumes that the silent element in all three control constructions (ACC1, ACC2, and NOM, which we have not discussed yet), is a null pronominal. Then, the overt DP is analyzed as being co-indexed with a null pronominal, via a meaning postulate (Agent-to-Agent). In those instances where coindexation is impossible, the null pronominal is interpreted non-referentially (Cormack and Smith 2002, 2004, H S Choe 2006).

According to this analysis, ACC1 is the basic structure, with the accusative DP in the specifier of VP, and the control complement adjoined to V' as shown in (11). The accusative DP c-commands the nominative DP (expressed by a null pronominal) in the embedded clause. The control interpretation is achieved by a meaning postulate that links the agent of the embedded proposition and the *persuadee* of the matrix clause (Cormack and Smith 2004):

(11) John $[_{VP}$ [Mary$_i$-ACC] $[_{V'}$ $[_{CP}$ $[_{TP}$ *pro*$_i$ leave]-COMP] persuaded]]

Korean also has object *pro*-drop, so the object of the matrix clause can be expressed by a null pronominal; the resulting structure, where the null pronominal in the object position is co-indexed with the embedded subject, leads to a binding violation:

(12) *John $[_{VP}$ [*pro*$_i$] $[_{V'}$ $[_{CP}$ $[_{TP}$ Mary-NOM$_i$ leave]-COMP] persuaded]]

The apparent violation of Condition C in (12) seems to be remedied by local scrambling (within the verb phrase). Under such scrambling, the control complement appears in the specifier of VP, and the matrix DP adjoins to V':

(13) John $[_{VP}$ $[_{CP}$ $[_{TP}$ DP$_i$ leave]-COMP]$_k$ $[_{VP}$ [DP$_i$-ACC] $[_{V'}$ t_k persuaded]]]

In this structure, either of the co-indexed DPs (the matrix object or the embedded subject) can be expressed by a null pronominal:

(14) John $[_{VP}$ $[_{CP}$ $[_{TP}$ *pro*$_i$ leave]-COMP] $[_{V'}$ [DP$_i$-ACC] persuaded]]

To reiterate, the control interpretation is achieved by the meaning postulate. When a referential antecedent of the null pronoun is not available, *pro* is interpreted arbitrarily (H S Choe 2006). In summary, the existing approaches consider ACC1 and ACC2 derivationally related, with the assumption that ACC1 instantiates the base-generated structure, and ACC2 is derived via scrambling. Under the syntactic approach, both constructions are OC, while under the semantic approach both are NOC, thus:

	Syntactic approach	Semantic approach
ACC1	OC	NOC
ACC2	OC	NOC

In the next section, we revisit the relationship between the two constructions arguing that they are not related derivationally, and that they instantiate different types of control. The differences between ACC1 and ACC2 follow without additional stipulations, and the overall contrast between the two constructions becomes more reminiscent of the more familiar contrasts between obligatory and non-obligatory control.

3. Differences between ACC1 and ACC 2

On closer scrutiny, it turns out that the two control constructions, which seem to diverge only in word order, actually differ more profoundly in structural and interpretive properties.

First, ACC1 does not allow an arbitrary antecedent,[1] whereas ACC2 does:

(15) a. Chelswu-nun emeni-lul [_ ku cha-lul phal-tolok] seltukhayssta
Chelswu-TOP mother-ACC that car- ACC sell-COMP persuaded
[*ACC1*]
(i) 'Chelswu persuaded mother to sell the car.'
*/?(ii) 'Chelswu persuaded mother that someone should sell the car.'

b. Chelswu-nun [_ku cha-lul phal-tolok] emeni-lul seltukhayssta
Chelswu-TOP that car- ACC sell-COMP mother-ACC persuaded
[*ACC2*]
(i) 'Chelswu persuaded mother to sell the car.'
(ii) 'Chelswu persuaded mother that someone (else) should sell the car.'

Second, as (16) demonstrates, ACC1 does not allow a non-c-commanding antecedent, whereas ACC2 does (see also H S Choe (2006), ex., (35)):

(16) a. Chelswu-nun Yenghuy-uy emeni-lul [_ ku cha-lul phal-tolok]
Chelswu-TOP Yenghuy-GEN mother-ACC that car-ACC sell-COMP
seltukhayssta
persuaded [*ACC1*]
(i) 'Chelswu persuaded Yenghuy's mother to sell the car.'
?/*(ii) 'Chelswu persuaded Yenghuy's mother that someone should

[1] As the symbols */? on (ii) in (15a) indicate, there is some variation in the acceptability judgments on these examples. We return to this issue in section 6.

sell the car.'
*(iii) 'Chelswu persuaded Yenghuy's mother that Yenghuy should sell the car.'

b. Chelswu-nun [_ ku cha-lul phal-tolok] Yenghuy-uy emeni-lul
Chelswu-TOP that car-ACC sell-COMP Yenghuy-GEN mother-ACC
seltukhayssta
persuaded [*ACC2*]
(i) 'Chelswu persuaded Yenghuy's mother to sell the car.'
(ii) 'Chelswu persuaded Y.'s mother that someone should sell the car.'
(iii) 'Chelswu persuaded Y.'s mother that Yenghuy should sell the car.'

Next, the two constructions differ as to whether the silent subject in the *tolok*-clause can alternate with an overt pronoun: such an alternation is impossible in ACC1 but is fine in ACC2 (see also Cormack and Smith (2004), H S Choe (2006)):

(17) a. *Chelswu-nun Yenghuy-lul [kunye-ka ttena-tolok] seltukhayssta
Chelswu-TOP Yenghuy-ACC she-NOM leave-COMP Persuaded
[*ACC1*]
'Chelswu persuaded Yenghuy to leave.'

b. Chelswu-nun [kunye-ka ttena-tolok] Yenghuy-lul seltukhayssta
Chelswu-TOP she-NOM leave-COMP Yenghuy-ACC persuaded
[*ACC2*]
'Chelswu persuaded Yenghuy to leave.'
'Chelswu persuaded Yenghuy that someone should leave.'

These differences between ACC1 and ACC2 suggest that when it comes to the uniqueness of the antecedent for the missing subject of the *tolok*-clause, the two constructions have different restrictions. In ACC1, the requirement seems to be quite stringent: not only does the antecedent of the silent subject have to be unique but it also c-commands the gap. In ACC2, the interpretation of the silent controllee is not limited to the unique controller that follows the *tolok*-clause. To summarize our results so far, ACC1 and ACC2 differ along the lines of the well-known differences between obligatory control and non-obligatory control, namely:

(18) Properties of OC versus NOC	OC	NOC
a. allows arbitary reading (no antecedent)	×	✓
b. allows a non-c-commanding antecedent	×	✓
c. paraphrasable with a pronoun	×	✓

The characteristics of ACC1 correspond to those of OC, while ACC2 accords

with several classical properties of NOC. These facts suggest that ACC1 is best analyzed as an instance of obligatory control, while ACC2 is not.

In addition to the difference in the range of available antecedents and the interpretations that follow from this difference, ACC1 and ACC2 also differ with respect to the interpretation of the controlled event as implicative (ACC1) or not (ACC2). In other words, the use of ACC1 implies that the event described by the embedded clause must happen (without presupposing it), whereas with ACC2, the speaker is not committed to the truth of the proposition expressed by the embedded clause. The evidence for this interpretive contrast comes from the fact that ACC1 is infelicitous with the continuation that cancels the event expressed in the embedded clause. For ACC2, such a continuation does not lead to a contradiction:

(19) a. Chelswu-ka Yenghuy-lul hakkyo-lul ttena-tolok seltukhayssta.
Chelswu-NOM Yenghuy-ACC school-ACC leave-COMP persuaded
#Kulena *pro*/Yenghuy-nun hakkyo-lul ttena-ci anh-ass-ta
But pro/Yenghuy-TOP school-ACC leave-INF NEG-PAST-DECL
[*ACC1*]
'Chelswu persuaded Yenghuy$_k$ to quit school, #but even so she$_k$/Yenghuy did not.' (contradiction)

b. Chelswu-ka hakkyo-lul ttena-tolok Yenghuy-lul seltukhayssta.
Chelswu-NOM school-ACC leave-COMP Yenghuy-ACC persuaded
Kulena *pro*/Yenghuy-nun hakkyo-lul ttena-ci anh-ass-ta
But pro/Yenghuy-TOP school-ACC leave-NEG NEG-PAST-DECL
[*ACC2*]
'Chelswu persuaded Yenghuy$_k$ to quit school, but even so she$_k$/Yenghuy did not.' (no contradiction)

The contrast between ACC1 and ACC2 is reminiscent of the contrast between implicative and non-implicative control in English, for example, as in (20), which corresponds to the Korean ACC1, and (21), whose interpretation corresponds to that of ACC2.[2]

Assuming that the difference in implicativeness is valid for some speakers, let us now compare this situation to more familiar cases. In English, the difference in implicativeness correlates with the use of the infinitival versus finite complement (cf., Jackendoff and Culicover 2003), whereas in Korean, it seems to be simply linked to difference in surface word order.[3]

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[2] It should be noted that not all Korean speakers we consulted agree with the contrast in implicativeness in (19a); some speakers treat both ACC1 and ACC2 as non-implicative. At present, we do not have an explanation for this variation across speakers, but this variation certainly warrants further investigation, perhaps by use of experimental procedures, such as Magnitude Estimation.

[3] It is striking that both English and Korean show a correlation between non-obligatory control

(20) John persuaded Mary to buy a BMW, ??/*but even so she didn't.

(21) John persuaded Mary that she should buy a BMW but even so she didn't.

That being said, it seems that the difference between ACC1 and ACC2 is rooted deeper than a simple difference in scrambling. While scrambling may affect c-command relations (Saito 2003, Tsoulas 2004, H Ko 2005, H S Choe 2006)[4] and brings about some differences in topic interpretation or aboutness (H-W Choi 2001), it is not known to have profound consequences for the interpretation of the null element in a control complement or to cause differences in implicativeness. This casts doubt over an analysis of these constructions that posits a derivational relatedness.

We should not, however, be so quick to dismiss the derivational analysis just yet, because ACC1 and ACC2 also differ with respect to extraction. The difference is as follows. In ACC1, the *tolok*-clause is transparent and constituents can be extracted out of the complement clause, as in (22b), but in ACC2, extraction out of that clause is marginal at best (23b).

(22) a. Chelswu-ka Yenghuy-lul [ku chayk-ul ilk-tolok] seltukhayssta.
Chelswu-NOM Yenghuy-ACC this book-ACC read-COMP persuaded
'Chelswu persuaded Yenghuy to read this book.'
b. ku chayk-ul$_i$, Chelswu-ka Yenghuy-lul [t_i Ilk-tolok] seltukhayssta
thisbook-ACC Chelswu-NOM Yenghuy-ACC read-COMP persuaded
'This book, Chelswu persuaded Yenghuy to read.'

(23) a. Chelswu-ka [ku chayk-ul ilk-tolok] Yenghuy-lul seltukhayssta.
Chelswu-NOM this book-ACC read-COMP Yenghuy-ACC persuaded
'Chelswu persuaded Yenghuy to read this book.'
b. ??/* ku chayk-ul$_i$, Chelswu-ka [t_i ilk-tolok] Yenghuy-lul
this book-ACC Chelswu-NOM read-COMP Yenghuy-ACC
seltukhayssta
persuaded
'This book, Chelswu persuaded Yenghuy to read.'

This difference between ACC1 and ACC2 ((22b) and (23b), respectively) seems consistent with the idea that ACC2 is derived from ACC1 by scrambling. Scrambling creates an island for further extraction (Saito 2003, H Ko

and non-implicative interpretation. Intuitively, such a correlation does not seem accidental, but more work is needed to motivate it.

[4] In Korean, scrambling has been shown to have an effect on condition A binding (H-W Choi 2001) but not on condition C binding (Johnston and I Park 2001).

2005, and many others), which can account for (23b).

Nevertheless, we would also like to propose that the unacceptability of (23b) does not follow from scrambling. Instead, it can be accounted for independently, under the structure of ACC2, which is proposed in the next section. So, at least for now, we suggest maintaining the idea that ACC1 and ACC2 are not related derivationally and instantiate different flavors of control.

4. Structure of ACC1 and ACC2

4.1. ACC1

The structure of ACC1 is straightforward. As we have established, it instantiates obligatory control. The matrix verb (for example, 'persuade') takes two complements, the accusative DP (controller) and the complement clause (headed by *tolok*). These two internal arguments (the name of the *persuadee* and the embedded complement) are in the specifier and complement positions of the VP, respectively. This means that the accusative DP c-commands the complement clause, as in (24) (English words are used to illustrate the Korean structure; only the necessary structural pieces are shown):

(24) Chelswu-NOM [$_{VP}$ Yenghuy$_i$-ACC [$_{V'}$ [$_{CP}$ [$_{TP}$ __$_i$ leave] C°] [$_{V}$ persuade]]]

The missing subject in the embedded clause can be interpreted in two possible ways: as containing a special null category, PRO, or as involving a thematic chain in which the tail is deleted, thus:

(25) Chelswu-ka Yenghuy-lul [PRO ttena-tolok] seltukhayssta
Chelswu-NOM Yenghuy-ACC leave-COMP persuaded

(26) a. Chelswu-ka Yenghuy-lul [~~Yenghuy-ka~~ ttena-tolok] seltukhayssta
Chelswu-NOM Yenghuy-ACC leave-COMP persuaded
b. Chelswu- NOM [$_{VP}$Yenghuy- ACC [$_{CP}$ [$_{TP}$ Yenghuy-NOM [$_{VP}$ go]] C] persuade]

To outline the movement analysis, as in (26), the DP *Yenghuy* is merged in the embedded spec, T°. There, it satisfies the thematic requirements of the embedded verb *leave* and the φ-features of embedded T°. It then merges into matrix object position, satisfying the thematic requirements of the matrix verb, which assigns it accusative case. The head of the chain formed by the matrix object and the subject of the embedded clause is pronounced, while the other copy is deleted.

For general details of the movement analysis of control, see Hornstein (2003),

Monahan (2003). For the discussion of factors that may determine the spell-out of the tail rather than head of the movement chain, see Fujii (2006), Polinsky and Potsdam (2006), Potsdam (2006). Lastly, for a comparison of the PRO-based and movement analysis, see Landau (2003, 2004, 2006), Hornstein and Boeckx (2004), Boeckx and Hornstein (2006), Polinsky and Potsdam (2006).

4.2. ACC2

Recall that we suggested that the ACC2 construction instantiates non-obligatory control, which means that the missing subject inside the embedded clause is a null pronominal, *pro*. Moreover, the null pronominal can alternate with an overt one (see (17b) above). Thus, the two expressions, controller and controllee, do not need identical denotations, which is further demonstrated by (27) and (28), where the referent of the embedded subject and the referent of the matrix object are simply associated pragmatically.

(27) cokyo-ka [haksayng-tul-i te umak swuep-ul tut-tolok]
teacher's aide-NOM student-PL-NOM more music lesson-ACC take-COMP
hakpwumo-tul-ul seltukhayssta
parent-PL-ACC persuaded [*ACC2*]
'The teacher's aide persuaded the parents that their children should take more music lessons.'

(28) Bush-nun [Tokil-i Ilaku-lul kongkyekha-tolok] Schröder-ul
Bush-TOP Germany-NOM Iraq-ACC attack-COMP Schröder-ACC
hyeppakhayssta
threatened [*ACC2*]
'Bush blackmailed Schröder so that Germany would attack Iraq.'

In (27), there is a pragmatic association between the children and their parents, which allows us to interpret the event in such a manner that the parents seem capable of controlling their children's actions. A possible strategy of achieving such a pragmatic association involves positing a null possessive pronoun before 'parents', co-indexed with children. It is actually possible to replace it with an overt possessor, as shown in (29).

(29) cokyo-ka [haksayng-tul-i_i te umak swuep-ul tut-tolok]
teacher's aide-NOM student-PL-NOM more music lesson-ACC take-COMP
pro$_i$/ku-tul-uy$_i$ hakpwumo-tul-ul seltukhayssta
3-PL-GEN parent-PL-ACC persuaded
'The teacher's aide persuaded their parents that the children should take more music lessons.'

Turning to (28), the interpretation there relies on the idea that the chancellor (Schröder) can exercise control over his country, perceived as a personified entity. Overall, the pragmatic relationship between the nominative controller in the *tolok*-clause and the postposed accusative expression seems constrained by the conception that the referent of the matrix DP has general exercisable power (control, in a worldly sense) over the referent of the embedded nominative. Such pragmatic associations can be rather fragile, so it is unsurprising that these examples evoke speaker variation. Recall also that even pragmatic association is not required, and in the absence of other cues, an arbitrary reading of the null pronominal is also possible (cf., (15b) above), although for some speakers such a free interpretation is quite difficult to attain.

Since there is no c-command between the controller and controllee, variable binding should be impossible. While the reflexive data are generally unclear, indefinite expressions (30) and negative polarity items (31) in ACC2 do not participate in co-indexation (see also H S Choe (2006), ex., (26), (36), and (40)),[5] thus confirming this prediction.

(30) *Chelswu-ka [*pro*$_i$ ttena-tolok] nwukwu$_k$-lul seltukhayss-nayo?
Chelswu-NOM leave-COMP who-ACC persuaded-INTERR
'Whom$_k$ did Chelswu persuade that someone$_i$ should leave?'

(31) *Chelswu-ka [*pro*$_i$ ttena-tolok] amwuto$_k$ seltukha-ci anh-ass-ta
Chelswu-NOM leave-COMP anyone persuade-INF NEG-PAST-DEC
'Chelswu did not persuade anyone$_k$ that someone$_i$ should leave.'

This is in contrast to the variable binding freely available in ACC1. Compare (30) with (32); in (30), the variable binding interpretation is not allowed, whereas in (32) it is available, which follows from the c-command relation between the matrix object and the embedded subject:

(32) Chelswu-ka nwukwu$_i$-lul [_$_i$ ttena-tolok] seltukhayss-nayo?
Chelswu-NOM who-ACC leave-COMP persuaded-INTERR
'Whom did Chelswu persuade to leave?'

Similarly, compare (31) and (33). In the latter, variable binding is available as it is allowed structurally:

(33) Chelswu-ka amwuto$_i$ [_$_i$ ttena-tolok] seltukha-ci anh-ass-ta
Chelswu-NOM anyone leave-COMP persuade-INF NEG-PAST-DEC
'Chelswu did not persuade anyone to leave.'

[5] Some speakers reject these examples altogether, possibly because of the weak crossover effect, which may affect the judgments.

These data all further support the idea that ACC1 and ACC2 are structurally different and point to the pronominal nature of the empty element in ACC2.

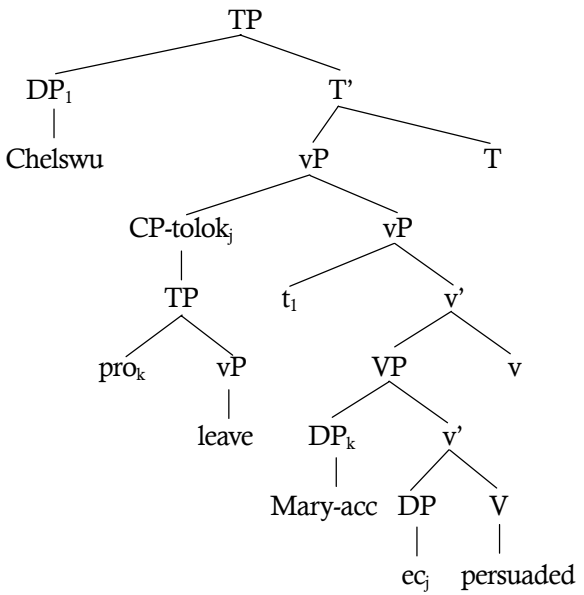
The subject of the *tolok*-clause in ACC2 is therefore not c-commanded by the accusative controller in the matrix clause, and the dependency between the accusative controller and the silent controllee is referential, rather than syntactic. Assuming that there is no c-command between the accusative controller and *tolok*-clause, what is the structural position of the *tolok*-clause?

To answer this question, let us start with the argument structure of 'persuade' and other verbs listed in (5) above. They all appear to be standard three-place predicates, which take an agent, a theme (*persuadee*), and a propositional object, corresponding to the intended event. In the standard control structure (ACC1), this propositional object is expressed by the *tolok*-clause.

For ACC2, we propose that this object is expressed by an **implicit** propositional argument. This implicit argument is semantically associated with the overt *tolok*-clause; the latter appears in the adjunct, not argument, position in the verb phrase. Thus, the verb still has a propositional object as its internal argument, remaining a three-place predicate, but there is an additional adjunct higher in the verb phrase filled with the *tolok*-clause. The proposed structure of ACC2 is as follows:

(34) a. Chelswu $[_{vP}\ [_{CP}\ [_{TP}\ pro_k\ [_{VP}$ leave]]-*tolok*$]_j$ $[_{vP}$ Mary$_k$-ACC $[_{v'}[_{DP}\ ec_j]]$ [persuaded]]]

b.



Let us now turn to the evidence supporting this structure. It involves several analytical components. First, evidence for the implicit argument position is desirable. Second, we need to demonstrate that the *tolok*-clause is indeed an adjunct, situated at the left periphery of the verb phrase.

Starting with the implicit argument, one could expect that such an argument could alternate with an overt object, for example with some abstract noun ('idea', 'proposal') or a pronoun, something like the anticipatory *it* in English. However, due to the pervasive nature of Korean object pro-drop (about 50% of objects are null, as shown in Y-J Kim 2000), even referential arguments are often awkward when overtly expressed, let alone abstract, propositional entities. Thus, (35) is unacceptable:

(35) *Chelswu-ka Mina-lul ku kes-ul seltukhayssta
Chelswu-NOM Mina-ACC that thing-ACC persuaded
'Chelswu persuaded Mina of it/that.'

However, note that even in English, where there is no object pro-drop, anticipatory *it* in the position of a propositional object is rather awkward and quite infrequent:

(36) … so well convinced him of *it* that he has become quite anxious to have you apply for the chair
(jhmas.oxfordjournals.org/cgi/reprint/XXIV/1/44.pdf)

Although a pronominal or an abstract DP seems impossible, as shown by (35), the implicit argument position can be filled with a clausal complement, co-occurring with the higher *tolok*-clause, as in (37):[6]

(37) a. Chelswu-nun [pro_i Yenghuy-lul manna-tolok] Minswu$_t$-lul
Chelwsu-TOP Yenghuy-ACC meet-COMP Minswu-ACC
[_$_i$ Seoul-lo ka-key] seltukhayssta
Seoul-to go-COMP persuaded
'Chelswu persuaded Minswu to go to Seoul to meet Yenghuy.'
b. Chelswu-nun [pro_i Yenghuy-lul manna-key] Minswu$_t$-lul
Chelwsu-TOP Yenghuy-ACC meet-COMP Minswu-ACC
[_$_i$ Seoul-lo ka-tolok] seltukhayssta
Seoul-to go-COMP persuaded
'Chelswu persuaded Minswu to go to Seoul to meet Yenghuy.'

Speakers prefer for the two embedded clauses to have to have different com-

[6] We leave open the question about the category of the empty element in the second control clause.

plementizers, as in (37), but the following example, with both clauses headed by *tolok* is acceptable to some (the variation in judgments seems to hold across speakers; individual speakers are consistent in either accepting or rejecting double *tolok* sentences):

(38) % Chelswu-nun [*pro*$_i$ amwu kekceng-epsi sal swuiss-tolok]
Chelwsu-TOP any worry-without live be.able-COMP
Minswu$_i$-lul [_$_i$ Seoul-ul ttena-tolok] seltukhayssta
Minswu-ACC Seoul-ACC go-COMP persuaded
'Chelswu persuaded Minswu to leave Seoul so that he (Minswu) would live without worry.'

Thus, the presence of an implicit argument position corresponding to the 'abstract' complement (intended event of persuasion, coercion, or advice) seems at least plausible.

Turning now to the position of the *tolok*-clause in ACC2, evidence that it is at the left edge of the verb phrase comes from adverbial placement. Korean has several adverbials that are ambiguous between high and low adverbs (H-M Sohn 2001, H Ko 2005). For example, the adverbial *palo* has the meaning 'directly; true, indeed' as an IP-adverb, and the meaning 'immediately' as a VP-adverb (H-M Sohn 2001: 212).[7] Consider the following sentence, where *palo* is placed to the left of the *tolok*-clause and where it can only have the VP-adverb interpretation:

(39) Chelswu-ka **palo** [nayil _$_i$ hakkyo-lul ttena-tolok] Yenghuy-lul
Chelwsu-NOM ADV tomorrow school-ACC leave-COMP Yenghuy-ACC
selthuhaessta
persuaded
'Chelswu immediately persuaded Yenghuy to quit school tomorrow.'
NOT: 'Chelswu indeed/truly persuaded Yenghuy to quit school to morrow.'

The VP-adverb interpretation of the adverbial which precedes the *tolok*-clause indicates that this clause is inside the verb phrase, adjoined to the vP.

The argument in support of the adjunct status of the preposed *tolok*-clause in ACC2 comes from extraction restrictions.[8] If the preposed *tolok*-clause is an

[7] Shin-Sook Kim (p.c.) points out that for some speakers the adverb *palo* cannot function as an IP-adverb. Instead, the only interpretation available is that of a manner adverbial meaning 'directly, rightly, correctly'. We follow reports previously made in the literature where both interpretations are possible.

[8] Assuming the optionality of adjuncts, one can also expect the *tolok*-clause to be omitted, with the verb taking only one overt object, as in (i). Of course, in such a case it is hard to tell if this surface

adjunct, it should be an island for extraction. Empirical facts demonstrate that it is. Recall that scrambling or topicalization out of the *tolok*-clause in ACC2 was unacceptable:

(40) ??/* ku chayk-ul$_i$, Chelswu-ka [t_i ilk-tolok] Yenghuy-lul seltukhayssta
this book-ACC Chelswu-NOM read-COMP Yenghuy-ACC persuaded
'This book, Chelswu persuaded Yenghuy to read.' (=(23b))

If the analysis proposed here is on the right track, then the islandhood of *tolok*-clauses in ACC2 follows from their adjunct status, not from scrambling. At this point, one could imagine that the two explanations are equally valid; however, there is additional evidence suggesting that the adjunct island explanation is the correct one.

This evidence comes from processing (N Kwon and Polinsky 2006). Scrambling is known to incur an additional processing cost; this has been amply demonstrated for scrambled sentences in Japanese (Mazuka et al. 2002, Ueno and Kluender 2003, Miyamoto and Takahashi 2002; for a different view, see Yamashita and Chang 2001), and for scrambling in Korean (N Kwon et al. 2007). In order to compare the three structures, ACC1, ACC2, and NOM, we conducted a reading time experiment, which is briefly summarized below (for details, see N Kwon and Polinsky (2006)).

In the reading time experiment, ACC1, ACC2, and NOM were target structures of reading. They were preceded by an opening sentence, which was identical for all three conditions — for example,

(41) Opening frame

ku	yenghwasa-uy	hongpothim-i	yenghwa	hongpo-lul	wuyhay
that	production-GEN	marketing-dept-NOM	movie	advertising-ACC	for
W1	W2	W3	W4	W5	W6
"The marketing department .....to advertise the movie."					

This opening frame was followed by one of the three constructions in question, thus:

structure reflects ACC1 or ACC2.

(i) Chelswu-nun Minswu-lul *ec* seltukhayssta
Chelswu-TOP Minswu-ACC persuaded
'Chelswu convinced Minswu (of something/of it).'

(42) *target structures*

ACC1	yecwuinkong-ul	inki	thokhusho-ey	naka-tolok	seltukhayssta
	heroine-ACC	popular	talk_show-to	appear-COMP	persuaded
NOM	yecwuinkong-i	inki	thokhusho-ey	naka-tolok	seltukhayssta
	heroine-NOM	popular	talk_show-to	appear-COMP	persuaded
ACC2	inki	thokhusho-ey	naka-tolok	yecwuinkong-ul	seltukhayssta
	popular	talk_show-to	appear-COMP	heroine-ACC	persuaded
	W7	W8	W9	W10	W11
"...persuaded the leading actress to appear on a popular talk show"					

We used forty sets of sentences of these three conditions, and seventy filler sentences. All the sentences were read by twenty-three Korean native speakers who participated in the experiment. At the time of study, subjects were undergraduate students, graduate students, or post-doctoral researchers at either Korea University or UCSD (17 males, 7 females; mean age 25). The subjects were compensated for their participation.

The experiment was conducting using PsyScope (Cohen et al. 1993). Stimulus presentation was word by word, self-paced, and non-cumulative. After the final word of each sentence, a yes/no comprehension question followed all the sentences including the fillers.

As (41) shows, direct word-by-word statistical analysis is only possible for ACC1 and NOM, because the words match exactly in terms of linear order; we discuss this comparison in section 5. The linear order of ACC1 and ACC2 is different, which means that in order to compare those two structures we had to collapse the reading times between W7 and W10.

Pair-wise comparison showed that ACC1 and ACC2 did not differ from each other [$F(1, 22) = 0.37$, $p < 0.55$], and in fact, the reading time for ACC1 was even slightly faster, as shown in the summary reading time graph below:

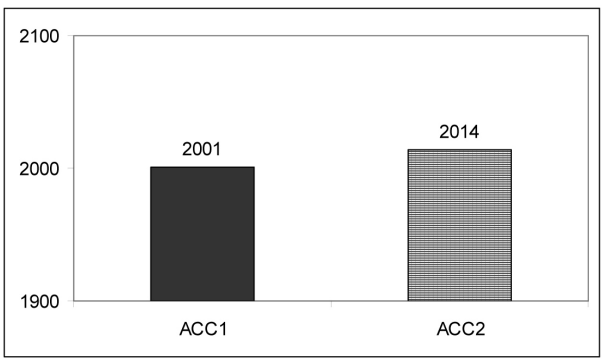


Figure 1. Reading time reslts, ACC1 and ACC2 (N Kwon and Polinsky 2006).

The reading times cannot be due to frequency effects, because, as our counts based on the Seyjong corpus (2002; 10 million clauses) show, ACC1 is more frequent than ACC2 (97 and 38 occurrences respectively). In addition, if scrambling were implicated in ACC2, we would expect it to cause some slowdown in reading (on processing costs associated with scrambling, see Ueno and Kluender (2003)). The processing profile presented in Figure 1 provides additional support for the argument that the structures ACC1 and ACC2 are not related via syntactic scrambling, but instead, differ in their respective underlying representations.

In conclusion, both primary data and processing evidence converge in suggesting that ACC1 and ACC2 are structurally unrelated. The controller-controllee relationship in ACC2 is determined on semantic or pragmatic, rather than syntactic, grounds. The referential dependency in ACC2 accounts for the fact that the null pronominal in the *tolok*-clause can alternate with an overt pronoun (43), and an overt DP whose referent is only relationally associated with the referent of the *persuadee*, as in (27) and (28) above.

(43) Chelswu-nun [kunye-ka ttena-tolok] Yenghuy-lul seltukhayssta
Chelswu-TOP she-NOM leave-COMP Yenghuy-ACC persuaded
'Chelswu persuaded Yenghuy to leave.' (=(17b))
[3SG co-indexed with *Yenghuy*]

5. Backward Object Control or Another Instance of Non-obligatory Control?

5.1. Basic Properties of the Nominative Construction

We are now ready to turn to the NOM construction, illustrated in (44).

(44) Chelswu-nun Yenghuy-ka kakey-ey ka-tolok
Chelswu-TOP Yenghuy-NOM store-LOC go-COMP
seltukhayssta
persuaded
'Chelswu persuaded Yenghuy to go to the store.'

Before we discuss the relationship of NOM to ACC1 and ACC2, we would like to establish four properties of this construction: it is biclausal; it instantiates control; the nominative DP is in the embedded clause, and there is a silent element in the matrix clause.

As with ACC1 and ACC2, the *biclausality* of this construction is evidenced by the distribution of temporal adverbs (the embedded clause and the 'per-

suade' clause can have independent temporal specifications), negation, and the licensing of NPIs (see Monahan (2003, 2005) for such evidence). Evidence for *control* comes from selectional restrictions, in particular, the loss of the idiomatic reading of set expressions. Crucially, (45) demonstrates that object control predicates such as *ordered* places selectional restrictions on its objects, a property associated with control predicates.

(45) #sin-un [pal eps-nun mal-i chenli ka-tolok]
God-TOP feet not.exist-ADN horse-NOM 1000-LI go-COMP
myenglyenghaessta
ordered
('God ordered the news to travel fast.' Lit.: …ordered a footless horse to go 1000-LI. (a long distance))

Next, using arguments from scrambling and NPI licensing, Monahan (2003, 2005) demonstrates that the nominative *persuadee* is a constituent of the embedded clause. To illustrate, let us turn to evidence from NPI licensing. NPIs in Korean must have clause-mate negation (H S Choe 1988, K-k Kim 2001) and do not show structural case (D-S Kim and Y-H Kim 2003). Because they do not show structural case, verbal negation determines constituency. If the hypothesis that the nominative *persuadee* DP is a constituent of the embedded clause is correct, the NPI should be licensed in either the matrix or the embedded clause depending on the location of negation, as illustrated in (46) and (47).

(46) Chelswu-nun amwuto kakey-ey ka-tolok seltukha-ci anh-ass-ta
'Chelswu-TOP NPI store-LOC go-COMP persuade-*ci* NEG-PAST-DECL
'Chelswu did not persuade anybody to go to the store.'

(47) Chelswu-nun amwuto kakey-ey ka-ci anh-tolok seltukhayssta
'Chelswu-TOP NPI store-LOC go-*ci* NEG-COMP persuaded
'Chelswu persuaded nobody to go to the store.'

If the *persuadee* DP were a constituent of the matrix clause, regardless of case, then we would fail to predict the acceptability of (47). Its well-formedness suggests that the *persuadee* DP is a constituent of the embedded clause, and for those cases where the *persuadee* is expressed by a DP, this constituency is reflected in the case it bears.

Finally, the crucial evidence for a null controllee in the matrix clause of NOM follows from quantifier float. Postnominal quantifiers in Korean must agree in case with the head noun (S Cho 2000). Thus, the nominative case is illicit on the quantifier in (48), because the modified nominal shows accusative case.

(48) Mary-ka haksayng-tul-ul motwu-lul/*ka sohwanhayssta
Mary-NOM student-PL-ACC all-ACC/*NOM called
'Mary called all the students.' (S Cho 2000: 194)

In the construction under investigation, where the *persuadee* appears in the nominative case (and is, therefore, a constituent of the embedded clause), the quantifier can nevertheless appear in the accusative case. It is, therefore, a constituent of the matrix clause. In the absence of a silent element licensing the quantifier in the matrix clause, this should be illicit.

(49) Chelswu-nun [ai-tul-i kakey-ey ka-tolok]
Chelswu-TOP child-PL-NOM store-LOC go-COMP
motwu-lul seltukhayssta
all-ACC persuaded
'Chelswu persuaded all the children to go to the store.'

The acceptability of (49) is accounted for under the conception that there is a silent element in the matrix clause. The overt embedded subject is co-indexed with this silent element. This silent element in turn licenses the accusative case on the quantifier. Thus, the representation of (49) is as follows:

(50) Chelswu-nun [ai-tul-i_i kakey-ey ka-tolok] $\_\__i$ motwu-lul
Chelswu-TOP child-PL-NOM store-LOC go-COMP all-ACC
seltukhayssta
persuaded
'Chelswu persuaded all the children to go to the store.'

Assuming that the proposed distinction between ACC1 and ACC2 is on the right track, which of these two constructions does NOM correspond to? In section 5.2. we discuss the analytical possibilities at hand, and in section 5.3. we examine empirical evidence that may allow us to decide between them.

5.2. Possible Analyses of the Nominative Construction

If NOM is related to ACC1, then it instantiates backward object control, a rare but not impossible construction attested in several other languages (Farrell 1995, Polinsky and Potsdam 2006, Potsdam 2006). The relationship between the two constructions can be schematized in the following way:

(51) a. *ACC1*
John [$_{VP}$ Mary$_k$-ACC [$_{CP}$ [$_{TP}$ $\__k$ [$_{VP}$ leave]]-$_{COMP}$] persuaded]
A-chain

b. *NOM*
John [$_{VP}$ ___$_k$ [$_{CP}$ [$_{TP}$ Mary$_k$-NOM [$_{VP}$ leave]]-$_{COMP}$] persuaded]
A-chain

In previous work, we have suggested that cases where the controller appears in the embedded clause instantiate backward control and consequently, support a control-as-movement approach (Hornstein 1999, 2003). The PRO approach (Bouchard 1983, Chomsky 1981, Schütze 1997, Landau 2000, 2003) has traditionally relied on a variable-binding configuration in order to construe the appropriate antecedent for the null PRO. This requires a c-command relation between the overt *controller* and null *controllee*, where the overt controller is structurally superior to the null controllee. In cases of backward control, however, this cannot be the case, as in the surface representation, the overt element is dominated by the null element. The account most congenial to the backward control facts, we suggest, is the control-as-movement account. In the "standard" control-is-movement account (Hornstein 1999), the overt element is merged as a constituent of the embedded clause, where it checks its agreement and thematic features. Subsequently, it raises prior to spell-out into a thematic position in the matrix clause. This account rests on the assumption that the Theta Criterion (Chomsky 1981) is no longer valid and that any given chain can contain more than one theta-role. Following Hornstein (1999) and Polinsky and Potsdam (2002), we assume that the embedded subject/matrix object is merged in the embedded clause. In the case where the *persuadee* DP is marked with accusative case, the embedded subject is forced to raise into matrix object position and check the patient thematic feature of *persuade*. This is presented in (52).

(52) Chelswu-TOP [vP Yenghuy-ACC [VP ~~Yenghuy~~ [CP [TP ~~Yenghuy~~ [vP ~~Yenghuy~~ store go]] COMP] persuaded]]

Remember that the accusative marked *Yenghuy* is allowed to check multiple theta features. It raises into the matrix *v*P in the overt syntax. What then, allows for the backward control case? Essentially, the derivation is identical to that of the accusative *persuadee* DP except that Spell-Out applies while the *persuadee* DP is still a constituent of the embedded clause, yielding (51).

(53) Chelswu-TOP [vP [VP [CP [TP Yenghuy-NOM [vP ~~Yenghuy~~ store go]] COMP] persuaded]]

The immediate question that comes to mind is why this option to spell-out the head or tail of a chain is available. A comprehensive answer to this ques-

tion is still outstanding; we would like to point out that this is not the first documented case in the literature, as Bošković (2002) uses a similar account in analyzing multiple *wh*-questions in the Slavic languages, and Potsdam (2006) proposes an analysis for Malagasy object control. The Malagasy case is particularly compelling; it is another instance of object control, as is the situation here, but unlike Korean, Malagasy has no object *pro*-drop, which makes the case for OC stronger.

Turning to *pro*-drop, the silent element in the matrix clause of NOM could be expressed by a null pronominal, as has been proposed in Cormack and Smith (2002, 2004) and H S Choe (2006). If NOM is related to ACC2, it instantiates non-obligatory control, and the null element licensing the floated quantifier as in (50), is simply a null pronominal object. Thus null pronominal object is co-indexed with the nominative subject of the *tolok*-clause. Crucially, their relationship is established referentially but not syntactically:

(54) Chelswu-nun [Yenghuy$_i$-ka kakey-ey ka-tolok] *pro*$_i$ seltukhayssta
Chelswu-TOP Yenghuy-NOM store-LOC go-COMP persuaded

Recall that the structure proposed for ACC2 involves a high-adjoining *tolok*-clause co-indexed with an implicit propositional argument of *persuade*. Thus, there is no c-command relation between the nominative DP in the embedded clause and the null pronominal in the matrix clause. In the absence of a syntactic relationship between the two expressions, there is no need to appeal to scrambling as a mechanism for obviating binding violations, the way it has to be done in Cormack and Smith (2004), who attempt to relate ACC1 and ACC2 derivationally.

We now face the following choice:

(55) a. NOM ~ ACC1: obligatory control, backward *vs.* forward control
b. NOM ~ ACC2: non-obligatory control, anaphoric *vs.* cataphoric relation between the controller and coreferential null pronominal

In the next section we will present arguments in favor of the alternative that the NOM construction is linked more closely with the ACC2 structure.

5.3. The Nominative Construction as Non-obligatory Control

We would like to preface this section by saying that the choice between (55a) and (55b) is quite difficult and that the judgments seem very subtle. In earlier work, some of us have actually proposed an alternative analysis (Monahan 2003) and it is only upon a thorough investigation of this construction, including judgment tasks and processing data that we have come to the conclusion

that NOM instantiates non-obligatory control, thus being a variation on ACC2.

Two primary data arguments favor the analysis of NOM as related to ACC2, rather than ACC1: the position and interpretation of the floated quantifier.

Starting with the position of the quantifier, if NOM is related to ACC1, the empty element should precede the *tolok*-clause, as shown in (51b) above. In that case, one can expect the quantifier, associated with that empty element, to precede the embedded clause as well; however, this is ungrammatical:[9]

(56) *Chelswu-nun $\_\__i$ motwu-lul [nayil ai-tul-i_i kakey-ey
Chelswu-TOP all-ACC tomorrow child-PL-NOM store-LOC
ka-tolok] seltukhayssta
go-COMP persuaded
('Chelswu persuaded all the children to go to the store tomorrow.')

Thus, the floated quantifier cannot appear on the left of the embedded clause, which casts strong doubt upon its association with the preposed accusative DP.

So far, all our examples with the floated quantifier involved the universal quantifier *motwu*, which can be interpreted as related to the nominative subject of the *tolok*-clause. However, if a numeral is used in place of *motwu*, the association between the nominative subject and the quantifier becomes either impossible or quite tenuous, thus:

(57) helswu-nun [ai-tul-i_i hakkyo-ey ka-tolok] $pro_{j/*i}$
Chelwsu-TOP child-PL-NOM school-LOC go-COMP
sey-myeng(-man)$_{j/*i}$ seltukhayssta
three-CL-DELIMITER persuaded
'Chelswu persuaded (only) three people that the children should go to school.'
(NOT: 'Chelswu persuaded (only) three children to go to school.')

Of ten speakers we consulted, eight rejected the interpretation 'Chelswu persuaded only three children to go to school' altogether, and two speakers accepted both interpretations, still preferring the disjoint reference. Such disjoint interpretation is a strong sign of non-obligatory control. If so, the construction is related to ACC2, in which case the position of the quantifier after the *tolok*-clause follows from the structure of ACC2 and does not require special expla-

[9] One could argue that the quantifier in the mismatched case simply should not precede the nominative DP associated with it. As (56) shows, the construction remains ungrammatical even when the quantifier and the nominative DP are not adjacent.

nation. It is intriguing why the interpretation of the universal quantifier and the interpretation of the numerals yield different preferences — we do not have any suggestions on this but we hope that this question will stimulate future research.

Recall that we used processing data to distinguish between possible analyses of the relationship between ACC1 and ACC2. Our reading time experiment also included NOM. Of the three constructions, it had the longest reading time for the collapsed regions 7-10, as shown in Figure 2.

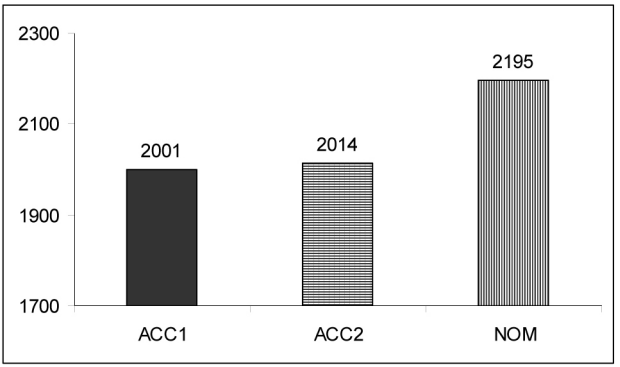


Figure 2. Reading time, collapsed, three control constructions (N Kwon and Polinsky 2006).

The time course of word-by-word reading is shown in Figure 3:

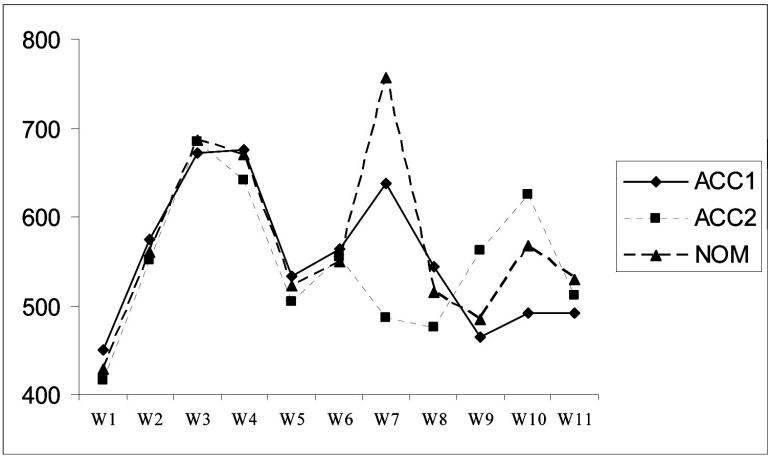


Figure 3. Reading time course, three control constructions.

What exactly causes the slowdown in NOM and does this slowdown tell us something about the structure of this sentence type? The answer to this question involves a pairwise comparison between ACC1 and NOM and ACC2 and NOM.

Comparing ACC1 and NOM, where word-by-word comparison is possible (58), the results are as follows: the two structures differ at W7 and W10, with NOM being significantly slower at both.

(58) *target structures*

ACC1	heroine-ACC	popular	talk_show-to	appear-COMP	persuaded
NOM	heroine-NOM	popular	talk_show-to	appear-COMP	persuaded
	W7	W8	W9	W10	W11
"...persuaded the leading actress to appear on a popular talk show"					

The slowdown at W7 in NOM is due to the second nominative, which has independently been shown to incur an additional processing load across a range of constructions, not just in control clauses (see Uehara (1997), Miyamoto and Takahashi (2002), Miyamoto and Nakamura (2003), Lewis and Nakayama (2002), Yamashita (1994) for Japanese and Korean, N Kwon (in press) for Korean). The beginning of a new clause predictably increases the processing load. If the gap in the matrix clause had been posited preceding the *tolok*-clause, there should be little or no slowdown at W10. However, this slowdown is quite significant. We suggest that it is caused by the double task of (i) positing of the gap and (ii) integrating this gap with the nominative filler. This slowdown is consistent with the evidence, provided by floated quantifier, for the gap occurring after the *tolok*-clause. Of course the presence of a slowdown does not tell us anything about the category of the gap — as far as processing is concerned, a gap is a gap.

The pairwise comparison of NOM and ACC2 is more difficult because the word order in the two constructions is not the same; nevertheless, we would like to offer some considerations.

(59) *target structures*

NOM	heroine-NOM	popular	talk_show-to	appear-COMP	persuaded
ACC2	popular	talk_show-to	appear-COMP	heroine-ACC	persuaded
	W7	W8	W9	W10	W11
"...persuaded the leading actress to appear on a popular talk show"					

ACC2 shows a slowdown at W9 and W10 (see Figure 3. above). The slowdown at the complementizer *tolok* (W9) is likely due the positing of a subject gap in the *tolok*-clause and integrating it with the predicate; no such need arises

in NOM, where the nominative DP provides the referential identity of the subject. The second slowdown in ACC2, at the accusative DP (W10), is due to the integration of the null pronominal posited in the *tolok*-clause with the accusative filler. We have found similar integration effects in *se*-clauses with a subject or object gap, followed by an overt filler in the matrix clause (N Kwon et al. 2006, 2007).

In addition to the double task of (i) positing of the gap and (ii) integrating this gap with filler, that all the three constructions share, there is an additional difference separating ACC1 and ACC2 on the one hand from NOM on the other. In ACC1 and ACC2, the parser needs to postulate a subject gap, whereas in NOM it is an object gap that is postulated and then integrated with the overt controller. Independent results from relative clauses and *because*-adjuncts show that subject gaps of all kinds are easier to process than object gaps (N Kwon et al. 2006, 2007). This suggests that the significant slowdown at *appear-COMP* in NOM as compared to in ACC1 and ACC2 is due to the processing asymmetry of subject and object gap.

Overall, the processing data seem more compatible with the non-obligatory control account of NOM and certainly support the proposal that the null element in the matrix clause follows rather than precedes the *tolok*-clause.

In summary, it appears that on top of the obligatory control construction licensed by Korean *persuade* (ACC1), Korean also appears to have two options in non-obligatory control, ACC2 and NOM. If this analysis is on the right track, Korean represents a previously unrecognized option in the expression of OC/NOC contrast — word order. On the surface, the difference between ACC1, which we characterized as OC, and ACC2, which is NOC, is manifested as a word order difference. In more familiar languages, such a difference is typically associated with the difference in the type of control complement — for example, the difference between an infinitival clause and a finite clause in English (Jackendoff and Culicover 2003), or differences in lexical predicates.

If our analysis of NOM as NOC is correct, we also see that languages differ in their treatment of object control constructions with the overt subjects of embedded clause. Such overt subjects may be co-indexed with a null pronominal in the matrix clause, as seems to be the case in Korean, or with a deleted higher copy in the movement chain, as seems to be the case in Malagasy object control (Potsdam 2006), Circassian (Polinsky and Potsdam 2006) object control, or adjunct control in Telugu and Assamese (Haddad 2007). Note that this distinction is orthogonal to the parametric variation in *pro*-drop: Korean, Circassian and Assamese are all *pro*-drop languages.

6. Conclusions and Outstanding Questions

6.1. Conclusions

In this paper, we have examined three Korean object control constructions with the complementizer *–tolok*.

(60) Chelswu-nun Yenghuy$_i$-lul [_$_i$ tomangka-tolok] seltukhayssta
Chelswu-TOP Yenghuy-ACC Run.away-COMP persuaded
'Chelswu persuaded Yenghuy to run away.' [*ACC1*]

(61) Chelswu-nun [__$_i$ tomangka-tolok] Yenghuy$_i$-lul seltukhayssta
Chelswu-TOP run.away-COMP Yenghuy-ACC persuaded
'Chelswu persuaded Yenghuy to run away.' [*ACC2*]

(62) Chelswu-nun [Yenghuy$_i$-ka tomangka-tolok] seltukhayssta
Chelswu-TOP Yenghuy-NOM run.away-COMP persuaded
'Chelswu persuaded Yenghuy to run away.' [*NOM*]

On the surface, they differ in two respects: first, in the expression of the controller either in the matrix (ACC1, ACC2) or embedded clause (NOM); second in the position of the controller vis-à-vis the embedded clause (ACC1 *vs.* ACC2).

We have argued here that these superficial contrasts are indicative of more profound structural differences. ACC1 instantiates obligatory control (OC) and can be accounted for under either a PRO-based analysis or a movement analysis (which is preferable for independent reasons not discussed in this paper). ACC2 shows non-obligatory control (NOC), and is best accounted for under an analysis which posits a null pronominal inside the control clause, coindexed with an overt accusative DP in the matrix clause. The controller-controllee relationship in ACC2 is based on a referential, rather than a syntactic, dependency. Finally, NOM, which could in theory be either related to either ACC1 or ACC2, is shown to be another case of a referential dependency between the nominative DP in the *tolok*-clause and the null pronominal in the matrix clause. For all these constructions, the differentiation of the two constructions as obligatory *vs.* non-obligatory control is supported by structural considerations as well as some processing evidence.

The differential analysis of the three control constructions proposed here brings together insights from work on semantic control in Korean (Cormack and Smith 2002, 2004, H S Choe 2006) and syntactic analysis proposed by Monahan (2003, 2005). The semantic analysis correctly captures the non-obligatory control cases (ACC2, NOM), while the syntactic analysis is more

appropriate for obligatory control because it does not need additional stipulations to handle active/passive synonymy (Monahan 2003, 2005, N Kwon and Polinsky 2006) or variable binding.

6.2. Outstanding Questions

Assuming that the object control constructions in Korean are not derivationally related and are in fact quite different, they may both still be structurally ambiguous, due to scrambling. Scrambling of two internal arguments is possible in Korean (S D Park and Whitman 2003, Maling and S Kim 1992, Sells 2005, Y-K Baek and J-M Lee 2004, and others), so it is feasible that each of the surface constructions, ACC1 and ACC2, actually masks two possibilities, thus (using English words with Korean word order):

(63) a. ACC1, direct order
Chelwsu Yenghuy$_i$-ACC [PRO/t$_i$ go-COMP] persuaded
b. ACC1, scrambled
Chelwsu [PRO/t$_i$ go-COMP]$_k$ Yenghuy$_i$-ACC t$_k$ persuaded

(64) a. ACC2, direct order
Chelwsu [*pro*$_i$ go-COMP] Yenghuy$_i$-ACC persuaded
b. ACC2, scrambled
Chelwsu Yenghuy$_{i/j}$-ACC [*pro*$_i$ go-COMP] t$_j$ persuaded

If the two constructions are structurally ambiguous, then ACC1 could actually mask ACC2 (cf., (63b)), and ACC2 could conceal ACC1 (cf., (64b)).

The structure in (63b) is untenable on several theory-internal and empirical grounds. Under a PRO-based analysis of control, it is ruled out because of the disruption of c-command between PRO and its antecedent. Under a control-as-movement analysis, the scrambling analysis of ACC1, is also untenable. The main arguments have to do with variable binding (see above) and quantifier float (Monahan 2003, 2005).

That (63b) is untenable meshes well with some additional empirical observations: ACC1 is normally judged as unambiguous, and only some speakers show mild ambiguity, reflected in the judgments in (15a) above—note the graded judgments on (ii) there. The next step in understanding such graded judgments should involve a psycholinguistically designed judgment of a larger number of ACC1 examples to evaluate off-line judgments; such a judgment task is currently under development.

Let us now turn to ACC2 and the scrambled representation in (64b). The main argument against this representation comes from island effects. If a subset of ACC1 constructions were due to scrambling, the *tolok*-clause in those

scrambled structures should remain an island for extractions, so we should expect something like (65a) to be ungrammatical because it would have the structure in (65b) and would involve scrambling out of an adjunct island as well as scrambling over a scrambled constituent ('Yenghuy'):

(65) a. ku chayk-ul$_i$, Chelswu-ka Yenghuy-lul [t_i ilk-tolok] seltukhayssta
this book-ACC Chelswu-NOM Yenghuy-ACC read-COMP persuaded
'This book, Chelswu persuaded Yenghuy to read.'

b. this book$_i$ Chelswu-NOM Yenghuy$_k$-ACC [$_{CP}$ t_i read-COMP]$_j$ t_k *ec*$_j$ persuaded

However, (65a) is well-formed, which argues against the structural ambiguity of ACC2, again suggesting that (64b) is untenable.

Taken as a whole, these results cast further doubt on derivational accounts of scrambling. On a more general level, many arguments in favor of scrambling can be shown to be empirically flawed or inconclusive (Fanselow 2001). Theoretically, the concept of A-scrambling conflicts with a number of accepted minimalist assumptions, and base-generation of alternative orders may be a better solution (Fanselow 2001). The data presented here add further empirical support to such a proposal.

Another general issue that our results point to has to do with the differential interpretation of floated quantifiers in NOM: while the quantifier *motwu* was more likely associated with the embedded nominative DP, the floated numerical expressions favored the disjoint interpretation — compare the contrast between (66) and (67):

(66) Chelswu-nun [ai-tul-i$_i$ hakkyo-ey ka-tolok] *pro*$_{j/i}$ motwu-lul$_{j/i}$ seltukhayssta
Chelwsu-TOP child-PL-NOM school-LOC go-COMP all-ACC persuaded
'Chelswu persuaded all the children to go to school.'
'Chelswu persuaded all others that the children should go to school.'

(67) Chelswu-nun [ai-tul-i$_i$ hakkyo-ey ka-tolok] *pro*$_{j/*i}$ sey-myeng-ul$_{j/*i}$ seltukhayssta
Chelwsu-TOP child-PL-NOM school-LOC go-COMP three-CL-ACC persuaded
'Chelswu persuaded three people that the children should go to school.'
(NOT: 'Chelswu persuaded three children to go to school.')

This differential behavior of floated quantifiers cuts across the issues discussed in this paper and warrants further investigation.

Finally, analyses of additional types of control complementation beyond *–tolok* are desirable. As James Yoon (p.c.) points out, some control configurations involve clauses that are unambiguously adjuncts. By systematically studying the different control complementation possibilities, such as V-*(u)la-ko*, V-*(u)l kes-ul*, V-*ki-lul* or V-*key-(kkum),* we will be able gain a clearer and more comprehensive picture of the nature control and empty categories in Korean.

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