Are There 'Double Relative Clauses' in Korean?*

Chung-hye Han
Simon Fraser University
chunghye@sfu.ca

Jong-Bok Kim
Kyung Hee University
jongbok@khu.ac.kr

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It has been claimed in the literature that Korean allows the relativization of another relative clause, deriving the so called 'double relative clause'. The presence of 'double relative clauses' has led some researchers to argue that Korean relative clauses do not involve any operator movement, but rather a mechanism such as unselective binding (H.-M. Sohn 1980, Y.-S. Kang 1986), where an operator binds variables in situ. In this paper, we argue that there is no true 'double relative clause', thus no real threat to the operator movement analysis for relative clauses in Korean. More specifically, we propose that the so-called 'double relative clauses' are derived from double nominative constructions, through relativizing the first nominative NP which originates from an IP-adjoined position. Given our analysis, 'double relative clauses' are not instances of island violations, and the operator movement analysis for relative clause formation in Korean can thus be maintained.

1 Issues

In Korean, the main verb in a relative clause is inflected with an adnominal morpheme *-(n)un* (glossed as *Adn*), which indicates that the clause is modifying a noun. The head noun occurs to its right, Korean being a head-final language. An example of a relative clause with a subject gap is given in (1).

(1) $[_{NP}\ [_{IP}\ e$ ppang-ul mek-nun] ai]
e bread-Acc eat-Adn kid
'the kid who is eating bread'

Although Korean does not have any overt relative pronoun, it is standardly assumed that there is an empty relative pronoun operator in [Spec,CP] which is syntactically associated with a gap in the relative clause (cf. D.-W. Yang 1989 and H.-K.Yang 1990). The relative clause in (1) can be structurally represented as in (2). The syntactic relation between the empty operator and the subject gap is instantiated by coindexation. Under the operator movement analysis, the subject gap e_i is a trace of the empty operator OP_i.[1]

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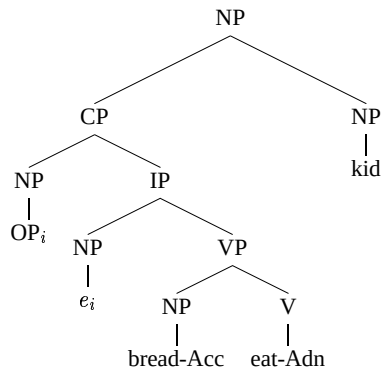
[1] See J.-B. Kim (1998) for a non-movement analysis of Korean relatives clauses that posits no empty operator at all.

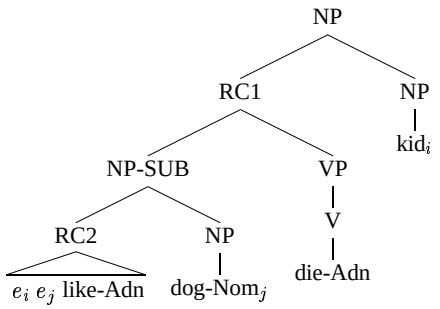
(2)



The presence of the so-called 'double relative clauses,' however, poses a problem for the operator movement analysis because they appear to involve relativization of another relative clause. For instance, in (3a), the object NP which is associated with *kangaci-ka* ('dog-Nom') has relativized and then the subject NP which is associated with *ai* ('kid') has relativized (*dog* is the subject of *die*). The problem for the operator movement analysis is caused by the subject gap (e_i): it appears to be a trace left by an island-violating movement out of another relative clause. This is illustrated in the tree structure in (3b).[2]

(3) a. [$_{RC1}$ [$_{RC2}$ e_i e_j cohaha-nun] kangaci-ka$_j$ cwuk-un] ai$_i$
e_i e_j like-Adn dog-Nom$_j$ die-Adn kid$_i$
'the kid [$_{RC1}$ who$_i$ the dog [$_{RC2}$ which$_j$ e_i liked e_j] died]'
'the kid who the dog which [he] liked died'

b.



More examples of 'double relative clauses' are given in (4).

(4) a. [$_{RC1}$ [$_{RC2}$ e_i e_j tha-ko tani-nun] cha-ka$_j$ mesci-n] sinsa$_i$
e_i e_j ride drive-Adn car-Nom$_j$ stylish-Adn gentleman$_i$
'the gentleman [$_{RC1}$ who$_i$ the car [$_{RC2}$ which$_j$ e_i is driving e_j] is stylish]'
'the gentleman who the car that [he] is driving is stylish'

b. [$_{RC1}$ [$_{RC2}$ e_i e_j kackoiss-nun] khemphwute-ka$_j$ MAC-i-n] kyoswu$_i$
e_i e_j have-Adn computer-Nom$_j$ MAC-Cop-Adn professor$_i$
'the professor [$_{RC1}$ who$_i$ the computer [$_{RC2}$ which$_j$ e_i has e_j] is MAC]'
'the professor who the computer which [he] has is MAC'

Because of examples like (3a) and (4), some have taken an unselective binding approach to the analysis of relative clauses in Korean. Under such an approach, the gaps in the relative clause are pronominal variables and are bound by the empty operator in situ (H.-M. Sohn 1980, Y.-S. Kang 1986). This approach

[2]When representing relative clauses in the rest of the paper, we leave out the empty relative pronoun operator and directly coindex the head noun and the gap in the relative clause for sake of simplicity. We also simplify the tree diagrams to save space.

then predicts that there should be no island effects in relative clauses. However, there are many cases where island effects are clearly observed, as illustrated in (5) (cf. D.-W. Yang 1989 and H.-K.Yang 1990):

(5) a. * [John-i [$_{CNP}$ [kangto-ka e_i hwumchy-ess-tanun] sosik-ul] tul-un] posek$_i$
John-Nom thief-Nom e_i steal-Past-Adn news-Acc hear-Adn jewel$_i$
'the jewel which$_i$ John heard [$_{CNP}$ the news that the thief stole e_i]'

b. * [wuli pan haksayng-i [$_{CNP}$ [e_i kapcaki mikwuk-ey ka-n] sasil-ul]
our class student-Nom e_i suddenly America-to go-Adn fact-Acc
mola-ss-ten] sensayngnim$_i$
not-know-Past-Adn teacher$_i$
'the teacher who$_i$ our class student didn't know [$_{CNP}$ the fact that e_i suddenly went to America]'

c. * [[$_{AC}$ John-i ku namca-lul e_i manna-ss-ki ttaymwuney] Sue-ka hwakana-n]
John-Nom that man-Acc e_i meet-Past-Nominal because Sue-Nom be_angry-Adn
sikan$_i$
time$_i$
'the time when$_i$ Sue was angry [$_{AC}$ because John met that man e_i]'

An object and a subject have relativized out of a complex NP (CNP) in (5a) and (5b) respectively, and an adjunct has relativized out of an adjunct clause (AC) in (5c). [3]

Another possible approach is to say that the problematic gap in the lower relative clause is an empty resumptive pronoun whose licensing conditions are not subject to movement constraints.[4] This approach

[3]An anonymous reviewer suggests that the examples in (5a)-(5b) are degraded not because of a violation of a grammatical principle but because of a difficulty in processing. As a supporting argument, the reviewer shows that the acceptability of similar examples improves (though the sentence is still not perfect) if the nominative case marker on the higher subject is replaced with a focus particle (a delimiter) *-man* ('only') and/or an adverb is inserted between the subject and the complex NP.

(i) ?? [John-man (papokathi) [$_{CNP}$ [kangto-ka e_i hwumchy-ess-tanun] sosik-ul] mos tul-un] posek$_i$
John-only foolishly thief-Nom e_i stole-Past-Adn news-Acc not hear-Adn jewel$_i$
'the jewel which foolishly only John didn't hear the news that the thief stole'

The reviewer further argues that even when islands are not at stake, relativization of an embedded subject over a higher nominative-marked subject is degraded, and that the acceptability improves if the nominative case on the subject is replaced with *-man*:

(ii) a. [nay-ka [e$_i$ chencay-lako] sayngkakha-nun] ku salam$_i$
I-Nom genius-Comp think-Adn that person
'that person who I think is a genius' (cf. the reviewer's judgment: *?)

b. [na-man [e$_i$ chencay-lako] sayngkakha-nun] ku salam$_i$
I-only genius-Comp think-Adn that person
'that person who only I think is a genius'

We, however, have reasons to doubt that the unacceptability of (5a)-(5b) is mere processing effect. First of all, the unacceptability of (5a)-(5b) sharply contrasts with the acceptability of (3a)-(4). Second, out of 10 native speakers of Korean we consulted, 9 speakers judged (5a)-(5b) to be unacceptable. If processing difficulty alone were at work, we would expect more variability among different speakers. Third, all the native speakers we consulted judged (iia) to be as perfectly acceptable as (iib), contra to the reviewer's judgments. This shows that the unacceptability of (5a)-(5b) has little to do with the putative processing difficulty caused by the relativization of an embedded argument over a matrix nominative-marked subject. We do not yet clearly understand why manipulating examples such as (5a)-(5b) in certain ways creates an improvement in grammaticality for some speakers, as in (i). We will revisit this issue in footnote 5.

[4]We thank an anonymous reviewer for raising this question.

appears to be supported by the fact that the problematic gap in the examples (3a)-(4) can be replaced with an overt pronoun, although the result is slightly degraded.

(6) a. ? [$_{RC1}$ [$_{RC2}$ ku-ka$_i$ e_j cohaha-nun] kangaci-ka$_j$ cwuk-un] ai$_i$
he$_i$ e_j like-Adn dog-Nom$_j$ die-Adn kid$_i$
'the kid who the dog which [he] liked died'

b. ? [$_{RC1}$ [$_{RC2}$ ku-ka$_i$ e_j tha-ko tani-nun] cha-ka$_j$ mesci-n] sinsa$_i$
ku-ka$_i$ e_j ride drive-Adn car-Nom$_j$ stylish-Adn gentleman$_i$
'the gentleman who the car that [he] is driving is stylish'

c. ? [$_{RC1}$ [$_{RC2}$ ku-ka$_i$ e_j kackoiss-nun] khemphwute-ka$_j$ MAC-i-n] kyoswu$_i$
he$_i$ e_j have-Adn computer-Nom$_j$ MAC-Cop-Adn professor$_i$
'the professor who the computer which [he] has is MAC'

Given that resumptive pronouns are shown to 'amnesty' island effects when an extraction has occurred from an island (Kroch 1981), it seems reasonable to suspect that something similar might be going on in 'double relative clauses'. If, however, resumptive pronoun strategy is available to rescue the relativization of another relative clause, it should also be available to rescue the relativization of complex NPs and adjunct clauses. But such resumptive pronoun strategy do not appear to be readily available in these cases, as evidenced by the unacceptability of (5a)-(5c). Further, unlike the problematic gap in 'double relative clauses', the gap in (5a)-(5c) cannot be replaced with an overt pronoun, as illustrated in (7).[5]

(7) a. * [John-i [$_{CNP}$ [kangto-ka ku-kes-ul$_i$ hwumchy-ess-tanun] sosik-ul] tul-un] posek$_i$
John-Nom robber-Nom it-Acc$_i$ steal-Past-Adn news-Acc hear-Adn jewel$_i$
'the jewel which$_i$ John heard [$_{CNP}$ the news that the robber stole it$_i$]'

b. * [wuli pan haksayng-i [$_{CNP}$ [ku-ka$_i$ kapcaki mikwuk-ey ka-n] sasil-ul]
our class student-Nom he-Nom$_i$ suddenly America-to go-Adn fact-Acc
mola-ss-ten] sensayngnim$_i$
not-know-Past-Adn teacher$_i$
'the teacher who$_i$ our class student didn't know [$_{CNP}$ the fact that he$_i$ went to America]'

c. * [[$_{AC}$ John-i ku namca-lul kuttay$_i$ manna-ss-ki ttaymwuney] Sue-ka
John-Nom that man-Acc then$_i$ meet-Past-Nominal because Sue-Nom
hwakana-n] sikan$_i$
be_angry-Adn time$_i$
'the time when$_i$ Sue was angry [$_{AC}$ because John met that man then$_i$]'

The resumptive pronoun approach then raises the question why relative clauses are different from other island environments when it comes to relativization, taking us back to our original problem of 'double relative clauses'.[6]

[5] Although the unacceptability of (5a)-(5c) indicates that the resumptive pronoun strategy cannot be used in the analysis of these examples, this does not mean that Korean relative clauses never make use of resumptive pronouns. In fact, the improved acceptability of (i) in footnote 3 could be taken to suggest that an insertion of focus marker and adverbs somehow makes easier for the resumptive pronoun strategy to apply to island-violating relative clauses. All these show that the use of resumptive pronouns in Korean (if possible) is highly restricted, subject to many syntactic and discourse constraints not yet clear to us.

[6] Another way of avoiding the island effects is to assume that Korean allows the subject of a relative clause to be "genitivized if the relative clause describes a characteristic property of its head NP" as assumed by M.-Y. Kang (1988) and D.-W. Yang (1989). Within such a system, the subject is first adjoined to the CP and then moved out of the relative clause, avoiding the violation of subjacency or barrierhood. One serious question that arises from such an analysis is how to define the notion of 'characteristic property'. See section 3 for our discussion of a similar semantic analysis set forth by Na and Huck (1993). Also see J.-B. Kim (1998) for more detailed discussion against such a genitive account.

So far we have seen that island effects attested in relative clauses provide strong evidence for the operator movement analysis, but also that this analysis cannot handle 'double relative clauses'. We have also seen that resorting to the resumptive pronoun approach does not help us in resolving the problem because under this approach we are led to the conclusion that only relative clauses freely allow resumptive pronouns, while very restricted in other island-violating contexts. In section 2, we briefly discuss two other analyses of 'double relative clauses' proposed in the literature: J.-I. Han's (1992) syntax-based account, and Na and Huck's (1993) semantics-based account. We then present our analysis in section 3, where we provide an alternative syntax that does not involve relativization of another relative clause.

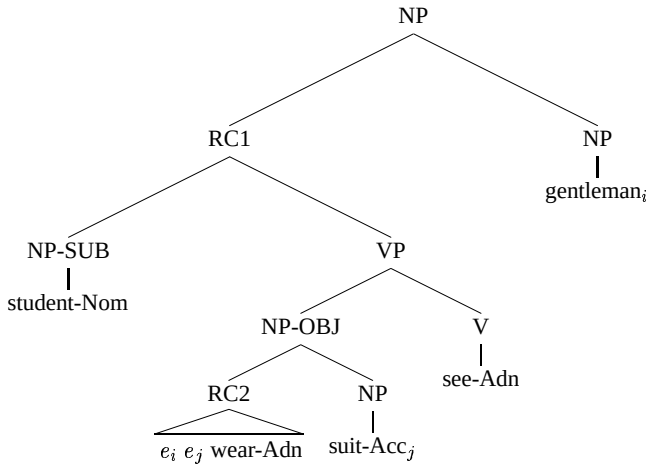
2 Previous Analyses

2.1 J.-I. Han 1992

J.-I. Han (1992) points out a couple of restrictions on 'double relative clauses'. First, the double relative clause formation is possible only when the lower relative clause is in a subject position, as in (3). An example of a bad case where an NP has relativized out of a relative clause in an object position is given in (8a) (with the corresponding tree structure in (8b)).

(8) a. * [$_{RC1}$ wuli pan haksayng-i [$_{RC2}$ e_i e_j ip-un] yangpok-ul$_j$ po-n] sinsa$_i$
our class student-Nom e_i e_j wear-Adn suit-Acc$_j$ see-Adn gentleman$_i$
'the gentleman [$_{RC1}$ who$_i$ a student from our class saw the suit [$_{RC2}$ which$_j$ e_i wore e_j]]'
'the gentleman who a student from our class saw the suit which [he] wore'

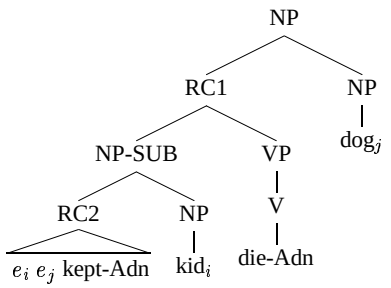
b.



Second, non-subject NPs cannot relativize out of another relative clause, as illustrated in (9a) (with the corresponding tree structure in (9b)). The example in (9) is degraded because an object NP has relativized out of the relative clause RC2, leaving the gap e_j.

(9) a. ?? [$_{RC1}$ [$_{RC2}$ e_i e_j khiwecwu-n] ai-ka$_i$ cwuk-un] kangaci$_j$
e_i e_j kept-Adn kid-Nom$_i$ die-Adn dog$_j$
'the dog [$_{RC1}$ which$_i$ the child [$_{RC2}$ who$_j$ e_j kept e_i died]]'
'the dog which the child who kept [him] died'

b.



J.-I. Han (1992) argues in the spirit of Huang (1989) that in Korean relative clauses, the subject gap is a base-generated *pro*, and is constrained by Huang's Generalized Control Theory. This theory states that an empty pronominal should be coindexed with the closest nominal element. She further argues that the object gap is a variable left by the movement of the empty operator. Accordingly, (8a) is bad because the presence of a closer potential antecedent *wuli pan haksayng-i* ('our-class-student-Nom') blocks the subject gap from being coindexed with the head noun *sinsa* ('gentlemen'). Crucially, the ungrammaticality of the example in (8a) is not caused by an island violation. In contrast, (9a) is bad because the object gap is a variable (trace) left by the movement of the empty operator out of another relative clause, which is an island violation.

However, there are problems with J.-I. Han's analysis. For instance, we can construct good examples where non-subject NPs do appear to have relativized out of another relative clause. The example in (9a) becomes perfectly acceptable, simply by changing the first head noun *ai* ('kid') to *cwuin* ('owner'), as illustrated in (10).

(10) [$_{RC1}$ [$_{RC2}$ e_i e_j khiwecwu-n] cwuin-i$_i$ cwuk-un] kangaci$_j$
e_i e_j kept-Adn owner-Nom$_i$ die-Adn dog$_j$
'the dog [$_{RC1}$ which$_i$ the owner [$_{RC2}$ who$_j$ e_j kept e_i died]]'
'the dog which the owner who kept [him] died'

Furthermore, J.-I. Han's proposal wrongly predicts that subject relativization of a complement clause will be bad, since the matrix subject counts as a potentially closer antecedent of the subject gap. For instance, the example in (11) should be bad because the matrix subject *Mary* is a potentially closer antecedent for the gap e_i, blocking the coindexation between e_i and the head noun *ku namca* ('that man'). But clearly, the example in (11) is well-formed.

(11) [$_{RC}$ [Mary-ka [e_i chencay-lako] malha-n]] ku namca$_i$
Mary-Nom e_i genius-Comp say-Adn that man$_i$
'the man that Mary said is a genius'

2.2 Na and Huck 1993

Na and Huck (1993) propose to recapture subjacency in relative clauses through the application of an interpretive condition called Argument Condition, as given in (12).

(12) The Argument Condition (Na and Huck 1993: 200):
A relative clause must contain an element E that the clause predicates something of, where E is either
A. A gap coindexed with the clause head; or
B. A nominal whose denotation is thematically subordinate to that of the clause head.

According to Na and Huck, "X is *thematically subordinate* to an entity Y iff Y's having the properties it does entails that X has the properties it does" (Na and Huck 1993: 194). Na and Huck classify this thematic subordination into five relations: *part-whole* (e.g., cover vs. book, voice vs. man), *quality-to-entity* (e.g.,

use vs. tool, color vs. eyes), *conventional* (e.g., car vs. man, dog vs. girl), *hierarchical* (e.g., parent vs. child, doctor vs. patient), and *taxonomic* (apple vs. fruit, chair vs. furniture). These classifications are the central part of their analysis.

Na and Huck's analysis accounts for the (un)acceptability of a wide range of island-violating relative clauses. In (13a-b), the gap e_i in each example is coindexed with a nominal which is not the head of the minimal complex NP containing the gap – thus violating the A-clause of the Argument Condition. Each of them also violates the B-clause of the Argument Condition because the head noun of the higher relative clause and the nominal within it are not in a thematic subordination relation. Meanwhile, examples like (3a) and (4) are acceptable because of the B-clause, even though they do not conform to the A-clause. For instance, in (3a), there is a 'thematic (i.e. conventional) subordination' relation between the head *ai* ('kid') and the nominal *kangaci* ('dog'). The semantic relationship between the head nouns involved thus determines the grammaticality of 'double relative clauses.'[7]

(13) a. * $[_{RC1}$ $[_{RC2}$ e_i e_j ilkkoiss-nun] ai-ka$_j$ pappu-n] chayk$_i$
e_i e_j read-Adn child-Nom$_j$ busy-Adn book$_i$
'the book $[_{RC1}$ which$_i$ the kid $[_{RC2}$ who$_j$ e_j is reading e_i] is busy]'

b. * $[_{RC1}$ $[_{RC2}$ e_i e_j ponaycwu-n] salam-i$_j$ Seoul-ey iss-nun] senmwul$_i$
e_i e_j send-Adn person-Nom$_j$ Seoul-Loc be-Adn present$_i$
'the present$_i$ $[_{RC1}$ which$_i$ the person $[_{RC2}$ who sent e_j e_i] is in Seoul]'

Na and Huck's analysis is insightful in factoring out semantic and pragmatic effects from complicated Korean relative clauses as well as in providing an account for language differences between English and Korean. However, counterexamples to their analysis are found as soon as a wider range of data is considered.

(14) a. $[_{RC1}$ $[_{RC2}$ e_i e_j kapo-n cek-i eps-nun] talnala-ka$_j$ kuliw-un] Tom$_i$
e_i e_j go-Adn experience-Nom non_exist-Adn moon-Nom$_j$ miss-Adn Tom$_i$
'Tom $[_{RC1}$ who$_i$ misses the moon $[_{RC2}$ where$_j$ e_i has never been e_j before]]'
'Tom who misses the moon where [he] has never been before'

b. $[_{RC1}$ $[_{RC2}$ e_i e_j ticainha-n] phyoci-ka$_j$ tangsentoy-n] ku haksayng$_i$
e_i e_j design-Adn cover-Nom$_j$ selected-Adn that student$_i$
'that student $[_{RC1}$ who$_i$ the cover $[_{RC2}$ which$_j$ e_i designed e_j] was selected]'
'that student who the cover which [s/he] designed was selected'

c. * $[_{RC1}$ John-i $[_{RC2}$ e_i e_j ssu-n] sosel-ul$_j$ Mary-eykey cwu-n] cakka$_i$
John-Nom e_i e_j write-Adn novel-Acc$_j$ Mary-Dat give-Adn writer$_i$
'the writer $[_{RC1}$ who$_i$ John gave the novel $[_{RC2}$ which$_j$ e_i wrote e_j] to Mary]
'the writer who John gave the novel which [he] wrote to Mary'

In the grammatical examples (14a) and (14b), there is no thematic subordination relation between *talnala* ('moon') and *Tom* or between *phyoci* ('cover') and *haksayng* ('student'). Moreover, although the two nominals in (14c), *sosel* ('novel') and *cakka* ('writer'), are in a thematic subordination relation, the example is unacceptable. These examples show that something more is at work in determining the grammaticality of 'double relative clauses' than just the semantic relationship between the head noun of the higher relative clause and a nominal element within it.

[7]Na and Huck (1993: 203) note that their Argument Condition is rather different from the various Subjacency Conditions of Chomsky (1981, 1986) in that it is 'antecedent-oriented'. The condition tells us, given a clause head, where to look for a gap or a thematically subordinate nominal.

3 Our Proposal

3.1 Double nominative constructions

We propose an analysis of 'double relative clauses' that crucially depends on the availability of double nominative constructions in Korean, as illustrated in (15).

(15) a. ku ai-ka kangaci-ka cwuk-ess-ta.
that kid-Nom dog-Nom die-Past-Decl
'As for that kid, the dog died.'

b. ku sinsa-ka yangpok-i telep-ta.
that gentleman-Nom suit-Nom dirty-Decl
'As for that gentleman, the suit is dirty.'

Interpretation-wise, the first nominative NP is in a certain semantic relation with the second nominative NP, the exact nature of which is determined by pragmatic implicature. For instance, in (15a), the sentence is about a kid, and it implies that the dog that died belongs to the kid. In (15b), the sentence is about a gentleman, and it implies that the suit that is dirty is worn by the gentleman. Such double nominative constructions can only be formed with stative verbs or adjectives (Y.-J. Kim 1990). They cannot be formed with activity verbs as shown in (16).

(16) * ku ai-ka kangaci-ka cic-ess-ta.
that kid-Nom dog-Nom bark-Past-Decl
'As for that kid, the dog barked.'

Syntactically, we assume that the second nominative NP and the predicate form an IP, and the first nominative NP is adjoined onto this IP (cf. J. Yoon 1986, J.-M. Yoon 1989, Heycock and Lee 1989, J.-B. Kim 2001 and references therein for discussion on syntax and semantics of multiple nominative constructions in Korean). A supporting argument for this assumption is that the second nominative NP and the predicate can by themselves form a complete sentence, as shown in (17).

(17) a. kangaci-ka cwuk-ess-ta.
dog-Nom die-Past-Decl
'The dog died.'

b. yangpok-i telep-ta.
suit-Nom dirty-Decl
'The suit is dirty.'

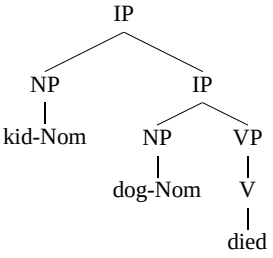
Moreover, the two nominative NPs can be separated by an adverb, as shown in (18). This fact rules out the structure where the first NP is adjoined to the second NP as a possible structure for double nominative constructions.

(18) a. ku ai-ka sasil kangaci-ka cwuk-ess-ta.
that kid-Nom frankly dog-Nom die-Past-Decl
'As for that kid, frankly, the dog died.'

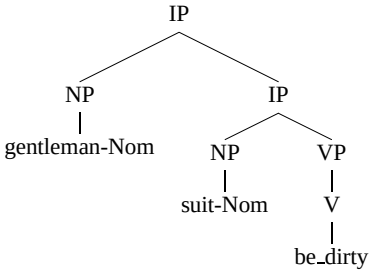
b. ku sinsa-ka onul yangpok-i telep-ta.
that gentleman-Nom today suit-Nom dirty-Decl
'As for that gentleman, today, the suit is dirty.'

The adverb placement fact indicates that there is a position available for adverbs to adjoin between the two nominative NPs. If we assume that the second nominative NP and the predicate compose to form an IP, the adverb can adjoin to this IP. The structures we assume for double nominative sentences in (15) are given in (19). For convenience, we will refer to the position for the first nominative NP as the 'IP-adjoined position.'

(19) a.



b.



Importantly, the first nominative NP in double nominative constructions can be relativized. Examples are given in (20a) and (20b).

(20) a. [$_{RC}$ e_i [kangaci-ka cwuk-un]] ai$_i$
e_i dog-Nom die-Adn kid$_i$
'the kid whose dog died'

b. [$_{RC}$ e_i [yangpok-i telew-un]] sinsa$_i$
e_i suit-Nom dirty-Adn gentleman$_i$
'the gentleman whose suit is dirty'

Moreover, the relativization of the first nominative NP involves operator movement, as evidenced by the fact that it is subject to island constraints (21).

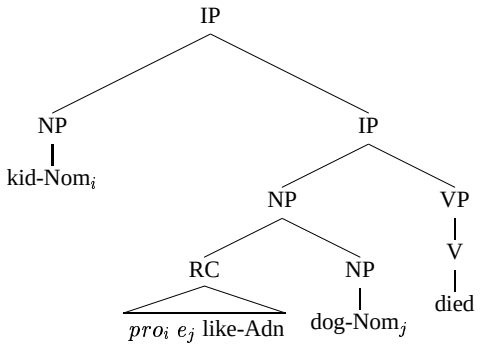
(21) * [$_{RC}$ Sue-ka papokathi [$_{CNP}$ e_i yangpok-i telep-tanun sasil-ul] molu-nun] sinsa$_i$
Sue-Nom foolishly e_i suit-Nom dirty-Adn fact-Acc not-know-Adn gentleman
'the gentleman who Sue foolishly does not know the fact that his suit is dirty'

3.2 Proposed Analysis

We propose that the source sentences for 'double relative clauses' are double nominative constructions, where the second nominative NP contains another relative clause which has an empty *pro* that is coindexed with the first nominative NP. This is illustrated in (22a) (with the corresponding tree structure in (22b)).

(22) a. ai-ka$_i$ [$_{RC}$ pro_i e_j cohaha-nun] kangaci-ka$_j$ cwuk-ess-ta.
kid-Nom pro_i e_j like-Adn dog-Nom$_j$ die-Past-Decl
'As for the kid, the dog that he liked died.'

b.

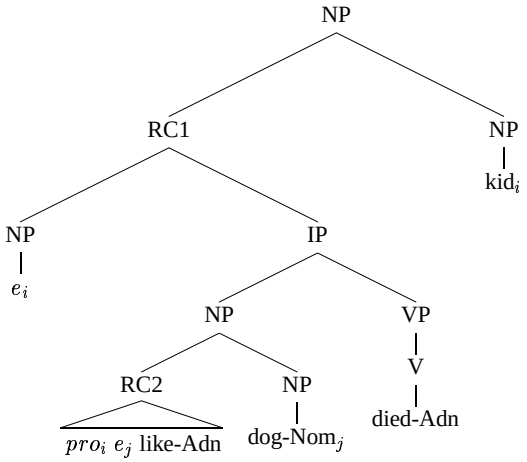


The relative clause in (22a) essentially specifies how the second NP is semantically related to the first NP. In this case, the referent of the second NP ('the dog') is something that the referent of the first NP ('the kid') likes.

By relativizing the first NP in (22a), the relative clause in (23a) (the tree structure in (23b)) is derived. Under our analysis, the problematic gap in the 'double relative clause' originates from the IP-adjoined first nominative NP position, and not from the subject position of a relative clause. Hence, no island violation has occurred.[8]

(23) a. [$_{RC1}$ e_i [$_{RC2}$ pro_i e_j cohaha-nun] kangaci-ka$_j$ cwuk-un] ai$_i$
e_i pro_i e_j like-Adn dog-Nom$_j$ died-Adn kid$_i$
'The kid whose dog which he liked died'

b.



Examples in (4) and (14a-b) are derived in the same way, as a corresponding source double nominative sentence can be constructed for each one of them.

(24) a. ku sinsa-ka cha-ka mesci-ta.
that gentleman-Nom car-Acc stylish-Decl
'As for that gentleman, the car is stylish.'

b. ku kyoswu-ka khemphwute-ka MAC-i-ta.
that professor-Nom computer-Nom MAC-Cop-Decl
'As for that professor, the computer is MAC.'

c. Tom-i talnala-ka kulip-ta.
Tom-Nom moon-Nom miss-Decl
'Tom misses the moon.'

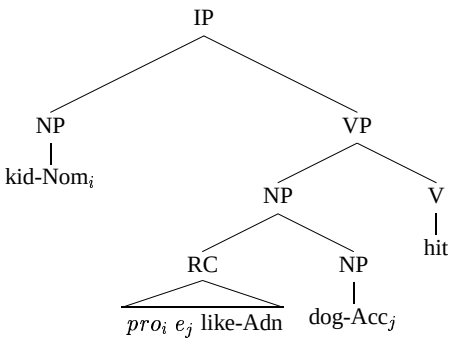
d. ku haksayng-i phyoci-ka tangsentoy-ess-ta.
that student-Nom cover-Nom selected-Past-Decl
'As for that student, the cover was selected.'

The *pro* we posit in the lower relative clause as in (23) is not a resumptive pronoun, but a regular pronoun that is subject to general co-reference conditions on pronouns independently at work in Korean. For example, a pro in an embedded clause can be coreferential with the matrix subject, as in (25a).

(25) a. ai-ka$_i$ [$_{RC}$ pro_i e_j cohaha-nun] kangaci-lul$_j$ ttayly-ess-ta.
kid-Nom pro_i e_j like-Adn dog-Acc$_j$ hit-Past-Decl
'The kid hit the dog he likes.'

[8] An anonymous reviewer has brought to our attention that H.-K. Yang (1990) proposed a similar analysis within the notion of barrierhood. See H.-K. Yang (1990) for details.

b.



This then is why the *pro* subject of *cohaha-nun* ('like-Adn') in the lower relative clause can be coreferential with the IP-adjoined nominative NP in (22) and (23a).

One piece of evidence for postulating the presence of *pro* in the lower relative clause comes from the possibility of replacing this *pro* with an overt pronominal or a reflexive, as illustrated in (26).

(26) a. ku cakka-ka [[ku-ka/caki-ka e_j ssu-n] sosel-i$_j$] manh-ta.
the writer-Nom he-Nom/self-Nom e_j write-Adn novel$_j$ many-Decl
'As for the writer, the novels he/himself wrote are many.'

b. [$_{RC1}$ e_i [$_{RC2}$ ku-ka/caki-ka e_j ssu-n] sosel-i$_j$ manh-un] cakka$_i$
e_i he-Nom/self-Nom e_j ssu-Adn novel-Nom$_j$ many-Adn writer$_i$
'the writer who the novels that he/himself wrote are many'

Accordingly, we now have an explanation for why overt pronouns in (6) are possible, in contrast to (7). The pronouns in (6) are not resumptive pronouns. They are regular pronouns coindexed with the extracted IP-adjoined first nominative NP.

An even more compelling piece of evidence comes from the fact that the *pro* position in the lower relative clause can be filled with a non-pronominal element that is not co-referential with the first nominative NP, as in (27). These examples also show that the co-reference requirement in the 'double relative clause' is pragmatic in nature: given a proper context, an example that violates this requirement can be constructed.

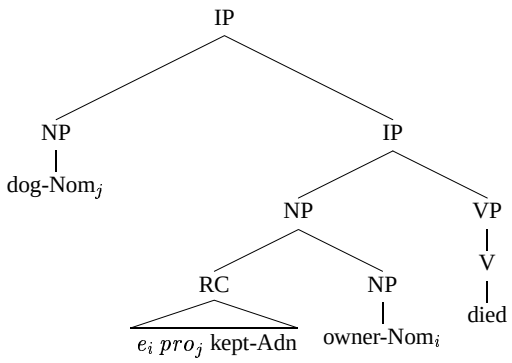
(27) a. [$_{RC1}$ e_i [$_{RC2}$ talun salam-i e_j mollay ssu-n] sosel-i$_j$ manh-un] cakka$_i$
e_i other people-Nom e_j secretly write-Adn novel-Nom$_j$ many-Adn writer$_i$
'the writer who the novels that other people wrote in secret [for him] are many'

b. [$_{RC1}$ e_i [$_{RC2}$ John-i e_j pillyekass-ten] os-i$_j$ cciceci-n] sinsa$_i$
e_i John-Nom e_j borrow_away-Adn clothes-Nom$_j$ torn_up gentleman$_i$
'the gentleman who the clothes John borrowed [from him] were torn up'

What about the cases in which object NPs seem to be able to relativize out of another relative clause, as in (10)? Under our analysis, the source sentence for this is a double nominative construction where the second nominative NP contains a relative clause and this relative clause has a *pro* object that is coindexed with the first nominative NP. An example source double nominative sentence for (10) is given in (28a) (with the corresponding tree structure in (28b)).

(28) a. ku kangaci-ka$_j$ [$_{RC}$ e_i pro_j khiwecw-n] cwuin-i$_i$ cwuk-ess-ta.
that dog-Nom$_j$ e_i pro_j kept-Adn owner-Nom$_i$ died
'As for that dog, the owner who kept him died.'

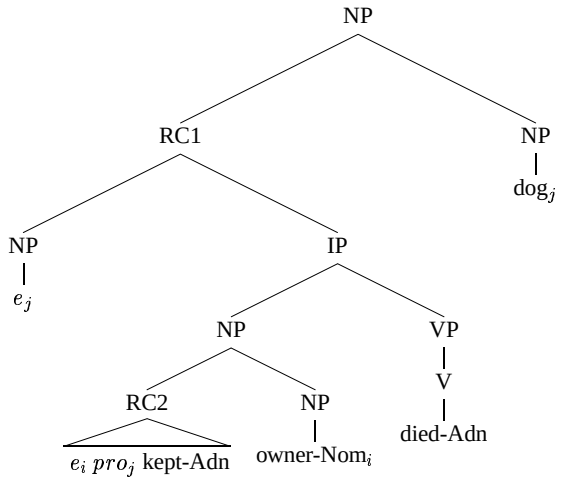
b.



By relativizing the first nominative NP, the relative clause in (29a) (the tree structure in (29b)) is derived with no island violation.

(29) a. [$_{RC1}$ e_j [$_{RC2}$ e_i pro_j khiwecwu-n] cwuin-i$_i$ cwuk-un] kangaci$_j$
e_j e_i pro_j kept-Adn owner-Nom$_i$ die-Adn dog$_j$
'the dog who the owner who kept [him] died.'

b.



Under our analysis, (9a) (repeated here as (30) with our proposed structural analysis) is degraded, not because of the syntax but because of the interpretation which is constrained by pragmatics, (30) having the same syntax as (29a).

(30) ?? [$_{RC1}$ e_j [$_{RC2}$ e_i pro_j khiwecwu-n] ai-ka$_i$ cwuk-un] kangaci$_j$
e_j e_i pro_j kept-Adn kid-Nom$_i$ died-Adn dog$_j$
'the dog which the child who kept [him] died'

While it is easy to establish a relation between *a dog* and *the owner* (as in (28a)), it is not so easy to do so between *a dog* and *the child* without any contextual information.[9]

[9] A reviewer asks why an apparent gap in an island in double nominative constructions can be treated as a pronoun coindexed with the first nominative NP, while a similar strategy of coindexing a gap in an island and a head noun of a relative clause cannot work for examples such as in (5). That is, if the structure in (ia) is possible with a coindexation between the first nominative NP and a pronoun inside an island, then why isn't (ib) possible as a derivation for island-violating examples we gave in (5)? S/he notes that this asymmetry reveals an assumption implicitly presupposed in our analysis, stated as in (ii).

(i) a. [$_{RC}$ ...t$_i$(first nominative NP)...[$_{island}$...pronoun$_i$...]...] head noun$_i$
b. [$_{RC}$ ...[$_{island}$...pronoun$_i$...]...] head noun$_i$

3.3 Further supporting arguments

Our analysis predicts that a 'double relative clause' cannot be formed if a relevant double nominative construction cannot be formed as a source. This prediction is borne out through the restriction (cf., J.-I. Han 1992) that the double relative clause formation is possible only when the lower relative clause is in a subject position. In order to form a 'double relative clause' when the lower relative clause is in an object position as in (8a) (repeated here as (31)), the source double nominative construction would have to be formed with a transitive predicate, as in (32). But double nominative constructions cannot be formed with transitive predicates. Accordingly, 'double relative clauses' cannot be formed when the lower relative clause is in an object position.

(31) * [$_{RC1}$ wuli pan haksayng-i [$_{RC2}$ ip-un] yangpok-ul po-n] sinsa
our class student-Nom wear-Adn suit-Acc see-Adn gentleman
'the gentleman who the student from our class saw the suit which [he] wore'

(32) * [$_{IP}$ sinsa-ka [$_{IP}$ wuli pan haksayng-i yangpok-ul po-ass-ta]].
gentleman-Nom our class student-Nom suit-Acc see-Past-Decl
'As for the gentleman, the student from our class saw his suit.'

The only possible source sentence for (31) then would be (33). But relativization of the subject *sinsa* ('gentleman') from the relative clause would result in island violation, hence the ungrammaticality of (8a).

(33) wuli pan haksayng-i [$_{NP}$ [$_{IP}$ sinsa-ka e_j ip-un] yangpok-ul$_j$] po-ass-ta.
our class student-Nom gentleman-Nom e_j wear-Adn suit-Acc$_j$ see-Past-Decl
'The student from our class saw the suit that the gentleman wore.'

Examples in (13) and (14c) are ruled out for the same reason: a corresponding source double nominative sentence cannot be constructed for any of them (illustrated in (34)), and alternative derivations that are not based on double nominatives would involve extraction out of islands.

(34) a. * chayk-i ai-ka pappu-ta.
book-Nom kid-Nom busy
'As for the book, the kid is busy.'

(ii) The head noun (or the empty operator) of a relative clause cannot be coindexed with a regular (null or overt) pronoun contained in an island, while the first nominative NP in a double nominative construction can be.

We clarify that our analysis is not based on such an assumption. The fact that in a double nominative construction, a pronoun in an island can be coindexed with the first nominative NP is part of a larger pattern having to do with how the relation between pronouns and their antecedents is established. In general, a pronoun in an island can be coindexed with a preceding NP, as in (iiia). And as in (iiib), a pronoun inside an island can have the gap of a relative clause as an antecedent, and in this case, the head noun and the pronoun are coindexed indirectly.

(iii) a. John-un$_i$ [$_{island}$ Sue-ka ku-lul$_i$ cohaha-n-tanun sasil-ul] molu-n-ta.
John-Top$_i$ Sue-Nom he-Acc$_i$ like-Pres-Adn fact-Acc not-know-Pres-Decl
'John does not know that Sue likes him.'

b. [$_{RC}$ t$_i$ [$_{island}$ Sue-ka ku-lul$_i$ cohaha-n-tanun sasil-ul] molu-nun] namca$_i$
t$_i$ Sue-Nom he-Acc$_i$ like-Pres-Adn fact-Acc not-know-Adn man$_i$
'the man who does not know that Sue likes him'

So, in principle, a head noun of a relative clause can be coindexed with a pronoun contained in an island, and the schema in (ib) is a possible derivation as long as there is no extraction from within the island. To us, the reason why the examples in (5) are out is orthogonal to co-reference constraints on pronouns: they are degraded because an extraction has occurred out of an island.

b. * senmwul-i salam-i Seoul-ey iss-ta.
present-Nom person-Nom Seoul-Loc be-Decl
'As for the present, the person is in Seoul.'

c. * cakka-ka John-i sosel-ul Mary-eykey cwu-ess-ta.
writer-Nom John-Nom novel-Acc Mary-Dat give-Past-Decl
'As for the writer, John gave the novel to Mary.'

Note that this restriction on 'double relative clause' formation completely rules out the resumptive pronoun analysis. If 'double relative clauses' were simply possible through the employment of resumptive pronouns, there should be no restriction on 'double relative clause' formation and examples like (31) as well as the corresponding examples with overt pronouns as in (35) should be grammatical.[10]

(35) *? [$_{RC1}$ wuli pan haksayng-i [$_{RC2}$ ku-ka$_i$ ip-un] yangpok-ul po-n] sinsa$_i$
our class student-Nom he$_i$ wear-Adn suit-Acc see-Adn gentleman$_i$
'the gentleman$_i$ whose clothes I saw [he$_i$] was wearing'

The question then is why can't 'double relative clauses' employ the resumptive pronoun strategy. We already saw in section 1 that the usage of resumptive pronouns (if possible) is highly restricted in complex NPs and adjunct clauses. We can now conclude that it is just as restricted in relative clauses.

The merit of our analysis becomes clearer when compared with Na and Huck's analysis of (36a) and (37a). They are both well-formed even though there is no subordinate relation between *salam* ('person') and *kwamok* ('course'), and *chinkwu* ('friend') and *sonye* ('girl').

(36) a. [[pomhakki-ey kaluchi-l] salam-i kyelcengtoy-n] kwamok
spring_term-in teach-Adn person-Nom determined-Adn course
'the course such that the person who will teach [it] in spring term has been determined'

b. ku kwamok-i salam-i kyelcengtoy-ess-ta.
the course-Nom person-Nom determined-Past-Decl
'As for the course, the person has been determined.'

(37) a. [[chinha-n] chinkwu-ka manh-un] sonye
close-Adn friend-Nom many girl
'the girl who has many close friends'

b. ku sonye-ka chinkwu-ka manh-ta.
the girl-Nom friend-Nom many-Decl
'As for the girl, she has many friends.'

[10] In defense of the resumptive pronoun analysis on 'double relative clauses,' an anonymous reviewer observes that the example in (31) should not be judged as ungrammatical, but merely as difficult to process because *wuli pan haksayng-i* ('our class student-Nom') which is the subject of the higher clause can be misinterpreted as the subject of the lower clause. However, we saw that a relative clause such as (iia) in footnote 3 is perfectly acceptable even though misinterpreting the subject is also in principle possible. Further, even if we rule out the possibility of misinterpreting the subject, by placing an adjunct that can only modify the higher verb in between the subject and the lower relative clause, the acceptability does not improve. This is illustrated in (i) below.

(i) */?? [$_{RC1}$ wuli pan haksayng-i changmwun-ulo [$_{RC2}$ e_i e_j ip-un] yangpok-ul$_j$ po-n] sinsa$_i$
our class student-Nom window-through e_i e_j wear-Adn suit-Acc$_j$ see-Adn gentleman$_i$
'the gentleman [$_{RC1}$ who$_i$ the student from our class saw the suit [$_{RC2}$ which$_j$ e_i wore e_j]]'
'the gentleman who the student from our class saw through the window the suit which [he] wore'

Out of the 10 native speakers we consulted, 8 speakers judged (i) ungrammatical, and 2 speakers judged it marginal. And both the speakers that judged it marginal judged (3)-(4) acceptable confirming the sharp contrast in the acceptability between the two types of configurations. We think that this contrast deserves a grammatical analysis.

To account for (36), Na and Huck make an extra proposal that the relative clause in (36a) *pomhakki-ey kaluchi-l salam* ('the teacher who will teach during the spring semester') is derived from a compound word *pomahakki-kangsa* ('spring-term-instructor') as in (38), through a morphological process. (38) satisfies the semantic condition of their Argument Condition B: *pomhakki-kangsa* ('spring term instructor') is thematically subordinate to *kwamok* ('course'). But the nature of such morphological process is far from clear.

(38) pomhakki-kangsa-ka kyelcengtoy-n kwamok
spring-term-instructor-Nom determined-Adn course
'the course such that the spring-term-instructor has been decided'

To account for (37), Na and Huck introduce an interpretive level representation called Full Interpretation and assign the structure in (39) for (37a):

(39) $[_{IP1}\ e_i\ [_{NP}\ [_{IP2}\ e_i\ e_j$ chinha-n] chinkwu-ka$_j$] manh-un] sonye$_i$
e_i $e_i\ e_j$ close-Adn friend-Nom$_j$ many-Adn girl$_i$
'the girl who the friends [she] is close to is many'
'the girl who has many close friends'

They propose that in (39), the empty category e_i in the embedded clause IP2 is first topicalized and then becomes the argument of the higher relative clause predicate *manh-un* ('many'). Thus the subject is no longer an argument of the lower clause predicate *chinha* ('be close'). This process then satisfies the syntactic condition of their Argument Condition A: that is, a gap in the relative clause should be coindexed with the relative head. But the question remains as to what the applicable domain of this syntactic process is and how a topicalized element can turn into an argument of the higher predicate from the lower predicate.

Note however that to account for (36a) and (37a), our syntactic analysis requires neither such a powerful morphological process nor an escape hatch for an additional syntactic or semantic process. The only thing we need to check is whether the highest predicate allows a multiple nominative construction or not. For us, the relative clauses in the (a)-examples in (36)-(37) are formed by relativizing the first nominative NP from the double nominative sentences in the (b)-examples.[11]

Finally, our analysis also predicts that if a language has a double nominative construction and allows *pro*-drop of the sorts presented here, it should have apparent 'double relative clauses'. This prediction is borne out by the fact that Japanese has similar types of relative clauses. The acceptability of such relative clauses is reported in Kuno (1973), as illustrated in (40).

(40) a. [[kite-iru] yoohuku-ga yogorete-iru] sinsi
wearing-is suit-Nom dirty-is gentleman
'gentleman who the suit [he] is wearing is dirty'

b. $[_{RC1}\ e_i\ [_{RC2}\ pro_i\ e_j$ kite-iru] yoohuku-ga$_j$ yogorete-iru] sinsi$_i$
e_i $pro_i\ e_j$ wearing-is suit-Nom$_j$ dirty-is gentleman$_i$

In our analysis, *sinsi* ('gentleman') has been relativized from the first nominative NP of the predicate *yogorete-iru* ('is dirty'), and the second nominative NP *yoohuku-ga* ('suit-Nom') is modified by a relative clause that contains a *pro* subject that is coindexed with the first nominative NP.

[11] An anonymous reviewer points out that the IP-adjoined nominative NP tends to be definite, but the head noun in 'double relative clauses' does not necessarily have this tendency. We note that in relative clauses, it is not the head noun that is extracted, but an empty operator. This extraction has the semantic effect of turning the relative clause into a predicate type. It has nothing to do with definiteness and hence the question of the head noun inheriting the definiteness of the source position of the empty operator does not arise. Rather, the definiteness of the head noun will depend on the context in which the noun phrase (with the relative clause) occurs within the sentence or the discourse.

4 Conclusion

In this paper, we have argued that the so-called 'double relative clause' in Korean is derived from a double nominative construction by relativizing the first nominative NP from an IP-adjoined position. We have also seen that Japanese, which is another language that has double nominative construction and *pro*-drop, allows a similar type of relativization. Under our analysis, there is no island violation in the apparent 'double relative clause' formation. Therefore, the operator movement analysis for relative clauses in Korean can be maintained.

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