Arbeitspapiere des SFB 340
Bericht Nr. 73, Februar 1996

ON WH- AND OPERATOR SCOPE IN KOREAN[1]

SIGRID BECK & SHIN-SOOK KIM

ABSTRACT. This paper presents an analysis of the interaction of *wh*-phrases and negation in Korean. We observe that a *wh*-phrase must not be preceded by a negative polarity item. This is related to the observation that in German, a *wh*-phrase must not be preceded by negation or a negative quantifier. We suggest that both languages are sensitive to a restriction that prohibits LF movement across a negation, the Minimal Negative Structure Constraint MNSC, proposed in Beck (1995a). Since a negative polarity item must always be in the scope of a negation, the MNSC covers the Korean data as well as the German facts.

Our analysis has several interesting implications for LF structures in Korean. One is that negation cannot be interpreted in its S-structure position. Another concerns the semantic effect of scrambling. Contra Saito (1989; 1992), we argue that scrambling serves to identify intended relative scope, and is thus by no means vacuous. We propose that short scrambling is never reconstructed.

1. INTRODUCTION

Korean is an SOV language with a relatively free word order derived by scrambling. While Korean is a *wh*-in-situ language, *wh*-phrases can optionally be scrambled.[2]

(1) a. Suna-ka muôs-ûl sa-ss-ni?
Suna-Nom what-Acc buy-Past-Q

1 We would like to thank Miriam Butt, Veneeta Dayal, Jung-Goo Kang, Jaklin Kornfilt, Gereon Müller, Arnim von Stechow, Wolfgang Sternefeld and the audience at the University of Groningen.

2 Throughout this paper, we use the McCune-Reischauer system of romanization to transcribe Korean examples, except that we will use ˆ instead of ˘.

ISSN 0947-6954/96
© Sigrid Beck & Shin-Sook Kim

b. muôs-ûl$_i$ Suna-ka t_i sa-ss-ni?
what-Acc Suna-Nom buy-Past-Q

'What did Suna buy?'

Now consider the following contrast:[3]

(2) a. * amuto muôs-ûl sa-chi anh-ass-ni?
anyone what-Acc buy-CHI not do-Past-Q
b. muôs-ûl$_i$ amuto t_i sa-chi anh-ass-ni?
what-Acc anyone buy-CHI not do-Past-Q

'What did no one buy?'

Here, the *wh*-phrase has to be scrambled across the negative polarity subject in order for the sentence to be grammatical. In a multiple question, all *wh*-phrases have to be scrambled across the negative polarity item (henceforth NPI):

(3) a. * amuto nuku-lûl ôti-esô manna-chi
anyone who-Acc where-Loc meet-CHI
anh-ass-ni?
not do-Past-Q
b. * nuku-lûl amuto ôti-esô manna-chi
who-Acc anyone where-Loc meet-CHI
anh-ass-ni?
not do-Past-Q
c. * ôti-esô amuto nuku-lûl manna-chi
where-Loc anyone who-Acc meet-CHI
anh-ass-ni?
not do-Past-Q
d. nuku-lûl ôti-esô amuto manna-chi
who-acc where-Loc anyone meet-CHI
anh-ass-ni?
not do-Past-Q

---

[3] The status of the verbal suffix *chi* is not clear. Some assume it to be a nominalizer (Han 1987, Kang 1988, Lukoff 1982); others call it COMP (Cho & Sells 1995, Sells 1995). We assume that there is a kind of morphological selection between the negative verb *anh-* and the embedded verb. Some more examples of such selection are: the verb *po-* meaning 'to try' selects the suffix *-ô/a* for the embedded verb (*môk-ô pota* 'try eating'); the verb *sip'-* meaning 'to want' selects *-ko* (*môk-ko sip'ta* 'want to eat'). We will leave the exact analysis of *chi* for further research .

e. ôti-esô nuku-lûl amuto manna-chi
where-Loc who-Acc anyone meet-CHI
anh-ass-ni?
not do-Past-Q

'Where did no one meet whom?'

This is strongly reminiscent of German data like (4):[4]

(4) a. * Wer hat niemanden wo angetroffen?
who has nobody where met
b. Wer hat wo niemanden angetroffen?
who has where nobody met

'Who didn't meet anybody where?'

This paper provides an explanation of the Korean contrasts along the lines of the analysis for German suggested in Beck (1995a). The basic idea is that in both German and Korean, the intended scope relations can be made visible at S-structure via scrambling. Since they can be made visible, they have to be.
The structure of this paper is as follows.
Section 2 is an empirical survey of the interaction of *wh*-phrases with negation in Korean. Section 3 briefly introduces the relevant data in German and their analysis. In section 4, we suggest structual representations for the Korean data at S-structure and at LF. It will become clear that the same constraint operating on German will give us the desired effects for Korean. Section 5 is concerned with the issue of reconstruction and a set of data closely related to the *wh*-in-situ data w.r.t. the restriction we are arguing for. In section 6, we address the question whether other scope bearing elements behave in a way similar to negation. Finally, in section 7 we look at the data from a more general perspective: the restriction suggested seems reasonable in the light of scope interaction facts in Korean in general.

2. WH-IN-SITU IN KOREAN

Korean does not have obligatory *wh*-movement at S-structure. It optionally has scrambling of *wh*-phrases. (5a) illustrates a normal *wh*-question in the unmarked word order with the subject preceding the direct object. In (5b) the

---

4 In Beck (1995a), these examples were marked with '??' rather than '*'. The '??' was supposed to stress the peculiar way in which these data are felt to be ungrammatical subjectively. We have not changed the judgment here, merely the notation for that judgment, because we want to use '??' with its usual meaning (i.e. awkwardness, but maybe not full ungrammaticality).

wh-phrase is scrambled. Both options are grammatical.

(5) a. Suna-ka muôs-ûl ilk-ôss-ni?
Suna-Nom what-Acc read-Past-Q
b. muôs-ûl$_i$ Suna-ka t_i ilk-ôss-ni?
what-Acc Suna-Nom read-Past-Q

'What did Suna read?'

This changes if the subject is negated. Korean does that by incorporating a sentential negation into the dummy verb *ha* 'do' and having a negative polarity subject "anyone". A declarative example is given in (6).

(6) a. amuto kû ch'aek-ûl ilk-chi anh-ass-ta.
anyone that book-Acc read-CHI not do-Past-Dec
b. kû ch'aek-ûl$_i$ amuto t_i ilk-chi anh-ass-ta.
that book-Acc anyone read-CHI not do-Past-Dec

'No one read that book.'

Now consider the negated question (7):

(7) a. * amuto muôs-ûl ilk-chi anh-ass-ni?
anyone what-Acc read-CHI not do-Past-Q
b. muôs-ûl$_i$ amuto t_i ilk-chi anh-ass-ni?
what-Acc anyone read-CHI not do-Past-Q

'What did no one read?'

The unmarked word order (7a) is ungrammatical. Only the scrambled version (7b) is an available well-formed option. The same effect shows up with other types of *wh*-phrases that occur after the subject in the unmarked case:

(8) a. * amuto ôti-e ka-chi anh-ass-ni?
anyone where-Dir go-CHI not do-Past-Q
b. ôti-e$_i$ amuto t_i ka-chi anh-ass-ni?
where-Dir anyone go-CHI not do-Past-Q

'Where did no one go?'

So, apparently we cannot have a *wh*-phrase linearly behind an NPI subject.

Negated questions are fine as long as there is no *wh*-phrase behind an NPI:

(9) nuku-ka amuto ch'otaeha-chi anh-ass-ni?
who-nom anyone invite-CHI not do-Past-Q
'Who didn't invite anyone?'

If the NPI object is scrambled across the subject *wh*-phrase, the sentence becomes bad:

(10)* amuto$_i$ nuku-ka t_i ch'otaeha-chi anh-ass-ni?
anyone who-Nom invite-CHI not do-Past-Q
'Who didn't invite anyone?'

Another example of this kind is given in (11). The ungrammaticality is due to the fact that the *wh*-phrase occurs behind the NPI object.

(11)* Suna-ka amuto ôti-esô manna-chi anh-ass-ni?
Suna-Nom anyone where-Loc meet-CHI not do-Past-Q
'Where did Suna meet no one?'

If the *wh*-phrase occurs before the NPI object, the sentence is fine:

(12) a. Suna-ka ôti-esô amuto manna-chi anh-ass-ni?
Suna-Nom where-Loc anyone meet-CHI not do-Past-Q
b. ôti-esô Suna-ka amuto manna-chi anh-ass-ni?
where-Loc Suna-Nom anyone meet-CHI not do-Past-Q

'Where did Suna meet no one?'

In the case of multiple *wh*-questions, all *wh*-phrases have to occur before the NPI:

(13) a. * amuto nuku-lûl ôti-esô manna-chi anh-ass-ni?
anyone who-Acc where-Loc meet-CHI not do-Past-Q
b. * nuku-lûl amuto ôti-esô manna-chi anh-ass-ni?
who-Acc anyone where-Loc meet-CHI not do-Past-Q
c. * ôti-esô amuto nuku-lûl manna-chi anh-ass-ni?
where-Loc anyone who-Acc meet-CHI not do-Past-Q
d. nuku-lûl ôti-esô amuto manna-chi anh-ass-ni?
who-Acc where-Loc anyone meet-CHI not do-Past-Q
e. ôti-esô nuku-lûl amuto manna-chi anh-ass-ni?
where-Loc who-Acc anyone meet-CHI not do-Past-Q

'Where did no one meet whom?'

So the generalization seems to be that the following configuration at S-structure is out:

(14) *[[...NPI...[...*wh*-phrase...]] Q]

It will be the purpose of the restriction to be introduced to exclude just these configurations.

3. WH-IN-SITU IN GERMAN

In this section we introduce a restriction on LF movement suggested in Beck (1995a) on the basis of *wh*-in-situ data from German. Since German is not a *wh*-in-situ language, the set of data is more limited. The data in (15) are the crucial empirical motivation for the restriction we are going to introduce.

(15) a. * *Was glaubt niemand, wen Karl gesehen hat?*
what believes nobody whom Karl seen has
'Who does nobody believe that Karl saw?'
b. * *Wen hat niemand wo gesehen?*[5]
whom has nobody where seen
'Where did nobody see whom?'
c. * *Wen hat keine Studentin von den Musikern getroffen?*
whom has no student of the musicians met
'Which of the musicians did no student meet?'

(15a) is a scope marking construction with *was* marking the scope of *wen* (see Stechow/Sternefeld 1988)[6], (15b) is a multiple question. In (15c), a restriction semantically belonging to the *wh*-phrase (*von den Musikern* 'of the musicians') is split off at S-structure.
The data in (16) show that the sentences in (15) are ungrammatical due to the occurrence of a negative quantifier, since the same constructions are fine if the negative quantifier is replaced by a proper name (here: *Luise*).

(16) a. *Was glaubt Luise, wen Karl gesehen hat?*
what believes Luise whom Karl seen has
'Who does Luise believe that Karl saw?'
b. *Wen hat Luise wo gesehen?*

---

5 The judgements for the multiple questions only refer to the reading in which the *wh*-phrase in situ is read as an interrogative phrase, of course. Sometimes it could be read as an indefinite.

6 Here, the *wh*-phrase in the embedded SpecC is not really *in situ*, of course. We will still refer to it as an situ expression for convenience.

whom has Luise where seen
'Where did Luise see whom?'

c. *Wen hat Luise <u>von den Musikern</u> getroffen?*
whom has Luise of the musicians met
'Which of the musicians did Luise meet?'

In Beck (1995a), this effect is described by the generalization in (17):

(17) An intervening negation blocks LF movement.[7]

The idea is that in each of the sentences in (15), the underlined expression - referred to as the *in situ* expression - has to be moved for semantic reasons from its S-structure position to an LF landing site outside the scope of negation. Apparently, just that movement is blocked by the intervening negation. (18) shows that what is problematic is indeed an LF relation, since the corresponding S-structural movement leads to grammatical results:

(18) a. *<u>Wen</u> glaubt niemand, daß Karl gesehen hat?*
whom believes nobody that Karl seen has
'Who does nobody believe that Karl saw?'

b. *<u>Wo</u> hat niemand Karl gesehen?*
where has nobody Karl seen
'Where did nobody see Karl?'

c. *Wen <u>von den Musikern</u> hat keine Studentin getroffen?*
whom of the musicians has no student met
'Which of the musicians did no student meet?'

That the generalization in (17) accounts for the ungrammaticality of the data in (15) is argued for in some detail in Beck (1995a) by providing the interpretations that (15) should have. Here, we will simply list the appropriate interpretations of (15a-c) (assuming a Hamblin/Karttunen semantics of interrogatives), giving a more detailed analysis only of the case of multiple questions.
(19a-c) are the denotations that (15a-c) should receive if the respective constructions are interpreted in the canonical way.[8]

---

7 For informal reference, we will uniformly talk about *nicht, niemand* and *kein* as negation.

8 The formulas in (19) and those formalizations and LFs to come are simplified in all those aspects that are irrelevant for the point to be made, i.e. they are intended to be a proper analyisis for the essential features only (those features to do with interrogative semantics). We are using an ordinary extensional language with overt world and time variables, but reference to times is suppressed where not needed. The nodes in the LFs are annotated with their interpretations.

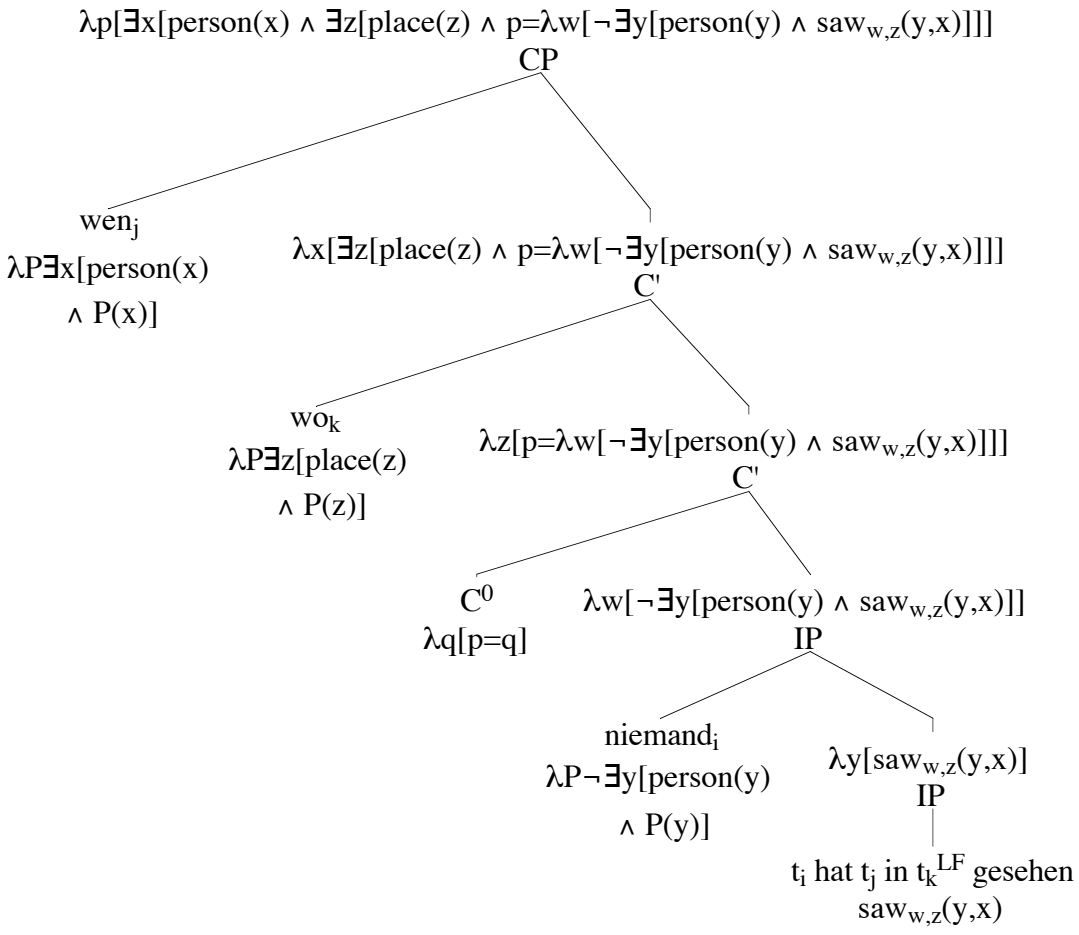
(19) a. $\lambda p \exists x[person(x) \wedge p= \lambda w'[\neg \exists y[person(y) \wedge believes'_{w'}(y,\lambda w[saw'_{w}(k,x)])]]]$

b. $\lambda p \exists x[person(x) \wedge \exists z[place(z) \wedge p= \lambda w[\neg \exists y[person(y) \wedge saw'_{w,z}(y,x)]]]]$

c. $\lambda p \exists x[person(x) \wedge x \in the_musicians' \wedge p= \lambda w[\neg \exists y[student'(y) \wedge met'_{w}(y,x)]]]$

(19a,c) are the interpretations that (15a,c) do in fact have.
The boldface expressions in the formulas in (19) correspond to the *in situ* parts in (15), that is, to the expressions that (we claim) have to be moved at LF. (19a-c) show that these expressions have to be interpreted outside the scope of the interrogative operator (which shows up as "p=" in the formulas above), and consequently, outside the scope of the negative quantifier (which has to be interpreted within the scope of the interrogative operator). We will illustrate this for the case of the multiple question (15b). In order to derive the interpretation (19b), which is the usual Hamblin/Karttunen denotation for a multiple question, the sentence should have an LF roughly like (20).

(20)



(20) is an LF for the interrogative modelled after those in von Stechow (1993a) and (1993b). The interrogative operator ("λq[p=q]") is associated with the C^0 position. In order to be interpreted as an interrogative *wh*-phrase, *wo* has to be interpreted outside the scope of this operator, and consequently, at LF, has to end up in a position structurally above the C^0 position. It leaves a trace (t_k) in the scope of negation. The relation between *wo* and its LF trace is what is according to generalization (17) blocked by *niemand*.
The offending trace in (20) and in the following examples will be marked with a superscript "LF", because it is essential that it is a trace that comes into existence only at LF.
Note that the notion of LF here is that of transparent LF (see Stechow (1993a) for the term and e.g. Heim & Kratzer (1991) for the concept). It is the input to compositional interpretation. Thus, claims about the LF landing site of an expression are motivated by the way it enters into semantic composition.
An analogous point can be made for (15a,c), i.e. for the LF landing sites of *wen* (in the scope marking construction) and *von den Musikern*. See Beck (1995a) for details. We have given the LFs that we assume the sentences have in (21).

(21) a. $[_{CP}$ *wen*$_k$ $[_{C'}$ $C^0[_{IP}$ *niemand*$_i$ $[_{IP}$ t_i *glaubt* $[_{CP}$ $t'_k{}^{LF}$ $[_{C'}$ *Karl* t_k *gesehen hat*]]]]]]

(**Was glaubt niemand, wen Karl gesehen hat?*)

b. $[_{CP}$ $[$*wen*$_j$ $[$*von den Musikern*$_k$$]]$ $[_{C'}$ C^0 $[_{IP}$ *keine Studentin*$_i$ $[_{IP}$ t_i t_j $t_k{}^{LF}$ *getroffen hat*]]]]

(**Wen hat keine Studentin von den Musikern getroffen?*)

So, in (15a-c) the *in situ* expression in each case ought to be moved at LF to a position where it can take scope over the interrogative operator. The suggestion is that this movement is blocked by an intervening negative quantifier.
We will now introduce the restriction that derives the effects of the empirical generalization (17). (22) defines the notion of a negation induced barrier, while (23) is a condition on the binding of LF traces which captures the intuitive content of (17).

(22) Negation Induced Barrier (NIB):
The first node that dominates a negative quantifier, its restriction and its

nuclear scope[9] is a negation induced barrier.

(23) Minimal Negative Structure Constraint (MNSC):
If an LF trace β is dominated by a NIB α, then the binder of β must also be dominated by α.

This is how the constraint works for (21b), the LF of (15c). The negative quantifier *keine Studentin* induces a NIB, the topmost IP (printed boldface), which dominates t_k^{LF}. The binder of that trace, $[von\ den\ Musikern]_k$ is not dominated by the NIB, thus violating MNSC. The LF is ruled out, and the sentence is ungrammatical. (20) and (21a) are analogous.
Thus, the ungrammaticality of (15a-c) is derived by a restriction on the binding of LF traces. See Beck (1995a) for more data motivating the constraint and arguments concerning its precise formulation.

4. STRUCTURAL REPRESENTATIONS

In how far the analysis for the German data carries over to Korean depends on the structural representations one would assign to the Korean *wh*-interrogatives. We will show in this section that with a set of well-motivated assumptions the analysis does in fact extend to Korean.

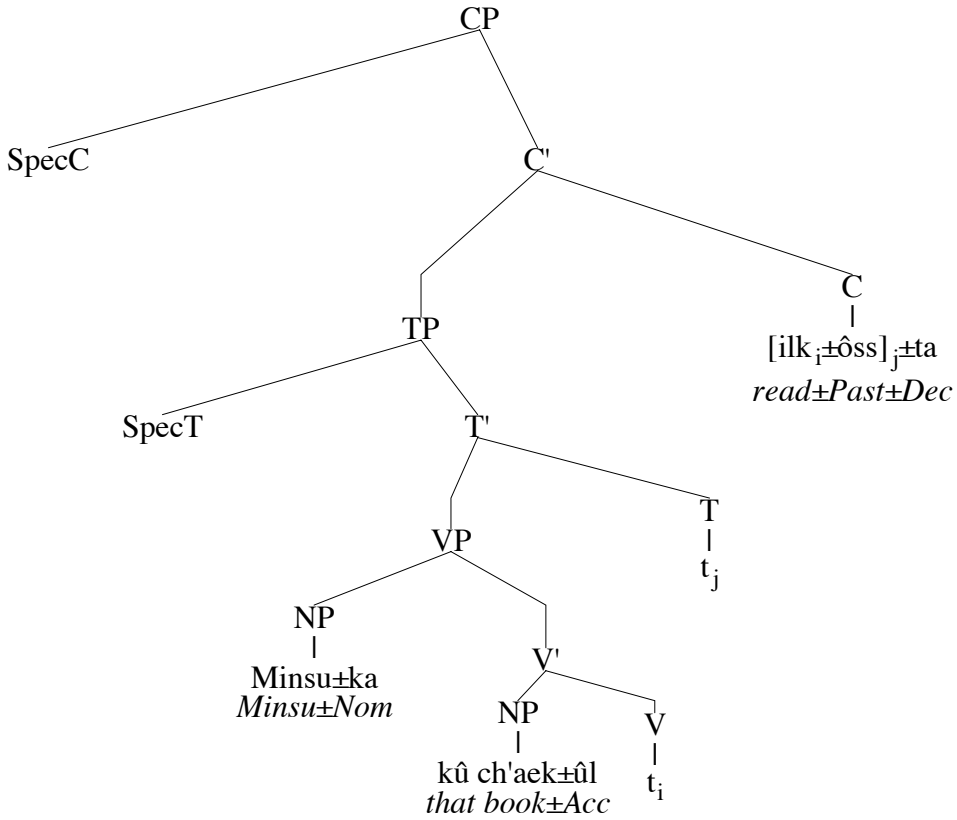
4.1. S-structure

Korean is a (strictly) head-final language in which lexical as well as functional heads come after the complements which they select. Verbal suffixes in Korean play an important role in combining clauses and marking tense, aspect, and modality.
Take an example like (24):

(24) Minsu-ka kû ch'aek-ûl ilk-ôss-ta.
Minsu-Nom that book-Acc read-Past-Dec
'Minsu read that book.'

[9] The definition is supposed to include sentence negation as an operator inducing a NIB. Compare Beck (1995a).

(25) S-structure



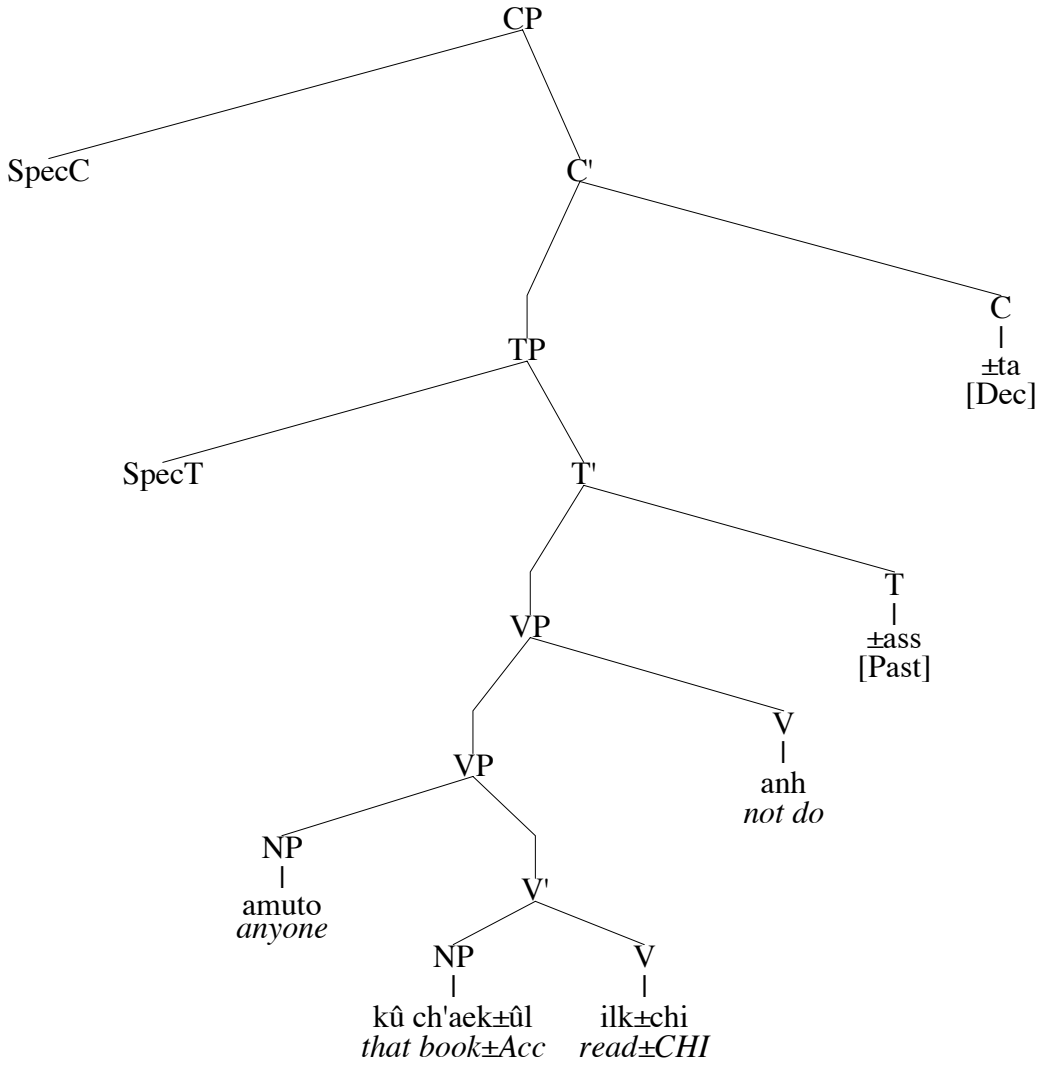
Based on data of ECM constructions and multiple nominative constructions, Heycock & Lee (1989) and Lee (1990) argue that the nominative case in Korean is not assigned by some INFL-like element, be it Tense or Agr. The nominative case *-ka* marks the syntactic subject of a predication structure which is independent of the argument structure of the clause.
There is in fact no direct evidence that the nominative case is assigned by Tense in Korean. Thus, we assume that the subject stays in its base position, i.e. [Spec, VP]. It need not move to SpecT at S-structure, since it is assigned nominative case by the predicate V'.

(26) is an example involving negation:

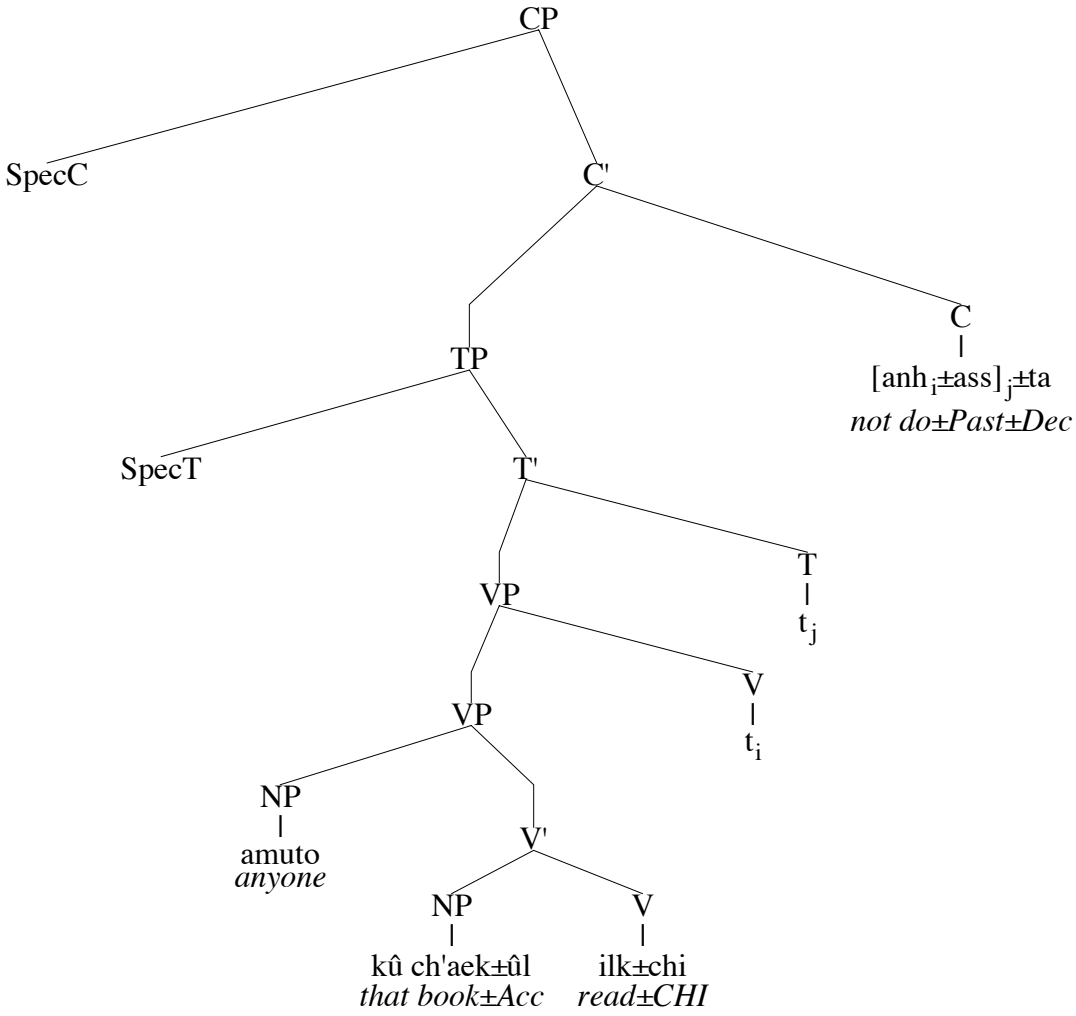
(26)	amuto	kû ch'aek-ûl	ilk-chi	anh-ass-ta.
	anyone	that book-Acc	read-CHI	not do-Past-Dec
	'No one read that book.'			

Here is the syntax we are going to assume for negation:

(27) D-structure



(28) S-structure

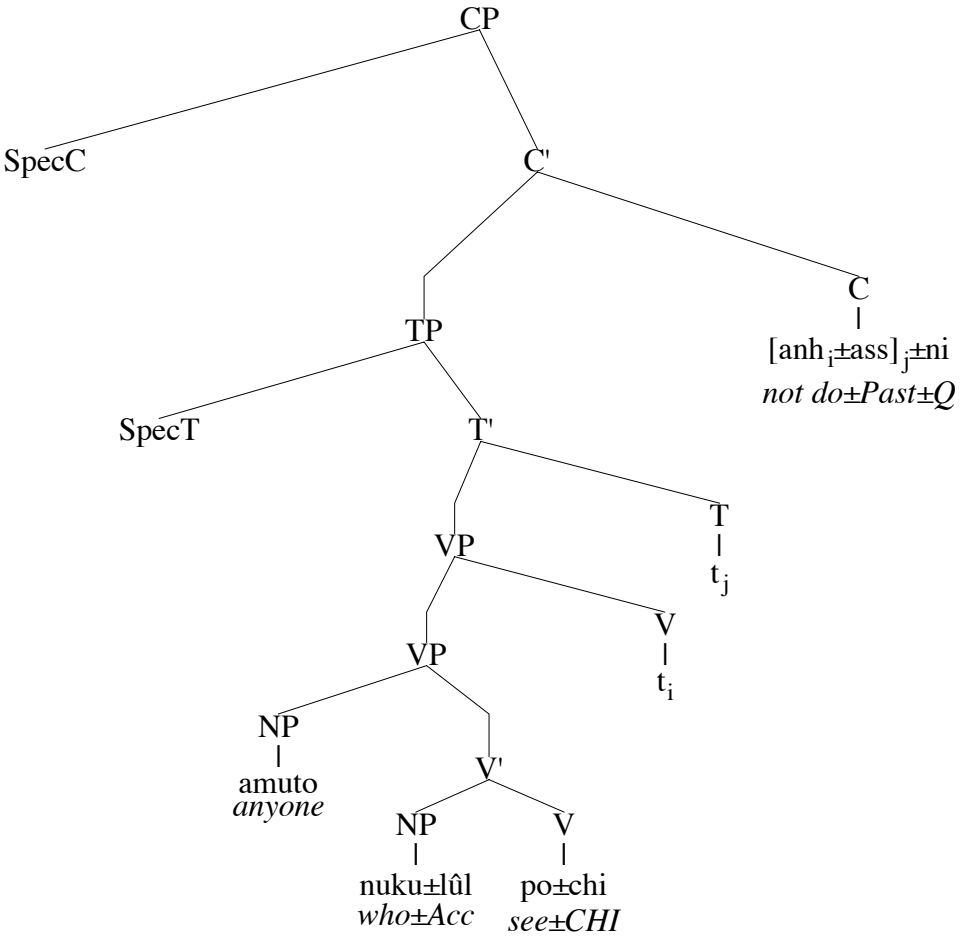


At S-structure the negation is incorporated into a finite dummy verb "do" and presumably occurs in C. We will talk about a negative verb *anh*, which we will not analyse further.

Now back to *wh*-questions. (30) and (32) are the S-structures we will assume for (29) and (31). (29) is an unmarked SO-order, while (31) is a scrambled version.

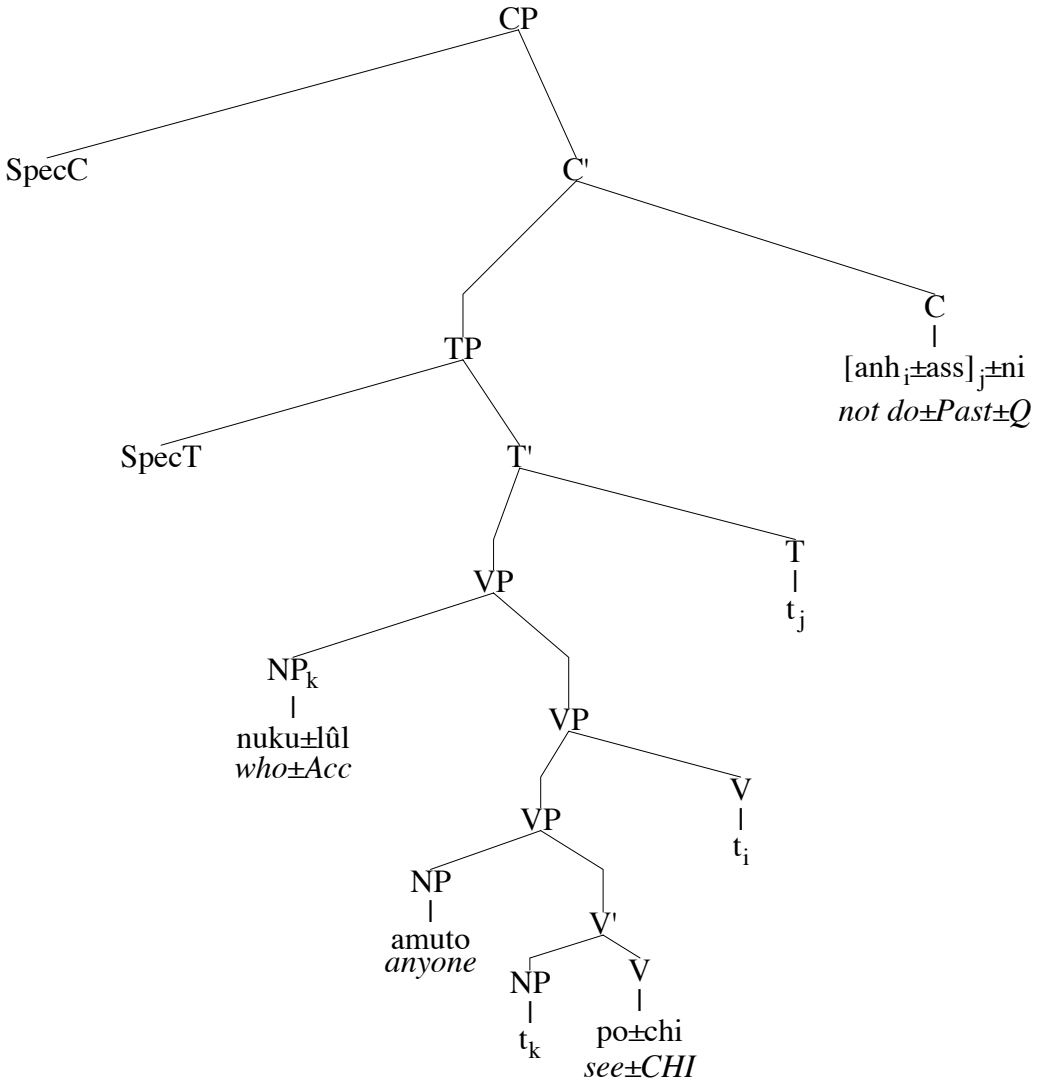
(29)* amuto nuku-lûl po-chi anh-ass-ni?
anyone who-Acc see-CHI not do-Past-Q
'Whom did no one see?'

(30) S-structure



(31) nuku-lûl$_i$ amuto t_i po-chi anh-ass-ni?
who-Acc anyone see-CHI not do-Past-Q
'Whom did no one see?'

(32) S-structure



We will assume that scrambling is (or can be) adjunction to VP.

4.2. Logical Form

Our general assumptions about Korean LFs will be the same as those we made in section 3 for German. So again, the LFs will have to be compositionally interpreted to yield the appropriate semantics (although the LF trees will not always be annotated with their interpretations when these are straightforward). Assuming a Hamblin/Karttunen semantics for interrogatives, *wh*-phrases will have to be moved at LF to SpecC or a related position above C^0. C^0 still is associated with the interrogative operator, which in Korean is overtly realized by *ni*.

The aspect of our logical forms that will neccessitate most discussion is the LF position of negation. We argue for an abstract view of negation, i.e. what is morphologically visible as a negative particle does not correspond directly to semantic negation. Let us elaborate this.

While at S-structure, both negation and interrogative marker are reflected morphologically on the verb, they have to be seperated for compositional interpretation. Consider (33):

(33) manhûn ai-tûl-i o-chi anh-ass-ni?
many child-PL-Nom come-CHI not do-Past-Q
'Did many children not come?'

The sentence expresses the question in (34a), which can be paraphrased as in (34b):

(34) a. $\lambda p[p= \lambda w\ \exists X[many_w(X) \& children_w(X) \& \neg come_w(X)]$
$\vee\ p= \lambda w \neg \exists X[many_w(X) \& children_w(X) \& \neg come_w(X)]]$
b. Is it the case that there were many children who did not come?

Note that in (34a) the interrogative operator and the negation are seperated. In this particular example, they are seperated by *many children*, which takes scope under the interrogative operator and above negation. So "NEG Verb Q" cannot be interpreted as one meaningful unit. The point can be made with arbitrary scope bearing elements.

(35) is a similar example with a *wh*-question:

(35) a. manhûn ai-tûl-i ôti-e ka-chi
many child-PL-Nom where-Dir go-CHI
anh-ass-ni?
not do-Past-Q
b. ôti-e$_i$ manhûn ai-tûl-i t$_i$ ka-chi
where-Dir many child-PL-Nom go-CHI
anh-ass-ni?
not do-Past-Q

'Where did many children not go?'

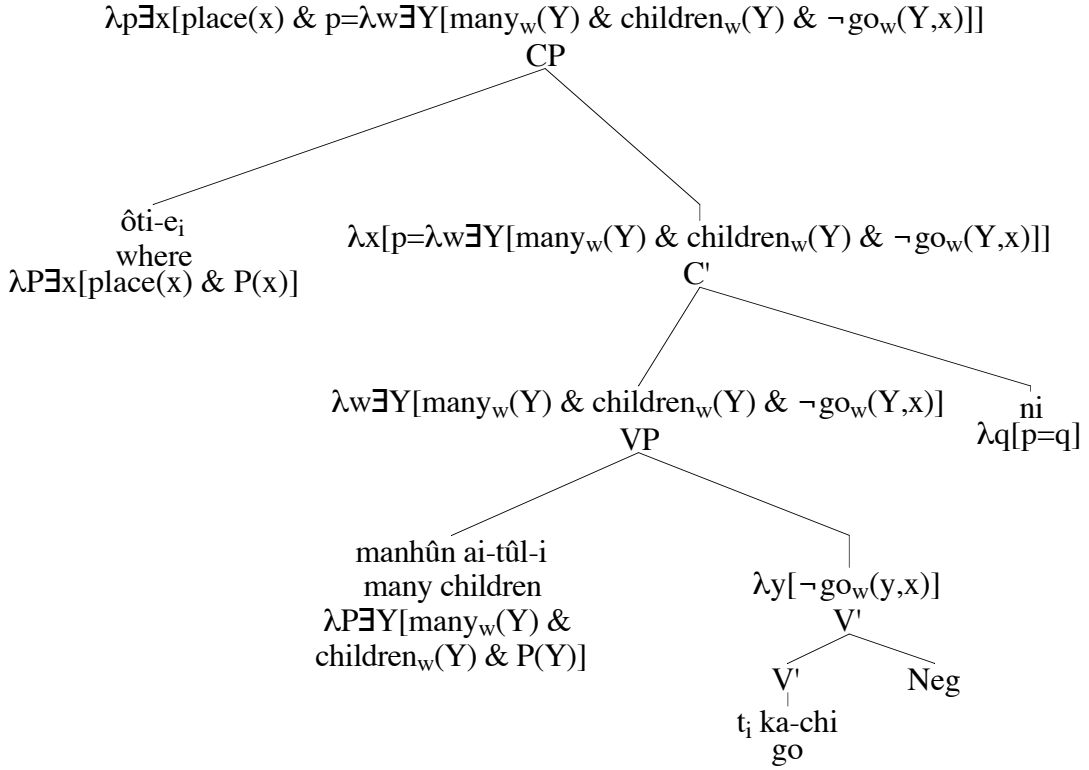
The interpretation we are after is (36). It can be derived via an LF like (37).[10]

[10] We provide an LF for the more complex example with the *wh*-phrase rather than for

(36) a. λpƎx[place(x) & p=λwƎY[many$_w$(Y) & children$_w$(Y) & ¬go$_w$(Y,x)]]

b. 'For which place x: there were many children who did not go to x.'

(37)



Again, the NP *many children* takes scope below the interrogative operator and above negation. So the interrogative operator and the negation have to be seperated at LF. Assuming that *ni* is the lexicalization of the interrogative operator "λq[p=q]", and that this operator is associated with C^0, the LF position of the negation is lower than C^0, since the negation has to be interpreted in the scope of this operator.

So S-structure position and LF position of negation in Korean have to be dissociated. There are various ways to go about this. One possibility would be to assume movement at LF. However, we believe that it is more insightful to acknowledge that in Korean, the relation of morphological negation and semantic negation is somewhat more abstract. Thus, we propose that the negative verb *anh* takes as its complement a VP that contains a semantic negation. It does not itself express negation, but is semantically empty. It makes the semantic negation within its complement VP visible. We will

---

the Yes/No question because we don't want to discuss the logical from of Yes/No questions here.

assume that the semantic negation is adjoined to a verbal projection - it is basically an adverb (this concerns LF in particular, as we will see in a minute, but negation should presumably be already included in our S-structure representations). We will not assume a fixed LF position (like the Spec of NegP), so there is an element of choice here.
There is a second type of negation in Korean (called "short form negation" in the literature) which supports the analysis as some sort of adverb, cf. (38).

(38) a. Minsu-ka kû ch'aek-ûl an ilk-ôss-ta.
Minsu-Nom that book-Acc not read-Past-Dec
'Minsu did not read that book.'
b. nuku-lûl$_i$ amuto t_i an po-ass-ni?
who-Acc anyone not see-Past-Q
'Whom did no one see?'

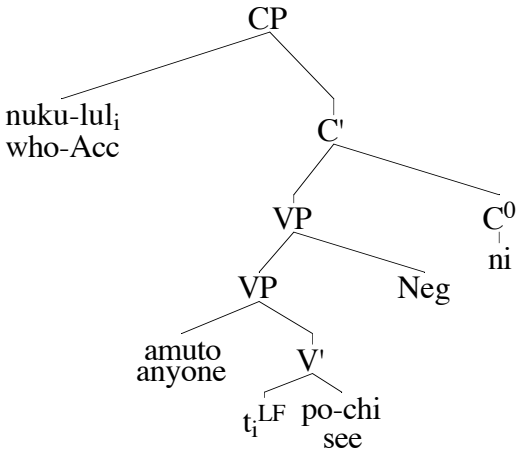
Here, negation seems visibly an adverb at S-structure.

For a question like (39),

(39)* amuto nuku-lûl po-chi anh-ass-ni?
anyone who-Acc see-CHI not do-Past-Q
'Whom did no one see?'

we will thus assume an LF as in (40):

(40)



A few more comments on (40):

We assume that the verbs get translated as an open sentence. How argument slots get identified with arguments is on this view not a matter of the functional structure of the verb, but a matter of syntax. See Büring (1995) and Sternefeld (1995) for this analysis.

If the verb is an open sentence, there is no neccessity for type-driven QR. We can therefore interpret quantifiers in their S-structure positions.
Moreover, our assumption that negation can be adjoined to any V-projection makes sense, since any V-projection is a sentence and can be combined with negation.
We have simply deleted the negative verb *anh*, since it is meaningless anyway. We have also ignored the entire TP level for convenience.

In (39), we consider a sentence containing a negation and a negative polarity item (expressing something equivalent to a negative quantifier). It is well known that a negative polarity item occurs only in the scope of negation (see e.g. Ladusaw (1981)). In this sense, the NPI makes the scope of the negation visible, since the negation has to have scope over the NPI in order for the NPI to be licensed.
The LF in (40) satisfies the licensing conditions of the NPI. However, the *wh*-trace occurs at LF in the NIB (the VP dominating *Neg*) while its binder *nuku* 'who' does not. Therefore, the LF violates the MNSC. The definitions of NIB and MNSC are repeated below:

(22) Negation Induced Barrier (NIB):
The first node that dominates a negative quantifier, its restriction and its nuclear scope is a negation induced barrier.

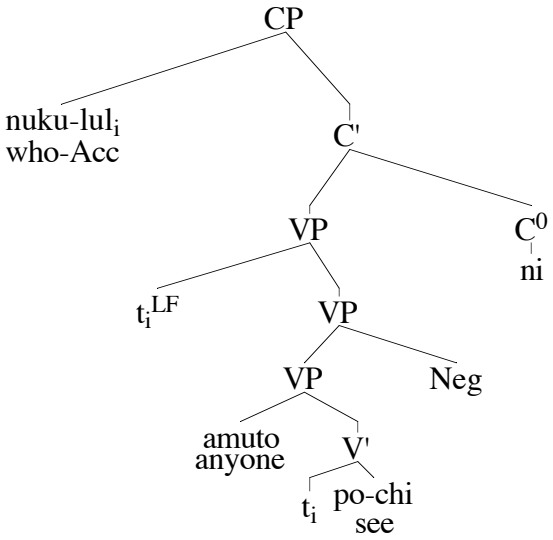
(23) Minimal Negative Structure Constraint (MNSC):
If an LF trace β is dominated by a NIB α, then the binder of β must also be dominated by α.

Any LF in which the negation would occur in a position below the *wh*-trace would not meet the licensing requirement of the NPI. So (39) is ungrammatical, because it does not have a grammatical LF.
Now consider (41). The object *wh*-phrase is now scrambled to a position higher than the NPI subject, and the sentence is grammatical.

(41) nuku-lûl$_i$ amuto t_i po-chi anh-ass-ni?
who-Acc anyone see-CHI not do-Past-Q
'Whom did no one see?'

(42) is an LF for (41):

(42)

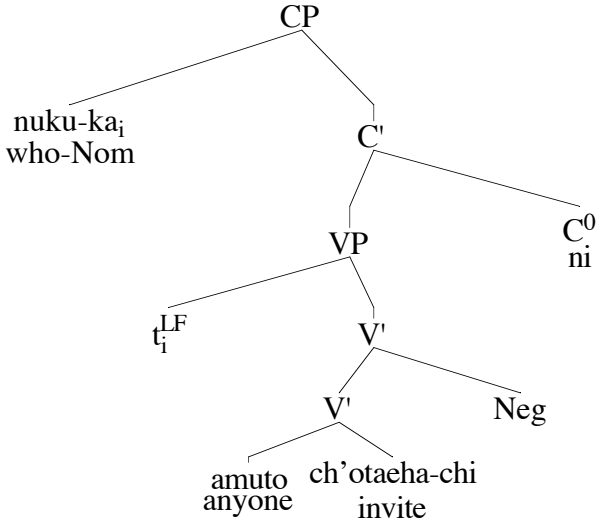


In this LF, we can safely assume that the negation is in a position to license the NPI. This can still be a position structurally below the LF-trace of the *wh*-phrase, as indicated in (42). So (42) is a grammatical LF for (41), that violates neither the licensing condition for the NPI nor the MNSC. There are other potential LFs for (41) (with various adjunction sites for the negation) which will violate either MNSC or the licensing condition for the NPI. The point is that there is also a grammatical LF for the sentence.
Thus, if we assume that MNSC holds for Korean as well as German, the contrast between (39) and (41) is to be expected.

(44) is the LF we propose for example (43) with a *wh* subject and an NPI object:

(43) nuku-ka amuto ch'otaeha-chi anh-ass-ni?
who-Nom anyone invite-CHI not do-Past-Q
'Who did not invite anyone?'

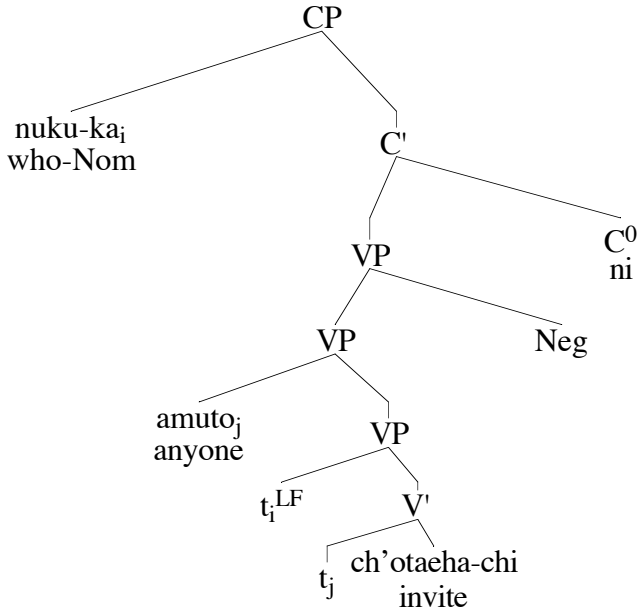
(44)



Again, we have the option of adjoining the negation to a V projection lower than the position of the LF-trace of the *wh*-phrase, which leads to a grammatical LF. In the scrambled version (45), in contrast, this is impossible. Any LF that licenses the NPI (like (46)) clashes with the MNSC.

(45)* amuto$_i$ nuku-ka t_i ch'otaeha-chi anh-ass-ni?
anyone who-Nom invite-CHI not do-Past-Q
'Who did not invite anyone?'

(46)



It should be obvious that the MNSC covers the data considered in section 2. The foundation of our analysis is the assumption of a close correspondence between linear order, syntactic structure and scope. Whenever a *wh*-phrase precedes an NPI at S-structure, there is an adjunction site for the negation that c-commands the NPI, but not the S-structure position of the *wh*-phrase. Whenever the NPI precedes the *wh*-phrase, there is no adjunction site for the negation that would license the NPI without inducing an MNSC violation. Thus, the MNSC characterizes a violation that comes about when the intended scope relations are not made transparent enough at S-structure.

We would like to stress that some of the assumptions we have been making are not neccessary for our analysis to work, but have been made in order to come up with a concrete proposal. In some cases, a different set of assumptions would have worked as well. For example, we could have assumed obligatory movement of arguments at S-structure to case positions. Then it would not have been necessary to introduce the verb as an open sentence in order to be able to interpret quantified arguments in their S-structure positions. The important assumptions are the following:

We have to assume a fairly close connection between S-structure and LF positions. Thus, there is no obligatory QR. This reflects the observation that it is plain linear order that makes all the difference between grammaticality and ungrammaticality. We have here suggested that set of assumptions that accounts for this observation which seemed simplest to us. Other solutions are of course possible.
Secondly, it is important that negation is reconstructed in some sense from its S-structure position and that there is a certain freedom in what LF positions it can have. If it always went to NegP, for instance, we could not have accounted for the data the way we did.

4.3. A few further consequences

Our assumptions about the LF position of the negation lead us to expect that *wh*-interrogatives with a simple sentential negation like (47) are grammatical:

(47) a. Suna-ka ônû ch'aek-ûl tosôkwan-e pannapha-chi
Suna-Nom which book-Acc library-Dir bring back-CHI
anh-ass-ni?
not do-Past-Q
b. 'For which book x: Suna did not bring x back to the library.'

This is because there is a grammatical LF for the sentence in which the negation is adjoined to a position lower than the S-structure position of the *wh*-phrase. The expectation is borne out.

There is a case with plain sentential negation in which it is nonetheless clear that the surface position of a *wh*-phrase is in the scope of the negation, namely in "long" *wh*-questions.
Korean allows "long" *wh*-questions, in which the *wh*-phrase can remain *in situ* in the embedded clause, cf. (48) and (49):

(48) Suna-nûn [Mira-ka nuku-lûl po-ass-ta-ko] saengkakha-ni?
Suna-Top Mira-Nom who-Acc see-Past-Dec-C think-Q
'Who$_i$ does Suna think Mira saw t$_i$?'

(49) Suna-nûn [Mira-ka ch'aek myôch' kwôn-ûl
Suna-Top Mira-Nom book how many CL-Acc
ilk-ôss-ta-ko] saengkakha-ni?
read-Past-Dec-C think-Q
'How many books$_i$ does Suna think Mira read t$_i$?'

It is also possible to long-distance scramble the *wh*-phrase, as in (50) and (51):

(50) nuku-lûl$_i$ Suna-nûn [Mira-ka t_i po-ass-ta-ko]
who-Acc Suna-Top Mira-Nom see-Past-Dec-C
saengkakha-ni?
think-Q
'Who$_i$ does Suna think Mira saw t_i?'

(51) [ch'aek myôch' kwôn-ûl]$_i$ Suna-nûn [Mira-ka t_i
book how many CL-Acc Suna-Top Mira-Nom
ilk-ôss-ta]-ko saengkakha-ni?
read-Past-Dec-C think-Q
'How many books$_i$ does Suna think Mira read t_i?'

Note that in both cases the only possible interpretation is as a matrix question, since the matrix clause is marked as interrogative and the embedded clause as declarative.

In cases where the matrix sentence is marked as interrogative and has a negation in the verbal complex, and a *wh*-phrase is located in an embedded sentence marked declarative, it is clear that the LF-position of the negation has to be structurally above the S-structure position of the *wh*-phrase. This means: At LF, the *wh*-phrase should be moved over the negation to the matrix SpecC. The negation in the matrix sentence seems to block this movement.

(52) a. * Suna-nûn [Mira-ka ch'aek myôch' kwôn-ûl
Suna-Top Mira-Nom book how many CL-Acc
ilk-ôss-ta-ko] saengkakha-chi anh-ni?
read-Past-Dec-C think-CHI not do-Q
'How many books$_i$ doesn't Suna think Mira read t_i?'

b. * Suna-nûn [Mira-ka nuku-lûl po-ass-ta-ko]
Suna-Top Mira-Nom who-Acc see-Past-Dec-C
saengkakha-chi anh-ni?
think-CHI not do-Q
'Who$_i$ doesn't Suna think Mira saw t_i?'

c. * Suna-nûn [Mira-ka wae tosôkwan-e ka-ss-ta-ko]
Suna-Top Mira-Nom why library-Dir go-Past-Dec-C
saengkakha-chi anh-ni?
think-CHI not do-Q
'Why$_i$ doesn't Suna think Mira went to the library t_i?'

As mentioned above, we can scramble complement-*wh*'s long-distance in

Korean. Scrambling the *wh*-phrases remedies the ungrammaticality:[11]

(53) a. [ch'aek myôch' kwôn-ûl]$_i$ Suna-nûn [Mira-ka
book how many CL-Acc Suna-Top Mira-Nom
t$_i$ ilk-ôss-ta]-ko saengkakha-chi anh-ni?
read-Past-Dec-C think-CHI not do-Q

a' 'For which number n: there are n books which Suna does not think Mira read.'

b. nuku-lûl$_i$ Suna-nûn [Mira-ka t$_i$ po-ass-ta]-ko
who-Acc Suna-Top Mira-Nom see-Past-Dec-C
saengkakha-chi anh-ni?
think-CHI not do-Q

b'. 'For which person x: Suna does not think Mira saw x.'

Obviously, (52) violate the MNSC, while (53) do not. The MNSC thus accounts for these data as well.

We conclude that the MNSC restricts LF *wh*-movement in Korean as well as in German.

4.4. Semantic effects of scrambling

The fact that the S-structural linear order seems crucial for the scope order of quantifier phrases (including *wh*-phrases) both in Korean and in German makes one think about the semantic effect of scrambling. Saito (1989; 1992), among others, assumes that scrambling has no semantic effect and that scrambled elements can be reconstructed to their D-structure positions at LF (scrambling is regarded as semantically vacuous A'-movement. cf. Saito (1989)).[12] According to this, the scrambled phrase *kû ch'aek-ûl* in (54) may be reconstructed to its trace position at LF for the interpretation.

(54) kû ch'aek-ûl$_i$ Suna-nûn [Mira-ka t$_i$ ilk-ôss-ta-ko]
that book-Acc Suna-Top Mira-Nom read-Past-Dec-C

---

[11] It is generally assumed that adjuncts cannot be scrambled long-distance. Thus scrambling the adjunct *wae* ('why') in (52c) out of the embedded clause does not improve the grammaticality of the example.

[12] But see Saito (1994). In contrast to Saito (1989) who proposed that scrambling can be semantically vacuous and hence can be freely undone at LF, Saito (1994) argues, based on some data related with functional interpretation of *wh*-phrases, that there are cases where scrambling necessarily creates a semantically significant operator-variable relation. The established relation is retained at LF.

saengkakha-n-ta.
think-Pres-Dec
'That book$_i$, Suna thinks that Mira read t$_i$.'

Now consider an example of a scrambled *wh*-phrase:

(55) nuku-lûl$_i$ Suna-ka t$_i$ po-ass-ni?
who-Acc Suna-Nom see-Past-Q
'Whom did Suna see?'

We assume that the *wh*-phrase should move to SpecC at LF in order to get scope. For (55) there can be two possible derivations:
(i) The scrambled *wh*-phrase is first reconstructed to its D-structural position, as in the case of (54), (if scrambling has no semantic effect, as Saito argues, this should be allowed) and subsequently moved to SpecC; (ii) The scrambled *wh*-phrase is moved directly to SpecC.

We want to distinguish between two possible interpretations of the alleged semantic vacuity of scrambling:
(i) Scrambling is obligatorily reconstructed, that is, there is no derivation in which scrambling isn´t first undone.
(ii) Scrambling is optionally reconstructed, i.e. there is a derivation in which scrambling is undone (plus possible other derivations in which it isn´t).

The cases with an NPI element blocking *wh*-movement at LF show that the first interpretation is not desirable.

(56) a. * amuto nuku-lûl po-chi anh-ass-ni?
anyone who-Acc see-CHI not do-Past-Q
b. nuku-lûl$_i$ amuto t$_i$ po-chi anh-ass-ni?
who-Acc anyone see-CHI not do-Past-Q
'Whom did no one see?'

If the scrambling movement in (56b) had to be totally undone at LF, there would be no way to distinguish (56b) from (56a) at LF. In both cases, the *wh*-phrase should be moved over the NPI subject to get to SpecC. This is not what we want.
Thus, for (56b) there has to be a derivation in which the scrambled *wh*-phrase is not reconstructed to its trace position, but is moved directly to SpecC at LF to get its scope. This movement does not cross the NPI and is thus fine.
For (56a), however, there exists no derivation where the *wh*-phrase gets to its scope position without crossing the NPI element. The only possible derivation

for the *wh*-phrase to get to its scope position is to move over the NPI subject, which results in a violation of MNSC.

The following examples also illustrate the same point:

(57) a. * Suna-nûn [amuto nuku-lûl ch'otaeha-chi anh-
Suna-Top anyone who-Acc invite-CHI not do-
ass-nûnchi] a-n-ta.
Past-Q know-Pres-Dec

b. Suna-nûn [nuku-lûl$_i$ amuto t_i ch'otaeha-chi
Suna-Top who-Acc anyone invite-CHI
anh-ass-nûnchi] a-n-ta.
not do-Past-Q know-Pres-Dec

c. nuku-lûl$_i$ Suna-nûn [amuto t_i ch'otaeha-chi
who-Acc Suna-Top anyone invite-CHI
anh-ass-nûnchi] a-n-ta.
not do-Past-Q know-Pres-Dec

'Suna knows whom no one invited.'

The ungrammaticality of (57a) results from the fact that the *wh*-phrase must be moved over the NPI to get to the embedded SpecC at LF. This movement violates the MNSC. In (57b), the *wh*-phrase is scrambled over the NPI at S-structure, and the sentence is fine. At LF the *wh*-phrase is moved from its S-structural position to the embedded SpecC without crossing the NPI subject. In (57c), the *wh*-phrase is long-distance scrambled out of the embedded interrogative sentence. Since the matrix sentence is marked as declarative, the *wh*-phrase cannot be licensed in its S-structural position. It should be reconstructed to SpecC of the embedded sentence marked as interrogative. This shows that even when we have to have reconstruction, it is not obligatorily to the base position. Here too, if the *wh*-phrase had to be reconstructed to its trace in base position and then moved to SpecC of the embedded sentence, this movement would violate the MNSC, and the sentence should be ungrammatical, which in fact is not the case.

The above observations exclude the first option, obligatory reconstruction. They are compatible with the second option (optional reconstruction), because there would still be one derivation without reconstruction. However, consider (10) from section 2:

(10)* amuto$_i$ nuku-ka t_i ch'otaeha-chi anh-ass-ni?
anyone who-Nom invite-CHI not do-Past-Q
'Who didn't invite anyone?'

If it were possible to reconstruct the scrambled NPI object, the sentence would have a well-formed LF. The negation could have scope over the base position of the NPI (to which the latter got reconstructed, thus fulfilling the licensing conditions for the NPI) without blocking the LF *wh*-movement of the *wh*-subject.
Even optional reconstruction of short scrambling in cases like (10)[13] is thus incompatible with our analysis. We suggest that within one simple sentence scrambling is never undone.
Thus, scrambling does have a semantic effect (contra Saito (1989; 1992)).

5. NEGATIVE ISLANDS AND RECONSTRUCTION

In this section, we focus on data discussed in the literature as negative island effects. It has been argued in Beck (1995b) that the negative island effect is captured by MNSC. We will give a summary of this result. The main point is that negative island data are structurally identical in the relevant respects to the *wh*-in-situ data discussed in sections 2-4. Since Korean seems to observe MNSC, this leads us to expect that the negative island effect will be manifest in Korean as well. This prediction is borne out. Moreover, Korean offers data that have a bearing on the issue of reconstruction and on the way MNSC excludes the relevant structures.
We will first discuss negative islands and reconstruction and then turn to Korean.

5.1. Negative Islands - effect (German) and explanation (MNSC)

Data like (58) have been discussed in the recent literature under the heading of negative islands:

(58) Wieviele Hunde hat Karl nicht gefüttert?
How many dogs has Karl not fed
'How many dogs didn´t Karl feed?'

(59) a. For which n: there are n dogs that Karl didn´t feed.
b. For which n: It is not the case that Karl fed n dogs.

The island effect to be observed is that of the two potential readings (59a) and (59b) of (58), only (59a) is available (cf. Rullmann (1995) and others). The

[13] Since Korean allows long scrambling (of various types of constituents) we don´t want to generalize the claim that scrambling is not reconstructed to all cases. We do not fully foresee the consequences of such a claim. But with (57c), for instance, we have already assumed that long scrambling may be undone.

non-available reading will also be referred to as the *inner* reading (cf. Ross (1984)). Various explanations have been suggested for this phenomenon, ranging from syntactic (Rizzi (1990)) to semantic (Rullmann (1995), Szabolsci and Zwarts (1993)) and pragmatic (Kroch (1989)). We will not discuss all these alternative proposals here (see e.g. Rullmann (1995) and Beck (1995b) for discussion). Rather, we will introduce the explanation for this effect discussed in Beck (1995b), since it relates directly to the MNSC and the data discussed so far.

It has been observed that *how many* phrases are semantically more complex than, for instance, *which* phrases, in that they involve two independent scope bearing elements (see e.g. Cresti (1995), Stechow (1993), Rullmann (1995)). The semantics of (60) is given in (61):

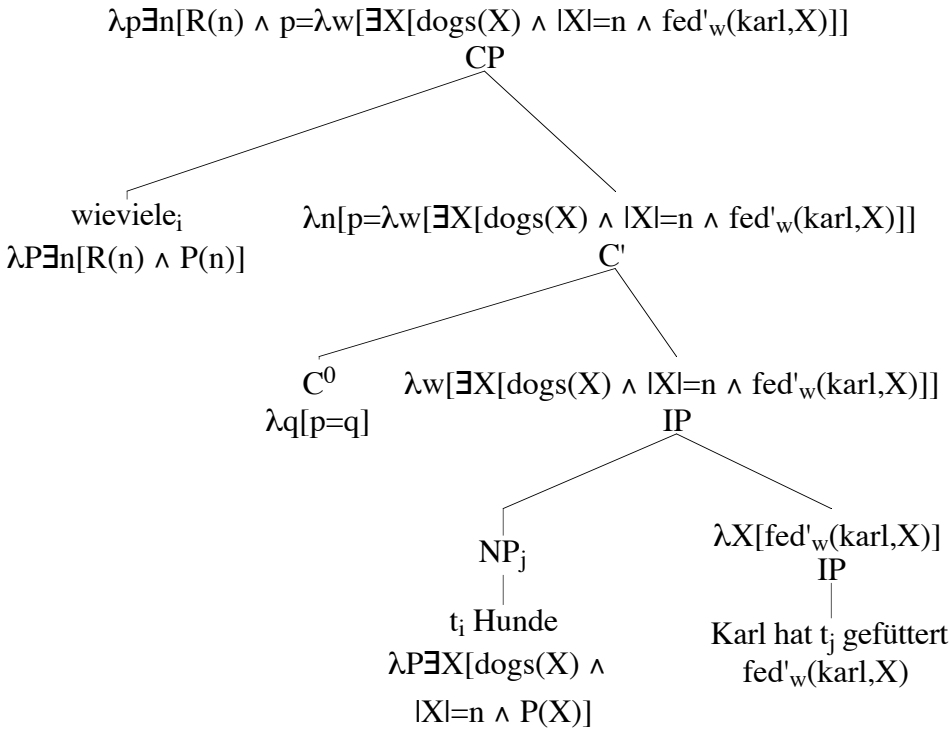
(60) Wieviele Hunde hat Karl gefüttert?
How many dogs has Karl fed
'How many dogs did Karl feed?'

(61) a. For which n: Karl fed n dogs.
b. $\lambda p \exists n[R(n) \wedge p = \lambda w[\exists X[dogs'(X) \wedge |X|=n \wedge [fed'_w(k,X)]]]]$

The semantically interrogative part "for which n" has to be separated from the indefinite part "n dogs". The indefinite part occurs within the scope of the interrogative operator, while the interrogative part does not. Since the interrogative operator is associated with the C position, this separation is done via reconstruction. This will be called semantically motivated reconstruction.

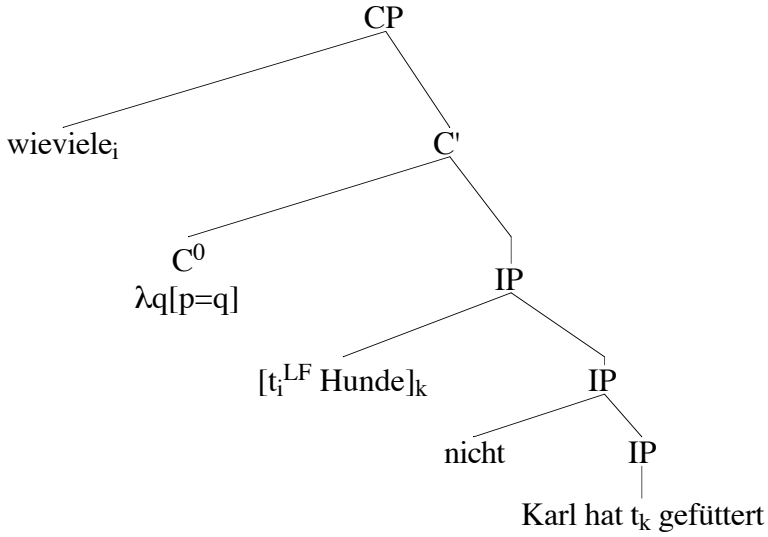
Rullmann and Cresti introduce a type raising mechanism for this reconstruction process. In Beck (1995b) a different course is persued: reconstruction is done in the syntax of logical form. The LF suggested for (60) in this approach is given in (62).

(62)



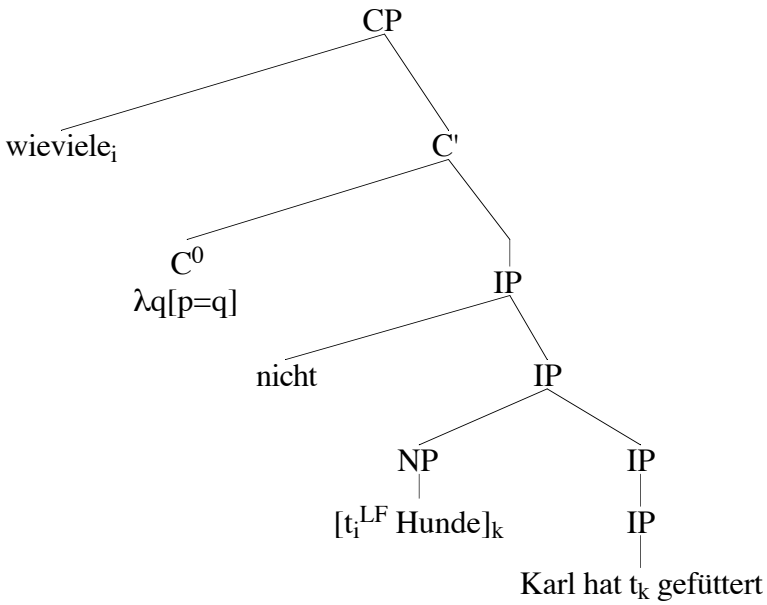
Now consider (63) and (64), the two logical forms corresponding to readings (59a) and (59b) of (58):

(63)



For which n: there are n dogs that Karl didn´t feed.

(64)



For which n: It is not the case that Karl fed n dogs.

In the LF of the nonavailable reading, the material that got reconstructed (*[t Hunde]*), contains an LF trace. This trace is contained in the NIB induced by *nicht* (the IP dominating *nicht*), while its binder is not. Thus (64) violates the MNSC. The LF is correctly excluded.
(64) and (39) from section 4 are structurally similar because the material that is reconstructed contains an LF trace. It is thus impossible to reconstruct that material into the scope of a negative operator, since the resulting configuration is in the relevant aspects identical to one resulting from LF upward movement across a negation - which is prohibited by the MNSC.
Thus, under the assumption that semantically motivated reconstruction occurs at LF, the MNSC derives the negative island effect. See Beck (1995b) for more data and the details of the analysis.

5.2. Negative Islands in Korean

In the preceding subsection, we have argued that the LF for the inner reading in negative island contexts is structurally identical to LF upward movement across a negation. So if in a language the latter seems to be excluded by MNSC, it is to be expected that the language exhibits a negative island effect as well. We have argued that Korean observes the MNSC. Accordingly, we make the prediction that Korean exhibit a negative island effect, in the same way as German. This prediction is borne out.

(65a) has got the interpretation given in (65b), but not the one in (65c).

(65) a. Suna-ka ch'aek myôch' kwôn-ûl tosôkwan-e
Suna-Nom book how many CL-Acc library-Dir
pannapha-chi anh-ass-ni?
bring back-CHI not do-Past-Q

b. 'For which number n: there were n books which Suna did not bring back to the library.'

c. # 'For which number n: It is not the case that Suna brought n books back to the library.'

If we have an NPI subject and a *wh*-phrase following it, the sentence is bad, cf. section 2:

(66)* amuto ch'aek myôch' kwôn-ûl ilk-chi
anyone book how many CL-Acc read-CHI
anh-ass-ni?
not do-Past-Q
'How many books did nobody read?'

If we scramble the *wh*-phrase over the NPI subject, the sentence becomes grammatical (with the meaning given in (67b)):

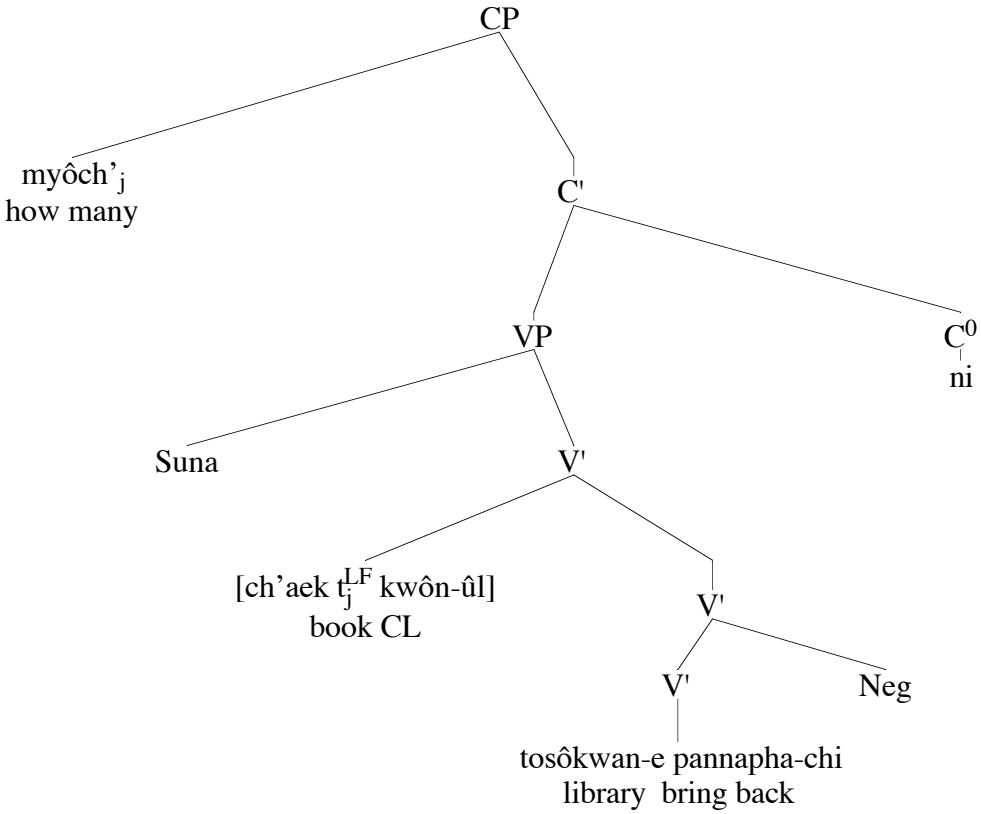
(67) a. [ch'aek myôch' kwôn-ûl]$_i$ amuto t_i ilk-chi
book how many CL-Acc anyone read-CHI
anh-ass-ni?
not do-Past-Q

b. 'For which number n: there are n books which no one read.'

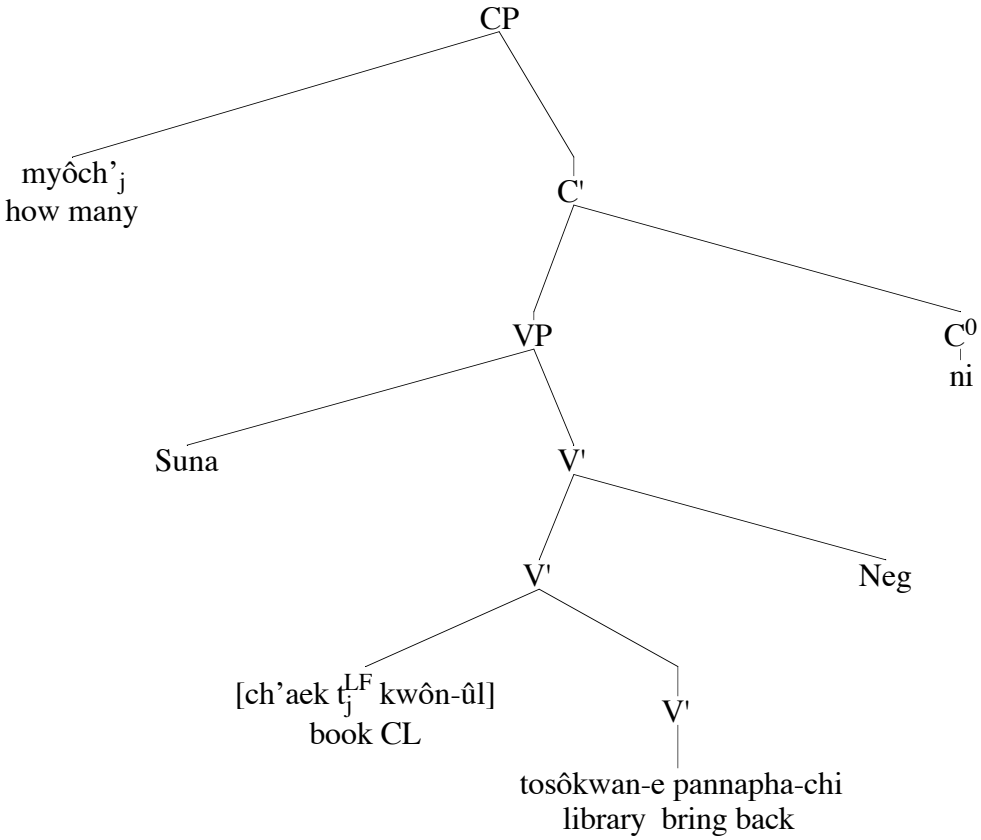
c. #'For which number n: there is nobody who read n books.'

So, in Korean we have the same limited range of interpretational possibilities that we have in German. Consider the LFs (68) and (69), which lead to the interpretations (65b) and (65c) respectively of (65a).

(68)



(69)



(68) is unproblematic, while (69) is parallel to the LF (64) of the German

example, and accordingly is excluded by the MNSC.
So the MNSC together with our assumptions about Korean negation makes the correct predictions about the interpretational possibilities of *how many* questions. Thus we present a unifying analysis for the fact that scopal interaction in these interrogatives is restricted in the same way in German and Korean, although the S-structures look remarkably different: the indefinite (non-interrogative) part of the *wh*-phrase may not have narrow scope w.r.t. negation.

Note that in the Korean data (65) and (67), reconstruction does not enter the picture, since we do not have overt *wh*-movement. Presumably, the LF in (68) is derived by simply raising the interrogative part *myôch'* of the *how many* phrase to SpecC. The indefinite part may remain in its S-structure position. The MNSC then prohibits certain LF positions of the negation, thus making the right predictions about scope.

It might have been supposed that the problem with the German Negative Island data is the reconstruction process itself, i.e. we could assume a restriction that could be informally phrased as in (70) (this is in fact what has been proposed as an empirical generalization for the Negative Island Effect in German in Beck (1995b)).

(70) A scope bearing element may not be reconstructed across a negation.

A restriction along these lines has been argued for in Cresti (1995) for *wh*-islands. The scope taking possibilities of the indefinite part of *how many* phrases are restricted to scope positions outside the *wh*-island by blocking reconstruction of that part into the *wh*-island.
It should be stressed that Cresti´s analysis is intended to cover *wh*-islands only, and that no claim is made about negative islands.

Note that this strategy would not account for Korean negative island data, simply because we do not have reconstruction.

Moreover, Korean gives us the chance to show that what is problematic with the inner reading cannot be the reconstruction process itself.
As mentioned before, Korean allows long scrambling of *wh*-phrases, as in (71).

(71) nuku-lûl$_i$ Suna-nûn [Mira-ka t_i po-ass-nûnchi] mul-ôss-ta.
who-Acc Suna-Top Mira-Nom see-Past-Q ask-Past-Dec
'Suna asked whom$_i$ Mira saw t_i.'

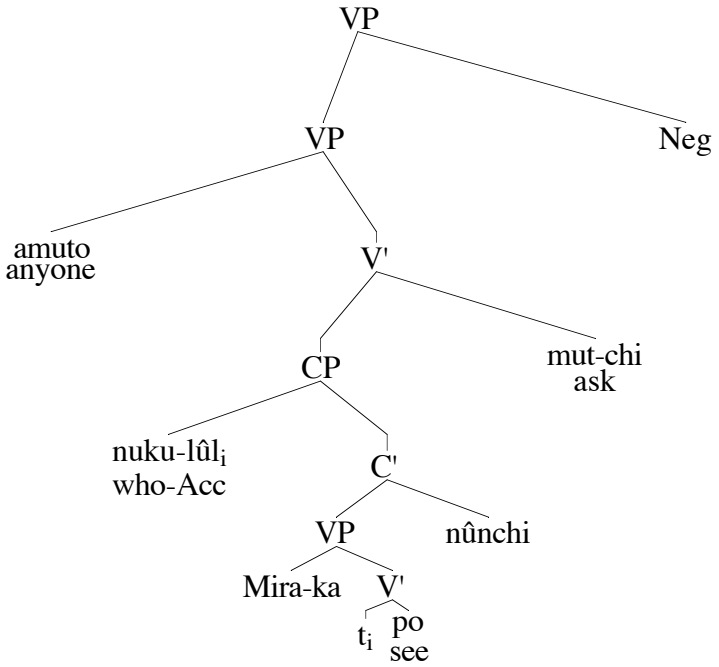
The only possible interpretation of the *wh*-phrase in (71) is in the embedded clause, since the embedded clause is marked interrogative, while the matrix clause is marked as declarative. We might say that the *wh*-phrase has been moved too far.
This is possible in (72) also, across a negation in the matrix clause:

(72) nuku-lûl$_i$ amuto [Mira-ka t_i po-ass-nûnchi] mut-chi
who-Acc anyone Mira-Nom see-Past-Q ask-CHI
anh-ass-ta.
not do-Past-Dec
'No one asked whom$_i$ Mira saw t_i.'

The only possible interpretation for (72) is (73), a simplified LF is indicated in (74).

(73) No one asked whom Mira saw.

(74)



Here, we have reconstructed the entire *wh*-phrase into the embedded SpecCP. MNSC does not predict the sentence to be out, in this case, since the material to be reconstructed does not contain an LF trace. The sentence is correctly predicted to be grammatical although here, too, we reconstruct a scope bearing element across a negation. This is an interesting confirmation of the way we exclude the nonavailable readings of (65) and (67). The same point can be made by (75).

(75) nuku-lûl$_i$ Mira-nûn [Suna-ka [Minsu-ka t_i salangha-
who-Acc Mira-Top Suna-Nom Minsu-Nom love-
nûnchi] mut-chi anh-ass-ta-ko] malha-ôss-ta.
Q ask-CHI do not-Past-Dec-C say-Past-Dec
'Mira said that Suna didn't ask whom$_i$ Minsu loves t_i.'

To summarize: Korean data indicate that what seems to be the problem is not reconstruction *per se*, but reconstruction of part of a *wh*-phrase, i.e., reconstruction of something that contains an LF trace. Reconstruction of intact material does not seem to face any problems across a negation. This is captured by our account of negative islands: we do not block reconstruction, in our representation the fact that we had reconstruction is irrelevant (maybe its not represented at all). We exclude the problematic LFs via the presence of the LF trace.
A suggestion like (70) would thus be inadequate for Korean for two reasons: It could not correctly describe the interpretational possibilities of (65) and (67) since no reconstruction is involved here. On the other hand, it would wrongly lead us to expect data like (72) and (75) to be out, since here, we do have reconstruction across a negation.

We conclude that the possibility of long scrambling across a negation in Korean indirectly confirms our explanation for the negative island effect.

6. OTHER OPERATORS

We have concentrated here on the interaction of *wh*-phrases with negative operators. Of course, this is just a subcase of interaction with scope bearing elements in general.
This issue is important with respect to the formulation of MNSC. Beck (1995a) does not argue for a negation specific constraint like MNSC, but rather, for a constraint concerning quantified structures in general (MQSC, see (78) below). This is motivated by data like (76).

(76) a. * *Wen hat Karl zweimal von den Musikern getroffen?*
whom has Karl twice of the musicians met
'Which of the musicians did Karl meet twice?'
b. * *Wen haben wenige wo getroffen?*
whom have few where met
'Who did few meet where?'
c. * *Wen haben genau fünf Studenten wo getroffen?*
whom have exactly five students where met
'Whom did exactly five students meet where?'
d. * *Wen hat fast jeder Student von den Musikern kennengelernt*?

whom has almost every student of the musicians met
'Which of the musicians has almost every student met?'

Other quantifiers seem to have an effect very similar to negation in these constructions.[14]
Accordingly, MNSC is in fact a subcase of the constraint MQSC suggested in Beck (1995a):

(77) Quantifier induced Barrier (QUIB):
The first node that dominates a quantifier, its restriction and its nuclear scope is a barrier formed by a quantified expression.

(78) Minimal Quantified Structure Constraint (MQSC):
If an LF trace β is dominated by a QUIB α, then the binder of β must also be dominated by α.

The question that arises now is whether the barrier inducing expressions are the same in Korean and German. This does not seem to be the case. However, we have not yet been able to come up with a definite answer to the question of what the class of barrier inducing expressions is in Korean. There are some examples in Korean with a barrier inducing expression other than negation, cf. (80), (81), (82):[15]

(79) a. Minsu-man Suna-lûl po-ass-ta.
Minsu-only Suna-Acc see-Past-Dec
'Only Minsu saw Suna.'
b. Minsu-to Suna-lûl po-ass-ta.
Minsu-also Suna-Acc see-Past-Dec
'Minsu, too, saw Suna.'

(80) a. * Minsu-man nuku-lûl po-ass-ni?
Minsu-only who-Acc see-Past-Q
'Who did only Minsu see?'
b. nuku-lûl$_i$ Minsu-man t_i po-ass-ni?
who-Acc Minsu-only see-Past-Q
'Who did only Minsu see?'

---

14 Examples of *wh* interrogatives with universal quantifiers will be avoided because there, we have the complication of pair-list readings. We do not want to enter into that here.

15 Moreover, Hoji´s (1985) restriction for Japanese comes to mind, where certain structures of the form (i) are ruled out:
(i) *QP...WhP
However, our intuitions about Korean are not the same as Hoji´s in all cases. We will leave the matter for another occasion.

(81) a. * Minsu-to nuku-lûl po-ass-ni?
Minsu-also who-Acc see-Past-Q
'Who did Minsu, too, see?'
b. nuku-lûl$_i$ Minsu-to t_i po-ass-ni?
who-Acc Minsu-also see-Past-Q
'Who did Minsu, too, see?'

(82) a. ?? nukuna-ka ônû kyosu-lûl chonkyôngha-ni?[16]
everyone-Nom which professor-Acc respect-Q
b. [ônû kyosu-lûl]$_i$ nukuna-ka t_i chonkyôngha-ni?
which professor-Acc everyone-Nom respect-Q
b'. 'For which x, x a professor: everyone respects x.'

On the other hand, some quantificational elements clearly don´t induce a barrier:

(83) a. taepupun-ûi haksaeng-tûl-i ônû kyosu-lûl
most-Gen student-PL-Nom which professor-Acc
chonkyôngha-ni?
respect-Q
b. 'For which x, x a professor: most students respect x.'

(84) a. Minsu-nûn hangsang nuku-lûl p'ati-e teliko ka-ss-ni?
Minsu-Top always who-Acc party-Dir take-Past-Q
a'. 'For which x, x a person: it is always the case that Minsu took x to the party.'
b. Minsu-nûn chachu nuku-lûl p'ati-e teliko ka-ss-ni?
Minsu-Top often who-Acc party-Dir take-Past-Q
b'. 'For which x, x a person: it is often the case that Minsu took x to the party.'

(85) a. Mira-ka chachu ch'aek myôch' kwôn-ûl
Mira-Nom often book how many CL-Acc
hakkyo-e kachiko ka-ss-ni?
school-Dir take-Past-Q
a'. 'For which number n: it is often the case that Mira took n books to school.'

---

16 In Korean, ordinary universals like *nukuna* ('everyone') do not seem to be able to induce pair-list readings in questions. (82a) is not well-formed. However, it seems slightly better than (80a) and (81a).

b. Mira-ka ch'aek myôch' kwôn-ûl chachu
Mira-Nom book how many CL-Acc often
hakkyo-e kachiko ka-ss-ni?
school-Dir take-Past-Q
b'. 'For which number n: there are n books which Mira often took to school.'

(85a) is grammatical, showing that *chachu* does not have a blocking effect on the movement of *myôch'*. Interestingly, there is an interpretational difference between a. and b., as indicated by the paraphrases. Linear order thus determines the relative scope of the indefinite part of the *how many* phrase and the adverb. Cf. also the oddness of (86a).

(86) a. ?? Mira-ka sakwa myôch' kae-lûl chachu
Mira-Nom apple how many CL-Acc often
môk-ôss-ni?
eat-Past-Q
a'. 'For which number n: there are n apples which Mira often ate.'
b. Mira-ka chachu sakwa myôch' kae-lûl
Mira-Nom often apple how many CL-Acc
môk-ôss-ni?
eat-Past-Q
b'. 'For which number n: it is often the case that Mira ate n apples.'

This concerns scope interaction between non-interrogative operators, which we are not really concerned with here. See however some speculation in section 7.

So while in Korean as well as in German negation is not really the only element inducing an intervention effect, it is not the full class of quantified expressions that blocks LF movement.

Clearly, there is need for further crosslinguistic research. At first it seems improbable that there should be differences between languages concerning a class of expressions characterized in semantic terms. On the other hand, it is known that languages differ with respect to how they deal with quantification. Moreover, note that we are not talking about a semantic restriction. Maybe languages differ in what quantified structures look like at LF, or which operators have an LF representation that induces the blocking effect we observe. So there must be an aspect of the LF representation of a quantified expression which MNSC/MQSC is sensitive to, not just the semantic characterization whether or not we are dealing with a quantified expression.

7. GLOBAL PERSPECTIVE

We have found that LF *wh*-movement in Korean is constrained by the same principle as German. In fact, *wh*-movement in Korean is a much better illustration for the application of MNSC/MQSC, since in Korean, the range of *wh*-in-situ data is much wider. In German, the data are restricted to those few cases where a *wh*-expression may remain *in situ*, that is cases where S-structural *wh*-movement is taken care of by another expression. This results in some complexity, and the most straightforward cases cannot be examined directly. In Korean, we can do just that, since there is no requirement for S-structural movement. So Korean is an ideal test case for MNSC/MQSC, and indeed it looks as if the restriction were of a fairly general nature and able to cover Korean as well. Now why should it be that MNSC extends so conveniently to Korean, a langugage unrelated to German and with respect to *wh*-movement completely different? English, for example, does not exhibit a corresponding restriction, cf. (87), which is supposed to be fairly good:

(87) a. Which children didn´t want to show which pictures to anybody?
b. Which children didn´t want to show anybody which pictures?

We believe that Korean and German are similar in that both languages have a relatively free word order. They have scrambling. So in both languages, it is possible to identify intended relative scope orderings to a large extent by S-structural linear order. Since it is possible to make the intended scope relations transparent, it is obligatory to do so. This is in the nature of an Earliness Principle like Pesetsky´s (1989) and Diesing´s (1992). MNSC/MQSC is one way of technically expressing this constraint. It might turn out that it is not ultimately the best way to do so, but we believe that the pattern of grammaticality described in sections 2-6 ought to be related to this observation.

English, as opposed to German and Korean, has a fairly restricted word order and thus has to be able to compensate for this at LF. So we would not expect a constraint like MNSC/MQSC to hold for such a language without substantial modification.

In sum, we believe that it is not an accident that we could extend a restriction designed for German so easily to Korean, but that this reflects a deeper similarity between the two languages. Since the two languages are unrelated, this is a fairly strong confirmation that a restriction like MNSC/MQSC is needed.

These considerations lead one to expect that MNSC/MQSC effects should be observable in other scrambling languages as well. We have discovered that contrasts like (7a) vs.(7b) and (9) vs. (10) from section 2 are found in (the scrambling languages) Hindi/Urdu and Turkish, too. We will leave a proper

analysis for another opportunity, though.
If our suggestion is correct that MNSC/MQSC is something in the nature of an Earliness Principle, this gives one a quite different perspective on scrambling than Saito's. Scrambling has the semantic function of making intended scope relation visible, and it is by no means vacuous. It thus becomes clear why our suggestions are incompatible with the reconstruction of scrambling: The two views of scrambling are in principle incompatible.

The above remarks imply that MNSC/MQSC make some prediction about scope interaction in declarative contexts in Korean. Now, scope interaction in declaratives is not the issue examined in this paper. We will offer some data that seem to indicate that the generalization that MNSC/MQSC formalizes holds in declarative contexts as well. However, this is yet very tentative and had maybe best be thought of as speculation.

Consider the following cases:

(88) a. ônû haksaeng-ina amu ch'aek-to ilk-chi anh-ass-ta.
every student any book read-CHI not do-Past-Dec
'Every student didn't read any book.'
(∀ > ¬∃)

b. amu ch'aek-to$_i$ ônû haksaeng-ina t_i ilk-chi
any book every student read-CHI
anh-ass-ta.
not do-Past-Dec
'Any book$_i$, every student didn't read t_i.'
(¬∃ > ∀)

(89) a. nukuna-ka amu kôs-to po-chi anh-ass-ta.
everyone-Nom anything see-CHI do not-Past-Dec
'Everyone didn't see anything.'
(∀ > ¬∃)

b. amu kôs-to$_i$ nukuna-ka t_i po-chi anh-ass-ta.
anything everyone-Nom see-CHI do not-Past-Dec
'Anything$_i$, everyone didn't see t_i.'
(¬∃ > ∀)

We have here concentrated on interaction of quantifiers and negation, because negation is a clear case of a barrier inducing expression. The S-structural order is always the intended scope order. This would fall out if MNSC/MQSC were supposed to hold for QR as well as for *wh*-movement, and if *every* were included in the class of barrier inducing expressions. At present, we make the correct prediction that in (88b), (89b) we cannot QR the universally quantified

NP to have wide scope over the negative quantifier.
Note that this is further evidence that short quantifier scrambling (including *wh*-scrambling) may not be reconstructed.

In contrast to these data with NPIs, (90) with a simple sentential negation is ambiguous:

(90) a. ta cha-chi anh-ass-ta.
all sleep-CHI not do-Past-Dec
b. For every x: x did not sleep.
c. It is not the case that all slept.

This, too, follows straightforwardly from our analysis: negation can be adjoined to a position below or above *ta* ('all'), thereby yielding LF representations for both readings.

Of course, what we have said so far cannot be the whole story. Just to give an example, consider (91) and (92):

(91) nukunka-ka ônû kyosuna chonkyôngha-n-ta.
someone-Nom every professor respect-Pres-Dec
'Someone respects every professor.'
(unambiguous: someone > every professor)

(92) ônû kyosuna$_i$ nukunka-ka t_i chonkyôngha-n-ta.
every professor someone-Nom respect-Pres-Dec
'Every professor$_i$, someone respects t_i.'
(ambiguous: someone > every professor, every professor > someone)

This is reminiscent of Hoji´s (1985) observation that a Japanese sentence of the form (93) is unambiguous if it is base-generated but is ambiguous if QP_1 is a fronted QP derived by scrambling.

(93) QP_1 ... QP_2

Note that these examples involve indefinites, which differ in their scope taking possibilities from genuine quantifiers (cf. for example Abusch (1993)). We will leave a proper discussion of scope interaction in declaratives for another occasion.

REFERENCES

Abusch, Dorit (1994) "The Scope of Indefinites," *Natural Language Semantics* 2, 83-135.

Beck, Sigrid (1995a) "Quantfied Structures as Barriers for LF Movement," To appear in *Natural Language Semantics*.

Beck, Sigrid (1995b) "Negative Islands and Reconstruction," in: Lutz, U. & Pafel, J. (eds.): *Extraction and Extraposition in German*, Benjamins, Amsterdam.

Büring, Daniel (in prep.). *The 59th Street Bridge Accent*, PhD dissertation, Universität Tübingen.

Cho, Young-mee Yu and Peter Sells (1995) "A Lexical Account of Inflectional Suffixes in Korean," *Journal of East Asian Linguistics* 4.2, 119-174.

Cresti, Diana (1995) "Extraction and Reconstruction," *Natural Language Semantics* 3, 79-122.

Diesing, Molly (1992) "Bare Plural Subjects and the Derivation of Logical Representations," *Linguistic Inquiry* 23, 353-380.

Gallin, D. (1975) *Intensional and Higher order Modal Logic*, North Holland, Amsterdam.

Hamblin, C.L. (1973) "Questions in Montague English," *Foundations of Language* 10, 41-53.

Heim, Irene (1982) *The Semantics of Definite and Indefinite Noun Phrases*, PhD dissertation, University of Massachusetts, Amherst.

Heim, Irene & Kratzer, Angelika (1991) *Introduction to Semantics*, ms., MIT, Cambridge, Mass. & University of Massachusetts, Amherst.

Han, Hak-Sung (1987) *The Configurational Structure of the Korean Language*, PhD dissertation, University of Texas at Austin.

Heycock, Caroline and Young-Suk Lee (1989) "Subjects and Predication in Korean and Japanese," in H. Hoji (ed.) *Japanese/Korean Linguistics*, CSLI, Stanford, 239-254.

Hoji, Hajime (1985) *Logical Form Constraints and Configurational Structures in Japanese*, PhD dissertation, University of Massachusetts, Amherst.

Kang, Myung-Yoon (1988) *Topics in Korean Syntax: Phrase Structure, Variable Binding and Movement,* PhD dissertation, MIT.

Karttunen, Lauri (1977) "Syntax and Semantics of Questions," *Linguistics and Philosophy* 1, 3-44.

Kroch, Anthony (1989) "Amount Quantification, Referentiality and Long *Wh*-Movement," ms., University of Pennsylvania.

Ladusaw, William (1979) *Polarity Sensitivity as Inherent Scope Relations*, PhD dissertation, University of Texas, Austin.

Lee, Young-Suk (1990) "Is INFL Universal? A Case Study of Korean," in

Proceedings of ESCOL 7, 204-214.
Lukoff, Fred (1982) *An Introductory Course in Korean*, Yonsei University Press, Seoul.
Pesetsky, David (1989) "Language-Particular Processes and the Earliness Principle," ms., MIT, Cambridge, Massachusetts.
Rizzi, Luigi (1990) *Relativized Minimality*, The MIT Press, Cambridge, Massachusetts.
Rizzi, Luigi (1991) "Argument/Adjunct (A)symmetries," ms, Université de Genève.
Ross, J.-R. (1984) "Inner Islands," Proceedings of the 10th Meeting of the Berkeley Linguistics Society, 258-265.
Rullmann, Hotze (1995) *Maximality in the semantics of WH-Constructions*, PhD dissertation, University of Massachusetts, Amherst.
Saito, Mamoru (1989) "Scrambling as Semantically Vacuous A'-Movement," in M. Baltin and A. Kroch (eds.), *Alternative Conceptions of Phrase Structure*, University of Chicago Press, Chicago, 182-200.
Saito, Mamoru (1992) "Long Distance Scrambling in Japanese," *Journal of East Asian Linguistics* 1.1, 69-118.
Saito, Mamoru (1994) "Scrambling and the Functional Interpretation of *Wh*-Phrases," ms., University of Connecticut.
Sells, Peter (1995) "Korean and Japanese Morphology from a Lexical Perspective," *Linguistic Inquiry* 26.2, 277-325.
Stechow, Arnim von (1993a) "Die Aufgaben der Syntax," in J. Jacobs, A. von Stechow, W. Sternefeld, and T. Vennemann (eds.) (in print), *Syntax. Ein internationales Handbuch der zeitgenössischen Forschung*, de Gruyter, Berlin.
Stechow, Arnim von (1993b) "Rekursive Konstruktion der Fragebedeutung," ms., Universität Tübingen.
Stechow, Arnim von and Wolfgang Sternefeld (1988) *Bausteine syntaktischen Wissens*,. Westdeutscher Verlag, Opladen.
Sternefeld, Wolfgang (1995) "Reciprocity and Cumulative Predication," To appear in F. Hamm and E. Hinrichs (eds.), *Plurality and Quantification*, Kluwer Academic Publishers, Dordrecht.
Szabolsci, Anna and Frans Zwarts (1993) "Weak Islands and an Algebraic Semantics for Scope Taking," *Natural Language Semantics* 1, 235-284.