

ON WH- AND OPERATOR SCOPE IN KOREAN\*

This paper presents an analysis of the interaction of *wh*-phrases and negation in Korean. We observe that a *wh*-phrase must not be c-commanded by negative polarity item. This is related to the observation that in German, a *wh*-phrase must not be c-commanded by negation or a negative quantifier. We suggest that both languages are sensitive to a restriction that prohibits LF movement across negation, the Minimal Negative Structure Constraint MNSC, proposed in Beck (1996). Since a negative polarity item must always be in the scope of 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.<sup>1</sup>

- (1) a. Suna-ka muôs-ûl sa-ss-ni?  
Sun-Nom what-cc buy-Past-Q  
b. Muôs-ûl<sub>i</sub> Suna-ka t<sub>i</sub> sa-ss-ni?  
wh-acc Suna-Nom buy-Past-Q  
'What did Suna buy?'

Now consider the following contrast:<sup>2</sup>

- (2) a.\* Amuto muôs-ûl sa-chi anh-ass-ni?  
anyone what-acc buy-CHI not do-Past-Q  
b. Muôs-ûl<sub>i</sub> amuto t<sub>i</sub> sa-chi anh-ass-ni?  
wh-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 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?'

This is strongly reminiscent of German data such as that in (4):<sup>3</sup>

- (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?'

In German, the *wh*-in-situ may not be c-commanded by a negative quantifier at S-structure.

This paper provides an explanation for the Korean contrasts along the lines of the analysis for German suggested in Beck (1996). 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 structural 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 with respect to the restriction we are arguing for. In section 6, we consider whether other scope bearing elements behave like negation. Finally, in Section 7, we look at the data from a more general perspective and find the restriction suggested seems reasonable in the light of scope interaction facts in Korean in general.

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2. WH-IN-SITU IN KOREAN

Korean does not have obligatory *wh*-movement at S-structure. It optionally has scrambling of *wh*-phrases. (5a) is a normal *wh*-question in the unmarked word order with the subject preceding the direct object. In (5b) the *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 Suna-ka 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 using a negative verb *anh* 'not do' and having a negative polarity subject *amuto* 'anyone'.<sup>4</sup> 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 amuto 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-s-ûl ilk-chi anh-ass-ni?  
anyone what-Acc read-CHI not do-Past-Q  
b. Muôs-ûl amuto ilk-chi anh-ass-ni?  
what-Acc anyone read-CHI not do-Past-Q  
'What did no one read?'

Interestingly, the sentence in the unmarked word order (7a) is ungrammatical.<sup>5</sup> 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 amuto ka-chi anh-ass-ni?  
where-Dir anyone go-CHI not do-Past-Q  
'Where did no one go?'

Apparently we cannot have a *wh*-phrase c-command by an NPI at S-structure. Negated questions are fine as long as there is no *wh*-phrase behind an NPI. Consider (9) with an NPI object in the basic word order:

- (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<sub>i</sub> nuku-ka t<sub>i</sub> ch'otaeha-chi anh-ass-ni?  
 anyone who-Nom invite-CHI not do-Past-Q  
 'Who didn't invite anyone?'

(11) shows that (10) is ungrammatical due to the occurrence of a *wh*-phrase behind the scrambled NPI element at S-structure, since scrambling an NPI over a definite expression (here, *Suna*) doesn't lead to ungrammaticality:

- (11) Amuto<sub>i</sub> Suna-ka t<sub>i</sub> manna-chi anh-ass-ta.  
 anyone Suna-Nom meet-CHI not do-Past-Dec  
 'Suna didn't meet anyone.'

Another example of this kind is given in (12). The ungrammaticality is due to the fact that the *wh*-phrase occurs behind the NPI object.

- (12) \* 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:

- (13) 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?'

(14) shows the same effect in the double object construction:

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- (14) a.\* Suna-ka amu-eke-to muôs-ûl poyô chu-chi  
 Suna-Nom anyone-Dat what-Acc show-CHI  
 anh-ass-ni?  
 not do-Past-Q
- b. Suna-ka muôs-ûl amu-eke-to poyô chu-chi  
 Suna-Nom what-Acc anyone-Dat show-CHI  
 anh-ass-ni?  
 not do-Past Q
- c. Muôs-ûl Suna-ka amu-eke-to poyô chu-chi  
 what-Acc Suna-Nom anyone-Dat show-CHI  
 anh-ass-ni?  
 not do-Past-Q  
 'What didn't Suna show to anybody?'

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

- (15) 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:

- (16) \* [ . . . [NPI [ . . . *wh*-phrase . . . ] . . . Q ]

We will introduce a restriction to exclude just this configuration.

3. WH-IN-SITU IN GERMAN

In this section we introduce a restriction on LF movement suggested in Beck (1996) 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 (17) provide the crucial empirical motivation for the restriction we are going to introduce.

- (17) 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?<sup>6</sup>  
 whom has nobody where seen  
 'Where did nobody see whom?'  
 c.\*Wen hat keine Studentin *von den Musikern*  
 whom has no student of the musicians  
 getroffen?  
 met  
 'Which of the musicians did no student meet?'

(17a) is a scope marking construction with *was* marking the scope of *wen* (see Stechow and Sternefeld (1988))<sup>7</sup> and (17b) is a multiple question. In (17c), a restriction semantically belonging to the *wh*-phrase (*von den Musikern* 'of the musicians') is split off at S-structure.

The data in (18) show that the sentences in (17) 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*).

- (18) 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?  
 whom has Luise where seen  
 'Where did Luise see whom?'  
 c. Wen hat Luise *von den Musikern* getroffen?  
 whom has Luise of the musicians met  
 'Which of the musicians did Luise meet?'

In Beck (1996), this effect is described by the generalization in (19).

- (19) An intervening negation blocks LF movement.<sup>8</sup>

The idea is that in each of the sentences in (17), the expression in *italic*, 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. (20) shows that what is problematic is indeed an LF relation, since the corresponding S-structure movement leads to grammatical results:

- (20) a. *Wen* glaubt niemand, daß Karl gesehen hat?  
whom believes nobody that Karl seen has  
'Who does nobody believe that Karl saw?'
- b. *Wo* hat niemand Karl gesehen?  
where has nobody Karl seen  
'Where did nobody see Karl?'
- c. *Wen von den Musikern* hat keine Studentin getroffen?  
whom of the musicians has no student met  
'Which of the musicians did no student meet?'

Beck (1996) argues in some detail that the generalization in (19) accounts for the ungrammaticality of the data in (17), providing the interpretations that the sentences in (17) should have. Here, we will simply list the appropriate interpretations of (17a–c) (assuming a semantics of interrogatives following Hamblin (1973) and Karttunen (1977)), giving a more detailed analysis only of the case of multiple questions.

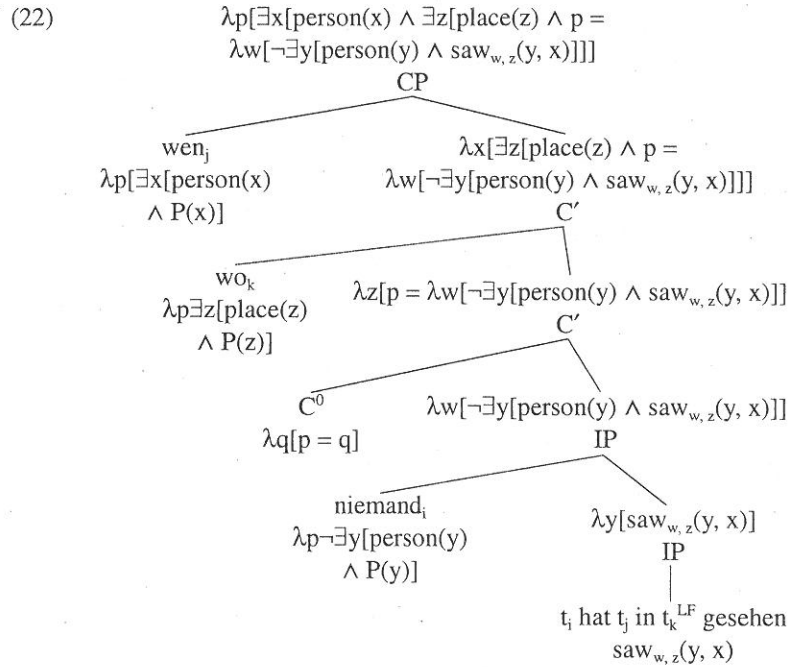
(21a–c) are the denotations that (17a–c) should receive if the respective constructions are interpreted in the canonical way.<sup>9</sup>

- (21) a.  $\lambda p \exists x [\mathbf{person}(x) \wedge p = \lambda w' [-\exists y [\mathbf{person}(y) \wedge \text{believes}'_w (y, \lambda w [\mathbf{saw}'_w (k, x)])]]]$
- b.  $\lambda p \exists x [\mathbf{person}(x) \wedge \exists z [\mathbf{place}(z) \wedge p = \lambda w [-\exists y [\mathbf{person}(y) \wedge \text{saw}'_{w,z} (y, x)]]]]]$
- c.  $\lambda p \exists x [\mathbf{person}(x) \wedge x \in \mathbf{the\_musicians}' \wedge p = \lambda w [-\exists y [\mathbf{student}'(y) \wedge \text{met}'_w (y, x)]]]$

(21a,c) are the interpretations that (20a, c) do in fact have.

The boldface expressions in the formulas in (21) correspond to the *in situ* parts in (17), that is, to the expressions that (we claim) have to be moved at LF. (21a–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 quan-

tifier (which has to be interpreted within the scope of the interrogative operator). We will illustrate this for the case of the multiple question (17b). In order to derive the interpretation (21b), which is the usual Hamblin/Karttunen denotation for a multiple question, the sentence should have an LF roughly like that in (22).



(22) is an LF for the interrogative modeled after those in Stechow (1993a) and (1993b). The interrogative operator (“ $\lambda q[p = q]$ ”) is associated with the  $C^0$  position. In order to be interpreted as an interrogative *wh*-phrase, *wo* ‘where’ 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 (19), blocked by *niemand* ‘nobody’.

The offending trace in (22) 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 Heim and Kratzer (1991), among others, 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 (17a, c), for the LF landing sites of *wen* (in the scope marking construction) and *von den Musikern*, respectively. See Beck (1996) for details. We give the LFs that we assume for these sentences in (23).

- (23) a. [<sub>CP</sub> wen<sub>k</sub> [<sub>C</sub> C<sup>0</sup> [<sub>IP</sub> niemand glaubt [<sub>CP</sub> t'<sub>k</sub><sup>LF</sup> [<sub>C</sub> Karl t<sub>k</sub> gesehen hat]]]]]  
 (\*Was glaubt niemand, wen Karl gesehen hat?)
- b. [<sub>CP</sub> [wen<sub>j</sub> [<sub>von den Musikern</sub><sub>k</sub>]] [<sub>C</sub> C<sup>0</sup> [<sub>IP</sub> keine Studentin t<sub>j</sub> t'<sub>k</sub><sup>LF</sup> getroffen hat]]]  
 (\*Wen hat keine Studentin von den Musikern getroffen?)

So, in (17a–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 (19). (24) defines the notion of a negation induced barrier, while (25) is a condition on the binding of LF traces which captures the intuitive content of (19).

- (24) Negation Induced Barrier (NIB):  
 The first node that dominates a negative quantifier, its restriction, and its nuclear scope<sup>10</sup> is a Negation Induced Barrier (NIB).
- (25) Minimal Negative Structure Constraint (MNSC):  
 If an LF trace  $\beta$  is dominated by a NIB  $\alpha$ , then the binder of  $\beta$  must also be dominated by  $\alpha$ .

This is how the constraint works for (23b), the LF of (17c). The negative quantifier *keine Studentin* induces a NIB, the IP (printed boldface), which dominates t'<sub>k</sub><sup>LF</sup>. The binder of that trace, [*von den Musikern*]<sub>k</sub>, is not dominated by the NIB, thus violating the MNSC. The LF is ruled out, and the sentence is ungrammatical. (22) and (23a) are analogous.

Thus, the ungrammaticality of (17a–c) is derived by a restriction on the binding of LF traces. See Beck (1996) for more data motivating the constraint and arguments concerning its precise formulation.

4. STRUCTURAL REPRESENTATIONS

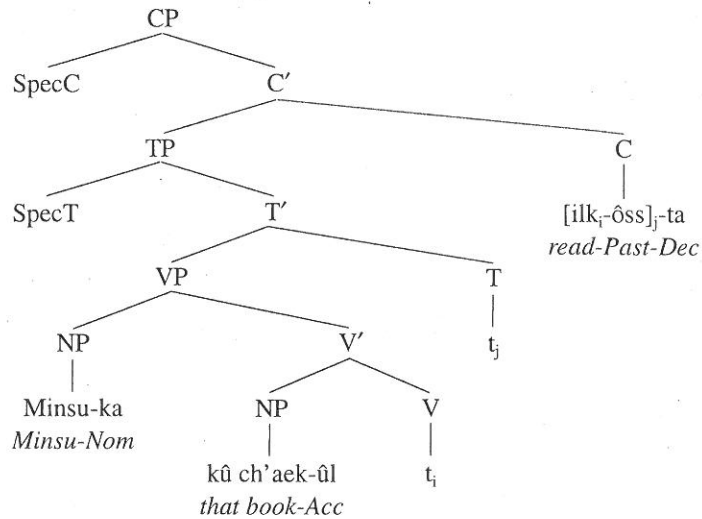
How far the analysis for the German data carries over to Korean depends on the structural representations assigned to the Korean *wh*-interrogatives. We will show in this section that, given a set of well-motivated assumptions, the analysis does in fact extend to Korean.

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. Consider the example in (26):

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

- (27) S-structure



The assumption is that the verb undergoes head-movement to T, and the complex head V + T further moves to C at S-structure (see Ahn and Yoon (1989) and Whitman (1989)). Based on data of ECM constructions and multiple nominative constructions, Heycock and Lee (1989) and Lee (1990) argue that nominative case in Korean is not assigned by some INFL-like element, be it Tense or Agr. Rather, the nominative case marker *-ka* marks

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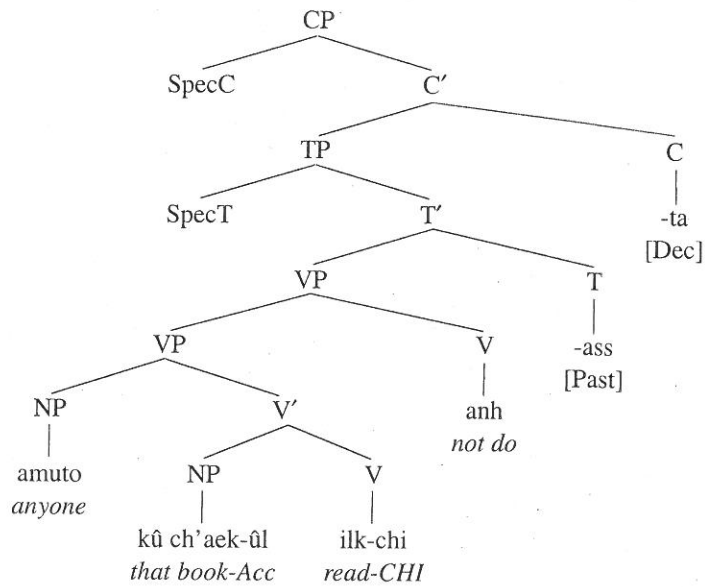
the syntactic subject of a predication structure which is independent of the argument structure of the clause. Thus, the subject will be assumed to stay in its base position, [Spec, VP]. It need not move to SpecT at S-structure, since it is assigned nominative case by the predicate V'.

(28) is an example involving negation:

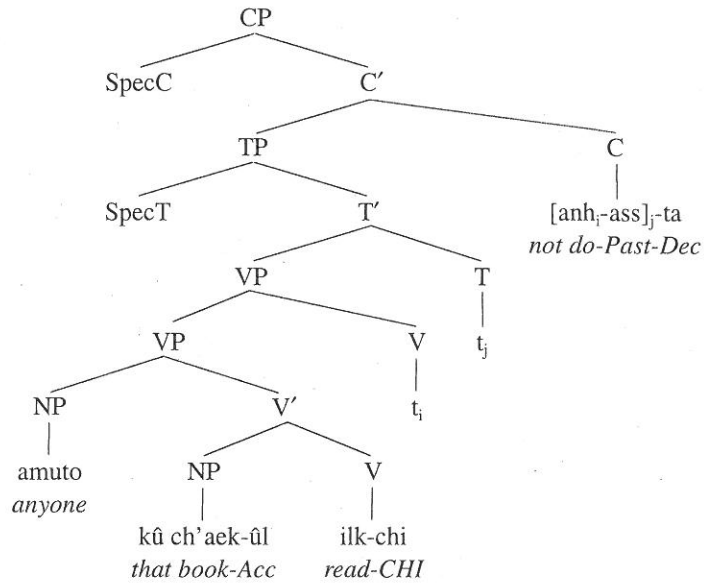
- (28) Amuto kû ch'aek-ûl ilk-chi anh-ass-ta.  
 anyone that book-Acc read-CHI not do-Past-Dec  
 'No one read that book.'

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

(29) a. D-structure



b. S-structure



At S-structure negation is incorporated into a finite dummy verb “do” and presumably occurs in C. We will talk about a negative verb *anh* ‘not do’, which will not be further analysed.

Now back to *wh*-questions. According to the assumptions just sketched, (31) and (33) are the S-structures of (30) and (32). (30) is an unmarked SO-order, while (32) is a scrambled version. We will assume that scrambling is (or can be) adjunction to VP.

- (30) \* Amuto nuku-lûl po-chi anh-ass-ni?  
 anyone who-Acc see-CHI not do-Past-Q  
 ‘Whom did no one see?’



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 necessitate most discussion is the LF position of negation. We argue for an abstract view of negation in which what is morphologically visible as a negative particle does not correspond directly to semantic negation. Let us elaborate on this.

While at S-structure, both negation and interrogative marker are reflected morphologically on the verb, they have to be separated for compositional interpretation. Consider (34):

- (34) 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 (35a), which can be paraphrased as in (35b):

- (35) a.  $\lambda p[p = \lambda w \exists X[\text{many}_w(X) \ \& \ \text{children}_w(X) \ \& \ \neg \text{come}_w(X)]$   
 $\vee p = \lambda w \neg \exists X[\text{many}_w(X) \ \& \ \text{children}_w(X) \ \& \ \neg \text{come}_w(X)]]$   
 b. Is it the case that there were many children who did not come?

Note that in (35a) the interrogative operator and the negation are separated. In this particular example, they are separated 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.

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

- (36) a. Manhûn ai-tûl-i ôti-e ka-chi anh-ass-ni?  
 many child-PL-Nom where-Dir go-CHI not do-Past-Q  
 b. Ôti-e<sub>i</sub> manhûn ai-tûl-i t<sub>i</sub> ka-chi anh-ass-ni?  
 where-Dir many child-PL-Nom go-CHI not do-Past-Q  
 'Where did many children not go?'



We propose that the negative verb *anh* ‘not do’ 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 this complement VP visible. We will assume that the semantic negation is adjoined to a verbal projection (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.

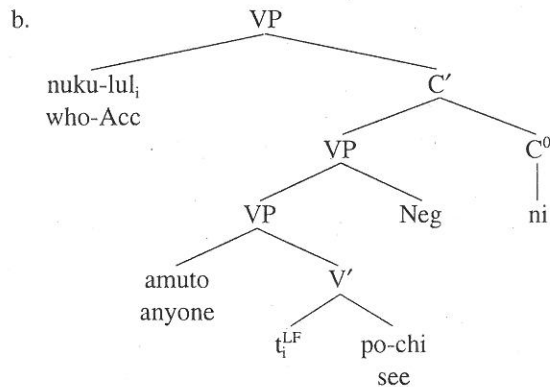
There is a second type of negation in Korean (called “short form negation” in the literature) which has been analysed as being adjoined to the verb (see Suh (1990)). An example is given in (39).

- (39) 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.’

This type of negation will not be discussed in this paper.

For a question like (40a), an LF as in (40b) will be assumed:

- (40) a.\* Amuto nuku-lûl po-chi anh-ass-ni?  
 anyone who-Acc see-CHI not do-Past-Q  
 ‘Whom did no one see?’



A few comments on (40b): We assume that verbs get translated as open sentences. 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 Sternefeld (1995) for this analysis. If the verb is an open sentence, there is no necessity for type-driven QR. We can therefore interpret quan-



tifiers in their S-structure positions. Moreover, our assumption that negation can be adjoined to any V-projection makes sense semantically, since any V-projection is a sentence and can be combined with negation. Note that we have simply deleted the negative verb *anh*, since it is meaningless anyway. We have also ignored the entire TP level for convenience.

In (40), we consider a sentence containing 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 Ladusaw (1979), for example). In this sense, the NPI makes the scope of the negation visible, since negation has to have scope over the NPI in order for the NPI to be licensed.

The LF in (40b) 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:

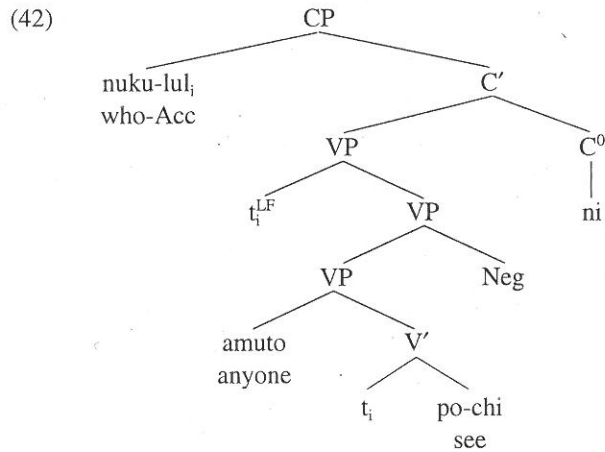
- (24) Negation Induced Barrier (NIB):  
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If an LF trace  $\beta$  is dominated by a NIB  $\alpha$ , then the binder of  $\beta$  must also be dominated by  $\alpha$ .

Any LF in which negation would occur in a position below the *wh*-trace would not meet the licensing requirement of the NPI. So (40a) 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, amuto t<sub>i</sub> 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):

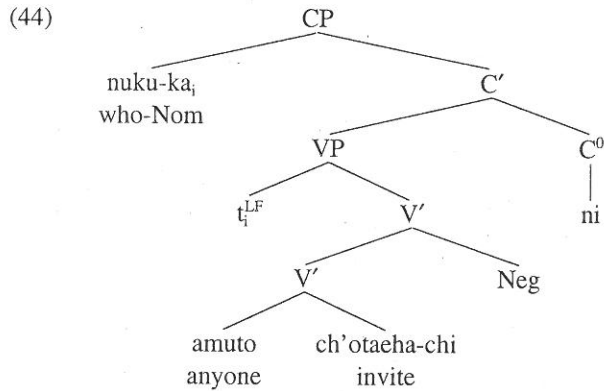


In this LF, we can safely assume that negation is in a position to license the NPI. This can still be a position structurally below the LF-trace of the *wh*-phrase, as indicated in (42). So (42) is a grammatical LF for (41), which violates neither the licensing condition for the NPI nor the MNSC. There are other potential LFs for (41) (with various adjunction sites for negation) which will violate either the 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 the MNSC holds for Korean as well as German, the contrast between (40a) and (41) is to be expected.

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

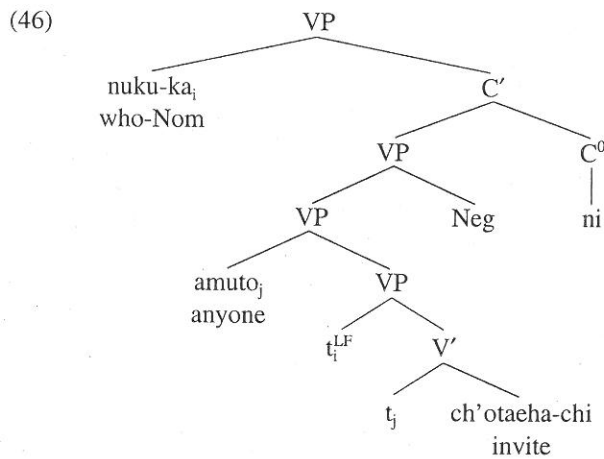
- (43) Nuku-ka amuto ch'otaeha-chi anh-ass-ni?  
 who-Nom anyone invite-CHI not do-Past-Q  
 'Who did not invite anyone?'

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Again, we have the option of adjoining 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, such as (46) below, clashes with the MNSC.

- (45) \* Amuto<sub>j</sub> nuku-ka t<sub>j</sub> ch'otaeha-chi anh-ass-ni?  
 anyone who-Nom invite-CHI not do-Past-Q  
 'Who did not invite anyone?'



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 c-command relations at S-structure and quantifier scope at LF.<sup>12</sup> Whenever a *wh*-phrase occurs higher than an NPI at S-structure, there is an LF adjunction site for negation that c-commands the NPI, but

not the S-structure position of the *wh*-phrase. Whenever the NPI occurs higher than the *wh*-phrase, there is no adjunction site for 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.<sup>13</sup>

We would like to stress that some of the assumptions we have been making are not necessary 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 the c-command relation at S-structure that makes all the difference between grammaticality and ungrammaticality. We have here suggested that set of assumptions which both accounts for this observation and seems 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 occupy. If it always went to NegP, for instance, we could not have accounted for the data the way we did: Presumably, NegP would have to dominate the subject position in order to be able to license subject NPIs. Now consider (44) above. The only way to account for the grammaticality of the example would be to claim that the *wh*-subject has been invisibly scrambled, since in its base position it would be c-commanded by negation. Next, compare (12) and (13), repeated below for convenience.

- (12) \*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?'
- (13) 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 (13a), the *wh*-phrase is still structurally lower than the subject. Hence, on the NegP analysis one would have to assume invisible scrambling of

the subject and the *wh*-phrase to account for the grammaticality of the sentence. This might be feasible, but we find it very unattractive and our actual proposal much simpler.

#### 4.3. *Semantic Effects of Scrambling*

The fact that the S-structure c-command relation seems crucial for the relative scope of quantifier phrases (including *wh*-phrases) in both Korean and German leads to the question of what the semantic effect of scrambling is. 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; see Saito (1989)).<sup>14</sup> According to this, the scrambled phrase *kû ch'aek-ûl* 'that book-Acc' in (47) may be reconstructed to its trace position at LF for interpretation.

- (47) Kû ch'aek-ûl, Mira-ka t<sub>i</sub> ilk-ôss-ta  
 that book-Acc Mira-Nom read-Past-Dec  
 'That book<sub>i</sub>, Mira read t<sub>i</sub>.'

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

- (48) Nuku-lûl, Suna-ka t<sub>i</sub> 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 (48) there can be two possible derivations: (i) The scrambled *wh*-phrase is first reconstructed to its D-structure position, as in the case of (47), (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; that is, there is a derivation in which scrambling is undone (plus possible other derivations in which it isn't). Both options will be seen to be incompatible with our analysis and will be rejected. Hence this section is an argument against the claim that scrambling is semantically vacuous.

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

- (49) a.\* Amuto nuku-lûl po-chi anh-ass-ni?  
 anyone who-Acc see-CHI not do-Past-Q
- b. Nuku-lûl<sub>i</sub> amuto t<sub>i</sub> po-chi anh-ass-ni?  
 who-Acc anyone see-CHI not do-Past-Q  
 'Whom did no one see?'

If the scrambling movement in (49b) had to be undone at LF, there would be no way to distinguish (49b) from (49a) 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 (49b) 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 (49a), 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 the MNSC.

The following examples also illustrate the same point:

- (50) a.\* Suna-nûn [amuto nuku-lûl ch'otaeha-chi anh-ass-nûnchi]  
 Suna-Top anyone who-Acc invite-CHI not do-Past-Q  
 a-n-ta.  
 know-Pres-Dec
- b. Suna-nûn [nuku-lûl<sub>i</sub> amuto t<sub>i</sub> ch'otaeha-chi anh-ass-nûnchi]  
 Suna-Top who-Acc anyone invite-CHI not do-Past-Q  
 a-n-ta.  
 know-Pres-Dec
- c. Nuku-lûl<sub>i</sub> Suna-nûn [amuto t<sub>i</sub> 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 (50a) 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 (50b), 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-structure position to the embedded SpecC without crossing the NPI

subject. In (50c), the *wh*-phrase is long-distance scrambled out of the embedded interrogative clause. Since the matrix clause is marked as declarative, the *wh*-phrase cannot be licensed in its S-structure position. It should be reconstructed to SpecC of the embedded clause marked as interrogative. This shows that even when we have to have reconstruction, it is not obligatory 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 clause, 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<sub>i</sub> nuku-ka t<sub>i</sub> 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. 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) is thus incompatible with our analysis.<sup>15</sup> We suggest that within one simple sentence scrambling is never undone. Thus, scrambling does have a semantic effect (contra Saito (1989, 1992)).<sup>16</sup>

##### 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 (1995) that the negative island effect is captured by the 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 through 4. Since Korean observes the MNSC, we expect the negative island effect to be manifest in Korean as well. This predication is borne out. Moreover, Korean offers data that have a bearing on the issue of reconstruction and on the way the 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 such as (51) have been discussed in the recent literature under the heading of negative islands:

- (51)   Wieviele   Hunde   hat   Karl   nicht   gefüttert?  
           how many dogs   has Karl not   fed  
           ‘How many dogs didn’t Karl feed?’

- (52) 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 (52a) and (52b) of (51), only (52a) is available (see Rullmann (1995) and others). The non-available reading will also be referred to as the *inner* reading (see 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 Rullmann (1995) and Beck (1995) for discussion). Rather, we will introduce the explanation for this effect discussed in Beck (1995), 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 for example Cresti (1995), Stechow (1993b), and Rullmann (1995)). The semantics of (53) is given in (54):

- (53)   Wieviele   Hunde   hat   Karl   gefüttert?  
           how many dogs   has Karl fed  
           ‘How many dogs did Karl feed?’

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

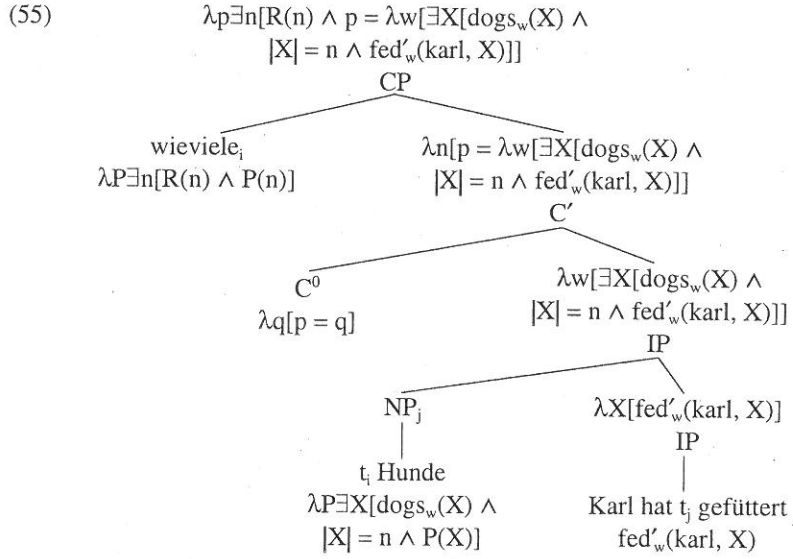
The semantically interrogative part “for which n” has to be separated from the indefinite part “n dogs.” The indefinite part occurs within the scope of the interrogative operator, while the interrogative part does not. Since the interrogative operator is associated with the  $C^o$  position, this separation 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 (1995) a different course is pursued: Recon-

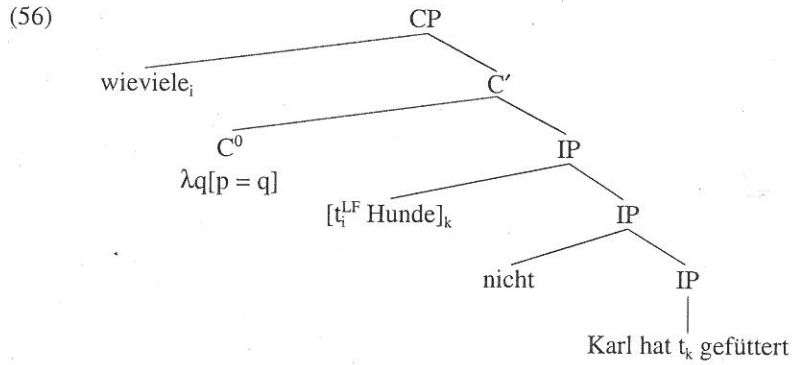


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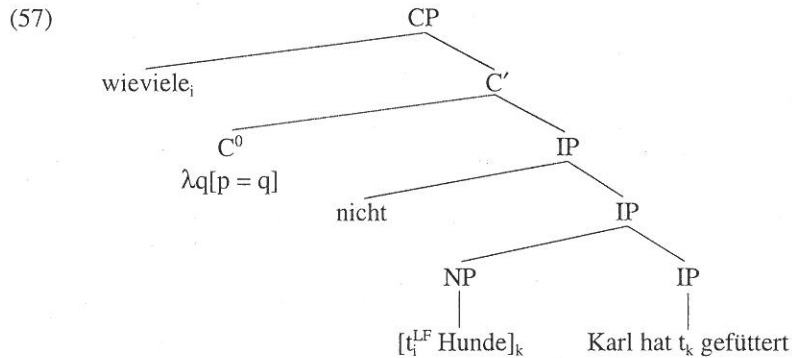
struction is done in the syntax of logical form. The LF suggested for (53) in this approach is given in (55).



Now consider (56) and (57), the two logical forms corresponding to readings (52a) and (52b) of (51):



For which n: there are n dogs that Karl didn't feed.



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 (57) violates the MNSC. The LF is correctly excluded.

(57) and (40) 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, a movement 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 (1995) for more data and details of the analysis.

### 5.2. Negative Islands in Korean

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

(58a) has the interpretation given in (58b), but not the one in (58c).

- (58) a. Suna-ka ch'aek myôch' kwôn-ûl tosôkwon-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 n: there are n books which Suna did not bring back to the library.
- c.#For which n: it is not the case that Suna brought n books back to the library.

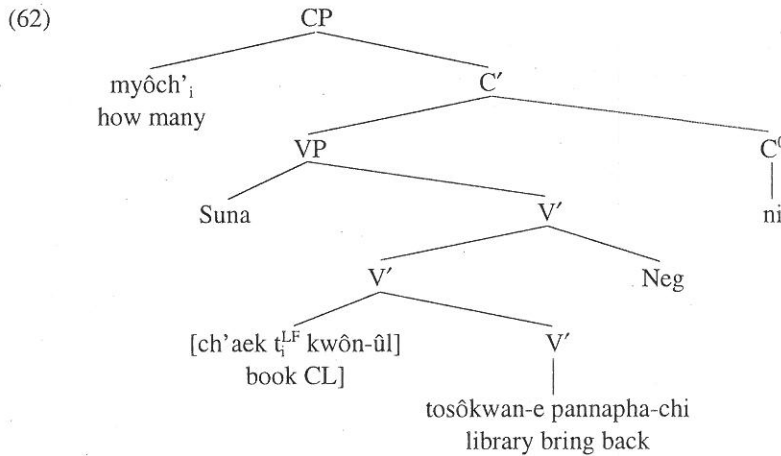
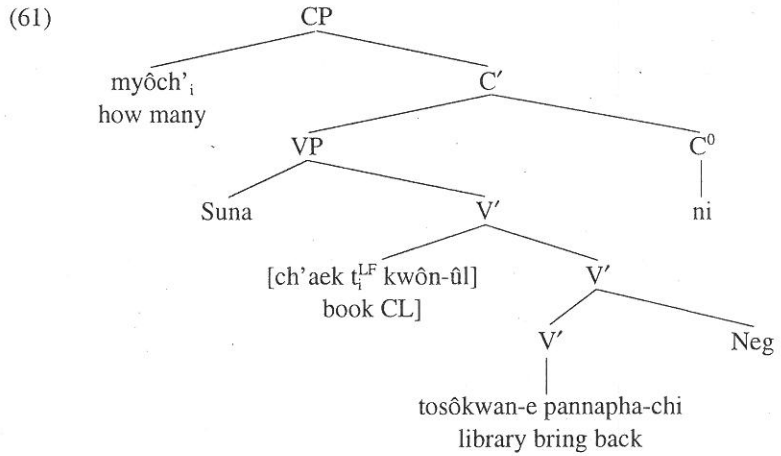
If we have an NPI subject and a *wh*-phrase following it, the sentence is bad, as discussed in Section 2:

- (59) \* Amuto ch'aek myôch' kwôn-ûl ilk-chi anh-ass-ni?  
 anyone book how many CL-Acc read-CHI 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 (60b)):

- (60) a. [ch'aek myôch' kwôn-ûl]<sub>i</sub> amuto t<sub>i</sub> ilk-chi  
 book how many CL-Acc anyone read-CHI  
 anh-ass-ni?  
 not do-Past-Q
- b. For which n: there are n books which no one read.
- c.#For which n: there is no one who read n books.

So, in Korean we have the same limited range of interpretational possibilities that we have in German. Consider the LFs in (61) and (62), which lead to the interpretations given in (58b) and (58c), respectively, of (58a).



(61) is unproblematic, while (62) is parallel to the LF (57) of the German example, and accordingly is excluded by the MNSC.

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 with respect to negation.

Note that in the Korean data (58) and (60), reconstruction does not enter the picture, since we do not have overt *wh*-movement. The LF in

(61) 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 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, that is, we could assume a restriction that could be informally phrased as in (63) (this is in fact that has been proposed as an empirical generalization for the negative island effect in German in Beck (1995)).

- (63) 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 a strategy along the lines of (63) 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-distance scrambling of *wh*-phrases, as in (64).

- (64) Nuku-lûl, Suna-nûn [Mira-ka t<sub>i</sub> po-ass-nûnchi]  
 who-Acc Suna-Top Mira-Nom see-Past-Q  
 mul-ôss-ta.  
 ask-Past-Dec  
 'Suna asked whom<sub>i</sub> Mira saw t<sub>i</sub>'

The only possible interpretation of the *wh*-phrase in (64) 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.

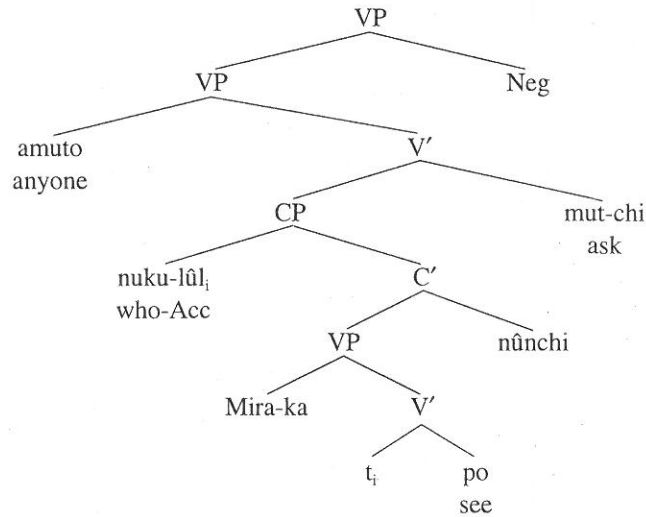
This is possible in (65) also, across negation in the matrix clause.

- (65) Nuku-lûl, amuto [Mira-ka t<sub>i</sub> 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<sub>i</sub> Mira saw t<sub>i</sub>'

The only possible interpretation for (65) is (66); a simplified LF is given in (67).

(66) No one asked whom Mira saw.

(67)



Here, we have reconstructed the entire *wh*-phrase into the embedded SpecC. The 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 negation. This is an interesting confirmation of the way we exclude the nonavailable readings of (58) and (60). The same point can be made by (68).

(68) Nuku-lûl<sub>i</sub> Mira-nûn [Suna-ka [Minsu-ka t<sub>i</sub>  
 who-Acc Mira-Top Suna-Nom Minsu-Nom  
 salangha-nûnchi] mut-chi anh-ass-ta-ko]  
 love-Q ask-CHI do not-Past-Dec-C  
 malha-ôss-ta.  
 say-Past-Dec

'Mira said that Suna didn't ask whom<sub>i</sub> Minsu loves t<sub>i</sub>.'

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, that is, reconstruction of something that contains an LF trace. Reconstruction of intact material across negation does not seem to face any problems. 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 it is not represented at all). We exclude the problematic LFs via the presence of the LF trace. A suggestion like (63) would thus be inadequate for Korean for two reasons: It could not correctly describe the interpretational possibilities of (58) and (60) since no reconstruction is involved here. On the other hand, it would wrongly lead us to expect data such as in (65) and (68) to be out, since here, we do have reconstruction across negation.

We conclude that the possibility of long scrambling across 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 the MNSC. Beck (1996) does not argue for a negation specific constraint like the MNSC, but rather for a constraint concerning quantified structures in general (the MQSC, see (71) below). This is motivated by data such as (69).

- (69) 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?  
 who 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  
 whom has almost every student of the musicians  
 kennengelernt?  
 met  
 'Which of the musicians has almost every student met?'  
 e. Wen hat jeder wo gesehen?  
 whom has everyone where seen  
 'Where did everyone see whom?'

Other quantifiers seem to have an effect very similar to that of negation in these constructions in German. Examples like (69e) are grammatical only under a pair list reading. Beck (1996) argues that the universal quantifier has scope over the entire question and hence is moved out of the way at LF. Accordingly, the MNSC is in fact a subcase of the constraint MQSC suggested in Beck (1996).

- (70) Quantifier induced Barrier (QUIB):  
The first node that dominates a quantifier, its restriction, and its nuclear scope is a Quantifier Induced Barrier (QUIB).
- (71) Minimal Quantified Structure Constraint (MQSC):  
If an LF trace  $\beta$  is dominated by a QUIB  $\alpha$ , then the binder of  $\beta$  must also be dominated by  $\alpha$ .

The question that arises now is whether QUIB 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 good characterization of the class of QUIB inducing expressions in Korean. There are some examples in Korean with a barrier inducing expression other than negation, namely focus phrases with particles like *only*, *also*, and the universal quantifier *every*.<sup>17</sup>

- (72) a. Minsu-man Suna-lûl po-ass-ta.  
Minsu-only Suna-Acc see-Past-Dec  
'Only Minu saw Suna.'
- b. Minsu-to Suna-lûl po-ass-ta.  
Minsu-also Suna-Acc see-Past-Dec  
'Minsu, too, saw Suna.'
- (73) a.\*Minsu-man nuku-lûl po-ass-ni?  
Minsu-only who-Acc see-Past-Q  
'Who did only Minsu see?'
- b. Nuku-lûl<sub>i</sub> Minsu-man t<sub>i</sub> po-ass-ni?  
who-Acc Minsu-only see-Past-Q  
'Who did only Minsu see?'
- (74) a.\*Minsu-to nuku-lûl po-ass-ni?  
Minsu-also who-Acc see-Past-Q  
'Who did Minsu, too, see?'



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- b. Nuku-lûl<sub>i</sub> Minsu-to t<sub>i</sub> po-ass-ni?  
 who-Acc Minsu-also see-Past-Q  
 'Who did Minsu, too, see?'

- (75) a.??Nukuna-ka ônú kyosu-lûl chonkyôngha-ni?<sup>18</sup>  
 everyone-Nom which professor-Acc respect-Q  
 b. [Ônú kyosu-lûl]<sub>i</sub> nukuna-ka t<sub>i</sub> chonkyôngha-ni?  
 which professor-Acc everyone-Nom respect-Q  
 b'. For which x, x a professor: everyone respects x.

Interestingly, genuine universal quantifiers (in contrast to definites) do not seem to be able to induce a pair list reading in questions in Korean. If universals are to be included in the set of barrier inducing expressions in Korean, too, the oddness of (75a) would follow from the MQSC plus general considerations. Moreover, the focus phrases with particles like *only* and *also* exhibit the same blocking effects. This shows that in Korean as well as in German, the barrier inducing expressions are not limited to negation. On the other hand, some quantificational elements clearly don't induce a barrier. Thus, (76), (77) and (78) are grammatical.

- (76) a. Taepupun-ûi haksang-tûl-i ônú 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.
- (77) 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.
- (78) a. Mira-ka chachu ch'aek myôch' kwôn-ûl hakkyo-e  
 Mira-Nom often book how many CL-Acc school-Dir  
 kachiko ka-ss-ni?  
 take-Past-Q  
 a'. For which n: it is often the case that Mira took n books to school.

- b. Mira-ka ch'aek myôch' kwôn-ûl chachu hakkyo-e  
 Mira-Nom book how many CL-Acc often school-Dir  
 kachiko ka-ss-ni?  
 take-Past-Q

b'. For which n: there are n books which Mira often took to school.

(78a) is grammatical, showing that *chachu* 'often' does not have a blocking effect on the movement of *myôch'* 'how many'. Interestingly, there is an interpretational difference between (78a) and (78b), as indicated by the paraphrases. Linear order thus determines the relative scope of the indefinite part of the *how many* phrase and the adverb. Note also the semantic/pragmatic oddness of (79a).

- (79) a. ?#Mira-ka sakwa myôch' kae-lûl chachu môk-ôss-ni?  
 Mira-Nom apple how many CL-Acc often eat-Past-Q

a'. For which n: there are n apples which Mira often ate.

- b. Mira-ka chachu sakwa myôch' kae-lûl môk-ôss-ni?  
 Mira-Nom often apple how many CL-Acc eat-Past-Q

b'. For which 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, Section 7.1 for some remarks on scope interaction of non-interrogative operators in Korean.

So while in Korean as well as in German, negation is not 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. Perhaps 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 particular aspect of the LF representation of a quantified expression which the MNSC/MQSC is sensitive to, not just the general semantic characterization of a quantified expression.

## 7. GLOBAL PERSPECTIVE

7.1. *Scope Interaction in Korean Declaratives*

Since the MQSC is a restriction on scope interaction, we would not expect its effects to be restricted to *wh*-phrases. And indeed, the MQSC seems to make some prediction about scope interaction in declarative contexts in Korean. Although scope interaction in declaratives is not the issue examined in this paper, we will offer some data that indicate the MQSC restricts QR in declarative contexts as well. However, this is very tentative and may be best thought of as speculation. Note the question this section deals with is not whether the MSQC explains scope interaction in Korean, but rather whether the restrictions on scope taking possibilities predicted by the MQSC are observed. Remember that the QUIB-inducing expressions we have found in Korean are so far limited to negation, focus phrases, and the universal quantifier *nukuna* 'everyone'. Hence the prediction is that QR across these expressions is prohibited.

Suh (1990) examines the interaction of universal quantifier and negation. She observes that in sentences containing a universal quantifier and an NPI, linear order unambiguously determines relative scope. This is exemplified in the following data:

- (80) a. *Ōnū haksæng-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.' ( $\forall > \neg\exists$ )
- b. *Amu ch'aek-to<sub>i</sub> ōnū haksæng-ina t<sub>i</sub> ilk-chi*  
 any book every student read-CHI  
*anh-ass-ta.*  
 not do-Past-Dec  
 'Any book<sub>i</sub>, every student didn't read t<sub>i</sub>.' ( $\neg\exists > \forall$ )
- (81) 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.' ( $\forall > \neg\exists$ )
- b. *Amu kôs-to<sub>i</sub> nukuna-ka t<sub>i</sub> po-chi anh-ass-ta.*  
 anything everyone-Nom see-CHI do not-Past-Dec  
 'Anything<sub>i</sub>, everyone didn't see t<sub>i</sub>.' ( $\neg\exists > \forall$ )

We have here concentrated on the interaction between quantifiers and negation, because negation is a clear case of a barrier inducing expres-

sion. The S-structure order is always the intended scope order. This would fall out if the 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 (80b) and (81b), we cannot QR the universally quantified NP to have wide scope over the negative quantifier.

Consider now (82).

- (82) a. Nukuna-ka Suna-man-ûl po-ass-ta.  
 everyone-Nom Suna-only-Acc see-Past-Dec  
 'Everyone saw Suna and no one else.' ( $\forall > \text{only Suna}$ )
- b. Suna-man-ul<sub>i</sub> nukuna-ka t<sub>i</sub> po-ass-ta.  
 Suna-only-Acc everyone-Nom see-Past-Dec  
 'Only Suna was seen by everyone.' (only Suna  $> \forall$ )

In these cases, too, the surface order corresponds to the only possible scope order. Thus the predications that the MQSC makes applied to these data are very satisfactory. Note this is further evidence that quantifier scrambling (including *wh*-scrambling) may not be reconstructed.

In contrast to the data with NPIs, (83) with a simple sentential negation is ambiguous.<sup>19</sup>

- (83) 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. For example, consider (84) and (85).

- (84) Nukunka-ka ônú kyosuna chonkyôngha-n-ta.  
 someone-Nom every professor respect-Pres-Dec  
 'Someone respects every professor.'  
 (unambiguous: someone  $>$  every professor)

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- (85) Ônú kyosuna<sub>i</sub> nukunka-ka t<sub>i</sub> chonkyôngha-n-ta.  
every professor someone-Nom respect-Pres-Dec  
'Every professor<sub>i</sub>, someone respects t<sub>i</sub>.'  
(ambiguous: someone > every professor, every professor > someone)

This is reminiscent of Hoji's (1985) observation that a Japanese sentence of the form in (86) is unambiguous if it is base-generated, but is ambiguous if QP<sub>1</sub> is a fronted QP derived by scrambling.

- (86) QP<sub>1</sub> . . . QP<sub>2</sub>

Note that (84) and (85) involve indefinites, which differ in their scope taking possibilities from genuine quantifiers (see for example Abusch (1994)). We will leave a proper discussion of scope interaction in declaratives for another occasion.

7.2. Crosslinguistic Perspective

We have found that LF *wh*-movement in Korean is constrained by the same principle as it is in German. In fact, *wh*-movement in Korean is a much better illustration for the application of the 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, to cases where S-structure *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-structure movement. So Korean is an ideal test case for the MNSC/MQSC, and indeed it looks as if the restriction were of a fairly general nature and able to cover Korean as well. Why should the MNSC extend so conveniently to Korean, a language unrelated to German and with respect to *wh*-movement completely different? English, for example, does not exhibit a corresponding restriction, and (87) 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-structure 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 such as in Pesetsky (1989) and Diesing (1992). The MNSC/MQSC is one way to technically express 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 through 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 the MNSC/MQSC to hold for such a language without substantial modification.

In sum, we believe it is not an accident that we can extend a restriction designed for German so easily to Korean; this reflects a deeper similarity between the two languages, a similarity that might be seen to cumulate in the availability of scrambling. Since the two languages are unrelated, this is a fairly strong confirmation that a restriction like the MNSC/MQSC is needed.

These considerations lead to the expectation that MNSC/MQSC effects should be observable in other scrambling languages as well. We have discovered that contrasts such as that between (7a) and (7b) and between (9) and (10) from Section 2 are found in (the scrambling languages) Hindi/Urdu and Turkish, too. Data which illustrate MNSC effects in these two languages are given in the Appendix.

If our suggestion is correct that the MNSC/MQSC is something in the nature of an Earliness Principle, we are led to a quite different perspective on scrambling than offered by Saito. Scrambling has the semantic function of making intended scope relations 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.

#### APPENDIX: MNSC EFFECTS IN HINDI/URDU AND TURKISH

Data that are reminiscent of the Korean contrasts from Section 2 are found in the scrambling languages Hindi/Urdu and Turkish. The following observations are taken from Beck (1996a).

We owe the Hindi/Urdu data and judgments to Miriam Butt. Hindi/Urdu, like Korean, is a language without obligatory *wh*-movement and with optional scrambling of *wh*-phrases. This is illustrated by (88).

- (88) a. Naadyaa-ne kyaa paRhaa hai?  
       Nadya-Erg what-Nom read-Perf.M is

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- b. Kyaa Naadyaa-ne paRhaa hai?  
 what-Nom Nadya-Erg read-Perf.M is  
 'What did Nadya read?'

As in Korean, a negative quantifier is expressed with NPI plus negation:

- (89) a. Koi nahiiN vo kitaab paRhaa.  
 anyone not that book read-Perf.M  
 'No one read that book.'
- b. Vo kitaab koi nahiiN paRhaa.  
 that book anyone not read-Perf.M  
 'That book, no one read.'

Now let us consider the interaction of negation and *wh*-phrases. The basic word order [NPI subject – *wh* object] is ungrammatical, while the scrambled version is well-formed. The same holds for adverbial *wh*-phrases that normally occur after the subject.

- (90) a.??Koi nahiiN kyaa paRhaa?  
 anyone not what read-Perf.M
- b. Kyaa koi nahiiN paRhaa?  
 what anyone not read-Perf.M  
 'What did no one read?'

- (91) a.??Koi nahiiN kahaaN gayaa?  
 anyone not where go-Perf.M
- b. KahaaN koi nahiiN gayaa?  
 where anyone not go-Perf.M  
 'Where did no one go?'

A *wh*-subject before an NPI object is fine; here, scrambling is impossible:

- (92) a. Kis-ne kisi-ko nahiiN inviitashen Daalaa?  
 who-Erg any-Acc not invitation put-Perf.M
- b.\*Kisi-ko nahiiN kis-ne inviitashen Daalaa?  
 any-Acc not who-Erg invitation put-Perf.M  
 'Who didn't invite anyone?'

In (93) and (94), on the other hand, scrambling rescues the sentences. In (93), *kahaaN* 'where' has to be scrambled in front of the NPI, and in (94)

only configurations with both *wh*-phrases before the NPI are grammatical.

- (93) a. ??Naadyaa kisi-ko nahiiN kahaaN milii?  
 Nadya-Erg any-Acc not where meet-Perf.F
- b. Naadyaa kahaaN kisi-ko nahiiN milii?  
 Nadya-Erg where any-Acc not meet-Perf.F
- c. KahaaN naadyaa kisi-ko nahiiN milii?  
 where Nadya-Erg any-Acc not meet-Perf.F  
 'Where did Nadya meet on one?'
- (94) a. ??Koi nahiiN kis-ko kahaaN milaa?  
 anyone not who-Acc where meet-Perf.M
- b. ??Kis-ko koi nahiiN kahaaN milaa?  
 who-Acc anyone not where meet-Perf.M
- c. ?KahaaN koi nahiiN kis-ko milaa?  
 where anyone not who-Acc meet-Perf.M
- d. Kis-ko kahaaN koi nahiiN milaa?  
 who-Acc where anyone not meet-Perf.M
- e. KahaaN kis-ko koi nahiiN milaa?  
 where who-Acc anyone not meet-Perf.M  
 'Where did no one meet whom?'

These data are very similar to the Korean data. Whenever a *wh*-phrase occurs linearly behind an NPI plus negation (and would thus have to be moved across them at LF), the sentence is ungrammatical. It seems obvious that all ungrammatical sentences can easily be analysed as MNSC violations.

Another language that shows apparent MNSC effects is Turkish. We are greatly indebted to Beryl Hoffman for the following data and judgments. In Turkish, negation is incorporated into the finite verb, as in Korean:

- (95) Can Jaklin'i gör-me-di.  
 John(nom) Jaklin-Acc see-Neg-Past  
 'John didn't see Jaklin.'

(96a) and (96b) show how the negative quantifier *nobody* is expressed:

- (96) a. Can kimseyi görmedi.  
 John anyone-Acc see-Neg-Past



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- b.?Kimseyi Can görmedi.  
 anyone-Acc John see-Neg-Past  
 'John didn't see anyone.'

In this case, SOV order is a bit better than OSV. In (97) with an NPI subject, both linearizations are fine.

- (97) a. Kimse Jaklin'i görmedi.  
 anyone Jaklin-Acc see-Neg-Past  
 b. Jaklin'i kimse görmedi.  
 Jaklin-Acc anyone see-Neg-Past  
 'No one saw Jaklin.'

Now let's consider the interaction of *wh*-phrases with negation. Normally, *wh*-phrases in Turkish are attracted to the immediately preverbal position. This requirement seems to be fairly strong, as the ungrammaticality of (99) shows.

- (98) a. Kim Can'i gördü?  
 who John-Acc see-Past  
 b. Can'i kim gördü?  
 John-Acc who saw  
 c.\*Can'i gördü kim?  
 John-Acc saw who  
 d. Kim gördü Can'i?  
 who see-Past John-Acc  
 'Who saw John?'  
 (99) \*Neyi Can gördü?  
 what-acc John saw  
 'What did John see?'

The subject *kim* 'who' can occur *in situ* or in the immediately preverbal position. It's very hard to scramble an object *wh*-word like *neyi* 'what-Acc' from its *in situ* position.

Interestingly, in the interaction with NPIs, the requirement must be dropped.

- (100) a. Parti-de kim kimseyi görmedi?  
 Party-loc who anyone-Acc see-Neg-Past

b.??Parti-de kimseyi kim görmedi?  
 Party-Loc anyone-Acc who see-Neg-Past  
 'Who didn't see anyone at the party?'

(101) a.\*Kimse kimi görmedi?  
 anyone who-Acc see-Neg-Past

b. Kimi kimse görmedi?  
 Who-Acc anyone see-Neg-Past  
 'Whom did nobody see?'

Unexpectedly, considering the usual behavior of *wh*-phrases, (101a) is bad and (101b) is okay. (102) and (103) show data with double objects and an adjunct *wh*-phrase:

(102) a.\*Can kimse-ye hangi resim-ler-i göster-me-di?  
 John anyone-Dat which picture-PL-Acc show-Neg-Past

b. Can hangi resim-ler-i kimse-ye göster-me-di?  
 John which picture-PL-Acc anyone-Dat show-Neg-Past  
 'Which pictures didn't John show anyone?'

(103) a.\*Kimse nereye git-me-di?  
 anyone where go-Neg-Past

b. Nereye kimse git-me-di?  
 where anyone go-Neg-Past  
 'Where did nobody go?'

The obvious generalization seems to be that in Turkish, too, we cannot have a *wh*-phrase linearly behind an NPI. In this respect, Turkish behaves just like Korean, and very much like Hindi/Urdu.

We do not claim that we have a complete analysis of these facts. However, it seems fair to say that the data are likely to be amenable to an analysis in terms of the MNSC.

#### NOTES

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<sup>1</sup> Throughout this paper, we use the McCune-Reischauer system of romanization to transcribe Korean examples, except that we will use the diacritic <sup>ˆ</sup> instead of <sup>˘</sup>.

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<sup>2</sup> 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 and Sells (1995), Sells (1995)). We assume that there is a kind of morphological selection between the negative verb *anh-* 'not do' and the embedded verb. Some more examples of such selection are these: The verb *po-* 'to try' selects the suffix *-ô/a* for the embedded verb (*môk-ô pota* 'try eating'); the verb *sip'-* 'to want' selects *-ko* (*môk-ko sip'ta* 'want to eat'). We will leave the exact analysis of *chi* for further research.

<sup>3</sup> In Beck (1996), 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 (awkwardness, but perhaps not full ungrammaticality).

<sup>4</sup> In this paper we use the contracted form *anh* 'not do'. This consists of the negation *ani* 'not' and the dummy verb *ha* 'do'.

<sup>5</sup> Note that (7a) is okay as an echo question. Some of the examples in this paper could be interpreted with an echo reading. Echo interpretations will be disregarded throughout this paper.

<sup>6</sup> The judgments for the multiple questions refer only to the reading in which the *wh*-phrase in situ is read as an interrogative phrase, of course. Sometimes it can be read as an indefinite.

<sup>7</sup> Here, the *wh*-phrase in the embedded SpecC is not strictly speaking in situ, of course. We will still refer to it as an in situ expression for convenience.

<sup>8</sup> For informal reference, we will uniformly talk about *nicht* 'not', *niemand* 'nobody' and *kein* 'no' as negation.

<sup>9</sup> The formulas in (21) and those formalizations and LFs to come are simplified in all those aspects that are irrelevant for the point to be made and are intended to be a proper analysis only for essential features (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.

<sup>10</sup> The definition is supposed to include sentence negation as an operator inducing an NIB. Compare Beck (1996).

<sup>11</sup> We provide an LF for the more complex example with the *wh*-phrase rather than for the Yes/No question because we don't want to discuss the logical form of Yes/No questions here.

<sup>12</sup> (i) shows that what matters is indeed the c-command relation between the NPI and the *wh*-in-situ, not just the linear order between them. (i) is a fully grammatical sentence. The NPI and negation are embedded in the complement clause. Thus, the negation induced barrier is also embedded in the complement clause, not dominating the *wh*-in-situ. In this case we have no violation of the MNSC.

- (i) Suna-ka [<sub>CP</sub> amuto kû ch'aek-ûl ilk-chi anh-ass-ta-ko]<sub>i</sub>  
 Suna-Nom anyone that book-Acc read-CHI not do-Past-Dec-C  
 nuku-eke t<sub>i</sub> malha-ôss-ni?  
 who-Dat say-Past-Q  
 'Whom<sub>i</sub> did Suna tell t<sub>i</sub> that no one read that book?'

<sup>13</sup> Our assumptions about the LF position of the negation lead us to expect that *wh*-interrogatives with a simple sentential negation like (i) are grammatical:

- (i) a. Suna-ka ônû ch'aek-ûl tosôkwan-e pannapha-chi anh-ass-ni?  
 Suna-Nom which book-Acc library-Dir bring back-CHI 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.

<sup>14</sup> But see Saito (1994). In contrast to Saito (1989), who proposed that scrambling can be semantically vacuous and hence freely undone at LF, Saito (1994) argues, based on data related to the 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.

<sup>15</sup> Since Korean allows long distance 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 (50c), for instance, we have already assumed that long distance scrambling may be undone.

<sup>16</sup> As an anonymous reviewer notes, our claim that short scrambling is never reconstructed precludes an explanation of the grammaticality of (ib) and (iib) in terms of reconstruction.

- (i) Korean:
- a. Nukuna<sub>i</sub>-ka [chaki<sub>i</sub>-ûi òmòni-lûl] salangha-n-ta.  
everyone-Nom self-Gen mother-Acc love-Pres-Dec
- b. [Chaki<sub>i</sub>-ûi òmòni-lûl] nukuna<sub>i</sub>-ka t salangha-n-ta.  
self-Gen mother-Acc everyone-Nom love-Pres-Dec  
'Everyone<sub>i</sub> loves his<sub>i</sub> mother.'
- (ii) German:
- a. daß jeder<sub>i</sub> seine<sub>i</sub> Mutter liebt  
that everyone his mother loves
- b. daß [seine<sub>i</sub> Mutter] jeder<sub>i</sub> t liebt  
that his mother everyone loves  
'that everyone<sub>i</sub> loves his<sub>i</sub> mother'

We will not discuss binding phenomena and their interaction with reconstruction in this paper.

<sup>17</sup> Moreover, Hoji's (1985, 1986) restriction for Japanese comes to mind. Hoji gives the following generalization in Japanese:

- (i) a. \*QP-ga WH-o V  
-Nom -Acc
- b. WH-o<sub>i</sub> QP-ga t<sub>i</sub> V
- c. WH-ga QP-o V
- d. QP-o<sub>i</sub> WH-ga t<sub>i</sub> V

However, our intuitions about Korean are not the same as Hoji's in all cases. One crucial difference between Hoji's and our intuition shows up in (id). In Korean, (id) is unacceptable. If we have a scrambled NPI object or some other quantifier like *Suna-man-ûl* 'only Suna' in the position of QP-o<sub>i</sub>, the sentence is ungrammatical. The contrast is given in (ii).

- (ii) a. Nuku-ka Suna-man-ûl salangha-ni?  
who-Nom Suna-only-Acc love-Q
- b. \*Suna-man-ûl<sub>i</sub> nuku-ka t<sub>i</sub> salangha-ni?  
Suna-only-Acc who-Nom love-Q  
'Who loves only Suna?'

Such facts lead us to the conclusion that even optional reconstruction of the scrambled quantifiers is not possible. In contrast to Hoji's (1985, 1986) assumption for Japanese, we

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claim that in Korean, there is no reconstruction effect in the case of scrambling a quantifier across another quantifier.

<sup>18</sup> (75a) is not well-formed. However, it seems slightly better than (73a) and (74a).

<sup>19</sup> Suh (1990) judges sentences with a universal subject and sentential negation unambiguous with a wide scope reading of the universal. However, her intuitions are not shared by the Korean author of this paper. Moreover, Suh provides her own counterexample on page 138, footnote 7.

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