

Long distance scrambling and anaphora*

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Abstract

This paper explores the impact of long distance scrambling on the interpretation of both local and long distance anaphors in Japanese and Korean. The implications for binding theory are also explored. In particular, it is shown that the concept of an index can be reconceptualized in order to sit more comfortably within a system that incorporates the inclusiveness condition. The implications for the analysis of scrambling are also considered. The main analytical result on this point is that long distance scrambling in Korean at least is best analyzed as a case of base generation.

Keywords: scrambling, binding, indices, radical reconstruction, *pro*

1. Introduction

Scrambling comes in at least two varieties: Clause Internal, and Long-Distance. These two cases are exemplified by the structures in (1) and (2) respectively:

- (1) S O Adv V
- (2) DP₁ [CP₁ ... [CP₂ ... t_i ...]]

In this paper, I will concentrate mostly on the long distance variety and, more specifically, its interactions with anaphora. Long Distance scrambling has been generally analyzed in two ways, namely, as a case of optional, semantically vacuous \bar{A} movement (Saito 1985, 1989, 1992, 2004; Saito & Fukui 1998), or as a case of base-generation. There are at least two varieties of analysis in terms of base generation. One involves LF-lowering of the scrambled DP (Boskovic & Takahashi 1998), and the second treats long distance scrambling in a similar way to left-dislocation (Tsoulas 1999).

Now the way binding processes interact with scrambling has been a central plank in the analysis of scrambling constructions. In most previous work the possibility of a scrambled element to bind an anaphor was used to detect the status of its S-Structure position. It is in this way, at least in part, that it has been established that clause internal scrambling targets *A* positions and long distance scrambling targets \bar{A} positions. On the other hand, little attention has been paid to the effects produced when the scrambled element is itself an anaphor. Tsoulas (1999) has argued in favour of a base generation

* I would like to thank the audience at the 17th International Symposium on Theoretical and Applied Linguistics for comments and discussion. Especially I would like to thank Kook-Hee Gil, Anna Roussou and Ianthi Tsimplí for comments on specific parts of the paper. Thanks also to the anonymous reviewer who made several valuable suggestions. If I have not addressed all the comments that I received, mea culpa, I will do so in the future. Many thanks also to the volume's editors for their extreme patience and advice. Errors are, of course, mine.

analysis precisely on the basis of anaphor scrambling facts. On the other hand, Saito (2003), on the basis of similar (but not identical) facts argues for a chain based approach to scrambling and binding, whereby there is no scrambled element strictly speaking but rather a chain of features with the phonetic features at the surface position and other features remaining at various places in the structure. Saito's system has been recently extended by Gil (2005) to cover not only anaphoric patterns under scrambling but long distance anaphora in general.

In this paper I will maintain that the original, base-generation approach proposed in Tsoulas (1999) is still tenable but that the processes and structures giving rise to different binding possibilities must be radically rethought. On the basis of the analysis to be put forward here I will also, at the end of the paper, offer some speculations on clause internal scrambling and also on what regulates the availability of scrambling.

2. Long Distance Scrambling and Anaphora

The original argument offered by Tsoulas (1999) in favour of a base-generation analysis of Long Distance Scrambling in Korean is based on the following type of example:

- (3a) *Mary_i -ka caki_i -lul John-i [*t t* cohahanta-ko] mitnun_{ta}.
 Mary.NOM self.ACC John.NOM like.COMP believes
- (3b) *Caki_i i -lul Mary_i -ka John-i [*t t* cohahanta-ko] mitnun_{ta}.
 self.ACC Mary.NOM John.NOM like.COMP believes
 'John believes that Mary likes herself.'

The above sentences are both ungrammatical on the reading indicated by the indices. They are, however grammatical if the antecedent of the anaphor *Caki* is the matrix subject. Partly on the basis of this argument Tsoulas (1999) proposes that instead of being derived by movement, these sentences are best understood if we suppose that the scrambled DPs are base generated adjoined to IP and their θ -positions are occupied by empty resumptive pronouns (*pro*). In this way a coindexation of the two *pros* would result in a Principle B violation, leaving the higher subject as the only possible antecedent. One has to remember here that Korean and Japanese Long Distance Scrambling display the so-called radical reconstruction property, namely that Long Distance Scrambling is literally undone, so to speak, at LF. It is this property, essentially, that makes the above examples problematic for a movement based account. If the scrambled elements reconstruct radically, then one does not expect any peculiar patterns in their binding behavior.

3. Saito's (2003) account

Saito's (2003) account is based on the idea that the relevant object for interpretation is a chain. The peculiar properties observed in cases of Long Distance Scrambling follow directly from the way scrambling chains are created and interpreted. More precisely, the most salient idea is that within a chain features may be retained at different positions and these are the positions where they are interpreted. So far, as Long Distance Scrambling is concerned, Saito proposes that the D feature of the scrambled DP, which is responsible for its interpretation in what concerns scope, binding¹ and so on, is always

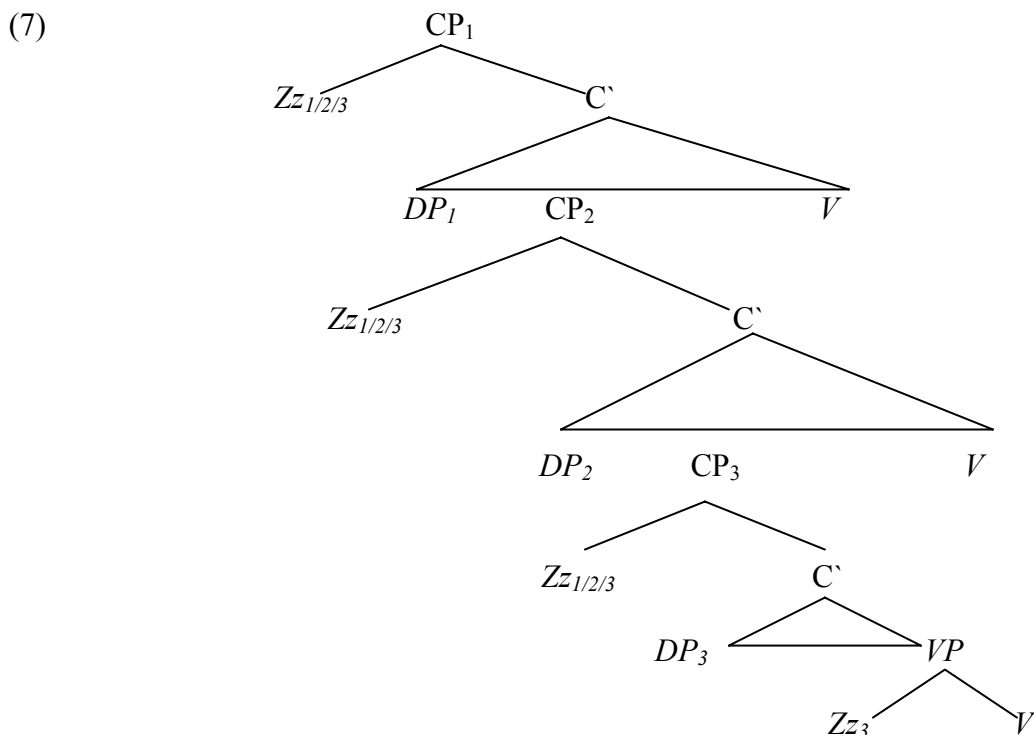
¹ It is important to observe here that by binding what is meant is the potential of a DP to be an antecedent, not to be bound. This is particularly relevant for what follows.

retained at the position where it was selected, i.e. its θ -position. On the other hand, the P-features of the DP are, of course, retained at the top of the chain, where the DP is in fact pronounced. This buys radical reconstruction elegantly and straightforwardly, semantics caring little for phonetic features.

Now, turning to the binding facts, Saito observes with respect to Japanese that when an anaphor like *zibun-zisin* is scrambled long-distance, its array of possible binders increases proportionally to the distance that it has moved away from its base position. As can be seen in the following examples from Dejjima (1999), cited in Saito (2003: 508):

- (4) Taroo-ga_i [_{CP} Hanako-ga_j [_{CP} Ziroo-ga_k zibunzisin *_{i,*j,k}
 Taroo.NOM Hanako.NOM Ziroo.NOM self.ACC
 hihansita to] itta to] omotteiry (koto).
 criticised that said that think fact
 ‘Taroo_i thinks that Hanako_j said that Ziroo-ga_k criticised self *_{i,*j,k}.’
- (5) Taroo-ga_i [_{CP} Hanako-ga_j [_{CP} zibunzisin*_{i,j,k} Ziroo-ga_k *t*
 Taroo.NOM Hanako.NOM self.ACC Ziroo.NOM
 hihansita to] itta to] omotteiry (koto).
 criticised that said that think fact
 ‘Taroo_i thinks that Hanako_j said that self *_{i,j,k} Ziroo-ga_k criticised.’
- (6) Taroo-ga_i [_{CP} zibunzisin_{i,j,k} Hanako-ga_j [_{CP} *t* Ziroo-ga_k *t*
 Taroo.NOM self.ACC Hanako.NOM Ziroo.NOM
 hihansita to] itta to] omotteiry (koto).
 criticised that said that think fact
 ‘Taroo_i thinks that self_{i,j,k} Hanako_j said that Ziroo-ga_k criticised.’

This is schematically represented in (7) where the increasing binding possibilities for *zibun-zisin* as it passes through the intermediate [spec,CP] positions are noted with the different indices (the DPs are the intermediate subjects).



3.1 Some problems

Elegant though it is, this approach faces certain empirical and conceptual problems. In what follows, I will concentrate on two empirical and one conceptual problem.

3.1.1 Korean anaphors

The empirical problems come from the behavior of anaphors in scrambling constructions in Korean. When we turn to Korean, a language which Saito claims behaves in the same way as Japanese, scrambling of the equivalent local anaphor does not produce the expected results. Contrary to predictions, scrambling of *Caki-Casin* seems not to affect its binding possibilities. It is always bound by the most local antecedent, as the following examples demonstrate:

- (8) John_i-i [Mary_j-ka cakicasin_j-ul cohahan]-ko malhayssta.
 John.NOM Mary.NOM cakicasin.ACC like.COMP said
 ‘John_i said that Mary_j likes cakicasin_j.’
- (9) Cakicasin_j-ul [John_i-i [Mary_j-ka *t* cohahanta]-ko malhayssta].
 selfself.ACC John.NOM Mary.NOM like.COMP said
 ‘John_i said that Mary_j likes cakicasin_j.’
- (10) Mary_j-ka [John_i-i [*t* cakicasin_j-ul cohahanta]-ko malhayssta].
 Mary.NOM John.NOM selfself.ACC like.COMP said
 ‘John_i said that Mary_j likes cakicasin_j.’
- (11) Mary_j-ka cakicasin_j-ul [John_i-i [*t t* cohahanta]-ko malhayssta].
 Mary.NOM selfself.ACC John.NOM like.COMP said
 ‘John_i said that Mary_j likes cakicasin_j.’
- (12) Mary_i-ka [John_j-i [cakicasin_k-ul Chelswu_k-ka *t* cohahanta]-ko
 Mary.NOM John.NOM selfself.ACC Chelswu.NOM like.COMP
 malhayssta]-ko mitnunnta.
 said- COMP believe
 ‘Mary_i believes that John_j said that Chelswu_k likes selfself_k.’

Apart from this problem, the original binding theoretic argument outlined in section 2 still stands and receives no satisfactory account.

In fact, the only account under Saito’s set of ideas would be to stipulate that in the case of *Caki* the feature identifying it as an anaphor *must* move together with the P features, whereas in the case of *Caki-Casin*, it again *must* remain in its base position as if it was selected there (as far as I can see selection is the only way in this case to force a feature to remain at a given position in the chain). In either case, however, one would have to make a pure stipulation in order to account for the Korean facts. Such a stipulation would be unwanted within the context of Saito’s account, which provides a straightforward and stipulation-free account of Japanese Long Distance Scrambling. The following table recapitulates the empirical problems mentioned above (all scrambling is Long-Distance):

Table 1. Binding patterns in Long Distance Scrambling constructions in Korean

<i>ANAPHOR</i>	<i>SCRAMBLING PATTERN</i>	<i>LOCAL BINDING</i>	<i>NON-LOCAL BINDING</i>
Caki	Multiple (both)	*	OK
	only anaphor	*	OK
	only antecedent	OK	OK
Caki-Casin	Multiple (both)	OK	*
	only anaphor	OK	*
	only antecedent	OK	*

Now, let us turn to a conceptual problem, namely the status of Condition A.

3.1.2 Condition A as an ‘anywhere’ condition

Binding is a problem for a purely derivational theory of grammar so long as one wishes to formulate a theory of the binding conditions which is also essentially derivational. In fact, it is generally recognized that this is not possible for all of the binding conditions. In his account of the binding patterns for the Japanese local anaphor *zibun-zisin*, Saito adopts a proposal which has grown out of the work of Belletti & Rizzi (1988), Lebeaux (1988), Epstein et al. (1998) among others, namely that binding Condition A should be conceived of as an *anywhere* condition, i.e. a condition which may be satisfied at any point in the derivation. I would like to suggest that there is one conceptual and one technical problem with the conception of Condition A (or any condition for that matter) as an *anywhere* condition. The conceptual problem is intimately related to the technical problem. The technical problem itself is simply this: if a condition X states that a feature [F] must be satisfied in a particular way in the derivation then it is unclear what would allow a derivation to proceed if the feature can be satisfied at a given moment but satisfaction is delayed. To be more precise, in the case at hand, suppose that anaphors are indeed identified by a feature [A] which requires for its satisfaction a C-commanding [D] feature. Now if an anaphor is merged at, say, the object position of a transitive predicate, as soon as a DP subject is introduced with its [D] feature which C-commands the anaphor, the [A] feature of the anaphor should be immediately satisfied. True, there may be further [D] elements to be merged higher and which can potentially satisfy the [A] feature of the anaphor but then one would have to have an extra mechanism to allow the [A] feature not to be satisfied by the first [D] feature and wait for the next one. It stands to reason that this is not the most desirable situation, due mostly to the look-ahead character of the mechanism in question.

Alongside this technical difficulty, the conceptual question arises whether it even makes sense to talk about a condition which can be satisfied at any point in the derivation. Is it, indeed, at all possible to refer to points in the derivation as ontologically independent entities where conditions can be satisfied? I believe that this amounts to reintroducing representationalist strategies in a purely derivational theory². The above point is quite different from saying that, e.g. each application of Merge has to satisfy condition X (say, satisfy a selectional feature of one of the two merged elements, or something along these lines). This is built into the definition of Merge – it isn’t optional. The same considerations apply to movement rules. On the other hand, one

² Note here that I do not take representationalist strategies to be inherently undesirable. They just don’t quite fit the framework though.

could argue that a derivation is no more than a set of representations related by applications of Merge (internal or external) and Agree. This would be true in a narrow sense, but the main point of the Minimalist Programme is to construct a theory where the different stages in the process, i.e., points in the derivation, intermediate representations etc., have no independent status. Whether this is a good idea, I suppose it is the theory that will grow out of the Programme that will show it. To summarise, an *anywhere* condition can no more find a home within a derivational theory of syntax than an S-structure condition can, for the simple reason that points in a derivation *qua* representational isolates cannot be referred to by the formal vocabulary of the grammar. One possibility at this point would be to reformulate the theory along the lines proposed by Lebeaux (1998) or Fox (2003). The former suggests that condition A applies ‘*existentially over the entire derivation*’ whereas the latter, adopting the copy theory of movement, suggests that the anywhere character of Condition A is to be captured by assuming that *some copy* must satisfy the condition³. However, neither of these implementations can provide a satisfactory account of the data in terms of Saito’s approach. The problem in this particular case is that if capturing the effects of scrambling requires us to assume that what gets interpreted is a chain, then we cannot refer to copies since there simply aren’t any. If the above criticism is justified, we are left with the task of explaining the binding patterns that Saito reports, and also their counterparts in Korean. I will not try to explain everything in this paper. My main aim will be to explore the extent to which a base generation approach to scrambling is really tenable and especially to examine the challenge that the behavior of local anaphors pose to that approach.

4. Local anaphors and the base generation approach

The difficulty that local anaphors pose for the base generation approach to scrambling is easy enough to state. If the structure is the same as the one proposed in Tsoulas (1999) then only the patterns in the upper part of Table 1 are predicted. The lower part is not; in fact, it is a glaring counterexample to the theory if the occupants of the θ -positions are indeed run-of-the mill null pronouns. In the next section I would like to make some suggestions concerning the nature of binding processes and based on these suggestions develop an account of the Korean facts.

5. On the nature of binding processes

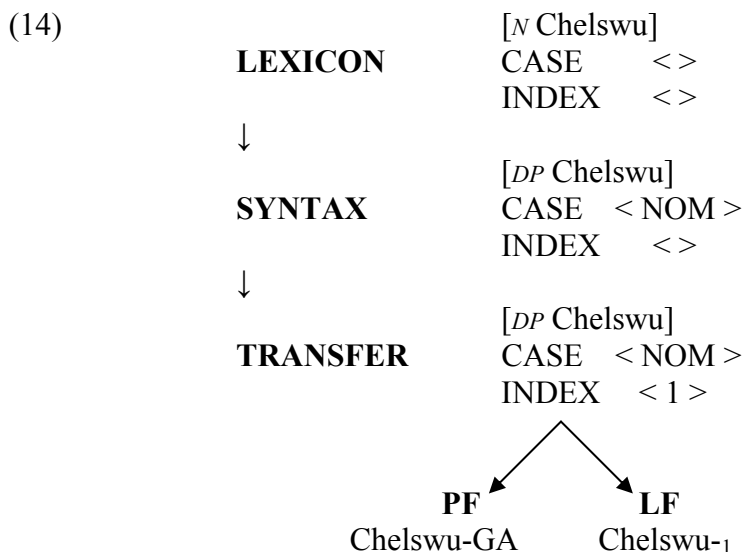
It has been clear since the early days of minimalism that the Binding Theory would be a problem. The reason for this was (and is) that at least some aspects of the Binding Theory seem inherently representational. This is, I believe, the case for Condition B. The second reason for the problematic nature of the Binding Theory is that the use of the most fundamental tool that was used to express binding-theoretic principles and generalizations, i.e. *indices*, is being denied by the *inclusiveness condition*, which states that only elements and features drawn from the lexicon can participate in operations and can be referred to by the formal vocabulary of the theory. I believe that the case for the

³ I will leave aside for this paper a detailed evaluation of the specifics involved in Fox’s approach. As will become obvious later, my approach shares some elements with Fox’s. I am also not going to go at any depth in what concerns Lebeaux’s views but I believe that the comments above regarding the fact that this view does not entirely fit with the framework should suffice. Note here that Lebeaux seems quite aware of this fact too.

inclusiveness condition is unconvincing but I will set aside a detailed exposition of the reasons for this paper⁴. One expedient remedy for the first problem is to assume that all of binding theory applies at LF. At least at that level there is a representation and conditions can be applied to it. Let us assume so for the time being. The second problem is more difficult. In line with the *inclusiveness condition*, I want to propose that an index can be conceived of more or less as a morpheme (at LF), whereas in the syntax and the lexicon it is only a feature specification. I assume here that a feature (or a subset thereof) is an attribute-value pair. So for a Case feature we will have something like the following:

- (13) Attribute < Value >
CASE < NOM >

This is by no means a new idea - it is explicitly used in most phrase structure grammar frameworks (HPSG, GPSG, LFG and so on) and this approach to features is implicit in a lot of minimalist work. Now, I want to propose that an index is more or less the same thing. An index-bearing element is specified in the lexicon for the attribute [Index], the value of this attribute generally being an integer. Let us assume for concreteness⁵ that the valuation of the [Index] attribute takes place as part of the TRANSFER operation, which passes a given structure to the interpretive components PHON and SEM (see Chomsky 2001). Thus, to take a simple example (using Korean because the case suffixes are overt) we will have the following schema representing the way the derivation proceeds (some irrelevant technical details are left aside):



Let us now assume an approach in terms of (14). There are a few further assumptions that I would like to make before the account is complete. First of all, following Chomsky (1993) and Pica (1987), I will assume that local anaphors undergo *Cliticization*_{LF}. We can further propose that *Cliticization*_{LF} must be onto a C-commanding predicative head. Furthermore, I would like to propose that the *Cliticization*_{LF} property is a value of the INDEX attribute, probably lexically specified.

⁴ See Kural & Tsoulas (2004) for the case for indices.

⁵ This is really for concreteness' sake. There is no *a priori* reason to exclude that the valuation of this feature/attribute should not take place in the computational system itself.

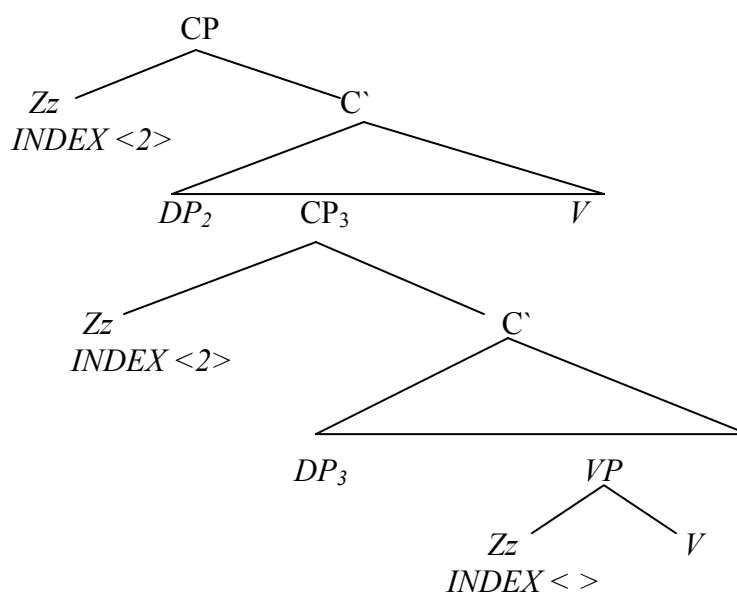
Finally, I would like to propose that resumption involves essentially copying of an index value, rather than, say, movement.

With the above in mind let's now return to the question of local anaphors in Korean. Clearly, a local anaphor, with its LF_{clitic} index value, base generated at its surface (scrambled) position, cannot cliticize to any predicative head and remains unbound at its surface position. However, given that resumption, by our definition, involves copying of an index value, the LF_{clitic} index value is copied onto the *pro* occupying the θ position of the anaphor. As a last resort strategy then, given that the anaphor cannot itself satisfy its index-value requirement, the associated resumptive does so. From the object position, it is clear that cliticization onto a C-commanding predicative head can take place (let us say for concreteness that the predicative head in question is v). If this is along the right track then the fact that the local anaphor *caki-casin* can take only the most local antecedent follows. Moreover, we can express the difference between local and long-distance anaphors simply by saying that $Cliticization_{LF}$ is a requirement for the former and only a possibility for the latter and thus not part of its index-value feature specification. That we need to retain the possibility that long-distance anaphors like *Caki* can be $Clitics_{LF}$ is shown by the fact that in sentences where *Caki* is not scrambled it can also take a local antecedent.

5.1 On the Japanese facts

Saito's facts remain, however, to be explained. I would like to suggest that the Japanese data do suggest, as Saito proposes, that long distance scrambling in Japanese is indeed a movement process. One option to be explored would be to assume that the same type of binding processes take place in Japanese too but that the movement in question is not movement of phonetic and potentially anaphoric features only but full category movement and that, furthermore, $Cliticization_{LF}$ can take place from any copy in the chain. This would account for the binding facts that Saito reports but would not say anything about the radical reconstruction property of long distance scrambling. This solution seems, however, rather unsatisfactory. It is unclear to what extent one would be ready to countenance a structure such as (15):

(15)



(15) has two problems. The first one is conceptual and concerns the well-formedness of the chain, since the value of INDEX is not the same in all copies. The second problem is specific to Japanese and concerns, again, the property of radical reconstruction. The structure in (15) predicts that the local anaphor should either be uninterpretable given that it has no INDEX value, or at best that it cannot be interpreted at its base position with the value resulting from *Cliticization*_{LF} from the intermediate copy. To overcome these problems, I would like to suggest the following: First, about the radical reconstruction question. The data that show that Japanese scrambling displays the radical reconstruction property involve *wh* scrambling. *Wh* elements need to take scope (be contained) within a question CP. Anaphors, however, show no such restriction and it is in fact impossible to tell from the data involving anaphor scrambling whether or not the anaphor has reconstructed radically. In a structure like (15) all we can say is that the anaphor has reconstructed to the intermediate [Spec,CP] and not lower. Since there is no need for the anaphor to reconstruct any lower, it does not do so, I claim.

In the previous paragraph I have, on the one hand, talked of reconstruction as a process and on the other representing it as the interpretation of a given copy. Let me now rationalize all this and try to pull together the suggestions and results of this paper.

6. Some implications

6.1 ... for scrambling

The main question that the above discussion raises is whether radical reconstruction is indeed a property of long-distance scrambling or a property which may be attributed to the actual elements that are being scrambled, while Long Distance Scrambling can be considered yet another application of *Internal Merge*. It seems to me that the latter is the more desirable situation. One way to achieve this would be to conceive of Long Distance Scrambling not as an instance of non-feature driven movement but as a movement process with mixed properties. In other words, it is clear that in cases of *wh* scrambling the first step of the movement may very well be for feature checking purposes (say, the embedded C in these cases is selected with an EPP feature). Subsequent steps though may not be for such purposes. In this case then we can propose that the non-feature driven steps of the movement are indeed simply movements of the phonological features only, just as Saito proposes. In this case there is not quite radical reconstruction but there are two interpretable (semantically, that is) copies, one at the base position and one at the immediately containing [Spec,CP]. This would account for the properties of *wh* scrambling. One potential problem here is scopal interpretation when the scrambled *wh* element takes scope under another quantificational element occupying the embedded subject position. This should not, however, be considered problematic. The same mechanism that will account for the same type of facts in, say, English should be able to account for these facts in Japanese. More problematic though would be a case of simple NP-long distance scrambling which can be shown to scope at its base position⁶. For this case I would like to suggest that if no feature checking is involved at any point then this is movement of the phonetic features alone all the way up.

⁶ Note here that there may be further problems in what concerns scope. Most notably, the long standing generalisation that Japanese is a surface scope language and ambiguities may only occur if one quantifier has moved overtly over another. I will leave these questions for another occasion though.

Finally, anaphor scrambling remains problematic. The question is that if this is taken on a par with NP-scrambling, then only the phonetic features of the anaphor should be moved and then no binding by a higher binder would be possible. Now, given that there is no clear sense in which the anaphor has reconstructed to its first-merge position, this seems to indicate that we have full category movement, this cannot really be the same thing as NP-long distance scrambling as we have conceived of it above. Would there be then a way to reconcile all this? Here is an attempt: First of all, I would like to adopt a suggestion given in Holmberg (2000) regarding the status of the EPP, namely, that it can be considered as a feature matrix which contains a [D] and a [P] feature. The [P] feature requires a phonetic matrix in the specifier of the head carrying the EPP feature. Now, it is a small step from there to propose that EPP features may be either [D+P] (requiring full category movement) or [D] (potentially satisfiable only by Agree), or [P] (movement of a phonetic matrix only)⁷. Adopting now this modified version of Holmberg's idea we can propose that in cases of LDS we have the following options (in C):

(16)

Scrambling of	C-features
<i>Wh</i>	operator, EPP [D+P]
NP	EPP [P]
Anaphor	EPP [D+P]

If we adopt this proposal, I think there are two benefits; first, the differences observed can be represented as differences in the featural specification of the intermediate C(s), and, second, we can in fact dispense with the notion that Long Distance Scrambling is the only non feature driven movement. It is optional, because the choice of C is also optional. So far, as radical reconstruction is concerned, I believe that if the doubts expressed above concerning chains with partially specified copies (Phonetic features aside) are justified, then we have to assume that only (interpretively) complete copies can be interpreted. This may seem trivial, but in the case of Long Distance Scrambling it is important because it implies that there is no radical reconstruction of anaphors at all, as we also suggested earlier. Only the copy where binding takes place (assuming that binding is the operation that completes the interpretation of the anaphor) will be interpretable and interpreted. This seems to me a reasonable result.

6.2 ... for binding

If we assume that *Cliticization*_{LF} is a rather standard way to achieve reflexive/local binding in a derivational fashion then the main implication of this paper for binding theory is the usage of indices. Unlike some mainstream approaches which adopt the *inclusiveness condition*, I do not take indices as unwanted elements that cannot enter syntax and cannot be manipulated by it in some manner or other⁸. Although here I did

⁷ We should note here that this is a slightly different conception of the EPP, in fact this is a generalised version of the type of EPP feature found in I⁰.

⁸ After all, one should remember that the *inclusiveness condition* is a simple conjecture, whose benefits have to be demonstrated and its validity proved. I am not aware either of any benefits that can be imputed to the *inclusiveness condition* or of any proof that it is valid. Until further research shows which way the balance tilts, it does not seem to be a good enough reason to reject, otherwise sound, analyses.

not make any use of indices within the syntax, the conception of an index on a par with say a Case particle is I believe useful, in that it allows application of Binding Theory at LF without having to invent indexation by fiat at that level only. Needless to say, there is a lot of work to be done though the direction seems rather promising.

7. A note on Gil's (2005) derivational theory of Long Distance Anaphora

Gil (2005) formulates an account of Long Distance Anaphora in general, on the basis of Saito's ideas. The basic insight is that in a derivational model, if anaphora can be accounted for in terms of movement, then long distance anaphora (in Korean and presumably in general) can be thought of as (Long Distance) scrambling of semantic or A features only. What becomes then of the initial argument if this account is correct? I believe the point still stands. Gil's account is able to account for the facts in (3a, b) but – in a way just as Saito's – fails to predict them. The way in which the point here still stands is that the readings reported here are obligatory. Therefore, although there is a way to think of these in Gil's terms, the point made here is about full category scrambling and in Korean, if I am correct, that is not movement.

8. A speculation on the availability of Scrambling

In this section I would like to offer some speculations on a slightly different matter. The theory that I have defended here for Korean long distance scrambling involves base-generation only. What about clause internal scrambling? I would like to suggest that, in general, it is possible to maintain a base-generation approach to clause internal scrambling too, in the spirit of Neelman & Reinhart (1998). They argue that Case-checking can take place in either the syntactic domain or the prosodic one, the former being broader than the latter. In the case of checking within the syntactic domain, inclusion of the object in the checking domain of a verb is sufficient for Case-checking. It is, therefore, possible for an adverbial to intervene between the object and the verb, which is the fundamental diagnostic for clause internal scrambling. As for thematic licensing, they argue that thematic features percolate from the verb up until they are discharged to a suitable host. In a sense then, in this picture, the difference between long-distance and clause internal scrambling is that only the latter involves some sort of movement (if we assume that feature percolation is some kind of movement, the precise implementation being immaterial for our present purposes) whereas the former involves none. This dichotomy is also supported by the fact that in Korean, resumptive pronouns are only possible in cases of long scrambling and not in clause-internal scrambling constructions.

With this analysis of scrambling in mind we turn to the question of the availability of scrambling. First, concerning long scrambling, we observe that there is a strong typological correlation between pro-drop languages and languages that have long-distance scrambling. This correlation is predicted by the theory since *pro* must be licensed in a language in order to generate long scrambling. However, being a pro-drop language is a necessary but by no means sufficient condition as languages such as Chinese (pro-drop but without scrambling) testify. On the other hand, for clause internal scrambling the necessary conditions, as can be seen from the evidence adduced by Neelman & Reinhart (1998) and Neeleman & Weerman (1996), are OV order and Case checking within the larger syntactic domain. These two conditions taken together yield the following typology of scrambling languages:

- (17) a. [+ ProDrop, +OV]: long and clause internal scrambling (Japanese, Korean).
 b. [+ ProDrop, -OV]: long scrambling only (possibly).
 c. [- ProDrop, +OV]: clause internal scrambling only (German, Dutch)⁹.
 d. [- ProDrop, -OV]: No scrambling (English/French).

Of the above categories (17b) seems problematic. I would like to suggest that this category is represented by a language like Greek, which has no clause internal scrambling but has constructions that are best understood as instances of long distance scrambling. The following examples show the cases in question:

- (18) Ti Maria [o Giannis ipe [oti ena kokkino fortigo xtipise]].
 the.FEM.ACC Mary the.MASC.NOM John said that a red truck hit
 ‘Giannis said that a red truck hit Maria.’
- (19) Ena kokkino fortigo ti Maria [o Giannis ipe [oti xtipise]]
 A red truck the.FEM.ACC Mary the.MASC.NOM John said that hit
- (20) Afti i tenia tou Aggelopoulou stis Kannes [o Giannis ipe [oti epilextike]].
 This the movie the.GEN Aggelopoulos.GEN at Cannes the G. said that was-selected
 ‘This is the movie by Aggelopoulos that John said was selected for the Cannes festival.’
- (21) Afti tin tenia tou Aggelopoulou stis Kannes oli i krites [o Giannis ipe [oti protimisan]].
 This the movie the.GEN Aggelopoulos.GEN at Cannes all the judges the G. said that preferred

If this suggestion is along the right lines, then we have a full typology of scrambling languages.

9. Concluding remarks

The primary purpose of this paper was to see the extent to which the base generation of long distance scrambling is a viable theory in the face of some problematic facts concerning local anaphora. Considering the problems raised by these cases, we were led to consider the nature of binding mechanisms. I proposed that indices can be kept within the arsenal of syntactic theory without compromising the *inclusiveness condition* if indices are considered values of featural attributes which are realised in the same way as Case morphemes are in morphology. Finally, I began an attempt to deconstruct long distance scrambling and account for its intriguing properties not via any special status of the rule itself but as a consequence of the properties of the different types of elements that undergo long distance scrambling. As a result, one of its most distinctive features, radical reconstruction, is not seen as a feature of the particular constructions but as the result of binding requirements and/or simple reconstruction requirements or possibilities of *wh* elements. Finally, I offered a view of local scrambling following Neelman & Reinhart (1998), which also does not involve movement in any fundamental way. From there we were able to come up with a typology of scrambling languages and with a statement of the conditions required for scrambling. Needless to say, more work is needed to see if these suggestions are indeed correct.

⁹ German and Dutch seem to have something similar to long distance scrambling out of infinitival clauses. This, however, does not seem to have the same properties as Japanese/Korean long distance scrambling and thus we leave it aside for this paper.

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