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Generalized Pied-Piping and Island Effects*

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1. Introduction

Chomsky (1995) proposes to incorporate the *Last Resort Condition* and the *Minimal Link Condition* (MLC) into a single principle called *Attract F*, repeated in (1).

- (1) *Attract F*
K *attracts* F if F is the closest feature that can enter into a checking relation with a sublabel of K. (Chomsky 1995: 297)

Roughly, a feature F_1 is *closer* to K than another feature F_2 only if K dominates both F_1 and F_2 and F_1 asymmetrically c-commands F_2 . The MLC built into *Attract F* excludes any instance of movement in which a lower feature raises over a higher c-commanding feature of the "same type". This derives the effects of Rizzi's (1990) Relativized Minimality.

- (2) a. ??which book₁ do you wonder [who read t₁] ? (wh-island)
b. *John₁ seems that it was told t₁ that Bill won the race. (superraising)

Both examples in (2) are excluded by *Attract F*, since the MLC built into the principle requires attraction of the closer [+wh] feature (in (2a)) and D or "EPP" feature (in (2b)). However, there are some well-known island facts that fall outside of such an analysis. For example, the Subject Condition violations in (3), the Adjunct Condition violation in (4), and the Complex Noun Phrase Constraint (CNPC) violation in (5) do not fall under Relativized Minimality; in these cases a lower feature does not raise over a higher c-commanding feature of the same type.

- (3) *Subject Condition*
a. *who did he say that [for Bill to marry t_{who}] was a surprise?
b. *who did [a picture of t_{who}] please John?

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- (4) *Adjunct Condition*
*who did John go home [because he saw t_{who}]?
- (5) *CNPC (extraction from relative clause)*
*who do you like [books [that criticize t_{who}]]?

Also, under the assumption that attraction of wh features applies in both the overt (pre-Spell Out) and covert (post-Spell Out) syntax,¹ Huang's (1982a) observation that Subject Condition, Adjunct Condition, and CNPC effects are found only with overt movement, as the multiple questions in (6), (7) and (8) indicate, further suggests that extraction out of subjects, adjuncts and relative clauses is not constrained by Attract F.²

- (6) a. ?who said that [for Bill to marry who] was a surprise? (cf. (3a))
b. who thinks that [a picture of who(m)] pleased John? (cf. (3b))
- (7) who went home [because he saw who]? (cf. (4))
- (8) who likes [books that criticize who]? (cf. (5))

Previous attempts to give a unified account for the effects in (3) and (4) (and later (5)) appealed to *government* (see, in particular, Huang 1982a and Chomsky 1986). However, within the Minimalist framework, government is abandoned in favor of more fundamental structural relations, such as the head-complement and Spec-head relations. Furthermore, Huang (1982a) proposed that the condition that rules out movement out of a subject or an adjunct (the "Condition on Extraction Domain") applies only in the D-Structure to S-Structure mapping (see footnote 2, for the same claim regarding Subjacency). However, this claim, though not implausible, is somewhat stipulative and should be derived from some fundamental property of natural language syntax. Moreover, within the Minimalist Program the D-Structure and S-Structure levels are eliminated and the derivation to LF is assumed to be uniform throughout (Chomsky 1993, 1995), making it difficult to maintain Huang's original proposal.

Therefore, it is necessary to reexamine the facts in (3) - (8) in a new light. In sections 2 and 3, I propose that these facts should be linked to the nature of category movement-- that is, generalized pied-piping of a category in the overt syntax for PF convergence-- rather than feature attraction.

2. Category Movement/Generalized Pied-Piping

Chomsky (1995) claims that since movement is driven by the requirement that some feature F be checked, then the minimal operation should raise only the feature F. Thus, he proposes to restrict covert raising in syntax to feature raising. A category containing a feature F

¹ In this respect I follow the proposals of Huang (1982a,b), Lasnik and Saito (1984, 1992) and Chomsky (1986) in assuming the existence of covert wh-movement of wh-in-situ. Alternative approaches arguing against covert wh-movement of wh-in-situ in favor of unselective binding are advocated in one form or another by Pesetsky (1987), Reinhart (1993), Tsai (1994) and others.

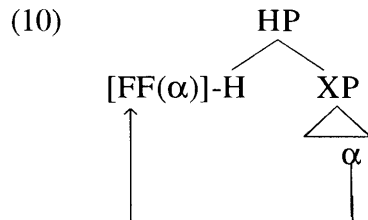
² Huang (1982a), based on observations from Chinese and multiple questions in English (following Baker's (1970) observations), claimed that wh-island effects are not found with covert wh-movement of wh-in-situ, and concluded from this that the Subjacency Condition does not apply in the S-Structure to LF mapping. However, Nishigauchi (1990), Cole and Hermon (1995), and others have argued, contrary to Huang, that wh-island effects are found with covert wh-movement in Japanese and Chinese, suggesting that covert wh-movement also obeys Subjacency. If the latter claim is true, and if it can be reconciled with the observations in English, then a feature attraction based account for wh-island effects should be maintained.

moves along with F only when required for PF convergence.³ This property is determined by the following economy condition:

- (9) F carries along just enough material for convergence. (Chomsky 1995: 262)

Chomsky further suggests that feature movement and "generalized pied-piping" of a category form separate chains: CH_{FF} and CH_{CAT} , respectively. CH_{FF} consists of the set of formal features $FF[F]$ and its trace and is formed via Attract F ($FF[F]$ automatically raises with F when K attracts F). In the covert syntax, the formal features undergo head-adjunction to the head of K. CH_{CAT} is constructed only when pied-piping of the category is required for PF convergence.

On the simplest assumption, movement for feature checking purposes should involve adjunction of the formal features to a head regardless of whether Attract F applies in the covert syntax or in the overt syntax. This is shown in (10) (α is a category and $[FF(\alpha)]$ are the formal features of α).



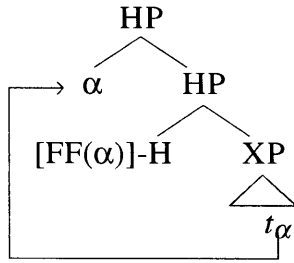
If feature movement is covert, nothing more happens and the category α remains in-situ.⁴ However, if feature movement is overt, then PF requirements trigger the application of an operation in the overt syntax that places the category α "close enough" to $[FF(\alpha)]$ so that the features that constitute α will not be scattered. A natural assumption is that the derivation is canceled if any elements that are discontinuous enter into the phonological component (particularly, the module Morphology, which can deal with word-like elements only (Chomsky 1994: 18)). I propose that in the overt syntax α is raised to the *minimal domain* of the head H to which $[FF(\alpha)]$ is adjoined so that the category may be close enough to its formal features for the purposes of the phonological component. According to Chomsky (1993: 12), the minimal domain of H is the *checking domain* (to be defined below) plus the *complement* of H. Thus, overt movement that involves feature checking always has two components: (a) Attract F (the core operation) and (b) category movement/generalized pied-piping.

I propose that the category α adjoins to the maximal projection of H, forming a two-segment category (see May 1985). This is shown in (11), where α represents an X^{\max} category (I leave aside the case of head movement in this paper). The minimal domain of a head H is defined as the checking domain plus the complement of H. I adopt Chomsky's (1993) definition of checking domain, which includes elements adjoined to the head H, the specifier of H, and the position adjoined to HP (cf. Chomsky's (1995) definition). Thus, α and its formal features are both within the minimal domain of H in (11).

³ It should be noted here that a "category" is understood to be nothing more than a collection of features, namely formal, semantic and phonological features (see Chomsky 1970, 1995).

⁴ However, see Agbayani 1996 and Kennedy 1997 for arguments that pied-piping of a category may apply in the covert syntax to satisfy certain LF requirements related to the nature of quantification. I assume that these arguments do not apply to the cases of wh-movement considered in this paper, though.

(11)



This approach essentially follows Kayne's (1994) and Fukui and Saito's (to appear) proposals that "specifiers" are formed by adjunction (collapsing the specifier vs. adjunct distinction). According to Kayne and Fukui and Saito, a category YP undergoing movement adjoins to a phrase XP and enters into Spec-head agreement with the head of XP. However, under the present view the role of "specifiers" formed by movement is rather different from that assumed by these authors. Under the present approach, "specifiers" are formed by movement to satisfy PF requirements only. Given the possibility that head-adjunction for feature checking takes place in both the overt and covert syntax, then an additional mechanism of feature checking through a Spec-head configuration in the overt syntax becomes unnecessary. The adjunction of the formal features of α to a head H is the only operation that is relevant for feature checking. This approach leads to a simplification of the checking theory by allowing a uniform structural configuration to exist for feature checking in both the overt and covert syntax.

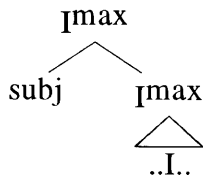
3. Conditions on Category Movement and Adjunction

3.1. Subject Condition and Adjunct Condition Effects

Let us now turn to the island effects that were argued to fall outside of Attract F. In this section we will look at Subject Condition and Adjunct Condition effects and present a theory of category movement that derives these effects.

Fukui and Saito (to appear) propose that operations that have traditionally been analyzed as involving substitution (which forms a new category through target projection) actually involve *adjunction* to an X^{\max} category (which creates a two segment category). In their proposal, adjunction applies in the case of Last Resort (feature-checking) movement, and this movement always creates a structure that violates the head-parameter value for English. The case of Last Resort movement of an X^{\max} category to Y^{\max} is analyzed in their theory as adjunction to Y^{\max} and agreement with the head of Y^{\max} . For example, raising of a subject from the V^{\max} -internal position to I^{\max} in English, driven by "the strong D feature" of I (the EPP; see Chomsky 1995), involves adjunction to I^{\max} and agreement with the I(nfl) head. Crucially, adjunction forms a two segment category, not a new category.

(12)



Fukui and Saito also analyze other classical cases of substitution as adjunction. They point out that their adjunction analysis has a conceptual advantage over earlier approaches in that it eliminates the need for a "vacuous target" Δ , whose sole function in the traditional theory of substitution was to mark the landing site of movement (see Chomsky and Lasnik (1993), among others; see Fukui and Saito (to appear) for a more detailed discussion).

Two major arguments for Fukui and Saito's approach come from the (re)unification of the CED effects and the absence of Subject Condition effects in Japanese. The Subject Condition effect and the Adjunct Condition effect are illustrated in (13a) and (13b), respectively.

- (13) a. *who₁ did [a picture of t_I] please John
 b. *who₁ did John go home [because he saw t_I]

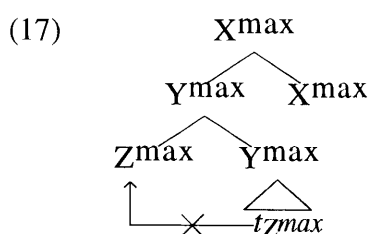
Fukui and Saito propose a (re)unified account of the Subject Condition and Adjunct Condition effects. Recall that subjects in English are adjoined to X^{\max} in their theory. Thus, subjects and adjunct phrases are both in adjoined positions.⁵ Furthermore, they propose the following minimality condition on movement, reminiscent of Chomsky and Lasnik's (1993) Minimize Chain Links and Takahashi's (1994) Shortest Move Condition:

- (14) Every X^{\max} that dominates α is a possible landing site for α . Movement of α must proceed by adjoining to every X^{\max} dominating α .

Fukui and Saito assume the definition of *adjunction* in (15), which makes use of the notions *domination* (16a) and *exclusion* (16b).

- (15) α is *adjoined* to β =_{def} neither α nor β dominates the other and β does not exclude α . (Fukui and Saito (to appear))
- (16) a. The category α *dominates* β if every segment of α dominates β . (Chomsky 1993: 11)
 b. α *excludes* β if no segment of α dominates β . (Chomsky 1986: 9)

They also propose that adjunction to an adjoined phrase, as in (17), is ruled out. In (17), Z^{\max} has moved out of Y^{\max} .



Under Fukui and Saito's definition of adjunction, Z^{\max} is adjoined simultaneously to both X^{\max} and Y^{\max} because X^{\max} and Y^{\max} do not dominate Z^{\max} and vice versa, and neither Y^{\max} nor X^{\max} excludes Z^{\max} . Thus, Z^{\max} is simultaneously adjoined to two categories. However, this indeterminacy of adjunction site is ruled out by the following general condition on structure-building:

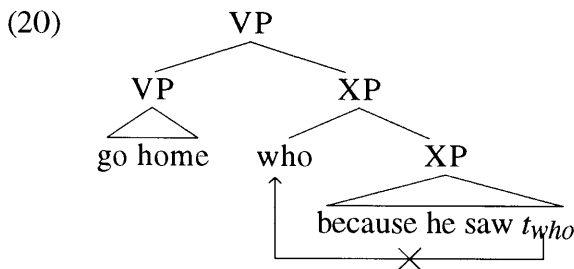
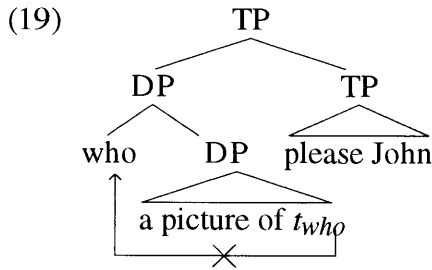
- (18) An adjunction site must be unique.⁶

The minimality condition in (14) and the uniqueness condition on adjunction sites in (18) account for the CED effects. If adjunction to every dominating X^{\max} is required whenever a phrase undergoes movement, then that phrase will always be required to adjoin to an adjoined category whenever there is extraction out of a subject or an adjunct. However, adjunction to an

⁵I remain neutral as to whether adjunct phrases like adverbials are adjoined through movement or base-generation/Merge.

⁶(18) is proposed as a condition on operation, not on representation (see Fukui and Saito (to appear) for detailed discussion).

adjoined category is barred by the uniqueness condition on adjunction sites. This is illustrated in (19) (= extraction out of the subject in (13a)) and (20) (= extraction out of the adjunct in (13b)).



Adjunction of *who* to the subject DP in (19) will cause *who* to be adjoined to both DP and TP simultaneously. Similarly, adjunction of *who* to the adjunct phrase XP in (20) will cause *who* to be adjoined to both XP and VP simultaneously. Both cases of adjunction are ruled out by (18). Furthermore, if movement of a phrase skips adjunction to the adjoined category, then the minimality condition in (14) is violated.

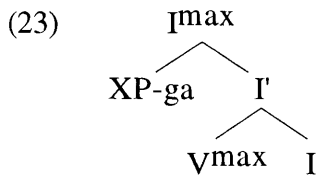
Japanese, unlike English, seems to allow extraction out of subjects (see Ross 1967, Kayne (1983), Saito 1985, Lasnik and Saito 1992, and Fukui and Saito (to appear)). As illustrated below, scrambling in Japanese does not distinguish between extraction out of an object (21) and extraction out of a subject (22) (examples from Fukui and Saito (to appear)).

(21) ?nani-o_i [John -ga [NP[IP Mary -ga *t_i* katta] koto]-o mondai-ni siteru] no
 what-Acc -Nom -Nom bought fact-Acc problem-into makingQ
 'What_i, John is making an issue out of [the fact that Mary bought *t_i*]'

(22) ?nani-o_i [John -ga [CP[NP[IP Mary -ga *t_i* katta] koto]-ga mondai-da to]
 what-Acc -Nom -Nom bought fact-Nom problem-is that
 omotteru] no
 thinks Q
 'What_i, John thinks that [the fact that Mary bought *t_i*] is a problem'

Both examples are slightly degraded because they involve extraction out of a "pure" complex NP. However, (22) is no worse than (21), indicating that subjects do not form islands for movement in Japanese.

Fukui and Saito claim that in Japanese the subject is not adjoined to I^{\max} but is completely within the projection of I as shown in (23). According to them, this is because the subject in Japanese does not move to I^{\max} to check features with I, but is base-generated within the projection of I (see Fukui (1995) and Fukui and Saito (to appear) for discussion). Therefore, the subject in Japanese is dominated by I^{\max} (*XP-ga* in (23) indicates the subject).



If this is correct, then adjunction to a subject is allowed in Japanese because the subject in this language is not in an adjoined position. The lack of Subject Condition effects in Japanese therefore follows. Extraction out of a subject is illicit in English because in English subjects are adjoined to IP/TP, and adjunction to an adjoined phrase is prohibited by (18).

The unification of the CED effects and the lack of Subject Condition effects in Japanese are thus important pieces of evidence for Fukui and Saito's proposal. However, their proposal does not explain why the CED effects are found only when movement is *overt*. It has been well known since the work of Huang (1982a) that the CED effects are S-Structure effects, seen only with overt movement. Thus, consider the examples in (24), which are relatively acceptable multiple *wh*-questions; in each case there is a *wh*-word in-situ in a subject or adjunct clause which presumably undergoes LF (covert) movement.

- (24)
- a. who thinks that [pictures of whom] are on sale?
 - b. who left [before doing what]?
 - c. who thinks that [for whom to do what] would be a mistake?

It was proposed in section 2 that Attract F applies in both the overt and covert syntax in a uniform manner, adjoining the relevant formal features to a head H regardless of whether the operation applies in the overt syntax or the covert syntax. The difference between movement in the overt syntax versus movement in the covert syntax lies in the application of category movement in the former, but not in the latter. Given these assumptions, it makes sense to link the CED effects to conditions on category movement rather than Attract F.

To preserve the unified account of the CED effects, it is therefore necessary to make the minimality condition on movement in (14) specific to *category* movement, as in (25):

- (25) **Minimality Condition on Category Movement**
 Every X^{\max} that dominates category α is a possible landing site for α . Movement of category α must proceed by adjoining to every X^{\max} dominating α .

(25) is irrelevant for feature movement. The question then arises as to why such a condition should hold for category movement. I assume that the condition reflects a fundamental property of C_{HL} (the computational system for human language) that (movement) transformations should be "minimal" in nature (see Takeda (1997) for more detailed discussion of this notion applied to both feature movement and category movement). As it stands, (25) states a property that should be derived from some more fundamental aspect(s) of human language computation.

Under the proposal that category movement involves adjunction to a maximal projection, and assuming the revised minimality condition in (25), the account of the CED effects can be preserved. Rather than stipulating that the CED applies only to S-Structure movement, the present approach offers a principled reason for why the CED should hold only when movement is overt. Under the present account, a CED effect results from the illicit adjunction of a *category* to an adjoined position on the way to the final landing site. Successive adjunction of a moved category is required by the minimality condition in (25). If movement of formal features is overt, then pied-piping of the category is necessary for PF convergence. Category movement is not necessary in the case of covert feature movement, since PF considerations do not apply in the

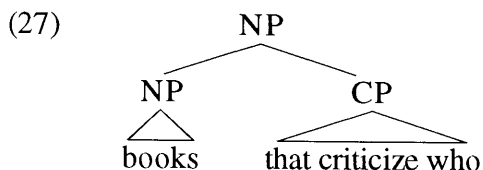
covert component. Hence, category movement occurs only in the overt syntax. The condition in (25) is a condition on category movement and is irrelevant for feature movement. Movement of features is subject only to Attract F in (1), a very different principle from the Minimality Condition on Category Movement in (25). Under this approach, category movement resembles Move motivated by Greed (Chomsky 1993): a category α moves to the "neighborhood" of its formal features to satisfy its own need to be a proper word-like unit for the purposes of the phonological component.⁷

3.2. CNPC Effects

Let us now turn to extraction out of a relative clause, which induces a CNPC violation as in (26) (Ross 1967):

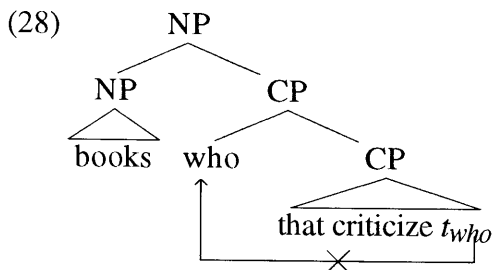
(26) **who*₁ do you like [books [that criticize *t*₁]]?

Essentially following the traditional analysis of relative clauses in English, I assume that relative clauses occupy a right-adjoined position, as illustrated in (27) (see also Lebeaux 1990):



Thus, relative clauses are treated on a par with other adjunct modifiers in that they also occupy an adjoined position.

Assuming the structure in (27), it is now possible to give an account for CNPC violations that is parallel to the account for CED effects. If the [+wh] feature of *who* in (27) undergoes feature attraction in the overt syntax, then the rest of the category *who* is required to undergo generalized pied-piping/category movement. Recall that the Minimality Condition on Category Movement in (25) forces a category undergoing generalized pied-piping to adjoin to every dominating X^{\max} . If adjunction to every dominating X^{\max} is required whenever a category undergoes movement, then that category will always be required to adjoin to an adjoined phrase (i.e., the relative clause CP) whenever there is extraction out of a relative clause. However, adjunction to the relative clause CP is ruled out by the uniqueness condition on adjunction sites in (18). This is illustrated in (28):



⁷I have recently discovered that Ochi (to appear) has independently arrived at a similar analysis for CED effects, although he adopts Takahashi's (1994) conditions on movement and adjunction (the "Shortest Move Condition" and the "Uniformity Corollary on Adjunction", respectively) for category movement. I am grateful to Zeljko Boskovic for pointing out Ochi's work to me.

Adjunction of *who* to CP in (28) will cause *who* to be adjoined to both CP and NP simultaneously, which violates the condition (18). Furthermore, if movement of the category skips adjunction to the relative clause CP, then the minimality condition (25) is violated.⁸

3.3. Extraction Out of Non-Adjoined Phrases

The present theory correctly predicts that extraction out of a complement phrase does not induce an island effect. This is because complements are non-adjoined phrases, and if a phrase is in a non-adjoined position, then a category that undergoes generalized pied-piping in the overt syntax may adjoin to the complement phrase without violating the uniqueness condition on adjunction sites in (18). Thus, the theory correctly predicts the non-existence of an "Object Condition" in English in contrast to the existence of a Subject Condition (contrast (29) with (30)):

- (29) a. *who*₁ did John say [that Bill married *t*_I]?
 b. *who*₁ did John like [a picture of *t*_I]?
 (30) a. **who*₁ did John say that [for Bill to marry *t*_I] was a surprise?
 b. **who*₁ did [a picture of *t*_I] please John?

The present theory predicts that adjunction of a phrase α makes α an island, and any extraction of a category out of α is blocked (see also Ross 1974 for a similar claim). On the other hand, movement of a category is not blocked if it proceeds out of a non-adjoined (i.e., complement) phrase. Thus, the classical complement vs. non-complement asymmetry with respect to extraction is captured in this theory without recourse to government (cf. Huang 1982a).

4. Other Issues

4.1. Anaphor Binding and Successive Movement

An important aspect of the present theory is that it forces a category α to adjoin *successively* to each dominating X^{\max} whenever the category is forced to move to satisfy PF requirements. In fact, the account for the domain barrier effects in section 3 crucially relied on this aspect of the theory. The question therefore arises as to whether there is any independent evidence for the claim that the category adjoins successively to each dominating X^{\max} . There is, in fact, some important evidence from anaphor binding which confirms this approach to category movement.

Barss (1986) cites examples like (31):

- (31) [Which picture of himself₁] does John₁ think that Mary likes *t* ?

In (31), the matrix subject *John* is somehow able to bind the anaphor *himself* embedded in the raised wh-phrase, even though *John* does not c-command and locally bind *himself*. In Barss' analysis, there is an intermediate trace of the wh-phrase in the Spec of the embedded CP through

⁸Extraction out of a "pure" complex NP like (i) has been noted to induce a weaker effect than extraction out of a relative clause:

- (i) ??*who*₁ did they believe [the claim [that John killed *t*_I]]?

If the traditional analysis of "pure" complex NPs as *noun* + *complement clause* (rather than *noun* + *adjunct clause*) is maintained, then cases like (i) may not fall under the theory pursued in the text. It may be the case that the effect of extraction out of a "pure" complex NP can be made to fall under the theory of feature attraction if the economy condition that constrains the application of Attract F is reformulated, as proposed by Fukui (1997) (see Fukui 1997 for discussion of this issue).

which *John* can locally bind the anaphor. Following a copy theory of movement, one could think of the traces as copies of the wh-phrase containing the anaphor. Notice that it cannot be the copy of *himself* in the initial copy of the wh-phrase that is relevant for binding, since *himself* in that position would not be locally bound by the matrix subject:

(32) *John₁ thinks [that Mary likes a picture of himself₁].

This fact suggests that the wh-phrase in (31) does not move in “one swoop”, but rather undergoes successive movement.

This interesting fact provides support for the claim that category movement proceeds in successive fashion. Let us assume that binding relations are determined at LF. In the case of (31), there is an anaphor embedded inside of the pied-piped wh-phrase. When the [+wh] feature of the wh-phrase raises to the matrix C in the overt syntax, the entire wh-phrase is forced to undergo category movement. The Minimality Condition on Category Movement forces the wh-phrase to adjoin to every X^{\max} dominating it on the way to the matrix CP. In the formation of CH_{CAT} , copies are left at each intermediate adjunction site. Crucially, there is a copy of the wh-phrase adjoined to the embedded CP and the matrix VP. At LF, it is the copy of the anaphor embedded in the copy of the wh-phrase in either of these positions that the matrix subject can locally bind:

(33) ...John₁ [VP *t*[*which picture of himself*(1)]] [VP think [CP *t*[*which picture of himself*(1)]] [CP that...]]]]

However, if all that is pied-piped is phonological material (since presumably this is all that PF requires)-- leaving other (semantic and formal) features in the base-generated/Merged position-- then the present theory cannot account for Barrs' intermediate anaphor binding effects, since phonological features are irrelevant for LF in general. However, if the category (minus its formal features) is "atomic" as far as the core computational system is concerned, then *all* of the remaining features of the category would pied-pipe as a single unit in the overt syntax. This is plausible under the standard view that there are no syntactic operations that make exclusive reference to phonological features.

4.2. On the "Strength" of Islands

This section discusses some further issues regarding the "strength" of islands that should be addressed by any theory of domain barrier effects. I will simply note what the relevant issues are and suggest a possible direction for future research.

Recall that a prediction of the present theory is that adjunction of a phrase α makes α an island, and any extraction of a category out of α is blocked. The theory accounts for Subject Condition, Adjunct Condition, and CNPC effects provided that subjects (in English), adjunct modifiers and relative clauses are adjoined phrases. In English, the subject raises to TP, assuming the predicate-internal subject hypothesis (Fukui and Speas 1986, among others). As discussed in section 2, a moved category is X^{\max} adjoined. Therefore, the existence of Subject Condition violations is expected in English, since the subject category in this language is adjoined to TP through category movement. The lack of Subject Condition effects in Japanese is predicted as well under the assumption that the subject does not raise in this language.

The theory predicts that movement should make any category an island. Furthermore, it predicts that all islands formed by movement of a category should be of equal "strength".

However, some observations made by Torrego (1985) (discussed in Chomsky 1986) and Lasnik and Saito (1992) suggest that the facts are actually more complicated. These authors claim that extraction out of a fronted *wh*-phrase or topic produces only a mild effect, in contrast with extraction out of a subject which produces a strong island effect (examples from Lasnik and Saito 1992: 101-102).

- (34) a. ??who₂ do you wonder [which picture of t_2]₁ Mary bought t_1 ?
 b. ??who₂ do you wonder [which picture of t_2]₁ t_1 is on sale?
 c. ??who₂ do you think that [pictures of t_2]₁, Mary believes t_1 are on sale?
 (35) *who₁ do you think [pictures of t_1] are on sale?

Under the present theory, fronted *wh*-phrases and topics are adjoined to CP. Therefore, the theory would predict that movement out of a fronted *wh*-phrase or topic should produce the same effect as movement out of a subject. (34a-c) are degraded, as expected, however the effect is slightly weaker than a Subject Condition effect (35).

Moreover, certain islands may have "strong" effects in some languages, but relatively weaker effects in others. Fukui (1991) notes that Japanese exhibits CNPC effects and Adjunct Condition effects, but these island effects are, in many cases, "milder" than those found in languages like English. Thus, scrambling out of a relative clause (36) or an adjunct modifier (37) in Japanese is relatively weaker than extraction out of a relative clause or adjunct in English (examples from Saito 1985).

- (36) ??ano hon-o₁ [S John -ga [NP[S e₂ [t_1 katta] hito₂] -o sagasite-iru rasii
 that book-Acc -Nom bought person -Acc is looking for seems
 'It seems that John is looking for the person who bought that book.'
 (37) ?sono hon-o₁ John -ga [S' Mary -ga t_1 yomi-oete kara] dekaketa (koto)
 that book-Acc -Nom -Nom finish-reading after went out (that)
 'John went out after Mary finished reading that book.'

The question now arises as to what determines the relative "strength" of islands, both within a language and across languages. Fukui (1991), assuming the Barriers framework, attempts to relate the different strength of islands in English and Japanese to the nature of phrasal projection in the two languages. He suggests that a phrase that licenses a Spec is "closed off" for further projection and forms a "strong" barrier, whereas a phrase that does not license a Spec may project further and forms a relatively "weak" barrier if it is not L-marked. According to Fukui, English is a language that generally licenses Specs through agreement with certain functional heads, whereas (functional) heads in Japanese lack the ability to license Specs through agreement. The differential nature of phrasal projection in English and Japanese would then lead to the different strength of islands in the two languages (see Fukui 1991 for more detailed discussion).

An alternative approach to the differences between English and Japanese would be to focus on the operations that extract a category out of an island. Fukui (1993) and Fukui and Saito (to appear) have suggested that scrambling in Japanese is not driven by feature checking.⁹ These authors argue that scrambling is not an instance of Last Resort movement, but is a true case of "optional" movement. An important piece of evidence suggesting that scrambling in Japanese is not a Last Resort movement operation is the apparent absence of Relativized Minimality effects

⁹Hoji (1985) and others have argued that scrambling in Japanese is always an *overt* movement operation, and that there is no covert scrambling in Japanese.

with scrambling. Recall that Relativized Minimality effects, like the *wh*-island violation in (38), are accounted for by Attract F.

(38) ??which book₁ do you wonder [who read t₁] ?

The Minimal Link Condition (MLC) built into Attract F excludes any instance of feature movement in which a lower feature raises over a higher c-commanding feature of the same type. Thus, the MLC built into Attract F requires attraction of the closer [+wh] feature (the [+wh] feature of *who*) in (38). Multiple scrambling in Japanese does not exhibit such an effect, as (39) and (40) show. (39a,b) are instances of multiple clause-internal scrambling, and (40a,b) are instances of multiple long-distance scrambling (examples from Fukui and Saito (to appear)).

- (39) a. [IP sono hon-o₁ [John -ni₂ [Mary -ga t₂ t₁ watasita]]]
 that book-Acc -to -Nom handed
 b. [IP John -ni₂ [sono hon-o₁ [Mary -ga t₂ t₁ watasita]]]
 -to that book-Acc -Nom handed
 'Mary handed that book to John.'
- (40) a. [IP Sono hon-o₁ [John -ni₂ [Bill -ga [CP[IP Mary -ga t₂ t₁ watasita]
 that book-Acc -to -Nom -Nom handed
 to] itta]]] (koto)
 that said (fact)
 b. [IP John -ni₂ [Sono hon-o₁ [Bill -ga [CP[IP Mary -ga t₂ t₁ watasita]
 -to that book-Acc -Nom -Nom handed
 to] itta]]] (koto)
 that said (fact)
 'Bill said that Mary handed that book to John.'

The grammaticality of the examples in (39) and (40) indicates that multiple scrambling is not restricted by Attract F, in contrast to *wh*-movement in English. This suggests that scrambling is not driven by feature checking.

If scrambling is not driven by feature checking, then it may be a case of overt movement without the Attract F component. In other words, if scrambling is truly optional, then the operation could be viewed as "pure" category movement that is not motivated to satisfy PF requirements (see Takeda 1997 for such a suggestion). Then, the difference in the "strength" of island effects in Japanese and English may be attributed to the nature of the overt movement operations involved: the "optional" nature of Japanese scrambling may relate to the weakness of island effects in that language, and the Last Resort nature of *wh*-movement (and other movement operations) in English may relate to the strength of island effects in English. More work is needed, however, to determine the exact nature of category movement/generalized pied-piping in relation to optional movement and Last Resort movement, and to determine how the nature of category movement in these cases relates to the nature of island effects.

Note, however, that it is not clear how either of the approaches sketched out above could extend to the distinction between extraction out of subjects and extraction out of fronted *wh*-phrases and topics in English. I therefore leave open for now the question of what determines the relative strength of islands, only noting that more fine tuning is needed to extend the present theory to accommodate these facts.

5. Conclusion

To conclude, this paper has attempted to articulate a theory of category movement/generalized pied-piping that accounts for the classical "domain barrier" effects, which Attract F cannot account for. The theory proposed here relies on the existence of X^{\max} adjunction and predicts that extraction out of an adjoined phrase is blocked (i.e., adjoined phrases are islands for movement). The theory relates the Subject Condition, Adjunct Condition and CNPC directly to fundamental phrase structural properties without appealing to government, in accord with Minimalist assumptions. Moreover, the classical complement vs. non-complement asymmetry with respect to extraction is captured in this theory without recourse to government (cf. Huang 1982a).

Finally, a clear consequence of this approach is that it gives separate accounts for the Wh-Island Constraint and Superraising on the one hand, and the CED and CNPC on the other, contrary to what was assumed in the Barriers framework where all such constraints were unified under one system (see Chomsky 1986). Rather, the two sets of phenomena fall under separate accounts made necessary by an independently motivated split between Attract F and generalized pied-piping:

(41)

<i>Attract F</i>	<i>Category Movement/Generalized Pied-Piping</i>
Wh-Island Constraint Superraising	Subject Condition Adjunct Condition CNPC (extraction from relative clause)

By relating the CED and the CNPC to category movement/generalized pied-piping, it is possible to derive the fact that these island effects are found only when movement is overt (cf. Huang 1982a). If an approach along these lines is correct, then it offers a novel way of treating some of the classical island facts within the Minimalist framework.

References

Agbayani, Brian. 1996. Interpretation of Noun Phrases and Feature Licensing. In Costa, Goedemans and van de Vijver (eds.), *Proceedings of ConSOLE 4*. Student Organization of Linguistics in Europe.

Baker, C.L. 1970. Notes on the Description of English Questions: The Role of an Abstract Question Morpheme. *Foundations of Language* 6: 197-219.

Barss, Andrew. 1986. Chains and Anaphoric Dependence: On Reconstruction and its Implications. Doctoral dissertation, MIT.

Chomsky, Noam. 1970. Remarks on Nominalization. In Jacobs and Rosenbaum (eds.), *Readings in English Transformational Grammar*. Ginn and Co., Waltham, Mass.

——— 1986. *Barriers*. MIT Press, Cambridge, Mass.

——— 1993. A Minimalist Program for Linguistic Theory. In Hale and Keyser (eds.), *The View from Building 20*. MIT Press, Cambridge, Mass.

——— 1994. Bare Phrase Structure. MIT Occasional Papers in Linguistics 5. MIT, Cambridge, Mass.

——— 1995. Categories and Transformations. In Chomsky, *The Minimalist Program*. MIT Press, Cambridge, Mass.

Chomsky, Noam and Howard Lasnik. 1993. The Theory of Principles and Parameters. In Jacobs, von Stechow, Sternefeld, and Vennemann (eds.), *Syntax: An International Handbook of Contemporary Research*. Walter de Gruyter, Berlin.

- Cole, Peter and Gabriella Hermon. 1995. Is Wh-in-Situ Really in-situ? Evidence from Malay and Chinese. In Aranovich, Byrne, Preuss, and Senturia (eds.), *Proceedings of the 13th West Coast Conference on Formal Linguistics*. Center for the Study of Language and Information, Stanford.
- Fukui, Naoki. 1991. Strong and Weak Barriers: Remarks on the Proper Characterization of Barriers. In Nakajima (ed.), *Current English Linguistics in Japan*. Mouton de Gruyter, Berlin.
- . 1993. Parameters and Optionality. *Linguistic Inquiry* 24: 399-420.
- . 1995. *Theory of Projection in Syntax*. Center for the Study of Language and Information, Stanford.
- . 1997. Attract and the A-over-A Principle. In Liu and Takeda (eds.), *UCI Working Papers in Linguistics 3*. Irvine Linguistics Students Association, Irvine, Calif.
- Fukui, Naoki and Mamoru Saito. (to appear). Order in Phrase Structure and Movement. *Linguistic Inquiry*.
- Fukui, Naoki and Margaret Speas. 1986. Specifiers and Projection. In MIT Working Papers in Linguistics 8. MIT, Cambridge, Mass.
- Hoji, Hajime. 1985. Logical Form Constraints and Configurational Structures in Japanese. Doctoral dissertation, University of Washington.
- Huang, C.-T. James. 1982a. Logical Relations in Chinese and the Theory of Grammar. Doctoral dissertation, MIT.
- . 1982b. Move WH in a Language Without WH Movement. *The Linguistic Review* 1: 369-416.
- Kayne, Richard. 1983. Connectedness. *Linguistic Inquiry* 14: 223-249.
- . 1994. *The Antisymmetry of Syntax*. MIT Press, Cambridge, Mass.
- Kennedy, Christopher. 1997. Antecedent Contained Deletion and the Syntax of Quantification. *Linguistic Inquiry* 28: 662-688.
- Lasnik, Howard and Mamoru Saito. 1984. On the Nature of Proper Government. *Linguistic Inquiry* 15: 235-289.
- . 1992. *Move α : Conditions on Its Application and Output*. MIT Press, Cambridge, Mass.
- Lebeaux, David. 1990. The Grammatical Nature of the Acquisition Sequence: Adjoin-a and the Formation of Relative Clauses. In Frazier and De Villiers (eds.), *Language Processing and Language Acquisition*. Kluwer, Dordrecht.
- May, Robert. 1985. *Logical Form: Its Structure and Derivation*. MIT Press, Cambridge, Mass.
- Nishigauchi, Taisuke. 1990. *Quantification in the Theory of Grammar*. Kluwer, Dordrecht.
- Ochi, Masao. (to appear). Move or Attract? *Proceedings of the 16th West Coast Conference on Formal Linguistics*.
- Pesetsky, David. 1987. Wh-in-Situ: Movement and Unselective Binding. In Reuland and ter Meulen (eds.), *The Representation of (In)definites*. MIT Press, Cambridge, Mass.
- Reinhart, Tanya. 1993. Wh-in-Situ in the framework of the Minimalist Program. Ms., Tel Aviv University. Lecture at Utrecht Linguistics Colloquium.
- Rizzi, Luigi. 1990. *Relativized Minimality*. MIT Press, Cambridge, Mass.
- Ross, John. 1967. Constraints on Variables in Syntax. Doctoral dissertation, MIT.
- . 1974. Three Batons for Cognitive Psychology. In Weimer and Palermo (eds.), *Cognition and the Symbolic Processes*. Lawrence Erlbaum, Hillsdale, N.J.
- Saito, Mamoru. 1985. Some Asymmetries in Japanese and their Theoretical Implications. Doctoral dissertation, MIT.
- Takahashi, Daiko. 1994. Minimality of Movement. Doctoral dissertation, University of Connecticut, Storrs.
- Takeda, Kazue. 1997. A Note on Locality of Category Movement and Feature Movement. In Liu and Takeda (eds.), *UCI Working Papers in Linguistics 3*. Irvine Linguistics Students Association, Irvine, Calif.
- Torrego, Esther. 1985. On Empty Categories in Nominals. Ms., University of Massachusetts, Boston.
- Tsai, Wei-Tien. 1994. On Economizing the Theory of A-Bar Dependencies. Doctoral dissertation, MIT.

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