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## **CONSTRAINTS ON FEATURE CHECKING**

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**University of Connecticut, 1999**

**Recent development in the Principles and Parameters approach to linguistic theory, known as the Minimalist Program (Chomsky 1993, 1995), attributes the displacement property of languages to the need to check off (a subset of) formal features. The aim of this thesis is to explore some consequences of this feature-based conception of movement.**

**Chapter 2 is concerned with locality issues arising from Attract F. The Attract (i.e., target-based) view of movement offers a simple account of certain island effects, in particular, Relativized Minimality (RM) (see Rizzi 1990) type islands. However, non-RM type islands constitute an insurmountable obstacle for Attract. Building on Chomsky's (1995: chapter 4) idea that overt movement involves (at least) two chains, the formal feature chain and the (generalized) pied-piping chain, I provide an analysis which solves empirical problems of Attract, while providing further arguments for the Attract view of movement.**

**Chapter 3 focuses on the nominative/genitive Case conversion phenomenon in Japanese. Based on Miyagawa's (1993) insightful analysis of this construction, I argue that this construction and the Exceptional Case Marking (ECM) construction in English,**

especially as analyzed by Lasnik (1998), show remarkable parallelisms and hence should be given a unified account. I also argue that the Attract view of movement explored in chapter 2 provides a simple account of the locality effects observed with the movement of genitive phrases in Japanese.

Chapter 4 explores the nature of strong features by studying the type of wh-questions originally investigated by Kuroda (1965a, b, 1977). The 'virus' theory of feature strength (Chomsky 1995: chapter 4) virtually forces a strong feature to be a property of the target, not of the moving item. However, nothing in the logic behind the concept of the strong feature precludes the possibility that it is a property of the moving item. I propose that there are in fact some adjunct wh-phrases which are best analyzed as having strong features which need to be checked off against the interrogative complementizer. This analysis accounts for some peculiar properties of those adjunct wh-phrases in a simple manner.



# **CONSTRAINTS ON FEATURE CHECKING**

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**Doctor of Philosophy Dissertation**

**CONSTRAINTS ON FEATURE CHECKING**

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# **Chapter 1**

## **Introduction**

### **1.1 Minimalism and the displacement property of languages**

**This thesis assumes as a theoretical background the Principles and Parameters approach to linguistic theory (see in particular, Chomsky 1981, 1986, 1991 and Chomsky and Lasnik 1993). Recent development along this line of inquiry, often referred to as the Minimalist Program (Chomsky 1993, 1995, 1998, and 1999), involves some critical changes from the Extended Standard Theory (EST), one of which concerns the overall architecture of the computational system. D-structure and S-structure have been eliminated (mainly) on the grounds that postulating such internal interface levels is beyond virtual conceptual necessity (see Chomsky 1993). Instead, Generalized Transformation (GT), which was originally proposed in Chomsky (1955), has been revived (under the new name Merge) as an operation for concatenating phrase markers.**

**Minimalism also views “displacement” property of languages from a different angle. Unlike in the pre-minimalist era, where movement was assumed to be part of Affect  $\alpha$  (affect anything anywhere; see Lasnik and Saito 1992), minimalism views movement as a ‘last resort’ operation; it applies only when it is necessary for convergence. Along this line, it is suggested (see Chomsky 1995: chapter 4) that movement is triggered by the need to check off a subset of formal features which, if they remain in the phrase marker, would cause the derivation to crash (or cancel). Let us follow Chomsky (1995: chapter 4) and refer to such formal features as *uninterpretable* features. Thus, movement is assumed to be driven by the need for the checking of an uninterpretable feature. Given that movement is triggered by feature checking, Chomsky (1995: chapter 4) argues, on minimalist grounds,**

that such operations should in principle affect just features (Move F hypothesis). He suggests that the (generalized) pied-piping (i.e., displacement of the whole lexical item containing the feature which is involved in a checking operation) is required by properties of the phonological component. If, for instance, formal features (FFs) of a lexical item  $\alpha$  are affected (attracted), then the FFs of  $\alpha$  and the remnant of the category  $\alpha$  are not pronounceable. In Chomsky's terms, "isolated features and other scattered parts of words may not be subject to [PF] rules, in which case the derivation is canceled" (Chomsky 1995: 262-263).

This feature-based view of movement has important consequences for overt vs. covert distinctions for movement. For instance, in Chomsky (1993) Procrastinate was proposed, which states that covert movement is less costly than overt movement. However, this principle, if taken as formulated, is at odds with the uniformity requirement imposed on mapping from N to  $\lambda$ , since the only difference between the two "types" of movement is whether it occurs before or after Spell-Out. As Chomsky (1995) notes, the Move-F hypothesis offers a way to derive the effect of Procrastinate in a principled manner. Given that the (generalized) pied-piping is required for PF reasons, it follows that covert movement, which has no bearings on PF, does not require the (generalized) pied-piping. Further, given general economy considerations which prohibit unnecessary operations, the (generalized) pied-piping must not take place in covert syntax. Thus, there is a sense in which covert movement is less costly under the Move-F hypothesis.

Furthermore, Chomsky (1993, 1995) characterizes overt movement in terms of strong features. Given that covert movement is more economical, there must be a factor which forces overt movement (i.e., in some cases, covert feature checking would not suffice). Chomsky suggests that strong features trigger overt movement. Although there are different approaches to strong features (see Lasnik 1999 for a comprehensive discussion of this issue), the guiding idea is a strong feature is something that a derivation "cannot tolerate" (Chomsky 1995: 233) and hence must be eliminated (via checking) 'as

soon as possible.’ This is what induces overt movement. In particular, Chomsky (1995: 234) characterizes strong features in the following way.

- (1) Suppose that the derivation  $D$  has formed  $\Sigma$  containing  $\alpha$  with a strong feature  $F$ .  
Then  $D$  is canceled if  $\alpha$  is in a category not headed by  $\alpha$ .

Let us refer to this particular view of feature strength as the ‘virus’ theory of feature strength, a term due to Juan Uriagereka. This characterization of a strong feature induces cyclicity as well as triggering overt movement, as Chomsky discusses, since (1) disallows a strong feature to be checked off by an acyclic operation. Rather, a strong feature must be checked off before the category  $\alpha$  which contains this feature is embedded in a phrase marker. See Bošković and Lasnik (1999) and the appendix 2 of chapter 2 of this thesis for further discussions.

In addition, (1) virtually forces a strong feature to be a property of the target of movement, not of the moving item. As an illustration of this point, consider (2), which involves overt movement of *John* from the object position to the specifier of IP in the embedded clause. Suppose that the NP *John* has a strong feature, which needs to be checked off against INFL. As object (in English) must be merged with the V (for theta reasons) as in (2a), the derivation is canceled at this point; the strong feature of *John* cannot be checked off ‘immediately’.

(2) (I think that) John was arrested

$N = \{I \text{ think, that, was, arrested, John}\}$

a.  $[_{VP} \text{ arrested John}] \rightarrow \text{Derivation canceled}$

|

strong F

Rather, overt movement of *John* is triggered by the need for INFL to check off its strong feature(s) against the NP.

(3) a.  $[_{VP} \text{ arrested John}]$

b.  $[_{IP} \text{ was } [_{VP} \text{ arrested John}]]$

|

strong F

c.  $[_{IP} \text{ John was } [_{VP} \text{ arrested John}]]$

d. I think that  $[_{IP} \text{ John was } [_{VP} \text{ arrested John}]]$

Thus, under this view of feature strength, what drives movement is the inadequacy of the target (what Chomsky (1995) calls *Attract*): if the target contains uninterpretable features, it seeks the relevant feature in its search space to match against its own uninterpretable features.

There are some conditions and constraints associated with feature checking. As we saw above, for instance, the checking of strong features cannot wait but must be done 'immediately.' Also, when the target seeks the relevant feature to check its features against, its search space is limited; 1) it is defined in terms of c-command (see Epstein et al. 1998), and 2) it is limited to the closest relevant element (feature). The aim of this thesis is to explore some consequences of such conditions and constraints on the feature checking.

## 1.2 Outline of the thesis

This thesis is organized as follows. Chapter 2 is concerned with locality issues arising from Attract F. The Attract (i.e., target-based) view of movement offers a simple account of certain island effects, in particular, Relativized Minimality (RM) (see Rizzi 1990) type islands. However, non-RM type islands constitute an insurmountable obstacle for Attract. Building on Chomsky's (1995: chapter 4) idea that overt movement involves (at least) two chains, the formal feature chain and the (generalized) pied-piping chain, I provide an analysis which solves empirical problems of Attract, while providing further arguments for the Attract view of movement.

Chapter 3 focuses on the nominative/genitive Case conversion phenomenon in Japanese. Based on Miyagawa's (1993) insightful analysis of this construction, I argue that this construction and the Exceptional Case Marking (ECM) construction in English, especially as analyzed by Lasnik (1998), show remarkable parallelisms and hence should be given a unified account. I also argue that the Attract view of movement explored in chapter 2 provides a simple account of the locality effects observed with the movement of genitive phrases in Japanese.

Chapter 4 explores the nature of strong features by studying the type of wh-questions investigated by Kurafuji (1996a, b, 1997). As discussed in 1.1, the virus theory of feature strength virtually forces a strong feature to be a property of the target, not of the moving item. Notice, however, that nothing in the logic behind the concept of the strong feature precludes the possibility that it is a property of the moving item. I claim that there are in fact some wh-phrases which are best analyzed as having strong features which must be checked off against the interrogative C. As will be discussed, this property will restrict the merging site of those wh-phrases to the specifier of the interrogative CP, which explains the curious properties of those wh-phrases.

## **Chapter 2**

### **Two Chain Hypothesis and Its Consequences**

#### **2.1. Introduction**

The aim of this chapter is to explore some consequences of Chomsky's (1995: chapter 4) proposal that what is actually affected by a given movement operation is a feature rather than an entire category. Chomsky further suggests that what triggers movement is a morphological requirement of the target rather than the category which moves: a target K with a formal feature to be checked off attracts some relevant feature(s).

This Attract F theory raises some important questions for the theory of UG. What is the nature of feature movement? Is it subject to the same set of constraints as category movement? Also, how are previous accounts of the Condition on Extraction Domain (CED) effects (see Huang 1982) such as Takahashi (1994), which are based on Move, to be maintained under Attract? This chapter attempts to answer such questions regarding the very nature of movement within the Minimalist Program.

Building on Chomsky's (1995: 265) proposal that overt category movement is a two step process producing two separate formal chains ( $CH_{FF}$  and  $CH_{CAT}$ ), I argue that one of the chains ( $CH_{CAT}$ ) possesses the characteristic of Move. In the context of such a hybrid theory of movement, incorporating both Attract and Move, the apparent evidence against Attract F vanishes. Further, the proposed analysis has consequences for such theoretical issues as the content of formal features and the syntax of coordination.

The organization of this chapter is as follows. Section 2.2 reviews Takahashi's (1994) approach to CED effects based on the theory of Move. After pointing out

conceptual problems this account faces under the theory of Attract, section 2.3 sets the stage for the two chain hypothesis to be discussed in section 2.4, where it is shown how the proposed analysis accounts for the (lack of) island effects in English and Japanese *wh*-constructions. Section 2.5 examines the nature of Takahashi's Uniformity Corollary on Adjunction (see section 2.2.2) and proposes a way to derive its effects in a principled manner. In section 2.6, additional consequences of the analysis are summarized. Remaining questions are summarized in section 2.7. The conclusion is given in section 2.8.

## **2.2. Minimalist approaches to movement and locality**

### **2.2.1 Move and minimality**

Rizzi (1990) argues that the (b)-examples below are ruled out by the Relativized Minimality (RM) condition on antecedent government.<sup>1</sup>

- (1) a. John seems *t* to have been told *t* that the earth is round
- b. \*John seems it was told *t* that the earth is round
- (2) a. Why do you think [that John left *t*]
- b. \*Why do you wonder [whether John left *t*]

(1b) and (2b) are instances of superraising and the *Wh*-island condition, respectively. Rizzi argues that the (b)-examples are ruled out as the traces in those examples fail to be antecedent governed. Government, according to Rizzi, is blocked by an intervening governor of the same type. In (1b), the trace of *John* fails to be antecedent governed by

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<sup>1</sup> Rizzi (1990) also takes head movement into consideration.

*John*, since there is a closer A-governor *it*. Similarly, the trace of *why* cannot be antecedent governed because of *whether*, an intervening A-bar governor.

Chomsky and Lasnik (1993) propose that Rizzi's insight on RM effects can be derived from economy conditions on derivation. Specifically, they propose that each step of movement must be minimal in the sense that  $\alpha$  moves through potential landing sites, where the potential landing site is defined based on the type of movement involved: an A-spec for A-movement and A-bar spec for A-bar movement are among the potential landing sites.<sup>2</sup> (1b), and (2b) are thus ruled out, since movement of *John* and *why* fail to make the shortest move, due to the fact that potential landing sites are already occupied. I will refer to this minimality condition as the Shortest Move Condition (SMC).<sup>3</sup>

(3) Shortest Movement Condition (SMC)

Make the shortest movement.

(see Chomsky and Lasnik 1993)

Takahashi (1994) argues that some data involving wh-movement and anaphor licensing, discussed by Barss (1986), provide evidence that movement indeed drops by intermediate positions, in accordance with the SMC. (4a) is grammatical, although as (4b) shows, the anaphor *himself* is not licensed in its original position. According to Belletti and Rizzi's (1991) analysis, which claims that Condition A can be met anywhere in the derivation, the anaphor is licensed in the intermediate stage of the derivation shown in (5),

---

<sup>2</sup> Chomsky (1993) proposes to view successive cyclic movement as created by *Form Chain* (FC) instead of successive applications of Move  $\alpha$ . FC is an operation which creates chains such as the one in (i) below in a single step.

(i) [John seems [t to be likely [t to be [t here]]]]  
 ↑ \_\_\_\_\_||\_\_\_\_\_||\_\_\_\_\_||

<sup>3</sup> Crucially, this minimality condition is defined from the viewpoint of the element undergoing movement (i.e., Move). Once Attract (see Chomsky 1995: chapter 4) is adopted, however, minimality needs to be redefined from the viewpoint of the target. See section 2.2.3 on this important issue.



where the *wh*-phrase containing *himself* lands in the specifier position of the embedded CP.<sup>4</sup> That the anaphor is licensed in this configuration is supported by the grammaticality of (6).

- (4) a. Which picture of himself<sub>i</sub> does John<sub>i</sub> think that Mary likes t  
 b. \*John<sub>i</sub> thinks that Mary likes a picture of himself<sub>i</sub> (see Barss 1986)
- (5) \_\_\_\_ does John<sub>i</sub> think [<sub>CP</sub> [which picture of himself<sub>i</sub>] that Mary likes t]
- (6) John<sub>i</sub> wonders [<sub>CP</sub> [which picture of himself<sub>i</sub>] Mary likes t]

The following example from Takahashi (1994) further illustrates the point.

- (7) ??Which picture of himself does John wonder [whether Mary likes t]

This example has the status of a typical Wh-island violation, but is no worse than that. The status of (7) suggests that the anaphor *himself* is indeed licensed in this example, just as in (4a). Takahashi (1994) claims that this fact provides strong empirical support for the SMC. The anaphor is licensed in (7) because the *wh*-phrase moves in a cyclic fashion as required by the SMC, adjoining to the embedded CP (and the matrix VP) among other sites, thereby creating a configuration for the licensing of *himself*.

---

<sup>4</sup> For Barss (1986), the anaphor *himself* in (4a) satisfies Condition A, as its antecedent *John* 'chain binds' it in a local domain. The following (simplified) definition of chain binding is taken from Saito (1989: 186).

- (i) X chain binds Y =<sub>A</sub> X and Y are coindexed, and  
 a) X c-commands Y, or  
 b) X c-commands a trace of Z, where Z = Y or Z contains Y.

The exact choice between the accounts of Belletti and Rizzi (1991) and Barss (1986) does not matter for our discussion.

### 2.2.2. Takahashi (1994)

Takahashi (1994) offers a comprehensive account of locality effects within the minimalist program. (8a) and (8b) show Adjunct Condition and Subject Condition effects, respectively. (9) is an instance of a wh-island condition effect.

- (8) a.     ?**\*What** did John cry [after Mary bought t]  
       b.     ?**\*What** did [a picture of t] irritate John
- (9)    ?**\*What** did John wonder [whether Mary bought t]

Takahashi (1994) argues that such island effects are derived through the interaction of the SMC and the following principle.

(10)    **Uniformity Corollary on Adjunction (UCA)**

Adjunction is impossible to a proper subpart of a uniform group, where a uniform group is a non-trivial chain or a coordination.

(Takahashi 1994: 25)

One thing to notice is that the statement in (10) includes disjunction. As will be argued below, however, this disjunction may be well-motivated within the minimalist framework. The UCA is essentially based on Chomsky's (1991, 1994) idea that chains are uniform. Given this concept, Takahashi (1994: 20) suggests that uniformity is violated if some element adjoins only to some (but not all) members of a chain. Such a suggestion makes sense especially under the conception of movement as a copying operation. Suppose that the category  $\alpha$  has formed a non-trivial chain as a result of movement, as shown in (11a). Now, suppose that an element  $\beta$ , which is contained in  $\alpha$ , adjoins to the head of the chain  $\alpha_1$ . This adjunction is shown in (11b).

- (11) a.  $(\alpha_1, \alpha_2)$   
 b.  $([\alpha \beta [\alpha \alpha_1]], \alpha_2)$

Apparently, uniformity is not observed in (11b). The UCA derives a ban on adjunction to subjects (see Chomsky 1986a), if we adopt the VP-internal subject hypothesis (see Kuroda 1988 and Fukui and Speas 1986 among others), according to which the subject in English raises from a VP-internal position and heads a non-trivial chain in overt syntax, which is then subject to the UCA (10). If an element contained in the subject adjoins to the subject (after the latter has moved), the UCA is violated. But exactly what goes wrong if uniformity is violated? Takahashi does not elaborate on this issue. One conceivable answer is the following. At PF, chains created via movement are subject to deletion of copies (i.e., the non-head members of a chain).<sup>5</sup> Assuming copy deletion, we might say that PF cannot delete non-head members of a chain if uniformity is not observed. In (11a), for instance,  $\alpha_2$  is deleted at PF under identity with  $\alpha_1$ . PF cannot perform such an operation in (11b), since the two members of the chain are not identical. Then, an illegitimate PF object results, in the sense that the articulatory and perceptual (A-P) interface cannot interpret it. Thus, “uniformity” required on a non-trivial chain may be reducible to a bare output condition imposed by the A-P interface.<sup>6</sup> I will discuss more of this issue in section 2.5.

How about the uniformity required for coordination? One crucial ingredient for Takahashi’s (1994) analysis is the proposal of Davidson (1967) and Higginbotham (1985) that adjuncts involve coordination. For instance, the example in (12a) has the semantic

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<sup>5</sup> See Nunes (1995) for an attempt to deduce copy deletion from Kayne’s (1994) Linear Correspondence Axiom (LCA).

<sup>6</sup> This entails that such adjunction is allowed in covert syntax. Given Chomsky’s (1995) conjecture that only features move in covert syntax, however, no such case would arise.

representation in (12b), which is roughly paraphrased as “there is an event such that it was a walking by John and it is slow,” where adjuncts such as *slowly* are analyzed as predicated of events. Takahashi (1994: 24) suggests that this mapping from syntax to semantics is transparently obtained by assuming the LF representation in (12c), in which the sisters,  $VP_2$  and the adjunct *slowly*, are predicated of the event argument which is generated under INFL.

- (12) a. John walks slowly  
 b.  $\exists e$  [walk (John, e) & slow (e)]  
 c. [<sub>IP</sub> John [<sub>I'</sub> INFL (e) [<sub>VP1</sub> [<sub>VP2</sub> t walks] slowly]]]

Takahashi (1994) argues that the UCA (10), coupled with the assumption that adjuncts involve coordination, derives the ban on adjunction to adjuncts (see Chomsky 1986a) in a principled manner. The UCA states that adjunction is not possible to a subpart of a uniform group, such as a coordination. If an adjunct is one of the conjuncts within a coordination structure, then adjunction to an adjunct violates the UCA. For this reason, it is crucial for Takahashi that adjuncts are regarded as part of coordination.<sup>7</sup> However, as Howard Lasnik (p.c.) points out, this categorization holds only under semantic considerations. In purely syntactic terms, adjunction structures need to be distinguished from coordinated structures.<sup>8</sup> Thus, in order for the above argument to go through, we would have to regard this aspect of “uniformity” as a requirement on mapping to LF (or

<sup>7</sup> Coordinate Structure Constraint (CSC) effects (see Ross 1967) will be discussed in section 2.6.2.

<sup>8</sup> Progovac (1998) is an exception in this regard. She argues that adverbial adjuncts such as *slowly* involve syntactic as well as semantic coordination. For instance, *walks slowly* is analyzed as in (i), where the whole phrase is headed by a phonologically null conjunction head (which she calls &), which takes two conjuncts, the VP *walks* and the adverb *slowly* as its specifier and complement, respectively (see section 2.6.2 for discussion of coordinated structures).

(i) John Infl [<sub>NP</sub> [<sub>VP</sub> walks] [<sub>NP</sub> & [<sub>AdvP</sub> slowly]]]

Post-LF). If “uniformity” on (semantic) coordination is lost in LF representations, then presumably the conceptual-intentional (C-I) interface cannot interpret such an object. In this sense, the effect the UCA imposes on coordination might be reducible to a bare output condition by the C-I interface (see Appendix 1 for more discussion). To summarize, it may well be that the disjunction in (10) can be attributed to distinct output conditions by two interfaces, A-P and C-I.<sup>9</sup>

Let us now return to the examples in (8-9). The sentences in (8) are excluded by (3) and (10) in the following way. Consider first (8a), which shows an Adjunct Condition effect. Recall that if an element is adjoined to an adjunct, then the UCA is violated as shown in (13a). Note that Takahashi (1994: section 2.2) claims that traditional ‘substitution’ into the specifier position of XP should be analyzed as involving adjunction to XP (or X’) (see also Kayne 1994 and Saito and Fukui 1998 on this issue). This is why (13a) violates the UCA, as *what* moves through the projection of the CP headed by *after*, which counts as adjunction to this CP (or C’) for the purpose of the UCA. If, on the other hand, *what* does not adjoin to the adjunct clause on the way to its target, as shown in (13b), then the SMC (3) is violated, and example (8a) is excluded in this manner.<sup>10-11</sup>

<sup>9</sup> It should be noted that the unification of the two cases (the subject island and the adjunct island) may be possible, if we follow Kratzer (1993: chapter 1) and assume that the external argument is introduced by a functional head above VP (what she calls *Voice*).

- (i) John read it slowly.
- (ii)  $\exists e$  [read (it, e) & Agent (John, e) & slow (e)]

This in effect treats the subject (the external argument, to be more precise) as a conjunct of a coordinated structure, and hence extraction from it is disallowed for the same reason as extraction out of the adjunct domain. I will not adopt this approach for several reasons, one of which is that there are languages in which no subject condition effects are detected. While this is accountable by Takahashi’s analysis, it is a problem for the semantics-based approach considered here.

<sup>10</sup> Takahashi (1994: 76) suggests that his account of Adjunct Condition effects extends to cover the Complex NP constraint (CNPC) violations such as (i), which involve extraction out of a relative clause, if we assume that relative clauses are adjuncts.

- (i) ?\*What did you meet [the man [who wrote t]]

- (13) a. What did [<sub>IP</sub> t [<sub>John</sub> [<sub>VP</sub> t [<sub>VP</sub> cry [<sub>CP</sub> \*t [<sub>CP</sub> after [<sub>IP</sub> t [<sub>IP</sub> Mary [<sub>VP</sub> t [<sub>VP</sub> bought  
t]]]]]]]]
- b. What did [<sub>IP</sub> t [<sub>John</sub> [<sub>VP</sub> t [<sub>VP</sub> cry [<sub>CP</sub> after [<sub>IP</sub> \*t [<sub>IP</sub> Mary [<sub>VP</sub> t [<sub>VP</sub> bought  
t]]]]]]]]

One question is why extraction of an element out of the other conjunct, namely (a segment of ) VP, does not lead to a violation of the UCA or the SMC. Consider the grammatical example in (14a). If the movement of *what* involves adjunction to the VP<sub>1</sub> as in (14b), then the UCA is violated. Takahashi (1994: 70) suggests that movement operations may not adjoin to a segment of a category. Rather, adjunction targets a full category, its segment being invisible for adjunction operations. Hence, according to Takahashi (1994), *what* moves by adjoining to the full category VP (i.e., VP<sub>2</sub>) and no violation of the UCA or the SMC occurs in (14c).

- (14) a. What did John [buy t [after Mary left]]
- b. What did John [<sub>VP2</sub> t [<sub>VP2</sub> [<sub>VP1</sub> \*t [<sub>VP1</sub> buy t ]][after Mary left]]]]

---

Takahashi (1994: 77) further argues that this account would apply to other cases of CNPC violations such as (ii), which involve extraction from the complement clause of the noun, assuming with Stowell (1981: 200) that apparent complement clauses of (derived) nouns are appositive and hence are adjuncts rather than complements (see also Chomsky 1986a: fn. 30). (ii) would then also involve extraction out of an adjunct domain.

- (ii) ?\*What did you hear [the rumor [that Mary bought t]]

See Takahashi (1994: section 3.2.7) for more discussion.

<sup>11</sup> As Takahashi (1994: 68) acknowledges, the UCA does not bar movement of a conjunct itself.

- (i) a. \*Who did you see t and Mary?  
b. \*Who did you see Mary and t?

Here movement of *who* does not involve adjunction to a subpart of a uniform group. I will not deal with this type of Coordinate Structure Constraint (CSC) violation in this chapter.

- c. What did John [<sub>VP2</sub> t [<sub>VP2</sub> [<sub>VP1</sub> buy t ]][after Mary left]]

Although Takahashi's suggestion is not implausible, it begs the question of why the movement operation has this character. In section 2.4, I will attempt to give a more principled explanation for this asymmetry with respect to extraction from the two conjuncts.

As for the Subject Condition violation in (8b), recall the role which the VP-internal Subject Hypothesis plays. According to this hypothesis, the subject in English heads a non-trivial chain, which must observe the UCA (10). Thus, adjunction to the subject is banned. (15a-b) demonstrate the interaction of the UCA (10) and the SMC (3) in ruling out (8b): the derivation in (15a) violates the UCA; conversely, if the movement of *what* does not make use of adjunction to the subject (so that the UCA is observed), the SMC (3) is violated. In either case, (8b) is ruled out.<sup>12</sup>

- (15) a. What did [<sub>IP</sub> t [<sub>IP</sub> [<sub>NP</sub> \*t [<sub>NP</sub> a picture of t]] [<sub>VP</sub> t<sub>j</sub> irritate John]]]  
 b. What did [<sub>IP</sub> t [<sub>IP</sub> [<sub>NP</sub> a picture of \*t]<sub>j</sub> [<sub>VP</sub> t<sub>j</sub> irritate John]]]

Now, let us turn to Wh-island effects in (9). Consider a step in a derivation shown in (16a), in which *what* adjoins to the matrix VP from the position adjoined to the embedded IP. This step violates the SMC, since the movement here does not adjoin to (or move through the specifier of) CP.

- (16) a. ... [<sub>VP</sub> what [<sub>VP</sub> ... [<sub>CP</sub> whether [<sub>C</sub> C [<sub>IP</sub> t [<sub>IP</sub> ....

---

<sup>12</sup> There is an alternative derivation which does not violate either the SMC or the UCA. Suppose that the movement of *what* takes place before the subject NP moves to the specifier position of IP. Then, nothing prevents the adjunction of *what* to the subject NP, since the latter has not formed a non-trivial chain at this point of derivation. See Takahashi (1994) and Collins (1994) for the discussion of how economy excludes such a derivation.

b. ... [<sub>VP</sub> what [<sub>VP</sub> ... [<sub>CP</sub> t' [<sub>CP</sub> whether [<sub>C</sub> C [<sub>IP</sub> t [<sub>IP</sub> ...

Still another derivation shown in (16b) does not violate the SMC, however, given the definition of Equidistance in Chomsky (1993). According to the notion of Equidistance, the position adjoined to CP and spec-CP are equidistant from the position of *t* in (16b), since the CP-adjoined position and the spec-CP position are in the same *minimal domain*. The definitions of *domain* and *minimal domain* are shown below:

- (17) The *domain* of a head A (DOM (A)) is the set of nodes contained in the least full category maximal projection dominating A that are distinct from and do not contain A.
- (18) The *minimal domain* of a head A (MIN (A)) is the smallest subset K of DOM (A) such that for any G, G a member of DOM (A), some B, a member of K, reflexively contains it.

Thus the derivation shown in (16b) does not violate the SMC. Nor does it violate the UCA, since the CP here is neither a member of a non-trivial chain nor a member of a coordinated structure. (9) would then be predicted to be grammatical, contrary to fact.

Takahashi's (1994: 60) solution is to modify (17) in such a way that the CP-adjoined position and the spec-CP position are not equidistant from the position of *t* in (16b).<sup>13</sup> His revised definition of *domain* is shown below.

- (19) The *domain* of a head A (DOM (A)) is the set of nodes *dominated* by the least full category maximal projection dominating A that are distinct from and do not contain A.

---

<sup>13</sup> See Takano (1994) for an alternative approach to Wh-island condition effects under the minimalist framework.



It follows from this revision that the minimal domain of a head is limited to its specifier, its complement, and a head adjoined to it.<sup>14</sup> Crucially, the CP-adjoined position and the spec-CP position are not in the same minimal domain. As a result, the derivation illustrated in (16b) is ruled out as a violation of the SMC.

There is one crucial respect in which Wh-island effects differ from other island effects under Takahashi's account. While the CED effects are accounted for by the interaction of the two principles, the UCA and the SMC, the UCA is irrelevant for Relativized Minimality (RM) type islands such as wh-island effects. The latter is accounted for solely by the SMC.<sup>15</sup> This divorce between the two types of islands will be even clearer in section 2.4.

#### 2.2.2. Chomsky (1995): Attract F

More recently, however, Chomsky (1995: chapter 4) has advanced the hypothesis that movement is triggered solely by the need for the target K to check off its formal feature(s) by attracting the closest relevant feature F.

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<sup>14</sup> Takahashi uses French participial agreement facts as an empirical support for this modification. See Takahashi (1994: 59) for details.

<sup>15</sup> This situation is reminiscent of the analysis presented by Huang (1982). For Huang, islands such as the Subject Condition and Adjunct Condition are due to the CED, but Wh-island effects do not fall under the CED, since the CP whose specifier position is filled by a wh-phrase is typically a complement and hence is properly governed. Therefore, Subadjacency was independently called for in order to explain Wh-island effects.

**(20) 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)**

**One immediate theoretical consequence of Attract F is that the minimality condition is directly incorporated into the definition of the operation Attract. From the viewpoint of the target K, what is required is that it attracts the closest relevant feature F. Hence, under Attract F, the SMC (or Minimal Link Condition for Chomsky 1995) is redefined as follows.**

**(21) Minimal Link Condition (MLC)**

**K attracts  $\alpha$  only if there is no  $\beta$ ,  $\beta$  closer to K than  $\alpha$ , such that K attracts  $\beta$ .**

**(Chomsky 1995: 311)**

**It is important to note that under this system, nothing forces the attracted feature F to make a shortest move (i.e., adjoin to every XP on its way to the target K). Hence, the feature F is attracted in one step to the position of K. As a result, Takahashi's (1994) UCA in (10) virtually loses its force under Attract F, given that movement induced by Attract does not make use of intermediate adjunction.**

**As Chomsky (1995: section 4.5.5) claims, Wh-island effects (or more generally, Relativized Minimality effects in the sense of Rizzi 1990) follow naturally from Attract F. Consider the following example.**

**(22) ?\*What did John wonder [<sub>CP</sub> whether Mary bought t]**

The matrix interrogative *C* attracts the closest relevant feature in accordance with the nature of Attract noted above. The *wh*-feature of *what* is not the closest relevant feature; rather, *whether*'s *wh*-feature is the closest, with the result that the following derivation blocks that in (22):

(23) \*Whether did John wonder t Mary bought what

This derivation, in which the relevant feature of *whether* is attracted to the matrix *C*, does not run afoul of the locality requirement of Attract *F*. Nonetheless, Chomsky (1995) (see also Maki 1995) suggests that this structure is not interpretable because the matrix *C*, which indicates a *wh*-question, and *whether*, a yes-no question operator, are not semantically compatible.<sup>16</sup> In short, the Attract *F* hypothesis captures the effect of the Wh-island Condition straightforwardly.

However, other island effects such as Adjunct Conditions do not follow immediately under Attract *F*. Recall that those island effects are accounted for through the interaction of the UCA (10) and the SMC (3) under Takahashi's account, but neither is relevant for the theory of movement under Attract.

Recall also that data involving anaphor licensing show that movement drops by intermediate positions on its way to the final landing site, thus providing support for the SMC (3). I repeat the relevant examples below.

(24) Which picture of himself<sub>i</sub> does John<sub>i</sub> think that Mary likes t

(25) ??Which picture of himself<sub>i</sub> does John<sub>i</sub> wonder [whether Mary likes t]

---

<sup>16</sup> Problematic cases are those like the example in (i). Descriptively, an element moved into the spec of CP position (*who* in (i)) cannot be further attracted (but nonetheless blocks attraction of another *wh* (*what* in (i)).

(i) \*Who do you wonder [<sub>CP</sub> t [t bought what]]

Under the theory of Attract, it is not obvious how this fact can be accommodated. Thus there seem to be empirical difficulties for Attract.

## 2.3 Attract F and minimality

### 2.3.1 Setting the stage

As seen above, Attract captures RM-type islands in a simple manner while non-RM type islands constitute an insurmountable obstacle for Attract. If we consider the empirical side of this issue, however, this may be a welcome result for at least certain constructions, since we in fact find a construction which exhibits the pattern expected by Attract. Let us consider the distribution of argument *wh*-in-situ in Japanese as an illustration. It is known that Japanese argument *wh*-in-situ enjoys a wider range of distribution than its English counterpart. However, as Nishigauchi (1986) observes, it is not island free. In particular, it exhibits *wh*-island effects while it is not sensitive to any other islands; complex NP island (26b), the subject island (26c), and the adjunct island (26d).

- (26) a. ??John-wa [Mary-ga nani-o katta kadooka] siritai no  
           John-Top Mary-Nom what-Acc bought whether want-to-know Q  
           '??What does John want to know [whether Mary bought t]'
- b. John-wa [[Mary-ga nani-o katta toiuu] uwasa]-o kiita no  
       John-Top Mary-Nom what-Acc bought Comp rumor-Acc heard Q  
       '??What did John hear [the rumor that Mary bought t]'
- c. [John-ga nani-o katta koto]-ga minna-o odorokaseta no  
       John-Nom what-Acc bought fact-Nom everyone-Acc surprised Q  
       '??What did [the fact that John bought t] surprise everyone'

- d. John-wa [Mary-ga nani-o katta ato] naita no  
 John-Top Mary-Nom what-Acc bought after cried Q  
 '?\*What did John cry [after Mary bought t]'

Assuming that the dependency between *wh*-in-situ and the interrogative *C* is established by movement (see Maki 1995 among others), the pattern in (26) is exactly what is expected under Attract. Seen in this way, we may say that the movement involved with Japanese argument *wh*-in-situ is a pure case of Attract. English *wh*-movement, which exhibits all kinds of island effects, is consistent with Attract, but apparently something extra is involved. What would be the crucial difference between the two languages? In the remainder of the section, I briefly summarize the previous insights on this issue.

### 2.3.2 Brief overview

Huang (1982) argues that the crucial factor for locality constraints such as Subjacency and the Condition on Extraction Domain (CED) is the timing of movement. Huang stipulates that Subjacency and the CED apply solely in overt syntax.<sup>17</sup> This is why covert movement (as in Chinese) is freer (although it is subject to the Empty Category Principle). Assuming that all *wh*-phrases are in the spec of *CP* where they take scope in

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<sup>17</sup> This claim is mainly based on the distribution of Chinese argument *wh*-phrases. According to Huang (1982), Chinese argument *wh*-in-situ shows no island effects, including *wh*-island effects (hence no Subjacency effects). I will discuss Chinese later in this chapter.

- (i) John [zai Mary mai-le sheme yihou] likai-le  
 John [at Mary buy-ASP what after] leave-ASP  
 '?\*What did John leave [after Mary bought t]'
- (ii) Ni xiang-zhidao [shei mai-le sheme]  
 you wonder who buy-ASP what  
 a. 'Who is the person *x* such that you wonder what *x* bought'  
 b. 'What is the thing *x* such that you wonder who bought *x*'

Note also that for Huang, the Empty Category Principle (ECP) is assumed to apply at LF.

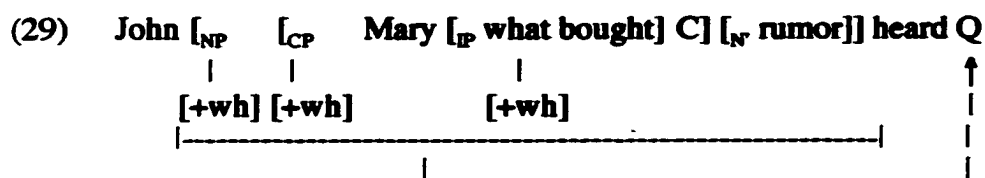
LF, Huang also argues that covert movement of *wh*-in-situ in English shows no Subjacency effects nor CED effects.

- (27) a.     ?*\*What* does John wonder [*whether* Mary bought *t*]  
           b.     Who wonders [*whether* Mary bought *what*]  
 (28) a.     *\*What* did John go to bed [*after* Peter ate *t*]  
           b.     Who went to bed [*after* Peter ate *what*]

Huang's proposal, however, cannot be maintained as it is under the Minimalist Program, since it goes against the uniformity of computation. Nonetheless, Huang's insight can be maintained if the asymmetry between overt vs. covert movement follows from some independently motivated differences. I will come back to this point later.

Nishigauchi (1986), on the other hand, claims to maintain the uniformity of computation in the narrow syntax by arguing that Subjacency is operative in covert syntax as well as in overt syntax. His claim is based on the fact, noted above, that Japanese argument *wh*-in-situ is sensitive to the *wh*-island. As for other islands (such as the complex NP constraint), Nishigauchi claims that the apparent difference between English and Japanese can be attributed to the large scale pied-piping mechanism available only in covert syntax. Nishigauchi assumes that the prenominal modifier clause in languages such as Japanese occupies the specifier position of the N. Once a *wh*-phrase inside such a clause moves to the local C, the CP is associated with [+*wh*] in virtue of having a *wh*-phrase in its specifier position. Further, because the [+*wh*] CP is in the specifier position of the Complex NP, the whole NP is now associated with [+*wh*] as a result of feature

percolation from the specifier. At LF the whole complex NP moves to the specifier of the Q-Comp.<sup>18</sup> (29) illustrates this process for (26b).



Crucially, the same mechanism is not available for overt *wh*-movement languages such as English. Thus Nishigauchi maintains the uniformity imposed on mapping from N to  $\lambda$  at the cost of introducing an LF specific operation. See Fiengo et. al (1988), Lasnik and Saito (1992) for arguments against the LF large scale pied-piping mechanism.

In the next section, I introduce Chomsky's (1995: chapter 4) two chain hypothesis, which will form the foundation of my particular proposal.<sup>19</sup> Then I offer an analysis of English and Japanese *wh*-constructions. As will be clear, this proposal inherits some important points from both Huang (1982) and Nishigauchi (1986).

## 2.4 Two chain hypothesis

Let us recall the rationale behind the Move F hypothesis, as discussed in chapter 1. Assuming that what triggers movement is the morphological requirement that some feature of a head be checked, Chomsky (1995: chapter 4) claims that the optimal way to satisfy such a requirement is to affect features - only features - via movement. He suggests further that generalized pied-piping is required by properties of the phonological component. If,

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<sup>18</sup> Although Nishigauchi (1986) does not discuss islands other than complex NP islands, it is plausible that he assumes the same mechanism for other islands. It is interesting to note that most of the islands in Japanese are in fact complex NPs (see Ochi 1999c for discussion of this point).

<sup>19</sup> Agbayani (1998a, b) independently proposed a very similar analysis of movement and locality effects, based also on the two chain hypothesis.

for instance, formal features (FFs) of a lexical item  $\alpha$  are affected (attracted), then the FFs of  $\alpha$  and the remnant of the category  $\alpha$  are not pronounceable. In Chomsky's terms, "isolated features and other scattered parts of words may not be subject to [PF] rules, in which case the derivation is canceled" (Chomsky, 1995: 262-263).<sup>20</sup>

Given these considerations, Chomsky suggests that when the whole category moves, (at least) two chains are created. When the relevant feature  $F$  of the category  $\alpha$  is attracted by the target  $K$  (Attract  $F$ ), the whole set of formal features (FF) of  $\alpha$  is carried along, forming the chain  $CH_{FF}$  in (30a). Subsequently, if the operation is overt, generalized pied-piping is required for PF convergence (because the phonological component cannot cope with a lexical item whose features are scattered). This is shown as  $CH_{CAT}$  in (30b).

- (30) a.  $CH_{FF} = (FF[F], t_{FF})$   
 b.  $CH_{CAT} = (\alpha, t_{\alpha})$

Once the remnant of the category  $\alpha$  is moved into the projection of the target  $K$  where the FF of  $\alpha$  is located, a kind of repair strategy operates on them, thereby making  $\alpha$  pronounceable.

Notice that the two chains in (30) have different characteristics. Feature chain ( $CH_{FF}$ ) is formed by Attract. On the other hand,  $CH_{CAT}$  is not formed via Attract. Consequently, the target-based MLC is silent as far as the generalized pied-piping chain is concerned. Then, it is quite conceivable that the (generalized) pied-piping obeys a locality constraint independent of Attract  $F$ . In particular, it is possible to associate successive cyclicity with  $CH_{CAT}$ .

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<sup>20</sup> Thus when PF considerations are irrelevant, as is the case with covert movement, there is no need for the pied-piping. Consequences of this reasoning will be discussed shortly.



One way to instantiate this idea is as follows. Building on Chomsky's (1995) conjecture that PF convergence alone is responsible for the formation of  $CH_{CAT}$ , suppose that its driving force is the PF inadequacy of the category  $\alpha$  which lacks its formal features. Once Attract operates on the category  $\alpha$ , thus removing its formal features, the remnant of  $\alpha$  is a PF ill-formed object (i.e., it is not pronounceable).<sup>21</sup> This motivates the category  $\alpha$  to move to the position where its missing formal features are located, so that it becomes pronounceable (thanks to the repair strategy). Otherwise, an ill-formed object remains, causing a PF crash.<sup>22</sup> In this sense, the generalized pied-piping has the flavor of Greed (i.e., moving to remedy its own defect) rather than Attract (i.e., moving to remedy the defect of the target). It seems natural then that the pied-piping chain is subject to the minimality condition as defined from the viewpoint of the moving element (Chomsky 1993, Chomsky and Lasnik 1993, and Takahashi 1994). This would force the (generalized) pied-piping operation to be successive cyclic.

Let me illustrate this idea with the following example:

- (31) a. (I wonder) what you eat  
 b. [C [<sub>IP</sub> you [<sub>VP</sub> eat what]  
     |                      |  
     [Q]                  [... FF<sub>what</sub> ...]  
     ↑ \_\_\_\_\_ | CH<sub>FF</sub>  
 c. [<sub>CP</sub> what [<sub>C</sub> C [<sub>IP</sub> t [<sub>IP</sub> you [<sub>VP</sub> t [<sub>VP</sub> eat t]]]]]]  
     ↑ \_\_\_\_\_ || \_\_\_\_\_ || \_\_\_\_\_ | CH<sub>CAT</sub>

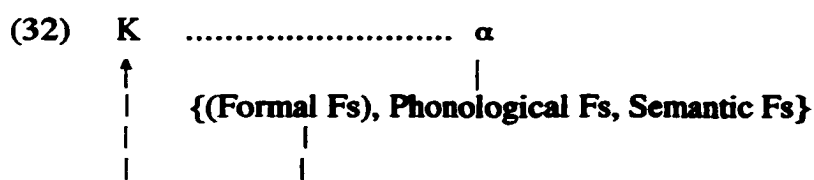
<sup>21</sup> I thank Howard Lasnik (p.c.) for discussion on this point.

<sup>22</sup> See Lasnik (1999a) for much relevant discussion. In particular, Lasnik argues that in addition to (generalized) pied-piping, deletion of a constituent which contains a PF ill-formed object (i.e., category  $\alpha$  without its formal features) also salvages the derivation from a PF crash.

Assuming that the interrogative C in English has a strong feature to be checked off, an overt movement is involved here. Thus, two chains are formed as shown in (31b) and (31c).  $CH_{FF}$  in (31b) is a two-member chain, in accordance with the spirit of Attract: all that is required here is that the target C attracts the 'closest' relevant feature, and hence the feature (or FFs) of *what* does not move in a successive cyclic fashion. Since this operation is overt in English,  $CH_{CAT}$  is also necessary to ensure PF convergence. The category *what* in (31), being defective for the PF interface, moves to the position where its missing feature is located so that it can be interpreted by PF rules: otherwise, the derivation would crash at PF.

According to the proposal, Attract creates a PF defective category, which, as a result, moves for its own purpose. This analysis thus advocates a hybrid theory of movement, incorporating both Attract and Move. In particular, feature movement is driven by the deficiency of the target (hence Attract), while (generalized) pied-piping is motivated solely by the PF deficiency of the category undergoing movement (hence Move): the locus of the deficiency determines the 'type' of operation (or movement) involved.

Some questions arise about the theoretical status of the  $CH_{CAT}$ . For instance, it is not obvious why  $\alpha$  cannot be pronounced if its FFs are missing. As shown in (32) below, the phonological features of  $\alpha$  remain intact in the base position of  $\alpha$ , even after the FFs of  $\alpha$  are attracted away from it.



If phonological features are all that is relevant for PF, we might expect the remnant (i.e., phonological and semantic Fs) of  $\alpha$  to stay where it is and the pronunciation site is

determined to be where the phonological Fs are. As Željko Bošković (p.c.) suggests, PF operations in fact may need information about some of the formal features, such as categorical features. For instance, Chomsky and Halle's (1968) analysis of stress assignment in English makes an extensive use of the categorial status of the items analyzed. Thus, it is not implausible that phonology requires (a subset of) formal features. Then, it is possible that once formal features are affected by Attract, the remnant, in particular phonological features, needs to move where the formal features are located. Still, a puzzling question remains once we adopt the copy theory of movement. If movement of formal features leaves a copy, then all the features of  $\alpha$  would be intact in the original position (as the copy of FFs remains under  $\alpha$ ). In this connection, Lasnik's (1999b) speculation about A-movement may be suggestive. Based on the lack of scope reconstruction effects with A-movement (see chapter 3), Lasnik speculates that A-movement leaves no copy. If so, it is possible that formal feature movement patterns with A-movement in this respect and hence leaves no copy, although more investigation is necessary on this issue.

Let us reexamine (33) under the proposed analysis.

(33) Which picture of himself<sub>i</sub> does John<sub>i</sub> think that Mary likes t

As shown in (34a), the matrix C attracts the closest relevant feature, the *wh*-feature of *which*. Then, the whole phrase *which picture of himself*, being defective for the PF interface, moves to the position where the attracted features of *which* are located. If this pied-piping movement is successive cyclic, observing the minimality defined from the viewpoint of the moving element (as in Chomsky and Lasnik (1993), Takahashi (1994) among others), then Barss's (1986) account (see discussion in the section 2.2) is maintained under Attract. I will refer to this category-based (Greedy) minimality condition



- (36) Kimi-wa [dare-ga nani-o tabeta ka] siritai no  
 you-Top who-Nom what-Acc ate Q want-to-know Q
- a. 'Do you know who ate what'
- b. ??'Who is the person x such that you want to know what x ate'
- c. ??'What is the thing x such that you want to know who ate x'
- d. ??'What is the person x and the thing y such that you want to know whether x bought y'

The fact that the Wh-island effect is detected in Japanese as well as in English follows from the definition of Attract, as in Chomsky (1995) and Maki (1995). Since the relevant feature of *whether/kadooka* is closer to the matrix C than that of the wh-phrase *what/nani*, it is impossible for the latter to be attracted by the matrix C.

- (37) a. [C [<sub>IP</sub> John wonder [whether Mary bought what]]]
- |     |        |        |
|-----|--------|--------|
|     |        |        |
| [Q] | [wh]   | [wh]   |
| ↑   | _____* | _____↓ |
- b. John-Top [Mary-Nom what-Acc bought whether] want-to-know Q
- |      |        |        |
|------|--------|--------|
|      |        |        |
| [wh] | [wh]   | [Q]    |
|      | _____* | _____↑ |

### 2.4.2 CED effects

As reported in the literature (see Nishigauchi 1986) and discussed briefly in 2.3, English *wh*-movement, but not its Japanese counterpart, is constrained by the CED. Let us consider Adjunct Condition effects.

- (38) a.    ?\*What did John cry [after Mary bought t]  
           b.    John-wa [Mary-ga nani-o katta ato] naita no  
                   John-Top Mary-Nom what-Acc bought after cried Q  
                   '?\*What did John cry [after Mary bought t]'

Let us consider the Japanese case first. Assuming that the *wh*-feature of *nani* 'what' is attracted at LF, only  $CH_{FF}$  is formed. Crucially,  $CH_{CAT}$  need not be formed (hence cannot be formed, by economy), since PF considerations are irrelevant for LF movement.<sup>23</sup> There is no problem with this attraction, since the MLC is observed: there is no closer relevant feature than that of *nani* 'what' from the viewpoint of the target C. Hence, a two-member chain is formed and the derivation converges without any problem.

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<sup>23</sup> Note that according to Watanabe (1992), examples with *nani* 'what' involve an overt null operator movement. This analysis may achieve the same desired result: since phonology is irrelevant for null operators, the pied-piping of the whole category should be unnecessary (see Takahashi 1997). Also, Bošković (in press b) argues that a null operator consists only of formal features, in which case no issue of pied-piping arises with a null operator. See Ishii (1997: section 5.3.2) and Maki and Ochi (1998) for exploration of the hypothesis that *wh*-feature movement in Japanese takes place overtly. In this section, I assume that Japanese *wh*-movement takes place covertly.

- (39) [John-Top [Mary-Nom what-Acc bought after] cry C]



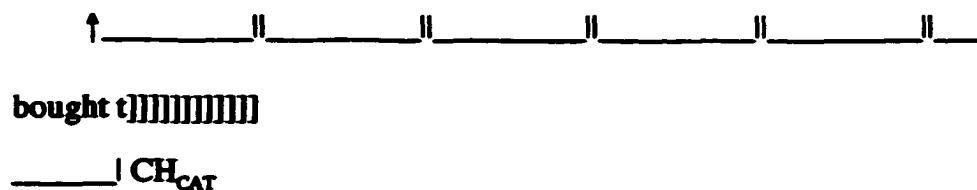
**This view of movement accounts for the absence of Adjunct Condition effects with Japanese *wh*-movement in a simple manner.**

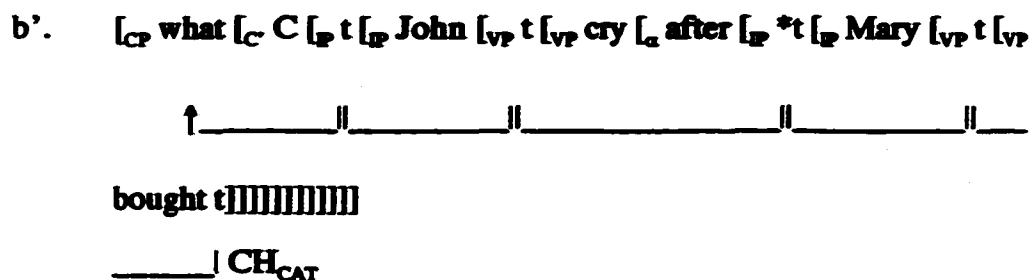
Let us now turn to the English case. As the movement is overt in English, two chains are formed. As far as  $CH_{FF}$  is concerned, no problem arises. As shown in (40a), the feature of *what* is the closest from the viewpoint of the matrix C, and attraction is therefore successful. However, the remnant movement causes a violation of Takahashi's UCA if it obeys the SMC, as shown in (40b). If the remnant movement observes the UCA by not adjoining to the adjunct clause, then the SMC (in the sense of Takahashi 1994) is violated (40b').

- (40) a. [<sub>CP</sub> C [<sub>IP</sub> John cry [<sub>VP</sub> after Mary bought what]]]



- b.  $[_{CP} \text{ what } [_C C [_{IP} t [_{IP} \text{ John } [_{VP} t [_{VP} \text{ cry } [_a *t [_a \text{ after } [_{IP} t [_{IP} \text{ Mary } [_{VP} t [_{VP}$





Thus, under the proposed account, a CED effect obtains when the pied-piping chain (i.e., CH<sub>CAT</sub>) is formed across an adjunct domain.

Similarly, there is no Subject Condition effect with argument wh-in-situ in Japanese.

- (41) a.    [John-ga    nani-o    katta    koto]-ga    minna-o    odorokaseta no  
           John-Nom what-Acc bought fact-Nom everyone-Acc surprised    Q  
           '?'\*What did [the fact that John bought t] surprise everyone'
- b.    ?\*What did [the fact that John bought t] surprise everyone

This fact is consistent with the current analysis. The interrogative C attracts the closest relevant feature, namely, that of *nani* 'what' and hence the attraction is successful.

- (42)    [John-Nom what-Acc bought fact]-Nom everyone-Acc surprised C



The English case, however, involves the additional chain, which causes the problem with respect to the UCA (or the SMC).



- (43) a. C [<sub>IP</sub> [the fact that John bought what] [<sub>VP</sub> [the fact ... what] ...]  
 | |  
 [Q] [wh]  
 ↑ \_\_\_\_\_ | CH<sub>FF</sub>
- b. what [<sub>IP</sub> t [<sub>NP</sub> \*t [the fact [t [that [t [John [t [bought t]]]]]]], [<sub>VP</sub> t<sub>j</sub> surprise  
 ↑ \_\_\_\_\_  
 everyone]]
- b'. what [<sub>IP</sub> t [<sub>NP</sub> the fact [t [that [t [John [t [bought t]]]]]]], [<sub>VP</sub> t<sub>j</sub> surprise  
 ↑ \_\_\_\_\_\* \_\_\_\_\_  
 everyone]]

Note, however, that it has been claimed in the literature (see Kayne 1984 and Lasnik and Saito 1992, to name a few) that Japanese lacks Subject Condition effects even for overt movement such as scrambling (although it is difficult to construct the relevant minimal pair, since Japanese sentential subject is always realized as IP + *koto* 'fact', thus constituting a complex NP).

- (44) a. ??Dono hon-o Mary-ga [John-ga t katta koto]-ga  
 which book-Acc Mary-Nom John-Nom bought fact-Acc  
 mondai-da to omotteru no  
 problem-be that think Q  
 'Which book is it that Mary thinks that the fact that John bought it is a  
 problem'

- b.    ??Dono hon-o    Mary-ga [John-ga t katta koto]-o  
          which book-Acc Mary-Nom John-Nom bought fact-Acc  
          mondai-ni siteru no  
          problem-to making  
          ‘Which book is it that Mary is calling the fact that John bought it into  
          question’

Thus, the grammaticality of (41) is consistent with, but does not necessarily count as evidence for, the proposed analysis. The real question is why Subject Condition effects are absent altogether in Japanese. According to Takahashi (1994: 65), the absence is due to the fact that the subject in this language may optionally stay within VP in overt syntax, which means that it does not always form a non-trivial chain. Alternatively, Japanese subjects have the option of being base-generated in the spec of IP. Under either of these possibilities, overt extraction out of such a domain is possible without violating either the UCA or the SMC. I will discuss the nature of the EPP in Japanese in chapter 3, where I conclude that Japanese IP has the EPP.

Note that to the extent that the proposed analysis relies on Takahashi’s (1994) UCA (10), it faces the same problem as Takahashi’s (see section 2.2.2): why is extraction out of (a segment of) the VP allowed although this segment too constitutes a proper subpart of a uniform group, namely, a coordination? I will come back to this important issue in section 2.5.

#### 2.4.3 Complex NP Constraint effects

Japanese argument *wh*-phrase occurs within the complex NP island, indicating that feature attraction is not subject to this island, either.

- (45) Kimi-wa [[nani-o katta] hito]-o sagashiteiru no  
 You-Top what-Acc bought person-Acc looking-for Q  
 '\*What are you looking for a person [who bought t]'

I will adopt Murasugi's (1991) claim that relative clauses in Japanese are IPs which need not involve relative operator movement.

- (46) Kimi-wa [<sub>NP</sub> [<sub>IP</sub> pro nani-o katta] hito]-o sagashiteiru no  
 You-Top what-Acc bought person-Acc looking-for Q

Under this hypothesis, the structure of the relative clause is essentially the same as the pure complex NP consisting of the N plus a prenominal gapless clause, which also allows argument wh-in-situ inside it.<sup>24</sup>

- (47) Kimi-wa [[Peter-ga nani-o kau] kanousei]-o sirabetiru no  
 You-Top Peter-Nom what-Acc buy probability-Acc search Q  
 '\*What are you checking [the probability [that Peter will buy t]]'

From the viewpoint of the target (i.e., matrix C), the wh-feature of *nani* 'what' is the closest (and the only) relevant feature in both (45) and (47). Hence Attraction is successful. Their English counterparts are ungrammatical, since pied-piping chain causes a problem, assuming that postnominal clauses in the complex NP are adjuncts (see Stowell 1981).

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<sup>24</sup> In the next chapter, however, I will argue that prenominal clauses in Japanese are not uniform. In particular, I argue that some prenominal clauses are complements.

#### 2.4.4 More on wh-in-situ

Let us consider further cases. I start the discussion with English wh-in-situ in multiple wh-questions. As observed by Baker (1970), examples like the following are judged to be ambiguous with respect to the interpretation of the in-situ wh-phrase. In particular, *what* can take either the matrix scope as well as the embedded scope, indicating that there is no wh-island effect in this case.

(48) Who wonders where John bought what

I assume with Chomsky (1995), Tsai (1994: 58) and Reinhart (1995) among others that argument (or nominal) wh-in-situ in English is licensed in-situ via unselective binding. The lack of feature movement of *what* in (48) is consistent with Attract. Since the morphological requirement of the matrix C is satisfied by attracting the closest wh-feature (of *who*), there is no need for the C to attract another wh-feature.

The same situation holds in Japanese as well, as Watanabe (1992) shows. (49a) is a typical Wh-island configuration. In contrast, (49b) shows that presence of an additional wh-phrase outside the island improves the example.

- (49) a. ??John-ga [Taro-ga nani-o katta kadooka] Mary-ni tazuneta no  
           John-Nom Taro-Nom what-Acc bought whether Mary-Dat asked Q  
           ‘?\*What did John ask Mary [whether Taro bought t]’  
       b. John-ga [Taro-ga nani-o katta kadooka] dare-ni tazuneta no  
           John-Nom Taro-Nom what-Acc bought whether who-Dat asked Q  
           ‘Who did John ask t [whether Taro bought what]’

(Watanabe 1992)

The improved status of (49b) is expected under Attract. There are three elements with a wh-feature: *dare* 'who,' *kadooka* 'whether,' and *nani* 'what.' Since *dare* 'who' and *kadooka* 'whether' do not c-command each other, either of them is equally close to the matrix C. The inadequacy of the matrix C can be remedied by attracting the wh-feature of *dare* 'who.' Hence, there is no need for the C to attract another wh-feature. Consequently, *nani* 'who' stays in-situ and is licensed by unselective binding.

Data such as (49) are important as they distinguish the Attract F-based approach to Japanese wh-in-situ explored here from the pure unselective binding approach proposed by Saito (1998) and Shimoyama (1998). According to the latter, no movement is involved in Japanese, and the argument wh-in-situ is always licensed by unselective binding (without movement). This is why (50) is fine. The apparent locality effect in (51) is due to the restriction on unselective binding: a wh-phrase needs to be bound by the closest potential binder.

- (50) John-wa [Mary-ga nani-o katta ato] kaetta no  
 John-Top Mary-Nom what-Acc bought after left Q  
 '?\*What did John leave [after Mary bought t]'

- (51) Kimi-wa [dare-ga nani-o tabeta ka] siritai no  
 you-Top who-Nom what-Acc ate Q want-to-know Q  
 a. 'Do you know who ate what?'  
 b. ??'Who is the person x such that you want to know what x ate'  
 c. ??'What is the thing x such that you want to know who ate x'  
 d. ??'What is the person x and the thing y such that you want to know whether  
 x bought y'

Thus, the two approaches (i.e., the Attract F-based approach and the pure unselective binding approach) capture the basic paradigm equally well. However, the pure unselective

binding approach faces an empirical problem when we turn to (49) above (see also (48)). The improved status of (49b) remains as a mystery under this approach, since it is not obvious why the presence of an additional *wh*-phrase outside an island makes a difference for unselective binding.

There are also languages in which argument *wh*-phrase shows no island sensitivity at all, including *wh*-island effects; Chinese and Malay. Huang (1982) (see also Tsai 1994) claims that argument *wh*-in-situ is not sensitive to any type of island including *Wh*-island.<sup>25</sup>

- (52) John [zai Mary mai-le sheme yihou] likai-le  
 John [at Mary buy-ASP what after] leave-ASP  
 ‘?\*What did John leave after Mary bought’
- (53) Ni xiang-zhidao [shei mai-le sheme]  
 you wonder who buy-ASP what  
 a. ‘Who is the person *x* such that you wonder what *x* bought’  
 b. ‘What is the thing *x* such that you wonder who bought *x*’

This fact suggests that Chinese interrogative *C*, unlike its English and Japanese counterparts, does not attract a *wh*-feature at any point in the derivation, and (argument) *wh*-in-situ is simply licensed by unselective binding (Tsai 1994). Thus, cross-linguistically, an interrogative complementizer may attract a *wh*-feature overtly as in English (due to the presence of a strong feature), covertly as in Japanese (due to the lack of a strong feature), or may not attract at any level as in Chinese (due to the lack of the relevant feature to begin with). This set of distinctions is consistent with the view that

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<sup>25</sup> Some speakers are reported to have different judgments from the ones reported in Huang (1982). Specifically, they detect *wh*-island effects. Such dialects may fall under the same analysis as that for Japanese argument *wh*-in-situ.

language variation is limited to properties of lexical items, in particular, functional elements (see Fukui 1995 among others).

Malay also presents an interesting paradigm. According to Cole and Hermon (1994, 1998), an argument *wh*-phrase in Malay either (a) moves to the spec of CP where it takes scope, or (b) stays in-situ, or (c) moves to the intermediate specifier of the CP where it does not take scope (partial *wh*-movement). I will refer to them as “full *wh*-movement,” “in-situ *wh*,” and “partial *wh*,” respectively.

- (54) a. Sipa (yang) [Bill harap yang t akan membeli baju untuknya]  
 who that Bill hope that will buy clothes for him  
 ‘Who does Bill hope will buy clothes for him’
- b. Ali memberitahu kamu tadi [Fatimah baca apa]  
 Ali informed you just now Fatimah read what  
 ‘What did Ali tell you just now that Fatimah was reading’
- c. Ali memberitahu kamu tadi [apa (yang) Fatimah baca apa]  
 Ali informed you just now what that Fatimah read  
 ‘What did Ali tell you just now that Fatimah was reading’

Why does Malay allow both in-situ and overt movement option? Although I have no concrete answer to this question, I will offer a proposal regarding the theoretical status of “partial *wh*-movement” in Malay.

Cole and Hermon report that a “full *wh*-movement” shows island effects while “in-situ *wh*” shows no island effects, including *wh*-island effects.

- (55) a. \*Apa kamu tanya Ali siapa beli t  
 what you ask Ali who bought  
 ‘What did you ask Ali who bought’

- b.      **Kamu tanya Ali siapa beli      apa**  
          **you    ask    Ali who bought what**  
          **'What did you ask Ali who bought'**

(55a) violates the MLC (21) under Attract. As for (55b), I assume, following Cole and Hermon (1994), that *wh-in-situ* in Malay does not undergo movement at all. Rather, it is licensed in-situ by unselective binding.

As for "partial *wh-movement*," Cole and Hermon (1994, 1998) observe that the example is ungrammatical if there is an island between the partially moved *wh*-phrase and the interrogative *C* where it takes scope.<sup>26</sup> In this sense, "partial *wh-movement*" and "full *wh-movement*" pattern alike.

- (56) a.      **wh-in-situ**  
          **Ali dipecat    [kerana dia membeli apa]**  
          **Ali was fired because he bought    what**  
          **\*What was Ali fired because he bought t'**
- b.      **partial wh-movement**  
          **\*Ali dipecat    [apa (yang) kerana dia membeli t]**  
          **Ali was fired    what that    because he bought**
- c.      **full wh-movement**  
          **\*Apa Ali dipecat    [kerana    dia membeli t]**  
          **what Ali was fired because he    bought**

---

<sup>26</sup> Cole and Hermon (1994) also report that the dependency between a "partially moved *wh*" and its original position is also subject to all kinds of islands, although they do not provide relevant data.



Cole and Hermon (1994) conclude that, unlike *wh-in-situ*, the “partially moved *wh*” must undergo covert movement from its surface position. (56b) is ungrammatical because this covert movement crosses an island.

I will offer a somewhat different explanation for (56b), since if *apa* ‘what’ is attracted in covert syntax, as they claim, then the analysis in this chapter predicts that this example is grammatical; covert attraction should be successful across non-RM type islands such as the Adjunct island. Adopting the idea in Nunes (1999), I suggest that the “partial *wh*” construction in Malay is in fact identical to “full *wh*-movement” as far as narrow syntax is concerned. The only difference between the two is the pronunciation site of the moved item; depending on whether the top copy or an intermediate copy is pronounced, we get “full *wh*-movement” or “partial *wh*-movement.”<sup>27-28</sup>

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<sup>27</sup> Crucially, I assume that “*wh-in-situ*” is not a result of pronouncing the original copy in the sense discussed in the text. Rather, I assume with Cole and Hermon that “*wh-in-situ*” is really *in-situ*; otherwise, the lack of island sensitivity would not be accounted for. Of course, this raises the question why pronouncing the lowest copy is not an option when *wh*-movement takes place. Although I do not have an answer to this question, it is worth noting that languages such as German which allow pronunciation of multiple copies (top and intermediate copies) do not allow pronouncing the original copy, either.

<sup>28</sup> There is a piece of evidence against this analysis, however. According to Cole and Hermon (1998), Malay has a prefix *meng-* which cannot appear in the domain over which overt *wh*-movement has occurred (i) (normally, the prefix is optionally present when *wh*-movement does not occur). In the partial *wh* construction, this prefix can appear between the partially moved *wh*-phrase and its scope position. Thus, if the contrast between (ii) (partial *wh*) and (iii) (full *wh*) with respect to the presence/absence of the prefix in the higher clause is real, it demands an explanation under the hypothesis in the text. I must leave the issue open here.

- |       |  |              |
|-------|--|--------------|
| (i)   | Apa Ali (*mem)-beri t pada Fatimah<br>what Ali meng-gave to Fatimah<br>‘What did Ali give to Fatimah’  |              |
| (ii)  | Ali (mem)-beritah kamu tadi [apa yang Fatimah (*mem)-baca<br>Ali meng-told you just now what that Fatimah meng-read<br>‘What did Ali tell you just now that Fatimah was reading t]’    | (partial wh) |
| (iii) | Apa Ali (*mem)-beritah kamu tadi [(yang) Fatimah (*mem)-baca<br>what Ali meng-told you just now that Fatimah meng-read<br>‘What did Ali tell you just now that Fatimah was reading t]’ | (full wh)    |

- (57) a. what C ..... (what) ..... (what) -> "full wh-movement"  
 b. (what) C ..... what ..... (what) -> "partial wh-movement"

Then, the ungrammaticality of (56 b) (as well as (56c)) is due to the fact that the pied-piping chain is formed across an adjunct domain.<sup>29</sup>

Note that this view of "partial wh-movement" has some implications for the distribution of adjunct wh-phrases in Malay. Cole and Hermon (1994) report that typical adjuncts such as *kenapa* 'why' cannot stay in-situ but must front, "fully" or "partially."

- (58) a. wh-in-situ  
       \*Fatimah menangis kenapa  
       Fatimah cry        why  
       'Why did Fatimah cry'  
 b. full wh-movement  
       Kenapa awak fikir [dia pergi t]  
       why    you    think he leave  
       'Why do you think [he left t]'  
 c. partial wh-movement  
       John fikir [kenpa yang Mary rasa [Ali dipecat t]]  
       John think why    that    Mary feel    Ali was fired  
       'Why does John think [that Mary felt [that Ali was fired t]]'

---

<sup>29</sup> The prediction then is that a partially moved wh-phrase should license a parasitic gap (PG) which occurs in a higher clause (as shown in (i)), assuming that PG is licensed in the same configuration with full wh-movement. This prediction needs to be tested.

(i) [Q ... [ ... PG ... ] .. [<sub>CP</sub> wh ..... ]]

Assuming that (58b-c) are identical in narrow syntax, the generalization in Malay would be that the adjunct wh-phrase must move to its scopal position in overt syntax. This fact is consistent with the proposal by Tsai (1994) and Reinhart (1995) that the adjunct/non-nominal wh-phrase cannot be licensed in-situ by unselective binding but must move to the CP where it takes scope.

#### 2.4.5 Summary

To summarize this section, I have proposed that movement operation involves both Move and Attract in the sense that two chains, each of different nature, are involved when the category moves, an idea which stems from Chomsky's (1995) view of category movement. Note that in the proposed analysis, the wh-island and the CED-type islands (Adjunct Condition and Subject Condition) are clearly given a separate treatment. While the former concerns  $CH_{FF}$  (i.e., the definition of Attract), the latter arise when  $CH_{CAT}$  is formed across adjunct and subject domains. Furthermore, the analysis outlined here has the following consequence for the theory of feature movement under Attract. The locality of pure feature movement cannot be stricter than that of category movement (i.e., feature movement plus generalized pied-piping). As we saw, feature movement itself is subject only to the Relativized Minimality type islands such as Wh-island; it is immune to the CED. On the other hand, overt movement has the additional pied-piping chain ( $CH_{CAT}$ ), which induces CED effects.

The current proposal, although cast in terms of the current Attract F theory, shares some important ideas and properties with some predecessors in the field. For instance, it shares with authors such as Nishigauchi (1986) the idea that the apparent difference in locality between overt and covert movement follows from an independent factor (although the approach taken here does not resort to Nishigauchi's large scale pied-piping mechanism as a way of accounting for this difference). Also, the proposed analysis is reminiscent of

the proposal made in Huang (1982) in that CED effects and RM effects are dealt with separately. For Huang, islands such as the Subject Condition and Adjunct Condition are due to the CED, but Wh-island effects do not fall under the CED, since the CP whose specifier position is filled by a wh-phrase is typically a complement and hence is properly governed. Therefore, Subjacency was independently called for in order to explain Wh-island effects. As stated above, this holds in our proposal as well, although the technical implementation of the idea is different.

## **2.5 Derivational constraint on movement**

In this section, I reevaluate Takahashi's UCA and propose a way to derive its effects without stipulation. The outcome of the discussion leads us to a derivational characterization of grammatical constraints.

### **2.5.1. Acyclic merger**

Let us first return to the issue raised in section 2.2 with respect to Takahashi's (1994) analysis of Adjunct Condition effects. Assuming that VP and an adjunct clause comprise a coordination(-like) structure, the question that arose was why extraction out of the adjunct clause yields a violation of the UCA (or the SMC) while extraction out of the other conjunct, (a segment of) the VP, does not.

(59) What did John [buy t [after Mary left]]

Takahashi's solution, which resorts to a distinction between a full category and a segment of a category, begs the question of why this should be so. I argue instead that this asymmetry follows directly from the following claim.<sup>30</sup>

(60) Adjunction is not subject to the cycle.

(see Lebeaux 1988 and Chomsky 1993)

This is motivated by the following well-known asymmetry with respect to reconstruction effects between complements and adjuncts (see Freidin 1986). (61a), in which the R-expression *John* is contained in an adjunct within the fronted *wh*-phrase, is fine with *John* and *he* being coreferential. In contrast, (61b) is judged to be ungrammatical under the relevant reading, where *John* is part of the complement clause within the fronted *wh*-phrase.

- (61) a. [Which claim that *John<sub>i</sub>* made] did *he<sub>i</sub>* deny  
 b. \*[Which claim that *John<sub>i</sub>* was asleep] did *he<sub>i</sub>* deny

Although this paradigm is called into question by several authors (Kuno 1997, Lasnik 1998, and Postal 1998), let us assume for the sake of discussion that there is a relevant contrast.<sup>31</sup>

Lebeaux (1988: 151) claims that this contrast is accounted for by assuming that a) adjuncts can be inserted acyclically, and b) Condition C applies throughout the derivation. (61b) violates Condition C before *wh*-movement takes place; the clause *that John was asleep* must be inserted cyclically as it is a complement to N. In contrast, since adjuncts

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<sup>30</sup> See Appendix 2 for more on acyclic operations.

<sup>31</sup> In chapter 3, I show that sentential modifiers within DPs in Japanese behave non-uniformly, along the distinction between complement clauses vs. relative clauses in Lebeaux's sense.

such as relative clauses need not be introduced cyclically, it is possible for *that John made* in (61a) to be merged into the structure after *wh*-movement has taken place. There is no Condition C violation in the derivation illustrated below.<sup>32</sup>

- (62) a. [he deny which claim]  
           [that John made]
- b. Wh-movement of *which claim*  
           [which claim did he deny [which claim]]  
           [that John made]
- c. Acyclic merger of the relative clause  
           [which claim that John made] did he deny [which claim]

I adopt Lebeaux's analysis in the text, but see Appendix 2, where the other line of approach in Bošković and Lasnik (1999) is discussed.

Let us now return to the example in (59), repeated below.

<sup>32</sup> It is worth considering Nunes' (1995, 1999) alternative approach to (61a), which employs sideward movement. Suppose that the derivation has constructed the two objects K and L in (i). The phrase *which claim* is copied and is adjoined to L, as shown in (ii). Then, K and M merge, yielding (iii). There is no Condition C violation in this derivation.

- (i) [Which claim that John<sub>i</sub> made] did he<sub>i</sub> deny  
       a. K = [<sub>CP</sub> did he deny which claim]  
       b. L = [<sub>CP</sub> Op that John made Op]
- (ii) a. K = [<sub>CP</sub> did he deny which claim]  
       b. M = [<sub>CP</sub> which claim [<sub>CP</sub> Op that John made Op]]
- (iii) [<sub>CP</sub> [<sub>CP</sub> which claim [<sub>CP</sub> Op that John made Op]] did he deny which claim]

Questions arise with respect to the status of M in (ii), which is derived by adjoining *which claim* to the relative clause. According to this analysis, the whole phrase *which claim that John made* is a CP, not a DP. Also, in the semantics which treats a relative clause as of the type  $\langle e, t \rangle$ , the (restrictive) relative clause and the head N should combine first, so that rules such as the Predicate Modification can apply (see Heim and Kratzer 1998).



Note that this derivational line of approach continues to capture Adjunct Condition violations.

(65) ?\*What did John cry [after Mary bought t]

Assuming that the operation Attract requires a c-command relation between an attractor and an attractee,<sup>34</sup> the adjunct clause must be merged with the rest of the structure in order for *what* to be attracted by the interrogative C in this example. Hence extraction of *what* (or formation of CH<sub>CAT</sub> in connection to its movement) from within an adjunct always results in a violation of either the UCA (10) or the SMC.

### 2.5.2 Adjunction and chain uniformity

Let us reexamine (61a), which is grammatical because the relative clause *that John made* can be merged with the wh-phrase *which claim* after the latter is fronted: this ensures that there is no Condition C violation. But notice now that uniformity requirement on the non-trivial chain does not seem to be satisfied in this case, as shown in (66b).

(66) a. [Which claim that John<sub>i</sub> made] did he<sub>i</sub> deny

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<sup>34</sup> As Jairo Nunes (p.c.) points out, this assumption is not innocent, since there are cases in which a formal feature can be checked off by merging an item from the Numeration. For instance, the strong feature of an interrogative C can be satisfied by merging *whether* with it.

- (i) I wonder [<sub>CP</sub> whether C John is here]  
 a. [<sub>IP</sub> John is here]  
 b. C [<sub>IP</sub> John is here]  
 c. [<sub>CP</sub> whether C [<sub>IP</sub> John is here]] (merger of *whether* with C)

Crucially, at the point in the derivation shown in (ib), *whether* is not in the c-command domain of the C. I speculate that an element E is exempt from the c-command requirement when it is still in the Numeration, since it is impossible for E (in the Numeration) to be in any structural relation; *whether* in this case thus vacuously satisfies the c-command requirement on Attract.



- b. ([which claim that John made], [which claim])

Recall that the discussion in the section 2.2 that the uniformity imposed on the members of non-trivial chains may be attributed to the PF requirement for the deletion of copies. I repeat the Subject Condition case whose derivation violates the UCA. The non-trivial chain is illustrated in (67b).

- (67) a. What did [<sub>IP</sub> t [<sub>IP</sub> [<sub>NP</sub> \*t [<sub>NP</sub> a picture of t]] [<sub>VP</sub> t<sub>j</sub> irritate John]]]  
 b. ([what [a picture of what]], [a picture of what]) => violates the UCA

If the non-trivial chain in (67b) does not satisfy the uniformity required by the UCA due to the presence of an extra copy of *what* in the head of the chain, the same reasoning should also apply to (66b): the presence of an extra material in the head of the non-trivial chain, namely the relative clause, should result in a loss of uniformity.

I believe that an answer is available once we sharpen the notion of ‘uniformity’ required of non-trivial chains, since the two chains considered above are not identical in every sense. Assuming that the relative clause is an adjunct within NP under the DP hypothesis (see Law 1991), the adjunction structure in (66b) does not affect the top label of the first member of the chain, as shown in (68a). In contrast, the adjunction structure in (67b) does affect the top label of the first member of the chain, as in (68b).

- (68) a. ({which, {which, {<claim, claim> {claim, that John made}}}}, {which, {which, claim}}})  
 b. ({<a, a>, {what, {a picture of what}}}, {a, {a, {picture of what}}})

Thus if the identity required for deletion of copies at PF is essentially sensitive to the identity (or non-distinctness) of the top label of each member of a chain,<sup>35</sup> we would be able to distinguish the two cases: the label of each member of the chain is intact in (68a) for (66b), while this is not the case in (68b) for (67b). PF deletion of a copy fails to apply only in (68b), a correct result.

## **2.6 Further consequences**

### **2.6.1 Binding conditions and the content of formal features**

The proposed analysis bears crucially on the issue concerning the content of formal features (FF) of a lexical item (LI). There are two different views regarding whether the FF-bundle of a lexical item includes features relevant for binding and control (among others). Chomsky (1995: section 4.4.5) claims that the features relevant for binding (and control) are part of formal features of LI, thus arguing that binding (and control) possibilities are affected by covert (i.e., formal feature) movement. Consider the following data.

- (69) a. The DA proved [two men to have been at the scene of the crime] during each other's trials
- b. ?\*The DA proved [that two men were at the scene of the crime] during each other's trials

---

<sup>35</sup> Two labels are identical (or non-distinct) only if they are created by a copying operation.

If we assume with Chomsky (1995) that the ECM subject raises into the matrix clause in covert syntax, the contrast in (69) shows that the covert formal feature movement creates new binding possibilities.

Lasnik (1995) argues against this conclusion by claiming that the subject in ECM in fact raises into a higher clause in overt syntax (see Postal 1974, Lasnik and Saito 1991, Bošković 1995 among others). Then the data in (69) does not provide support for Chomsky's position, since the entire DP *two men* is in a higher clause in overt syntax. Lasnik further argues that the features relevant for binding are not part of formal features. His argument is based on expletive constructions such as below. (70) from Lasnik (1995) shows that the associate of *there* cannot antecede an anaphor when it does not c-command the latter overtly.

- (70) a.     \*There seem to each other [t to have been some linguists given good job offers]  
           b.     Some linguists seem to each other [t to have been given good job offers]

The ungrammaticality of (70a) follows immediately if the features relevant for binding are not affected by covert movement of the associate. In (a), only formal features of the associate raise in covert syntax, stranding the semantic and phonological features of the associate. Hence the anaphor is not licensed in this case. In contrast, the whole category is raised in the (b)-example, allowing new binding relations to be established. On the other hand, Chomsky's (1995) view fails to account for the contrast without ad hoc stipulations.

The analysis presented in this chapter supports Lasnik's (1995) view, namely, that features relevant for binding are not part of formal features. Consider (71), suggested to me by Željko Bošković (p.c.) (see also Barss 1986).



On the other hand, Lasnik's (1995) view is consistent with the grammaticality of (71) under the derivation shown in (72). The features relevant for anaphor licensing are affected only by the pied-piping chain  $CH_{CAT}$ . This chain is formed in a successive cyclic fashion, which means that the movement stops by some intermediate position close to *John*, hence creating the necessary configuration for licensing *himself*.<sup>36</sup> Thus, the analysis in this chapter lends empirical support for Lasnik's (1995) view concerning the content of formal features.<sup>37</sup>

Note also that the above discussion indicates that anaphor licensing has nothing to do with 'anaphor movement' in the sense of Chomsky (1993). Chomsky (1993) proposes that the anaphor undergoes covert movement to the position of its antecedent. Under current terms, this could be interpreted as formal feature movement. Yet, the grammaticality of (71) argues to the contrary.<sup>38</sup>

Let us finally consider the following data from Barss (1986).

---

<sup>36</sup> For example, the following data from Lasnik and Saito (1992: 110) show that the anaphor *himself* in (ib) can take *John* as its antecedent when this anaphor is fronted within the embedded clause.

- (i)     a.     \*John thinks that Mary likes himself.  
          b.     John thinks that himself, Mary likes t.

<sup>37</sup> See Bošković (1997b) for additional arguments in favor of Lasnik's (1995) view.

<sup>38</sup> See Ausín (1999) for empirical arguments against Chomsky's (1993) LF anaphor movement. In particular, he shows that the anaphor *himself* can take *John* as its antecedent in (i), which is not expected under Chomsky's (1993) analysis (the adjunct clause *with a good camera* is used to force the idiomatic interpretation). See Ausín (1999) for more details.

- (i)     a.     John wonders which picture of himself was taken with a good camera  
          b.     John wonders which picture of himself Mary said was taken with a good camera

- (73) a. \*Him<sub>i</sub>, John<sub>i</sub> likes t<sub>i</sub>  
b. Him<sub>i</sub>, John<sub>i</sub> thinks that Mary likes t<sub>i</sub>.

Of our interest is the fact that (73b) is grammatical. (74) shows the derivation of this example under the two chain hypothesis. In particular, semantic features of the pronoun stop by some intermediate positions which are close to *John*, parallel to the example with *himself* in (71). If Condition B applies everywhere in the derivation, as Lebeaux (1988, 1994) argues, then we expect this example to be ungrammatical, contrary to the fact.

- [illegible]

I assume that 1) *binding* reconstruction is obligatory for A-bar movement,<sup>39</sup> and 2) Condition B (and presumably C as well) is an LF condition. Under these specific

<sup>39</sup> I say 'binding reconstruction,' since there is evidence that A-bar reconstruction is not obligatory as far as scope is concerned. For example, as noted by Liu (1990), downward monotonic quantifiers in object position do not take scope over subject, as shown in (ia). However, the object *few books* can take scope over subject once it is preposed (Negative Preposing), as shown in (ib) (in fact, for some speakers, this reading is the only possible reading).

- (i) a. Every man read few books  
every > few, \*few > every (cont.)

assumptions, (73) would have the following LF representations, and consequently Condition B forces disjoint reference of *John* and *him* in (73a) but not in (73b).<sup>40</sup>

- (75) a. John<sub>i</sub> likes him<sub>i</sub>  
 b. John<sub>i</sub> thinks that Mary likes him<sub>i</sub>

Returning to (71) above, this leads us to conclude that Condition A is an anywhere condition, in line with Lebeaux (1988, 1994). If Condition A were to apply exclusively at LF, this example is predicted to be ungrammatical, given that A-bar movement necessarily reconstructs for binding purposes.

## 2.6.2. Feature movement and coordinate structures

The proposed analysis also has several consequences for the syntax of coordinated structures. First, our analysis entails that Attract F itself is not sensitive to the Coordinate

- 
- b. Few books did every man read  
 (\*) every > few, few > every

That Neg Preposing is A-bar movement is demonstrated by the fact that it exhibits a weak crossover (WCO) effect (see Koizumi 1995: 143 fn., 3), as (ii) shows.

- (ii) \*No book<sub>i</sub> would I expect its<sub>i</sub> author to praise t<sub>i</sub> publicly

Note also that the claim that the binding reconstruction is obligatory for A-bar movement may be too simple. As discussed by Reinhart (1983) among others, the depth of an R-expression inside the fronted constituent affects the Condition C type reconstruction effects (iii). Given the lack of good understanding of this phenomenon, I will not pursue this interesting issue further.

- (iii) a. ?\*In Dan's<sub>i</sub> box, he<sub>i</sub> put cigars t  
 b. In the box that Dan<sub>i</sub> brought from China, he<sub>i</sub> put cigars t

<sup>40</sup> There is an interfering factor, as Howard Lasnik (p.c.) points out. (i) is not completely out, indicating that (73b) need not have (75b) as its LF representation (in order for the coreference to obtain).

- (i) John<sub>i</sub> thinks that him<sub>i</sub>, Mary likes t

Structure Constraint (CSC).<sup>41</sup> Recall from section 2.4 that in Japanese, the feature of *nani* 'what' can be attracted out of the adjunct clause, which was analyzed, following Takahashi (1994), as a conjunct of a coordinated structure. I repeat the relevant data and its structure below for ease of reference.

- (76) a. John-wa [Mary-ga nani-o katta ato] naita no  
 John-Top Mary-Nom what-Acc bought after cried Q  
 '\*What did John cry [after Mary bought t]'
- b. [John-TOP [Mary-NOM what-ACC bought after] cried C]
- | |

[wh] [Q]

| \_\_\_\_\_ ↑ CH<sub>FF</sub>

Thus, the effect of the CSC must be related to the formation of CH<sub>CAT</sub> (see below).<sup>42</sup>

Second, our discussion of acyclic merger in section 2.5 leads us to adopt a particular structure of coordination. Specifically, we are led to adopt the structure in (77a), in which the two conjuncts are in the specifier and complement positions of the Boolean Phrase (see Munn 1987 and Zoerner 1995), over (77b), in which the Boolean phrase (BP) consisting of a Boolean head and the second conjunct is adjoined to the first conjunct (see Munn 1993).

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<sup>41</sup> Note that authors such as Goldsmith (1985) provide a range of exceptions to the CSC. See Zoerner (1995) for arguments that the CSC should receive a syntactic account (see also Postal 1998 for detailed discussion of this issue).

<sup>42</sup> The following example illustrates the same point.

- (i) John-wa mikan-to nani-o tebeta no  
 John-Top orange-and what-Acc ate Q  
 '\*What did John eat oranges and t'





- b. Who did [<sub>NP</sub> t [<sub>NP</sub> you [<sub>VP</sub> t [<sub>VP</sub> buy [<sub>NP</sub> t [<sub>NP</sub> [<sub>NP</sub> a picture of \*t] [<sub>P</sub> and a  
 ↑ \_\_\_\_\_ || \_\_\_\_\_ || \_\_\_\_\_ || \_\_\_\_\_ | CH<sub>CAT</sub>  
 candy]]]]]]

Finally, I will briefly discuss an implication of the proposed analysis for *there*-constructions.<sup>43</sup> Chomsky (1986b) argues that expletive *there* is replaced at LF by its associate, which receives support from the agreement facts in those constructions: the verb agrees with an indefinite NP which is not in the subject position, as shown in the pairs in (81a-b) and (81c-d).

- (81) a. There is a man in the room.  
 b. A man is in the room.  
 c. There are men in the room.  
 d. Men are in the room.

Under the Attract F hypothesis, the covert movement of the associate of *there* is reinterpreted as covert feature movement of the associate to the INFL head which hosts *there* within its projection (see Chomsky 1995: 4.4.5 and Lasnik 1995 for relevant discussion). Let us assume with Lasnik (1995) that *there* has a Case feature but lacks agreement features. At LF, INFL attracts the phi-features of the associate NP to check off its own uninterpretable phi-features.

Now, as observed by Munn (1993) and Sobin (1997), *there*-constructions exhibit a curious agreement pattern when the associate of *there* is a conjoined NP. When conjoined

---

<sup>43</sup> I owe much of the following discussion to Bošković's (1997: section 4.3.3.3.) analysis of *there*-constructions (although for him, *there* lowers to the position of its associate rather than the associate raising to *there*).

NPs occupy a subject position, as in (82), the verb agrees with the whole conjunct, thus being realized as plural. However, in *there*-constructions with a conjoined associate NP, the verb *be* tends to agree with the first conjunct, as shown in (83).

- (82) a. Three men and a woman \*is/are in the room.  
 b. A man and three women \*is/are in the room.
- (83) a. There \*is/are three men and a woman in the room.  
 b. There is/?are a man and three women in the room.

The agreement pattern shown in (83) is exactly as expected under the proposed account. The INFL head attracts the closest phi-features. Given the analysis I adopted regarding the Boolean Phrase (BP) above, it is reasonable to say that the first conjunct, which is in the spec of BP, is closer than the second conjunct in the complement position of Boolean head; the former c-commands the latter.<sup>44</sup> Thus, it is the formal features (more specifically, phi-features) of the first conjunct that the INFL head attracts. The fact that the verb agrees with the first conjunct is thus accounted for. Note that this attraction is successful despite the fact that the relevant feature is attracted out of the coordinated structure, which is consistent with the proposed analysis. (84a) and (84b) show the structures of (83a) and (83b), respectively (leaving aside the exact location of the verb *be*, etc.).

---

<sup>44</sup> For instance, the following examples show that a bound pronoun is licensed when it is in the second conjunct and its binder (*every student*) is in the first conjunct, suggesting that the first conjunct c-commands the second, but not vice versa (see Bošković 1997b: 88).

- (i) a. Every student and his mother left.  
 b. \*His mother and every student left.



situ languages such as Chinese and Japanese as well as wh-fronting languages such as English, the paradigm with the adjunct wh-phrase in place of the argument wh-phrase results in severe ungrammaticality. In the paradigms below, (a) involves the adjunct island, (b) the complex NP island, and (c) wh-island.

- (86) a. \*Why did John get upset [after Mary was absent t]  
 b. \*Why did John hear [the rumor [that Mary was absent t]]  
 c. \*Why did John wonder [whether Mary was absent t]
- (87) a. \*John-wa [Mary-ga naze yasunda ato] okotta no  
 John-Top Mary-Nom why be-absent after get-upset Q  
 ‘\*Why did John get upset [after Mary was absent t]’  
 b. \*John-wa [[Mary-ga naze yasunda toiuu] uwasa]-o  
 John-Top Mary-Nom why be absent Comp rumor-Acc  
 kiita no  
 heard Q  
 ‘\*Why did John hear [the rumor that Mary was absent t]’  
 c. \*John-wa [Mary-ga naze yasunda kadooka] siritai no  
 John-Top Mary-Nom why be-absent whether want-to-know Q  
 ‘\*Why does John want to know [whether Mary was absent t]’

Let us focus on the Japanese paradigm in (87), as it poses obvious questions for the analysis presented in this chapter. First, why is the adjunct-wh in Japanese constrained by non-RM type islands? A simple-minded answer would be to say that when adjunct wh-in-situ is attracted in covert syntax, pied-piping must take place for some reason. This pied-piping chain would cause a violation of the UCA (or the SMC) when it is formed across the adjunct domain, subject domain etc.

(88) a. John-Top [Mary-Nom why be-absent after] get-upset C



b. [<sub>CP</sub> why [John-Top [<sub>IP</sub> \*t [Mary-Nom why be-absent after] get-upset C



Although this approach may account for the ungrammaticality of cases such as (87a) as shown above, there are reasons to think that this is not the right direction to go. First, it is not clear why covert movement requires pied-piping, since I followed Chomsky (1995) and attributed the formation of the (generalized) pied-piping chain to PF requirements. Second, it is unclear what accounts for the contrast between (87c) and (89). Both examples are degraded due to the fact that the *wh*-in-situ is inside the *wh*-island. However, the former is far worse than the latter.

(89) ??John-wa [dare-ga yasunda kadooka] siritai no

John-Top who-Nom be-absent whether want-to-know Q

'?\*Who does John want to know [whether *t* was absent]'

The island effects exhibited by adjunct *wh*-in-situ have been attributed to the ECP (see Huang 1982, Lasnik and Saito 1984, 1992). However, the ECP does not have a natural place within the minimalist enterprise. Although elimination of the ECP is a conceptually well-motivated move, finding an alternative way to handle the empirical coverage of the ECP is not a trivial matter. For instance, if all that is involved with *wh*-in-situ in Japanese is the *wh*-feature movement in covert syntax, as argued here, then it is not obvious how to capture the argument/adjunct asymmetry. I must leave the issue of argument vs. adjunct

asymmetries for future research. See Ochi (1999c) for some discussion of adjunct wh-in-situ.

## 2.8 Conclusion

In this chapter, I explored some consequences of Chomsky's (1995) two chain hypothesis. In particular, I argued that Attract F offers a simple account of the distribution of argument wh-in-situ in Japanese. The analysis has further consequences for the content of formal features and the syntax of coordinate structures. Also, under this analysis, non-RM type island effects are attributed to the "extra" operation, i.e., the pied-piping chain. As discussed briefly in section 2.4, the theoretical status of this chain raises some concerns. However, to the extent that successive cyclicity is a property of movement in natural languages and Attract fails to capture it, I believe that the pied-piping chain is the place to investigate. Throughout this thesis, I continue to adopt the two chain hypothesis as discussed in this chapter.

## **Appendix 1: More on adjunct condition effects**

Throughout this chapter, I have crucially replied on Takahashi's (1994) UCA, repeated below.

(90) **Uniformity Corollary on Adjunction (UCA)**

**Adjunction is impossible to a proper subpart of a uniform group, where a uniform group is a non-trivial chain or a coordination.**

Under his analysis, adjunct condition is reduced to the CSC. The gist of Takahashi's proposal is that adjuncts always involve semantic coordination. Although this insight enabled us to derive some theoretical consequences in 2.5, resorting to semantic coordination begs questions. For example, depending on which semantics one adopts, any argument, including the direct object, can be viewed as involving semantic coordination. In the works of Parsons, for instance, (91a) can be analyzed as (91b) or (91b') among other possibilities.

- (91) a. We bought slippers.  
       b.  $\exists e$  [buy (slippers)(e) & Agent (we)(e)]  
       b'.  $\exists e$  [buy (e) & Theme (slippers)(e) & Agent (we)(e)]

Of course, this discussion itself does not undermine Takahashi's approach, but it raises some concerns.

For this reason, I will examine two other recent approaches to adjunct condition (or CED) effects. As will be shown, both approaches are, in essence, compatible with the main proposal of this chapter (although there are remaining questions). Then, at the end of



this Appendix, I offer another way to unify the CED, which is crucially based on Takahashi's analysis.

#### A.1.1 Obligatory acyclic insertion of adjuncts

Authors such as Ishii (1997, 1998) and Stepanov (1999) propose an account of the adjunct condition within the minimalist terms. The essence of their proposal is that acyclic insertion of adjunct is not just an option (as in Lebeaux's (1988) analysis) but is a must. This approach, for instance, accounts for paradigms such as the following (see Ishii 1997, 1998 and Stepanov 1999). In particular, the degraded status of (93b), in which the anaphor *each other* is within the fronted adjunct domain (i.e., relative clause), is unaccounted for if adjuncts can be merged cyclically (since (93a) is good). If the adjunct must be merged acyclically, then (93b) violates Condition A.

- (92) a. The lawyers present to the judges the evidence that each other's friends were guilty
- b. What evidence that each other's friends were guilty did the lawyers present to the judges
- (93) a. The lawyers refused to talk about the evidence that that each other's friends brought up at court
- b. ??What evidence that each other's friends brought up at court did the lawyers refuse to talk about

Although Ishii (1997, 1998) and Stepanov (1999) differ in the technical implementation of how acyclic insertion of adjuncts is forced, both authors point out that this approach offers an analysis of the adjunct condition. When the interrogative C is introduced into the

structure, the adjunct clause containing a *wh*-phrase is not merged with the rest of the structure.

(94) (I wonder) [what John cried [after Mary bought t]]

(95) [<sub>CP</sub> C [<sub>IP</sub> John cry]]  
[after Mary bought what]

Suppose that 1) the strong feature must be checked off as soon as possible (i.e., by the next operation), and 2) the operation Attract requires a c-command relation between an attractor and an attractee. Then, the C cannot attract the *wh*-feature of *what* at the point in (95). The two structures need to be merged first, but then the condition on strong features (i.e., immediate checking) is not obeyed, and the adjunct condition effect is derived.

Now, if we follow Chomsky (1995) and assume that Kayne's (1994) Linear Correspondence Axiom (LCA) applies at PF, then the two clauses must be merged before Spell-Out.<sup>46</sup> Then, nothing in this analysis prevents covert attraction from taking place in the same structure. In particular, consider Japanese *wh*-in-situ.

(96) John-wa [Mary-ga nani-o katta ato] naita no  
John-Top Mary-Nom what-Acc bought after cried Q  
'?\*What did John cry [after Mary bought t]'

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<sup>46</sup> Intonational phrasing may be another factor to force the phrase marker to be connected before it is shipped to PF.



there are reasons to think that the two island conditions should be divorced. As Željko Bošković (p.c.) notes, there is no cross-linguistic difference with respect to the adjunct condition, while there is a cross-linguistic variation with respect to the subject condition. Also, subject condition effects are claimed to be stronger than adjunct condition (see Hiramatsu 1999). Hence, it may be that the two islands should be given a separate treatment.

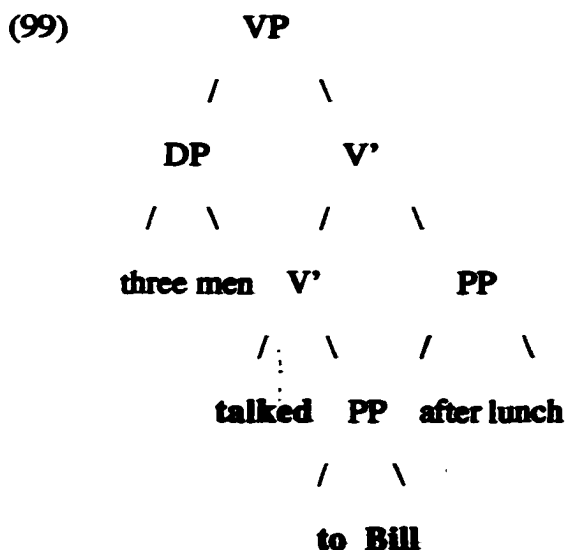
### A.1.2 Multiple spell-out and island effects

Uriagereka (in press) offers an intriguing approach to the CED. The crux of his proposal is as follows. Let us assume with Chomsky (1995) that the Linear Correspondence Axiom (LCA) as implemented by Kayne (1994) applies in the PF component and determines linear order.

#### (98) Linear Correspondence Axiom

A lexical item A precedes a lexical item B iff A asymmetrically c-commands B.

Uriagereka (in press) points out that complex left branch phrases pose an interesting problem for the LCA. If the LCA is as simple as stated above, it is not obvious how members of the left branch are linearized with respect to other terms. For instance, *men* in the following example precedes the V *talked*, although the former does not c-command the latter.



Uriagereka's solution is as follows. Assuming that Spell-Out is a rule, nothing prevents it from applying more than once, although there may be economy considerations favoring lesser application of this rule. What this means is that Spell-Out is allowed to apply iteratively, up to convergence. Once a phrase marker is spelled out, Uriagereka suggests, it becomes "like a lexical compound" in that its internal structure is no longer computed for the purpose of the LCA. More concretely, *men* above precedes *talked* by virtue of the fact that *three* c-commands *talked*; *three men*, once spelled out, is a word-like object, and hence if *three* c-commands and hence precedes *talked*, so does *men*.

Assuming that the failure to linearize the whole terms leads to non-convergence, Uriagereka argues that the system is forced to spell-out non-complement objects before they are merged with the rest of the structure. In the above case, the subject DP *three men* and the adjunct PP *after lunch* must be spelled-out first. Otherwise, the terms fail to be linearized in PF. Uriagereka (in press) argues (also Nunes and Uriagereka (in press)) that this approach derives the CED effects in a principled manner, which is a welcome consequence of the analysis. As noted above, spelling out a phrase marker creates "a giant compound which is no longer transparent to any further syntactic operation" (Uriagereka

1999). It follows that no extraction from a spelled-out object is allowed, and the CED effects are explained.

If the analysis in this chapter is correct, this account is too strong, since (feature) movement out of an adjunct domain is allowed. As a modification, I propose the following.

- (100) Formal features are visible even after the domain containing them is spelled out. What is not possible is to affect the entire category once the domain containing it is spelled out.

My own interpretation of (multiple) spell-out is as follows. The target of Attract/Agree can look into a spelled out compound-like object, searching for the relevant feature(s).

However, pied-piping is not possible. One possible reason is that phonological features become invisible for the narrow syntax computation after Spell-Out (i.e., Spell-Out affects phonological features). Hence the (generalized) pied-piping chain cannot be formed.<sup>47</sup>

If (100) is well-motivated, we can see a way to account for the contrast below.

- (101) a. John-wa [Mary-ga nani-o katta ato] naita no  
 John-Top Mary-Nom what-Acc bought after cried Q  
 '?\*What did John cry [after Mary bought t]'
- b. ?\*What did the boy cry [after Mary bought t]

Suppose that in both Japanese and English, adjunct domains are spelled out prior to being merged with the rest of the structure. Suppose further that attraction of the *wh*-feature by the interrogative *C* is successful in both languages, since features within the spelled out

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<sup>47</sup> I thank Željko Bošković (p.c.) for discussion on this point.

(adjunct) domain are still visible for computation. English, however, involves a further operation of dislocating the entire category, which is not allowed by (100).

Of course, given that the overt vs. covert distinction in the standard sense is no longer relevant in this framework, we need to explain the necessity of (generalized) pied-piping in English and its absence in Japanese; the reason why Japanese wh-movement does not involve (generalized) pied-piping can no longer be attributed to its being covert. Several possibilities come to mind. For instance, Watanabe's overt movement hypothesis, or its variant, may be entertained.<sup>48</sup> Assuming that a "wh-phrase" consists of an operator and an indefinite, this amounts to claiming that the two parts are morphologically separable in Japanese.<sup>49</sup> Hence, only the former can be affected by Attract. If we further assume that the null operator in the sense of Watanabe (1992) is nothing but a set of formal features (see also Bošković (in press b)), then we have formal feature movement. English wh-phrases are inseparable in this sense, which is why not only the formal features but the rest of the features must be affected. Alternatively, we may follow Chomsky (1998) and attribute the necessity of the pied-piping to the (generalized) EPP. Under this view, English [+wh] C requires a spec while Japanese [+wh] C does not.

Although this approach seems promising, it is still too rigid, as Nunes and Uriagereka acknowledge. For instance, this approach predicts that extraction out of any left branch is prohibited. But Japanese complements as well as non-complements are left branch elements. It is a well-known fact that long distance scrambling is possible out of a complement clause.

<sup>48</sup> See Ishii (1997) and Maki and Ochi (1998) for the hypothesis that the wh-feature movement in Japanese is overt.

<sup>49</sup> Nishigauchi (1986) (see also Kuroda 1965) argues that the wh-words in Japanese are indefinites whose quantificational force is determined externally. See Tsai (1995) and Hagstrom (1998) for much relevant discussion.

- (102) a. Sono hon-o Peter-ga [John-ga t katta to] omotteiru (koto)  
 that book-Acc Peter-Nom John-Nom bought that think  
 'That book, Peter thinks that John bought'
- b. ?\*Sono hon-o Peter-ga [[t katta] hito]-ni atta (koto)  
 that book-Acc Peter-Nom bought person-Dat met  
 '\*That book, Peter met a person who bought'

Further, I argue in the next chapter that overt category movement of genitive phrase is possible out of a complement domain. These problems need to be solved, which is not a trivial task.

#### A.1.3 Adjuncts and extraposition

Finally, I outline an approach based on Takahashi's UCA, which has the potential of unifying the CED (Subject Condition and Adjunct Condition) in a simple manner. Recall that under Takahashi's (1994) analysis, subject is an island because it forms a non-trivial chain, which is empirically supported by the contrast between English and Japanese with respect to the (lack of) island effects. The natural question is whether this idea can be extended to the adjunct island as well. In particular, if the adjunct domain necessarily forms a non-trivial chain in overt syntax, then the unification is complete. The logic is simple and clear, but evidence for such an approach is hard to come by. I merely make a remark here indicating that this approach may not be off the mark.

Let us consider Larson's (1988) rightward downward branching analysis, according to which elements appearing on the right are lower in the phrase marker than elements to their left. For instance, (103) is assigned the VP structure in (103b), in which the verb first combines with the adjuncts in the lowest VP shell (and moves through the V-



positions). Larson justifies this type of structure by adopting the semantics of ‘Ad-Verbs’ developed by McConnell-Ginet (1982); a verb and adjuncts (Ad-Verbs) must be combined first for semantic purposes.

- (103) a. John knocked on the door intentionally twice  
 b. [<sub>VP</sub> John knocked [<sub>VP</sub> [<sub>PP</sub> on the door] [<sub>v</sub> t<sub>v</sub> [<sub>VP</sub> intentionally [<sub>v</sub> t<sub>v</sub> twice]]]]]

We also know, however, that this uniform rightward downward branching structure fails to capture the correct scope relations among postverbal adjuncts (see Stepanović 1998). In (103a), *twice* necessarily takes scope over *intentionally*, which is not expected from the structure in (103b).

One possibility to maintain Larson’s analysis is to suppose that the structure starts out as in (103b) but adjuncts (at least postverbal ones) necessarily extrapose for some reason in such a way that *twice* is located higher than *intentionally*, although I have no account of why those adjuncts extrapose. Note also that the current proposal says nothing about the status of preverbal adjuncts, since they are “well-behaved” with respect to the Larsonian rightward downward branching analysis; the linear order among the adjuncts corresponds with the scope relation, as shown in (104). Thus, there should be no extraposition (or more generally, dislocation) of preverbal adjuncts involved in (104).

- (104) John intentionally twice knocked on the door (intentionally > twice)

This is not crucial for the current proposal, however, since it is known that in general, preverbal modifiers are restricted to those adjuncts whose heads do not select complements (hence no possibility of having a *wh*-phrase etc. within the preverbal adjuncts).<sup>50</sup>

- (105) a. John angrily left the house.  
       b. John left the house angrily
- (106) a. \*John [angry at himself] left the house  
       b. John left the house [angry at himself]  
       c. \*Who did John leave the house [angry at t]

This fact shown in (105) and (106) about the adjunct placement provides us with another possibility to consider regarding the connection between adjuncts and extraposition. Instead of the Larsonian view considered above, suppose that adjuncts are uniformly merged in some preverbal positions, but can extrapose to postverbal positions. Under this hypothesis, (105b) is derived from (105a) by an (optional) extraposition. Suppose now that (106b) is derived from (106a) (which is ungrammatical), which means that for those adjuncts whose heads select complements, extraposition is obligatory (for some reason).<sup>51</sup> This would also account for the ungrammaticality of (106c); the extraction

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<sup>50</sup> Of course, it is possible to have *wh*-phrases such as *how* in the specifier position. In this case, we know that the whole adjunct phrase is pied-pied.

- (i) How angrily did John leave the house

Some complex adjuncts occur preverbally (ii), and extraction from such an adjunct is not allowed (iii).

- (ii) John thinks that [when the child bought a candy], Mary got angry  
 (iii) ?\*What does John think that [when the child bought t], Mary got angry

I assume that the adjunct clauses in (ii-iii) are topicalized, hence forming a non-trivial chain, which is why (iii) is ill-formed.

<sup>51</sup> (i) from Abney (1987) illustrates a similar point with pre/post-nominal adjuncts. In particular, (ic-d) may be analyzed as involving obligatory extraposition of (part of) complex adjuncts. (cont.)

domain heads a non-trivial chain, assuming that extraposition takes place before wh-movement occurs. This hypothesis also gives us what we need: adjuncts as forming a non-trivial chain.<sup>52</sup>

## Appendix 2: More on acyclic insertion

In section 2.5, I resorted to Lebeaux's (1988) analysis for allowing acyclic insertion of adjuncts. In this appendix, I discuss Bošković and Lasnik's (1999) analysis, which also allows acyclic insertion of certain items. Bošković and Lasnik (1999) are mainly concerned with certain redundancies within Chomsky's (1995) system with respect to strict cyclicity as there are at least two distinct devices which induce the strict cycle. One is the Extension Condition, which requires that both Merge and Move take place at the root of the tree: this has the effect of excluding acyclic Merger and Merge. In addition to this, Chomsky (1995) derives certain cases of cyclicity by the following definition of feature strength.

- 
- |     |    |   |
|-----|----|---|
| (i) | a. | a taller man                              |
|     | b. | a man [taller than my mother]             |
|     | c. | *a [taller than my mother] man            |
|     | d. | a <u>taller man</u> <u>than my mother</u> |

<sup>52</sup> This hypothesis is reminiscent of Stowell's (1981) claim that clausal complements of verbs such as *say*, which have Case assigning properties, are necessarily extraposed (due to the Case Resistance Principle). Thus, for Stowell, (ia) has the representation shown in (ib) in overt syntax.

- |     |    |   |
|-----|----|---|
| (i) | a. | John says that Mary bought a book                             |
|     | b. | John says <sub>t</sub> [that Mary bought a book] <sub>i</sub> |

The approach considered here is not compatible with Stowell's position, however. This is because extraction out of the clausal complement is allowed in examples such as (i). It is therefore crucial for me that the clausal complement in this case does not form a non-trivial chain in overt syntax.

- |      |   |
|------|---|
| (ii) | What does John say [that Mary bought t] |
|------|---|

- (107) Suppose that the derivation  $D$  has formed  $\Sigma$  containing  $\alpha$  with a strong feature  $F$ .  
Then  $D$  is canceled if  $\alpha$  is in a category not headed by  $\alpha$ .

(Chomsky 1995: 234)

(107) also has the effect of preventing strong features from being checked off by acyclic operations. As Bošković and Lasnik (1999) observe, the effects of the Extension Condition and (107) overlap in certain contexts.

- (108) ?\*What did John wonder [whether Mary bought  $t$ ]

As we saw in the section 2.2, wh-island effects follow from the definition of Attract under Chomsky (1995). The matrix  $C$  fails to attract the wh-feature of *what*, since there is a closer relevant feature, namely, that of *whether*. Notice that if *whether* (or the embedded interrogative  $C$ ) can be inserted acyclically, then it should be possible for (the wh-feature of) *what* to be attracted by the matrix  $C$  before *whether* (or the embedded interrogative  $C$ ) is introduced into the tree, and we would lose the account of Wh-island effects. As Bošković and Lasnik point out, both the Extension Condition and (107) exclude this derivation, and a redundancy arises in this respect. Pointing out a few conceptual and empirical problems with the Extension Condition,<sup>53</sup> Bošković and Lasnik propose to do away with it and define the cycle solely in terms of (107). One consequence of this move is as follows.

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<sup>53</sup> For instance, head-movement and LF movement are problematic for the Extension Condition (see Chomsky 1995: 327 for discussion).

- (109) Acyclic merger of an element E is in principle possible if E contains no strong features.<sup>54</sup>

Returning now to the derivation in (64), repeated below, (109) also provides the necessary ingredient for our analysis. Assuming that insertion of an adjunct clause is not triggered by a need to check off a strong feature, the adjunct clause *after Mary left* can be introduced into the tree acyclically. Hence, no violation of the UCA (or the SMC) arises in this derivation.

- (110) a.     [C [<sub>IP</sub> John [<sub>VP</sub> buy what]]]  
               |                                 |  
               [Q]                                 [wh]  
               ↑ \_\_\_\_\_ | CH<sub>FF</sub>
- b.     [<sub>CP</sub> what [did [<sub>IP</sub> t [John [<sub>VP</sub> t [buy t]]]]]]]  
               ↑ \_\_\_\_\_ || \_\_\_\_\_ || \_\_\_\_\_ | CH<sub>CAT</sub>
- c.     Merger of the adjunct clause  
               [<sub>CP</sub> what [did [<sub>IP</sub> t [John [<sub>VP</sub> [<sub>VP</sub> t [<sub>VP</sub> buy t ]][after Mary left]]]]]]]

Bošković and Lasnik (1999) discuss interesting empirical consequences of (109), and I will briefly summarize one case directly relevant for the content of this chapter. Specifically, their analysis has a consequence of reconciling Chomsky's two chain

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<sup>54</sup> Bošković and Lasnik assume that theta roles are formal features that trigger operations like Merge and Move. Further, following Bošković and Takahashi (1998), they assume the theta features in English are strong. (107) therefore bans acyclic insertion of arguments in English. See Bošković and Lasnik (1999) for detail.

hypothesis, which I adopted throughout the chapter, and a set of empirical facts which apparently go against it.

Let us consider the following French data, which shows that *wh*-movement in French is optional in matrix short questions.

- (111) a. Tu as vu qui  
           you have seen who  
           ‘Who have you seen’  
       b. Qui as-tu vu  
           who have-you seen  
           ‘Who have you seen’

Bošković (to appear) accounts for this optionality by claiming (following Chomsky 1995) that LF lexical insertion of an item *LI* is allowed as long as a) it is at the root of the tree and b) *LI* is phonologically null. Regarding the latter, if a lexical item with phonological features is inserted at LF, the derivation would crash as LF cannot interpret phonological features. Given this reasoning, Bošković argues that LF insertion of phonologically null elements (like French interrogative complementizers) should be allowed as long as it is at the root of the tree. Thus, we get (111a) if the null *C* is inserted overtly, and (111b) if it is inserted covertly. Further, this analysis correctly excludes examples such as (112b). For embedded questions, the null *C* must be inserted overtly, since lexical insertion is limited to the root.

- (112) a. Pierre a demandé qui tu as vu  
           Pierre has asked whom you have seen

- b. \*Pierre a demandé tu as vu qui  
 Pierre has asked you have seen whom

Bošković (to appear) further presents data such as (113), which pose a problem for the two chain hypothesis.<sup>55</sup>

- (113) a. ?\*Jean ne mange pas quoi  
           Jean neg eat neg what  
           ‘What didn’t Jean eat’  
       b. Que ne mange-t-il pas  
           what neg eat-he neg

The presence of negation forces overt wh-movement here. This is puzzling for the analysis in this chapter (which is based on Chomsky’s (1995) two chain hypothesis), since under this analysis, the locality of covert movement cannot be stricter than that of overt movement. Thus, if (113b) is ungrammatical because the negation somehow blocks (covert) attraction of *que* ‘what’ by the C, then the same should hold of (113a).<sup>56</sup>

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<sup>55</sup> According to Bošković (to appear), wh-in-situ is also not allowed in long-distance dependency configurations. I will not discuss this case, since Boeckx, Stateva, and Stepanov (1999) claim that there are cases of wh-in-situ which are allowed in such configurations.

<sup>56</sup> The grammaticality of (i) indicates that the ungrammaticality of (113b) is due to the blocking effect of the negation on Attract F.

- (i) Qui ne mange pas quoi  
       who neg eats neg what  
       ‘Who doesn’t eat what’

In (i), the morphological requirement of the interrogative C can be satisfied by attracting the closest wh-feature, that of *qui* ‘who,’ which is higher than negation. The situation is parallel to the Japanese examples in (49), discussed by Watanabe (1992).

Bošković and Lasnik (1999) argue that their proposal makes it possible to resolve the tension between the two chain hypothesis and Bošković's (to appear) analysis of French data in (113). Recall that under Bošković and Lasnik's analysis, nothing prevents an element from being merged acyclically, provided that it has no strong feature(s). They claim that the *neg* in French is one such item.<sup>57</sup> Then, a possible derivation for (113b) proceeds as follows: At the point in the derivation at which the *C* is inserted in overt syntax, the *neg* head need not be present. As shown in (114a), feature attraction by the interrogative *C* takes place, followed by the pied-piping movement as shown in (114b). Then, acyclic insertion of *neg* takes place (114c), and the derivation converges.

- (114) a.     *C* [<sub>IP</sub> Jean mange quoi]  
               |                               |  
               [Q]                               [wh]  
               ↑ \_\_\_\_\_ | CH<sub>FF</sub>
- b.     [<sub>CP</sub> Quoi [<sub>C</sub> *C* [<sub>IP</sub> Jean mange t]]]  
               ↑ \_\_\_\_\_ || \_\_\_\_\_ || \_\_\_\_\_ | CH<sub>CAT</sub>
- c.     [<sub>CP</sub> Quoi [<sub>C</sub> *C* [<sub>IP</sub> Jean ne mange pas t]]]

This analysis correctly excludes (113a). If the null *C* is inserted covertly, the attraction is always blocked by the presence of *neg*, since the *neg* head must be introduced into the structure before Spell-Out.<sup>58</sup>

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<sup>57</sup> Still, it is necessary to insert *neg* before Spell-Out. If inserted covertly, it would lead to a LF crash, since LF cannot interpret its phonological features, violating Full Interpretation.

<sup>58</sup> It remains to be seen, however, how exactly the *neg* head blocks the attraction. Specifically, what feature of the *neg* counts as the relevant feature for attraction by the *C*? For this reason, I use the label *X* in (115b).



- (115) a. [<sub>IP</sub> Jean mange NEG quoi] (Overt syntax)  
 b. C [<sub>IP</sub> Jean mange NEG quoi] (Covert insertion of C)
- |                      |    |
- [X]                      [X] [wh]
- ↑ \_\_\_\_\_ \* \_\_\_\_\_ | CH<sub>FF</sub>

Thus adopting Bošković and Lasnik (1999) in order to allow acyclic merger of adjuncts has the welcome consequence of resolving the apparent empirical challenge for the two chain hypothesis.

Turning to Japanese, the fact that the counterpart of (113a) is grammatical raises an interesting question for the analysis proposed in section 2.4. If the relevant feature of *nani* 'what' is attracted covertly, the example should be degraded on a par with (113a). What accounts for the difference between French and Japanese?

- (116) John-ga    nani-o    kawa-na-katta no  
 John-NOM what-ACC buy-NEG-past Q  
 'What didn't John buy'

There are two possibilities. First, the neg head in Japanese is located in a position which does not interfere with attraction of the *wh*-feature by the C.<sup>59</sup> For instance, if neg in Japanese is lower than AGRo, then the FF of *nani* 'what' can be first attracted by AGRo (undergoing A-movement), skipping a neg head, before it is attracted by the C.<sup>60</sup> The first

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<sup>59</sup> See Laka (1990) for a claim that NegP projections occur in different positions cross-linguistically.

<sup>60</sup> See Takahashi (1994: section 3.4) for a proposal along this line for English inner island effects.

step is not blocked by neg, assuming that the neg is an A-bar head. Another possibility is that the feature movement in Japanese is in fact overt, a possibility explored in the recent literature (see Ishii 1997 and Maki and Ochi 1998). Then in (116), attraction takes place in overt syntax before the neg head is acyclically inserted.<sup>61</sup>

The two hypotheses make different empirical predictions for examples such as (117b). Under the first approach (i.e., the neg is located below AGRo), the example is expected to be degraded: the local A-movement of the FF of *nani* 'what' does not help, since the neg is in the higher clause. On the other hand, under the alternative (namely, overt wh-feature movement) hypothesis, this example is predicted to be fine, assuming that the neg can be inserted acyclically after the relevant attraction takes place. The degraded status of the example favors the first approach.<sup>62</sup>

- (117) a. Hanako-wa [Taro-ga nani-o katta to] itta no  
 Hanako-Top Taro-Nom who-Acc bought that said Q  
 'What did Hanako report that Taro bought'
- b. ??Hanako-wa [Taro-ga nani-o katta to] iwa-na-katta no  
 Hanako-Top Taro-Nom who-Acc bought that say-neg-past Q  
 '(??)What didn't Hanako report that Taro bought'

---

<sup>61</sup> Of course, if this line of approach is pursued, we need to account for a cross-linguistic variation with regard to the absence/necessity of generalized pied-piping (Japanese vs. English and French). See the references cited in the text (and also Watanabe 1992) for discussion of this issue.

<sup>62</sup> As Koji Sugisaki (p.c.) informs me, examples such as (117b) are good only as echo questions. Note that the matrix predicate *iu* 'say' is not a neg raising predicate. Note also that the facts discussed here are still consistent with the overt wh-feature movement hypothesis for Japanese, if we assume that the negation in Japanese must be inserted cyclically (unlike its French counterpart).

As expected from the discussion so far, there is an additional-wh effect, as shown in (118); the presence of a wh-phrase in the matrix clause improves the status of the relevant example.

- (118) Dare-ga [Taro-ga nani-o katta to] iwa-na-katta no  
 who-Nom Taro-Nom who-Acc bought that say-neg-past Q  
 'Who didn't report that Taro bought what'

The morphological requirement of the matrix C can be satisfied by attracting the relevant feature of *dare* 'who.' I thus assume that *nani* 'what' need not be attracted; rather it is licensed in-situ via unselective binding (see section 2.4.4).

## **Chapter 3**

### **Optionality in the Timing of A-movement**

#### **3.1 Introduction**

In the previous chapter, I argued that the distribution of argument wh-in-situ in Japanese receives a simple account under Attract F. In particular, the fact that it is not sensitive to non-RM type islands follows from the definition of Attract. In this chapter, I will argue that there is an instance of A-movement in Japanese which can be analyzed in the same way. This is a construction known as *ga/no* conversion, a Case conversion phenomenon observed in a prenominal sentential modifier (Harada (1971), Bedell (1972), Shibatani (1975), Nakai (1980), Saito (1983), Miyagawa (1993), and Watanabe (1996), just to name a few).

(1) **Gapless clauses**

John-*ga/no*      *kuru kanousei*

John-Nom/Gen come probability

‘the probability that John will come’

(2) **Relative clauses**

John-*ga/no*    *t katta hon*

John-Non/Gen bought book

‘the book John bought’

Recently, Miyagawa (1993) has offered an intriguing analysis of this construction, arguing that genitive subject raises into the spec of DP in covert syntax. As a refinement of Miyagawa's analysis, I argue in this chapter that the relevant movement takes place sometimes overtly and sometimes covertly in examples such as (1), with the view to relating *ga/no* conversion to Exceptional Case Marking (ECM) constructions in English as analyzed by Lasnik (1998). As will be shown below, the two constructions display a parallel distribution and hence should be given a unified account. As for examples like (2) with relative clauses, I provide evidence that movement of genitive subject is restricted to covert syntax (in line with Miyagawa's position). This claim is built on Sakai's (1994) insight. (3) below summarizes the claims made in this chapter.

- (3) a. Genitive phrase raises from within a prenominal gapless clause in overt or covert syntax.
- b. Movement of genitive phrases from within a relative clause occurs only in covert syntax.

I will argue that these claims follow from 1) the complement/adjunct asymmetry between the two types of prenominal sentential clauses, and 2) the nature of Attract F as discussed in chapter 2.

This chapter is organized in the following way. In section 3.2, Miyagawa's (1993) analysis of *ga/no* conversion is summarized and examined in detail. In section 3.3, I offer a modification of Miyagawa's analysis, arguing that the genitive subject raises into its Case licensing position overtly or covertly. Section 3.4 first introduces Lasnik's (1998) optionally overt (i.e., sometimes overt and sometimes covert) raising analysis of English ECM subjects. As will be clear to the readers, the proposal in section 3.3 owes a great deal to Lasnik's insight. Section 3.5 compares alternative approaches to capture the optionality in the timing of A-movement, concluding that the proposal in section 3.3. is superior on

empirical grounds. In section 3.6, Sakai's (1994) analysis is discussed in connection with genitive subject of relative clauses. I argue that overt movement of genitive subject from within the relative clause is not possible, unlike in the case of prenominal gapless clauses. In section 3.7, I discuss locality issues arising from the empirical data presented. 3.8 focuses on Saito and Murasugi's (1990, 1992) analysis of NP-deletion in Japanese and see how it interacts with the current proposal. Concluding remarks are given in section 3.9.

### 3.2. Case conversion in Japanese and the 'edge' puzzle

Bedell (1972) and Saito (1983) among others offer an analysis of *ga/no* conversion, which is crucially based on the generalization that in Japanese, DPs and PPs which are immediately dominated by a projection of a nominal are marked with *no*.

- (4) a. Taro\*(-no) hon  
Taro-Gen book  
'Taro's book'
- b. Tokyo-kara\*(-no) densha  
Tokyo-from-Gen train  
'a train from Tokyo'
- c. Toshi\*(-no) hakai  
city-Gen destruction  
'the destruction of the city'

The authors mentioned above attempt to assimilate *ga/no* conversion to the generalization illustrated in (4) by arguing that the subject of a sentential modifier of a nominal, when marked with *-no*, is in fact in a position immediately dominated by a projection of a nominal, such as the spec of NP.

- (5) [<sub>NP</sub> John-no<sub>i</sub> [<sub>t<sub>i</sub></sub> kuru] kanousei]  
           John-Gen come probability

### 3.2.1 LF Case Checking: Miyagawa (1993)

Along this line, Miyagawa (1993) provides empirical arguments for (6).

- (6) a. Genitive subject within the prenominal gapless clause raises into the spec of DP (see 5).  
       b. Such movement takes place in covert syntax.

It is important to bear in mind that his argument applies only to the genitive subject within prenominal gapless clauses (see (1)), not to the genitive subject originating within relative clauses (for reasons to be discussed shortly). The latter type will be examined in section 3.6.

Miyagawa's first claim is based on scope interactions between nominative/genitive subject and the head noun. (7a), with nominative subject, only has the reading in which the head noun *kanousei* 'probability' takes scope over the nominative subject *rubii-ka shinju* 'ruby or pearl'. But (7b), with genitive subject, has the additional reading in which the subject takes scope over *kanousei* 'probability'. The same contrast obtains in (8), in which *riyuu* 'reason' is the head noun.

- (7) a. **[[[Rubii-ka shinju]-ga yasuku-naru] kanousei]-ga**  
 ruby-or pearl-Nom cheap-become probability-Nom  
 50% izyoo da  
 50% over is
- i. 'The probability that rubies or pearls become cheap is over 50%'  
 ii. \*'The probability that rubies become cheap or the probability that  
 pearls become cheap is over 50%'
- probability > [ruby or pearl]; \*[ruby or pearl] > probability
- b. **[[[Rubii-ka shinju]-no yasuku-naru] kanousei]-ga**  
 ruby-or pearl-Gen cheap-become probability-Nom  
 50% izyoo da  
 50% over is
- i. 'The probability that rubies or pearls become cheap is over 50%'  
 ii. 'The probability that rubies become cheap or the probability that  
 pearls become cheap is over 50%'
- probability > [ruby or pearl]; [ruby or pearl] > probability
- (8) a. **[[[Rubii-ka shinju]-ga yasuku-naru] riyuu]-o osiete**  
 ruby-or pearl-Nom cheap-become reason-Acc tell me
- i. 'Tell me the reason why rubies or pearls become cheap'  
 ii. \*'Tell me the reason why rubies become cheap or the reason why  
 pearls become cheap'
- reason > [ruby or pearl]; \*[ruby or pearl] > reason



- b.     [[[Rubii-ka shinju]-no yasuku-naru] riyuu]-o     osiete  
           ruby-or   pearl-Gen cheap-become reason-Acc tell me
- i.       'Tell me the reason why rubies or pearls become cheap'
- ii.      'Tell me the reason why rubies become cheap or the reason why  
           pearls become cheap'
- reason > [ruby or pearl]; [ruby or pearl] > reason

According to Miyagawa, the (a)-examples are unambiguous because nominative subject does not raise out of the sentential gapless clause. Hence, it is always within the scope of the head noun. The (b)-examples, with genitive subject, allow scope ambiguity because genitive subject raises into the spec of DP at some point in the derivation, which is the source of the additional reading in those examples (I will discuss the exact nature of this movement shortly).

His second claim, that such movement takes place in covert syntax, is based on examples such as (9a), in which other elements of the same sentential gapless clause occur to the left of genitive subject (see Nakai 1980).

- (9)   a.     [Kotoshi shinju-no yasuku-naru] kanousei  
           this year pearl-Gen cheap-become probability  
           'the probability that pearls become cheaper this year'
- b.     [Shinju-no kotoshi yasuku-naru] kanousei  
           pearl-Gen this year cheap-become probability

Modifiers like *kotoshi* 'this year' must be accompanied by *-no* when they occur within an immediate projection of a noun, as shown below.

- (10) a. *kotoshi-no kougi*  
           this year-Gen lecture  
           ‘this year’s lecture(s)’  
       b. *\*kotoshi kougi*  
           this year lecture

This shows that *kotoshi* ‘this year’ in (9), which is without *-no*, is inside the gapless clause. Then the genitive subject in (9a), which follows *kotoshi* ‘this year’, must also be within the sentential gapless clause in overt syntax. On the basis of these considerations, Miyagawa concludes that genitive subject raises out of the sentential gapless clause into the spec of DP in covert syntax.

Before closing this subsection, a word is in order regarding examples with relative clauses. As Miyagawa (1993) notes, there is no difference between nominative and genitive subject of the relative clause with respect to scope properties.

- (11) *Tom-wa [[John-ka Mary]-ga/no yonda hon]-o mise-ro to itta*  
       Tom-Top John-or Mary-Nom/Gen read book-Acc show-Imp that said  
       i. ‘Tom demanded that I show him books that either John or Mary read’  
       ii. ‘Tom demanded that I show him books that John read or I show him books  
           that Mary read’

Miyagawa suggests that this is due to the fact that there is a relative gap corresponding to the head noun in the case of relative clauses. Thus, Miyagawa’s scope tests are applicable only to a subset of genitive subject constructions, namely, those appearing in prenominal gapless clauses (I will consider relative clauses later).

Finally, (8) with *riyuu* ‘reason’ should be analyzed on a par with examples such as (7) and not with (11), since (8a), with nominative subject, is not ambiguous. Miyagawa

(1993) follows Murasugi (1991) and assumes that examples such as (8) are instances of pure complex NPs without a relative gap.<sup>1</sup>

### 3.2.2. Questions

Although quite insightful, Miyagawa's analysis and observations present interesting puzzles. I will discuss two points in the following subsections.

#### 3.2.2.1 Some 'edge' puzzles

First, Miyagawa's specific proposals regarding the nature of movement of the genitive subject raise questions. In particular, certain empirical facts apparently led him to add complications to his analysis, which will be shown below to be untenable.

Let us start the discussion with an interesting observation made by Miyagawa. In cases where genitive subject is preceded by another element of the same sentential gapless clause, the example is not ambiguous.<sup>2</sup>

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<sup>1</sup> This is based on the fact that in examples like (i), *riyuu* 'reason' can only be interpreted as modifying the matrix clause, not the embedded clause, which is puzzling if there is a relative gap available associated with the head noun. Murasugi (1991) argues that this fact is accounted for if (i) is an instance of pure complex NPs. Note the translation given for (i); here too, there is no gap available and the *reason* can only be associated with John's thinking, not with Mary's leaving.

- (i) [John-ga [Mary-ga kaetta to] omotteiru] riyuu  
 John-Nom Mary-Nom left Comp think reason  
 'the reason for John's thinking that Mary left'

<sup>2</sup> Miyagawa claims that relevant examples are ambiguous in some dialects when the preceding element is a bare adverb like *kinoo* 'yesterday.'  
 (cont.)

- (i) a. Gen subject + (bare) adverb  
 [[John-ka Mary]-no kinoo kita] kanousei  
 John-or Mary-Gen yesterday came probability  
 i. 'The probability that John or Mary came'  
 ii. 'The probability that John came or the probability that Mary came'

- (12) a. **[[[Rubii-ka shinju]-no kotoshi-kara yasuku-natta] riyuu]-o**  
**ruby-or pearl-Gen this year-from cheap-became reason-Acc**  
**osiete**  
**tell me**  
 i. 'Tell me the reason why rubies or pearls became cheap from this year'  
 ii. 'Tell me the reason why rubies become cheap from this year or the reason why pearls became cheap from this year'  
**reason > [ruby or pearl]; [ruby or pearl] > reason**
- b. **[[Kotoshi-kara [Rubii-ka shinju]-no yasuku-natta] riyuu]-o**  
**this year-from ruby-or pearl-Gen cheap-became reason-Acc**  
**osiete**  
**tell me**  
 i. 'Tell me the reason why rubies or pearls became cheap from this year'  
 ii. \*'Tell me the reason why rubies became cheap from this year or the reason why pearls became cheap from this year'  
**reason > [ruby or pearl]; \*[ruby or pearl] > reason**

- b. (bare) adverb + Gen subject  
**[kinoo [John-ka Mary]-no kita] kanousei**  
**yesterday John-or Mary-Gen came probability**  
 i. 'The probability that John or Mary came'  
 ii. 'The probability that John came or the probability that Mary came'

Miyagawa judges (ib) to be ambiguous, yet reports that there is a dialectal variation (1993: fn. 3); "... with the sentential adverbs placed to the left, some speakers find the wide-scope reading of the genitive subject less preferred; in a few instances, this reading was judged as very difficult to get." I also find the reading in question hard to obtain. Most speakers I have interviewed also find the example unambiguous. At any rate, it should be noted that even in the dialect which Miyagawa is concerned with, this behavior of bare adverbs is exceptional. Other elements preceding the genitive subject systematically exclude the reading in which the genitive subject is outside the scope of the head noun.

The contrast between (a) and (b) shows that the high scope behavior of genitive subject is observed only when it occurs at the left edge within the prenominal sentential modifier. Otherwise, the genitive subject behaves just like its nominative counterpart in being within the scope of the head noun (such as *kanousei* 'probability').<sup>3</sup>

Miyagawa (1993, p. 227) proposes (13) to explain this curious fact.

(13) Spec of DP may be A- or A'-position.

Miyagawa argues that the ambiguity of (12a) is due to the dual nature of the specifier position of DP in Japanese. When it is an A-position, we only obtain the reading in which the genitive subject is outside the scope of the head noun, as he assumes that there is no reconstruction with A-movement (this point will be discussed in section 3.4). The other reading in which the genitive subject is within the scope of the head noun obtains when the spec of DP is an A-bar position; A-bar movement allows reconstruction. Given all these, Miyagawa claims that the presence of an element such as a PP modifier (e.g., *kotoshi-kara* 'from this year' in (12)) between the genitive subject and the spec of DP blocks A-movement of the genitive subject. Hence in examples such as (12b), only A-bar movement of the genitive subject is possible. This is why (12b) only has the reading in which the genitive subject is within the scope of the head noun.

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<sup>3</sup> As Miyagawa (1993: 221) observes, this 'edge' puzzle is unique to the distribution of the genitive subject. For instance, an accusative object NP does not take scope over the head noun even when it is scrambled to the left edge of the sentential modifier clause.

- (i) [[[Rubii-ka shinju]-o kimi-ga t katta] riyuu]-o osiete  
       ruby-or pearl-Acc you-Nom bought reason-Acc tell me  
 i. 'Tell me the reason why you bought rubies or pearls'  
 ii. '\*Tell me the reason why you bought rubies or the reason why you bought pearls'  
       reason > [ruby or pearl]; \*[ruby or pearl] > reason

However, this part of Miyagawa's analysis raises questions. First, it is not obvious why adjunct modifiers, which need no Case, would block A-movement of the genitive subject. Second, suppose that Miyagawa were in fact right in claiming that only A-bar movement of the genitive phrase is possible in (12b). But this A-bar movement has a curious property, namely, that its scope reconstruction is obligatory. If scope reconstruction of A-bar movement with genitive subject were optional, then we would expect (12b) to be ambiguous, contrary to fact. Hence, it is crucial for Miyagawa that this particular instance of A-bar movement is obligatorily reconstructed as far as scope is concerned. However, there are data showing that this is not a property of A-bar movement in general. For example, as noted by Liu (1990), downward monotonic quantifiers in object position do not take scope over subject, as shown in (14a). Yet as pointed out by Szabolcsi and Zwarts (1993), the object *few books* can take scope over subject once it is preposed (Negative Preposing), as shown in (14b).<sup>4</sup>

- (14) a. Every man read few books  
           every > few, \*few > every
- b. Few books did every man read  
           (\*) every > few, few > every

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<sup>4</sup> That this movement is A-bar movement is demonstrated by the fact that it exhibits a Weak Cross Over effect (see Koizumi 1995: 143 fn., 3), as (i) shows.

(i) \*No book<sub>i</sub> would I expect its<sub>i</sub> author to praise t<sub>i</sub> publicly.

Note that for some speakers, (14b) lacks the reading in which *every man* takes scope over *few books* while others find the example to be fully ambiguous. At this point, I have no explanation for such a variation.

The ambiguity of (14b) suggests that scope reconstruction with A-bar movement in general is not obligatory.<sup>5</sup> If so, Miyagawa's account of examples such as (12b) would not go through without additional stipulations.

### 3.2.2.2. Formal features and pied-piping

Secondly, according to Miyagawa (1993), covert movement of genitive subject creates a new scope relation, which is not compatible with the Attract F hypothesis explored in this thesis. Recall from chapter 2 that under this hypothesis, covert movement affects only formal features and hence does not affect features relevant for scope. This has desired consequences for expletive constructions, as discussed by Chomsky (1995) and Lasnik (1995).

It is well-known that the associate of *there* behaves as if it is in-situ in terms of scope and binding. In (15a), *many* is necessarily within the scope of negation. This sharply contrasts with (15b), in which *many* necessarily takes scope over negation. Similarly, (16) from Lasnik (1995) shows that the associate of *there* cannot antecede an anaphor when it does not c-command the latter overtly.

- (15) a. There aren't many pictures on the wall  
b. Many pictures aren't on the wall

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<sup>5</sup> A-bar movement shows obligatory reconstruction for Condition C purposes as shown in (i) (see Friedin 1986; Chomsky 1993 among others). Thus, there may be a justification for Miyagawa's point on A-bar movement and reconstruction.

(i) \*[Which picture of John<sub>i</sub>] did he<sub>i</sub> destroy

This may indicate that there is a dichotomy between binding and scope with respect to A-bar reconstruction, although it is also well-known that Condition C type reconstruction effects vary depending on many factors, such as the depth of an R-expression within the fronted constituent (see Reinhart 1983).

- (16) a. \*There seem to each other [t to have been some linguists given good job offers]  
 b. Some linguists seem to each other [t to have been given good job offers]

These facts are puzzling for Chomsky's (1986b) LF expletive replacement analysis, according to which the associate replaces *there* at LF.

As Lasnik (1995) demonstrates, Move F offers an elegant solution to these puzzles. As the expletive replacement occurs covertly, the relevant movement is pure feature movement. Assuming with Lasnik (1995) (but departing from Chomsky 1995) that the property of a lexical item relevant for scope and binding is not part of formal features, the facts in (15) and (16) immediately follow. In the (a)-examples, only formal features of the associate raise in covert syntax, stranding the semantic and phonological features of the associate. The in-situ behavior of the associate is thus accounted for. In contrast, the whole category is raised in the (b)-examples, allowing new scope and binding relations to be established.

Returning to Miyagawa's (1993) analysis, it has the implication that covert movement in Japanese, unlike in English, affects more than formal features. Once we accept this, however, a question arises why there is such a cross-linguistic variation with regard to the nature of covert movement.

In the next section, I propose a modification of Miyagawa's (1993) analysis, which has the desired consequences of dispensing with these complications. As will be discussed in section 3.4, the proposal in the next section relates *ga/no* conversion to English ECM constructions as analyzed by Lasnik (1998).



### 3.3. Optionality in the timing of genitive phrase movement

#### 3.3.1. Proposal

I show that a simple modification of Miyagawa's analysis provides us with the solutions to the questions raised in the last section. As summarized earlier, Miyagawa's (1993) proposal consists of two parts; a) genitive subject within the sentential gapless clause of nominals raises out of its own clause, and b) such movement takes place in covert syntax. I adopt (a), but I argue for (17) instead of (b).

- (17) The movement of the genitive subject out of the gapless clause takes place sometime overtly and sometimes covertly.

Further, I will not assume the dual status of the spec of DP in Japanese, contrary to Miyagawa (1993). Rather, the relevant movement is unequivocally identified as an A-movement (see the discussion in section 3.4.2).

#### 3.3.2 The 'edge' puzzle revisited

Let us reconsider the data in (12), repeated below as (18).

- (18) a.     [[[Rubii-ka shinju]-no kotoshi-kara yasuku-natta] riyuu]-o  
               ruby-or pearl-Gen this year-from cheap-became reason-Acc  
               osiete  
               tell me  
           i.     'Tell me the reason why rubies or pearls became cheap from this  
                   year'

- ii. 'Tell me the reason why rubies become cheap from this year or the reason why pearls became cheap from this year'
- reason > [ruby or pearl]; [ruby or pearl] > reason
- b. [[Kotoshi-kara [Rubii-ka shinju]-no yasuku-natta] riyuu]-o  
this year-from ruby-or pearl-Gen cheap-became reason-Acc  
osiete  
tell me
- i. 'Tell me the reason why rubies or pearls became cheap from this year'
- ii. \*'Tell me the reason why rubies become cheap from this year or the reason why pearls became cheap from this year'
- reason > [ruby or pearl]; \*[ruby or pearl] > reason

According to my proposal, examples such as (18b) are unambiguous because the genitive subject has not raised out of the sentential gapless clause in overt syntax, which is clear from the word order (i.e., it is preceded by an element of the same sentential modifier). I assume that genitive subject (or its formal features) in such examples moves out of the gapless clause in covert syntax for genitive Case licensing (see section 3.4.3 for details). However, this covert movement does not affect scope relations for the reason we saw in chapter 2; covert movement affects only formal features, which do not include the property relevant for scope.

(19) [<sub>DP</sub> [<sub>IP</sub> this year-from subject-Gen cheap-became] reason]

↑ \_\_\_\_\_ | covert movement

In contrast, examples such as (18a) show a scope ambiguity because they are ambiguous with respect to the timing of the genitive subject raising; it may have taken place in overt syntax (20a) or covert syntax (20b).

(20) Ambiguity of (18a):

- a. [<sub>DP</sub> subject-Gen [<sub>IP</sub> t this year-from cheap-became] reason] (overt movement)
- b. [<sub>DP</sub> [<sub>IP</sub> subject-Gen this year-from cheap-became] reason] (covert movement)

↑ \_\_\_\_\_ ↓

When the raising is overt (20a), the whole phrase is pied-piped for PF reasons, and consequently, new scope configurations are created. This is why examples such as (18a) are ambiguous.

### 3.3.3 Formal features and pied-piping revisited

According to the current proposal, there is no difference between Japanese and English with respect to the nature of covert movement. In both languages (and quite possibly, universally), covert movement (i.e., movement of formal feature(s)) does not affect scope relations. This is a desirable consequence of the current proposal.

To summarize, I showed that a simple modification of Miyagawa's (1993) analysis has desired consequences on both conceptual and empirical grounds.

### 3.4. A-movement and the timing of movement

In this section, I focus on theoretical issues related to the optionality in the timing of A-movement discussed in section 3.3. First, I briefly summarize Lasnik's (1998) analysis of ECM constructions in English, which, together with the proposal in section 3.3.

indicates that the optionality involved in the timing of Case-driven movement is not an isolated phenomenon. Based on the discussion there, I argue in 3.4.2 that the movement of genitive subject in Japanese is indeed A-movement. Section 3.4.3 discusses the theoretical status of the optionality involved in English ECM and *ga/no* conversion in Japanese.

#### 3.4.1 Exceptional Case Marking and optionally overt raising: Lasnik (1998)

Lasnik and Saito (1991) argued, based on Postal's (1974) analysis, that subjects in Exceptional Case Marking (ECM) constructions in English raise into the spec of *AgroP* in a higher clause. Further, authors such as Bošković (1997b), Koizumi (1995) and Lasnik (1995) provide evidence that such movement takes place in overt syntax. One of the arguments is based on examples such as (21), in which the ECM subject shows 'high binding' behavior. The ECM subject in (21a) behaves as if it is in the higher clause, licensing the reciprocal *each other* in the higher clause, which contrasts with a nominative subject in (21b).

- (21) a. The DA proved [two men to have been at the scene of the crime] during each other's trials
- b. ?\*The DA proved [that two men were at the scene of the crime] during each other's trials

If we assume with Lasnik (1995) (but contra Chomsky 1995) that features relevant for binding are not affected by covert movement (see the discussion in chapter 2), the fact observed above indicates that the ECM subject raises into the higher clause in overt syntax.

More recently, however, Lasnik (1998) has provided arguments that movement of the ECM subject is in fact optionally overt (i.e., overt or covert). His claim is in part based

on certain scope facts. Following Chomsky (1995), Lasnik first argues that there are no scope reconstruction effects with A-movement.<sup>6</sup> For example, as noted by Zubizarreta (1992) among others, examples like (22a) are ambiguous with respect to the scope relation between a clausal negation and a universal quantifier in subject position. Yet, raising to subject constructions such as (22b) do not show such scope ambiguity; in this case negation cannot take scope over *everyone*.

- (22) a. Everyone isn't there yet  
 b. Everyone seems not to be there yet

Lasnik points out that ECM examples pose an interesting puzzle. In cases such as (23a), in which the ECM subject is clearly raised into a higher clause (i.e., *make ... out* cases discussed by Kayne (1984) and Johnson (1991)), the ECM subject does not fall within the scope of negation, which is consistent with the idea that there is no scope reconstruction with A-movement. However, in other ECM cases where such raising is string vacuous as in (23b), the relevant examples are ambiguous with respect to the scope relation between negation and the universal quantifier in subject position.

- (23) a. The mathematician ~~made~~ every even number ~~out~~ not to be the sum of two  
 primes every > not; \*not > every  
 b. I proved every Mersenne number not to be prime  
every > not; not > every

---

<sup>6</sup> This view is also shared by Miyagawa (1993, 1999).

Lasnik argues that this seemingly paradoxical situation is resolved by claiming that overt ECM raising is in principle optional.<sup>7</sup> According to him, (23b) is ambiguous with respect to the timing of raising; the ECM subject may or may not have raised overtly into the higher clause. On the other hand, in (23a) the ECM subject is clearly raised into a higher clause in overt syntax. Hence the lack of the reading in which the universal quantifier is within the scope of negation is expected in (23a) on a par with examples like (22b).

### 3.4.2 On the nature of genitive subject raising

It should be obvious by now that the behavior of genitive subject in Japanese and that of English ECM subjects as analyzed by Lasnik (1998) are remarkably parallel; in both cases, movement is sometimes overt and sometimes covert, and when the word order clearly shows that overt movement has/has not occurred, scope interpretations come out as expected. Also, the two constructions are the mirror image of each other in the sense that in English ECM constructions, word order evidence shows that overt movement has taken place (i.e., *make ... out* constructions) whereas in the case of genitive subject in Japanese, the same type of evidence indicates that the genitive subject has not raised in overt syntax (i.e., elements preceding the genitive subject).

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<sup>7</sup> The only paradigm in Lasnik and Saito (1991) (see also Postal 1974) which argues for obligatory raising of the ECM subject involves Condition C. (i) shows that the ECM subject is obligatorily raised into a higher clause. Otherwise, we would not expect the example to be in violation of Condition C.

- (i) \*John believes <sub>i</sub> him<sub>i</sub> to be a genius even more fervently than Bob<sub>i</sub> does
- (ii) John believes he<sub>i</sub> is a genius even more fervently than Bob<sub>i</sub> does

Lasnik argues that pronouns are obligatorily shifted in overt syntax, citing other cases of object shift in Germanic languages, where pronouns as opposed to lexical NPs shift obligatorily. See Lasnik (1998) for more discussion and some evidence from English for this conclusion.

We then expect that when the genitive subject is clearly raised out of its own clause in overt syntax, the example should only allow the reading in which it takes scope over the head noun. This is indeed the case, as will be shown below.

Let us first examine cases where an additional modifier of the head noun is present, preceding the sentential gapless clause (of the head noun) containing the genitive subject.

- (24) a.       : [Kono compyuutaa-ga keisan-shita] [[rubii-ka shinju]-ga  
                   this computer-Nom calculated ruby-or pearl-Nom  
                   kotoshi yasuku-naru] kanousei  
                   this year cheap-become probability  
                   ‘the probability [that rubies or pearls become cheap this year] [which the  
                   computer calculated]’  
                   ‘\*[[the probability that rubies become cheap this year] or [the probability  
                   that pearls become cheap this year]] [which this computer calculated]’  
                   probability > [ruby or pearl]; \*[ruby or pearl] > probability
- b.       [Kono compyuutaa-ga keisan-shita] [[rubii-ka shinju]-no  
                   this computer-Nom calculated ruby-or pearl-Gen  
                   kotoshi yasuku-naru] kanousei  
                   this year cheap-become probability  
                   ‘the probability [that rubies or pearls become cheap this year] [which the  
                   computer calculated]’  
                   ‘(?)[[the probability that rubies become cheap this year] or [the probability  
                   that pearls become cheap this year]] [which this computer calculated]’  
                   probability > [ruby or pearl]; (?) [ruby or pearl] > probability

The fact that (24a) is unambiguous is not surprising. The subject NP of the sentential gapless clause bears nominative Case, so there is no reason for it to raise out of the

sentential gapless clause. For many speakers, (24b) is ambiguous, although the reading in which the genitive subject takes scope over the head noun *kanousei* 'probability' is slightly more difficult to obtain than in the example without the preceding relative clause. This shows that the presence of another modifier preceding the sentential gapless clause (and the genitive subject) does not force the genitive subject to be within the gapless clause in overt syntax. Rather, (24b) is structurally ambiguous with respect to the position occupied by the genitive subject. I conclude that the relative clause in this language (at least) has the option of appearing in a position higher than the Case checking position of the genitive subject.

Now let us examine examples minimally different from (24) in that the subject of the sentential gapless clause precedes the relative clause. Only (25b) with genitive subject is grammatical. Furthermore, this example is unambiguous.

- (25) a. \*[[*Rubii-ka shinju*]-ga, [*kono compyuutaa-ga keisan-shita*]  
           ruby-or pearl-Nom this computer-Nom calculated  
           *kotoshi yasuku-naru kanousei*]  
           this year cheap-become probability  
           'the probability [that rubies or pearls become cheap this year] [which the  
           computer calculated]'



- b. [[Rubii-ka shinju]-no, [kono compyuutaa-ga keisan-shita],  
 ruby-or pearl-Gen this computer-Nom calculated  
 kotoshi yasuku-naru kanousei]  
 this year cheap-become probability  
 \*‘the probability [that rubies or pearls become cheap this year] [which the  
 computer calculated]’  
 ‘[[the probability that rubies become cheap this year] or [the probability that  
 pearls become cheap this year]] [which this computer calculated]’  
 \*probability > [ruby or pearl]; [ruby or pearl] > probability

The contrast between (25a) and (25b) is clear for all the speakers I interviewed. A pause (right) before and after the intervening relative clause (*kono compyuutaa-ga keisan-shita* ‘this computer calculated’) dramatically improves the status of (b), but not (a), which is hopeless.<sup>8</sup> Regarding the interpretation of (25b), speakers find it rather difficult to get the reading in which *rubii-ka shinju* ‘ruby or pearl’ is within the scope of *kanousei* ‘probability’. This is in fact what is expected under the proposed analysis. In (25b), we can indeed see that the genitive subject has raised out of its own clause in overt syntax, which accounts for the availability of the reading in which *rubii-ka shinju* ‘ruby or pearl’ is outside the scope of *kanousei* ‘probability’.<sup>9</sup> The lack of the other reading also follows if

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<sup>8</sup> As originally noted by Harada (1971), examples containing genitive subject sound best if the genitive subject and the predicate which it is predicated of are adjacent. It seems that the more lexical material comes in between them, the lower the acceptability becomes.

<sup>9</sup> As expected, examples like (i)–(ii), in which an adverb *kotoshi* ‘this year’ as well as the genitive subject precedes the relative clause, are quite degraded. They are bad because *kotoshi* ‘this year’ has fronted although it has no reason to. (cont.)

we assume, following Chomsky (1995) and Lasnik (1998), that there is no (scope) reconstruction with A-movement. Thus, this example is analogous to (23a), repeated below, in which the universal quantifier necessarily takes scope over negation.

(26) The mathematician made every even number out not to be the sum of two primes.

I thus conclude that the movement of genitive subject is unequivocally A-movement. If it were an instance of A-bar movement, examples like (25b) would be expected to be ambiguous, due to an (optional) scope reconstruction.

In addition, the fact that the majority of speakers find (24b) ambiguous and (25b) unambiguous indicates that relative clauses in Japanese do not have a unique adjunction site (assuming that the genitive subject is raised into a unique spec position for its Case licensing). The ambiguity of (24b) suggests that the relative clause can (optionally) be attached to a position higher than the genitive subject which is raised out of its own clause. Further, the fact that the relative clause can be preceded by the (raised) genitive subject as in (25b) shows that the relative clause can (optionally) be below the landing site of the genitive phrase.

An additional piece of evidence for the claim that movement of genitive subject is A-movement can be obtained by considering locality issues. Inoue (1976) observes that presence of an overt complementizer blocks *ga/no* conversion.<sup>10</sup>

- 
- (i) \**[Kotoshi [rubii-ka shinju]-no, [kono compyuutaa-ga  
this year ruby-or pearl-Gen this computer-Nom  
keisan-shita], yasuku-naru] kanousei*  
calculated cheap-become probability
- (ii) \**[[Rubii-ka shinju]-no kotoshi, [kono compyuutaa-ga  
ruby-or pearl-Gen this year this computer-Nom  
keisan-shita], yasuku-naru] kanousei*  
calculated cheap-become probability

<sup>10</sup> Here the C *toiuu*, which consists of the typical complementizer *to* plus *iuu* 'said', is used. See Josephs (1976) for an analysis of this complementizer.

- (27) a. [Rainen shinju-ga/no yasui] kanousei  
 next year pearl-Nom/Gen cheap probability  
 'the probability that the pearl will be cheap next year'
- b. [Rainen shinju-ga/\*no yasui toiuu] kanousei  
 next year pearl-Nom/Gen cheap Comp probability

This fact follows from the claim that A-movement out of a CP domain is blocked (see Motapanyane (1994), Saito (1994), Takahashi (1994), and Bošković (1997b) among others).<sup>11</sup> This generalization apparently extends to cases such as (28) below, discussed by Watanabe (1996).

- (28) Taro-ga [shinju-ga/\*no kotoshi yasui to] omotteiru riyuu  
 Taro-Nom pearl-Nom/Gen this year cheap that think reason  
 'the reason for Taro's thinking that the pearl is cheap this year'

**The genitive subject is contained within the embedded CP in this example, which is why it is not licensed.<sup>12</sup>**

<sup>11</sup> Chomsky's (1998, 1999) view that CP (as well as a  $\bar{v}P$ ) is a phase may derive this restriction in a principled manner. According to Chomsky's (1998) derivational approach, where Spell-Out is cyclic (at the phase level), once a phase is spelled out, only its head and its edge are accessible for further computation (Phase Impenetrability Condition). Thus, in order for an element to be extracted out of a CP, it must first move to the edge (i.e., spec) of the CP, so that it is visible from outside the CP phase. This forces improper movement (see May 1979).

<sup>12</sup> One might argue that the ill-formedness of (28) is due to the intervention effect induced by the presence of a closer argument, namely, the matrix subject. That this is not correct is shown by the ungrammaticality of (i). (cont.)

### 3.4.3 Optionality and the Minimalist Program

Let us now turn to theoretical issues arising from the discussion so far, which capitalizes on the optionality in the timing of (A-)movement attested cross-linguistically. It is important to note here that the optionality introduced in section 3.3 (and Lasnik's (1998) account in 3.4.1) is not one of operation itself. Both the ECM subject in English and the genitive subject in Japanese always raise for Case (or the EPP) reasons (feature-driven movement), thus being subject to Last Resort.<sup>13</sup> What is special about them is the fact that the timing of raising is overt or covert.

Concerning the question of how to capture this optionality, Lasnik suggests several possibilities, one of which is that Agro is optionally present in the structure. Given

- (i) \*Taro-no [shinju-no kotoshi yasui to] omotteiru riyuu  
 Taro-Gen pearl-Gen this year cheap that think reason  
 'the reason for Taro's thinking that the pearl is cheap this year'

Here, both the matrix and embedded subjects are marked with genitive. Thus, both genitive phrases should be attracted by the same head for Case licensing, and yet the example is ill-formed (see below for data showing that multiple genitive constructions are in general allowed in Japanese). Assuming that only the head of an A-chain induces blocking effects (see Chomsky 1998), the ungrammaticality of (i) is not because the higher subject blocks the movement of the embedded genitive subject.

<sup>13</sup> Note in this connection that *ga/no* conversion applies to *gz*-marked NPs but not to *gz*-marked PPs (i), despite the fact that *-no* is attached to a prenominal PP (ii).

- (i) [Yokohama eki kara-*ga*/\**no* totemo chikai] kooen  
 Yokohama Station from-Nom/Gen very close park  
 'the park that it is Yokohama Station that is very close from (it)'  
 (ii) [[Yokohama eki kara]-*no* michi]  
 Yokohama Station from-Gen road  
 'the road from Yokohama Station'

Let us follow Kuroda (1978, 1988) and distinguish contextual Case marking and abstract Case marking (see also Fukui 1995, Saito 1985, and Murasugi 1991). Thus, assuming that *-no* is a) contextually inserted (i.e., attached to a prenominal NP or PP), or b) a realization of the abstract genitive Case, or c) both, the fact in (i) shows that *-no* attached to a PP necessarily belongs to the first category (i.e., it is due to the *no*-insertion rule (Murasugi 1991: chapter 2)). The PP in (i) cannot bear *-no* because the context of this rule is not met (i.e., it is not immediately dominated by a projection of a noun). I thus conclude that PPs in Japanese do not have an abstract Case property. This in turn supports the hypothesis that the genitive NP subject in *ga/no* conversion is licensed by the abstract genitive Case.

Chomsky's (1995: 4.10) reasoning that AGR cannot exist unless triggering overt movement, Lasnik suggests that when Agro is present, it triggers overt raising of an accusative NP (an instance of the EPP). When it is not, the Case of the nominal is checked via covert raising of its formal features to the relevant verb. Thus, for Lasnik, optionality of overt movement reduces to the optionality of the Agro head.

How about Japanese genitive subjects? If we pursue the parallelism between the two constructions, we want to say that a functional head associated with an NP driving overt movement is optionally present. I believe that Abney's (1987) discussion of the DP hypothesis is informative in this connection. For Abney, postulation of a functional head within a nominal was motivated on the parallelism between nominals and sentences. In particular, Abney observes that in languages such as Hungarian and Turkish, noun phrases are more sentence-like than in English in that there is an inflectional element within noun phrases in those languages. Thus, for Abney, the functional head in question is identified as a nominal AGR. We can suppose that this head, which I will refer to as  $AGR_D$ , is optionally present in Japanese.

(29) [ $AGR_{DP}$  [ $NP$  ....  $N$ ]  $AGR_D$ ]

When the  $AGR_D$  head is present, it triggers overt movement of the genitive subject into the spec of  $AGR_{DP}$  (another instance of the EPP). The Case of the genitive subject is checked against  $N$  within the projection of the  $AGR_D$  head (Case checking is mediated by AGR). When it is absent, the genitive Case of the subject is checked against the  $N$  head (such as *kanousei* 'probability') after the formal features of the genitive subject are raised to the position of  $N$  in covert syntax.<sup>14</sup> In short, I assume that different attractors are involved in

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<sup>14</sup> As Abney (1987: 58) stresses, it is a separate question whether determiners occupy this functional head position. If they indeed occupy the  $AGR_D$  head, as argued by Abney (1987: chapter 4), then the optionality

overt and covert instances of genitive subject movement: overt movement is triggered by the EPP-feature of  $AGR_D$  whereas covert movement is due to the genitive Case feature of the N. In 3.5, I show that this stipulation brings out an interesting theoretical consequence for the nature of Attract.

There is an important distinction between ECM and *ga/no* conversion, however. It is generally assumed that the embedded subject position of the ECM infinitival clause lacks Case, which is why the subject is allowed to raise into the higher clause. But apparently this is not the case with *ga/no* conversion, since the nominative Case should be available for the subject of the prenominal sentential clause (i.e., *ga/no* conversion is optional).

I believe that this is a reflection of a parametric difference between English and Japanese, as discussed by Kuroda (1988). According to Kuroda, English is a forced Agreement language while Japanese is not (where Agreement includes abstract Case marking/checking among other things). Note in this connection that Ura (1996) claims that Japanese (among other languages) allows A-movement of the subject of a finite clause into a higher clause (i.e., what he calls *hyper raising*), which is not available in English. In addition, Japanese allows other instances of Case alternation. For instance, as discussed by authors such as Sugioka (1984), Tada (1992), and Koizumi (1994), *ga/o* conversion is possible with a subset of stative predicates.

of  $AGR_D$  seems undesirable, given that determiners are necessary in order for nominals to function as arguments (but see Corver (1992) for the analysis that some Slavic languages lack D heads and nominals in those language are bare NPs). An obvious direction to explore is to split  $AGR_D$  into nominal AGR and D, on a par with the traditional INFL being split into verbal AGR and T (see Pollock 1989, Chomsky 1991). In (i), the [+ interpretable] D head is always present, while [- interpretable]  $AGR_n$  head is optionally present.

- (i)  $[_{DP} [_{AGR_n} [_{NP} \dots N] AGR_n] D]$

Under this hypothesis, the optionality of overt raising of genitive subject is due to the optionality of nominal AGR, which, if present, would trigger overt movement (an instance of the EPP). Incidentally, this view is consistent with the claim (see Abney 1987 and Kornfilt 1984) that it is the functional head above NP (i.e.,  $AGR_D$  for Abney) that is responsible for genitive Case, not N. See Szabolcsi (1983/84) among others for the claim that languages have multi-layers of functional heads within nominals.

(30) John-ga furansugo-ga/o wakaru (koto)

John-Nom French-Nom/Acc understand fact

‘(the fact that) John understands French’

Koizumi (1994) argues that the nominative Case of the object is licensed by the INFL. If so, the Case feature of the predicate *wakaru* ‘understand’ in (30) is not always checked. These considerations appear to indicate that in Japanese, Case features of the Case “assigner” (in the traditional sense) are not always checked.

### 3.5 Nominative/genitive object and the optionality of $AGR_D$

In the previous section, I essentially adopted Lasnik’s (1999) idea regarding how to capture the optionality involved in *ga/no* conversion. In particular, I hypothesized that the functional head above NP,  $AGR_D$ , is responsible for overt movement of genitive phrase. One may wonder, however, if this hypothesis is really tenable, since postulating an optional functional head may be a restatement of the problem. For instance, instead of the optionality of the relevant functional head, Chomsky’s (1995: chapter 4) proposal, especially as interpreted by Ura (1996), that some language allows “unforced violation of procrastinate” may also capture this fact. As I will show, the two approaches make different predictions. The difference stems from the nature of the attractor. According to the Lasnik-type approach adopted above, overt attraction is for the EPP feature of  $AGR_D$  while covert movement is triggered by the Case property of N. In this section (see 3.5.4), I claim on empirical grounds that postulation of the optional  $AGR_D$  is superior to the alternative.

### 3.5.1 On genitive object

Let us consider more data from Miyagawa (1993: 229). Recall that the generalization emerging from Miyagawa's discussion is that the genitive phrase cannot take scope over the head noun if it is preceded by another element of the same sentential gapless clause (see 18b). But there is an exception to this generalization: when the preceding element is also a genitive phrase.

- (31) a. [John-ga [tenisu-ka sakkaa]-ga dekiru] riyuu  
 John-Nom tennis-or soccer-Nom can reason  
 i. 'the reason that John can play tennis or soccer'  
 ii. '\*the reason that John can play tennis or the reason that John can play soccer'  
 reason > [tennis or soccer]; \*[tennis or soccer] > reason
- b. [John-no [tenisu-ka sakkaa]-ga dekiru] riyuu  
 John-Gen tennis-or soccer-Nom can reason  
 i. 'the reason that John can play tennis or soccer'  
 ii. '\*the reason that John can play tennis or the reason that John can play soccer'  
 reason > [tennis or soccer]; \*[tennis or soccer] > reason
- c. [John-ga [tenisu-ka sakkaa]-no dekiru] riyuu  
 John-Nom tennis-or soccer-Gen can reason  
 i. 'the reason that John can play tennis or soccer'  
 ii. '\*the reason that John can play tennis or the reason that John can play soccer'  
 reason > [tennis or soccer]; \*[tennis or soccer] > reason



- d. [John-no [tenisu-ka sakkaa]-no dekiru] riyuu  
 John-Gen tennis-or soccer-Gen can reason  
 i. 'the reason that John can play tennis or soccer'  
 ii. 'the reason that John can play tennis or the reason that John can play soccer'  
 reason > [tennis or soccer]; [tennis or soccer] > reason

In Japanese, object can be marked with nominative *-ga* when the predicate is stative. And when such a clause occurs before nouns such as *riyuu* 'reason', *-ga* marked NPs can optionally be marked with *-no*. The fact that *tenisu-ka sakkaa* 'tennis or soccer' cannot take scope over the head noun *riyuu* 'reason' in (31a-b) is not surprising. The phrase in question is marked with nominative, so there is no reason for it to raise out of the sentential gapless clause. The unambiguity of (31c) is also expected. Word order (i.e., the fact that the genitive phrase *tenisu-ka sakkaa-no* 'tennis or soccer-Gen' is preceded by a nominative subject *John-ga* 'John-Nom') shows that the genitive phrase has not moved out of its own clause in overt syntax. Assuming, therefore, that it moves for genitive Case checking in covert syntax, it is expected that no new scope relation is created, a correct result. The interesting case is (31d), in which both arguments are marked with genitive. As Miyagawa points out, this example is ambiguous. Under the proposed account, the ambiguity arises in this case because both genitive phrases may raise out of the sentential gapless clause in overt syntax (32a) or in covert syntax (32b).

- (32) a. [<sub>AGRDP</sub> John-Gen [<sub>AGRD</sub> tennis or soccer-Gen [<sub>NP</sub> [<sub>IP</sub> t t can] reason] AGR<sub>D</sub>]]  
 b. [<sub>NP</sub> [<sub>IP</sub> John-Gen tennis or soccer-Gen can] reason]



Hence the ambiguity of (31d) is consistent with the current proposal.

Now, the question is whether it is possible in examples like (31d) for the genitive subject to be raised out of the prenominal IP while the genitive object stays within the IP in overt syntax (33).

(33)  $[_{AGRDP} \text{John-Gen } [_{NP} [_{IP} t \text{ tennis or soccer-Gen can } \text{reason}] AGR_D]$

The following example shows that this is indeed possible. In particular, it has the reading in which the genitive subject *John-ka Mary* 'John or Mary' takes scope over *riyuu* 'reason' while the genitive object *tenisu-ka sakkaa* 'tennis or soccer' is within the scope of the latter (as indicated in the reading (ii)).

- (34)  $[[\text{John-ka Mary-no } [\text{tenisu-ka sakkaa}]\text{-no dekiru}] \text{riyuu}]\text{-o osiete}$   
 John-or Mary-Gen tennis-or soccer-Gen can reason-Acc tell me
- i. 'Tell me the reason that John or Mary can play tennis or soccer'
  - ii. 'Tell me the reason that John can play tennis or soccer or the reason that Mary can play tennis or soccer'
  - iii. 'Tell me the reason that John can play tennis, or the reason that John can play soccer, or the reason that Mary can play tennis, or the reason that Mary can play soccer'
- reason > [John or Mary], reason > [tennis or soccer];  
 [John or Mary] > reason, reason > [tennis or soccer]  
 [John or Mary] > reason, [tennis or soccer] > reason

We already know that the first genitive phrase may or may not have raised out of the prenominal clause in overt syntax. The above example shows that the same holds for the

second. In short, the above example has three possible structures. I must leave open the question of how to account for the fact that both (a) and (c) below are available when  $AGR_D$  is in the Numeration.

(35) Overt structures for multiple genitive constructions:

- a.  $[_{AGRDP} \text{ subject-Gen object-Gen } [_{NP} [_{IP} t t \dots ] N] AGR_D]$
- b.  $[_{NP} [_{IP} \text{ subject-Gen object-Gen } \dots ] N]$
- c.  $[_{AGRDP} \text{ subject-Gen } [_{NP} [_{IP} t \text{ object-Gen} \dots ] N] AGR_D]$

### 3.5.2 On nominative object

Before proceeding further, I need to identify the position of the nominative object, which is related to the question of where nominative subject is located overtly in this language. Tada (1992) (and Koizumi (1994)) showed that nominative object is structurally higher than accusative object, based on scope facts. The nominative object in (36a) takes scope over *-eru* 'can' while the accusative object in (36b) must be in the scope of *-eru* 'can'.<sup>15</sup>

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<sup>15</sup> A question is how the genitive object behaves in this respect. The judgment is subtle for some reason, but it appears that the relevant example is ambiguous.

- (i) John-ga migime-dake-no tumureru koto  
 John-Nom right eye-only-Gen close-can fact  
 'the fact that John can close only his right eye'  
 can > only (John can wink his right eye)  
 only > can (It is only his right eye that he can close)

If this judgment is real, not only genitive subject but also genitive object may involve optionally overt movement. Many questions arise. Where does it move to? For what reason?

- (36) a. John-ga migime-dake-ga tumur-eru (koto)  
 John-Nom right eye-only-Nom close-can fact  
 '(the fact that) John can close only his right eye'  
 \*can > only (John can wink his right eye)  
 only > can (It is only his right eye that he can close)
- b. John-ga migime-dake-o tumur-eru (koto)  
 John-Nom right eye-only-Acc close-can fact  
 can > only (John can wink his right eye)  
 (\*)only > can (It is only his right eye that he can close)

Koizumi (1994, 1995) argues that the Case of nominative object is checked against INFL, while that of accusative object is checked within the projection of AGRo, although he does not specify the timing of the relevant movements. Given the idea that features relevant for scope are affected only by (generalized) pied-piping (Chomsky 1995, Lasnik 1995), the natural conclusion is that that nominative object raises to the spec of IP in overt syntax.<sup>16</sup> It follows, then, that nominative subject, which precedes the nominative object, must also raise into the spec of IP in overt syntax.

- (37) [<sub>IP</sub> subject-Nom object-Nom [<sub>VP</sub> t t ... ]]

Descriptively, all nominative phrases in Japanese must move into the specs of IP in overt syntax. Adopting the essence of Bošković's (in press a) Attract-based analysis of multiple wh-fronting in Bulgarian, I assume that INFL in Japanese has Attract all F for nominative,

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<sup>16</sup> See Miyagawa (1999) and Niinuma (1999) for arguments that nominative object is located in IP in overt syntax.

which means that INFL must attract all the nominative features within its c-commanding domain in overt syntax.<sup>17</sup> I will discuss this point again in the next subsection.

### 3.5.3 Ga/no conversion and 'superiority'

Now, let us examine the following paradigm. In both cases, the (b)-examples are ungrammatical (see Miyagawa 1993).

(38) Nominative subject + genitive object

- a. John-ga tennis-no dekiru kanousei-o osiete  
John-Nom tennis-Gen can probability-Acc tell me  
'Tell me the probability that John can play tennis'
- b. \*Tennisu-no John-ga dekiru kanousei-o osiete  
tennis-Gen John-Nom can probability-Acc tell me

(39) Genitive subject + nominative object

- a. John-no tennis-ga dekiru riyuu-o osiete  
John-Gen tennis-Nom can reason-Acc tell me  
'Tell me the reason that John can play tennis'
- b. \*Tennisu-ga John-no dekiru riyuu-o osiete  
tennis-Nom John-Gen can reason-Acc tell me

(38) poses an interesting question for the analysis presented in the previous section. On the one hand, the grammaticality of (38a) indicates that covert feature movement of the genitive object can cross a higher nominative argument. Under Attract F,

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<sup>17</sup> In the next subsection, I will further argue that INFL in Japanese also has an EPP property (thus attracting the closest D-feature), in addition to Attract all F for nominative features. This is based on the fact that non-nominative subjects such as genitive subjects must also move into the spec of IP overtly.

this means that the nominative subject does not prevent the genitive object from being attracted in covert syntax. On the other hand, (38b), which would be derived by overt movement of the genitive object into the spec of  $AGR_P$ , is fairly degraded.

- (40) \* $[_{AGR_P} \text{Tenisu-no}_i [_{NP} [_P \text{John-ga } t_i \text{dekiru}] \text{kanousei}]]$   
           tennis-Gen           John-Nom can     probability

In this case the nominative subject, being closer to the target, prevents the genitive argument *tenisu-no* 'tennis-Gen' from being attracted.<sup>18</sup> In short, the nominative subject blocks genitive object from being attracted overtly, but not covertly. Why is this so?

I argue that this overt/covert asymmetry follows from the different attractors involved in the two cases. In the previous section, I discussed the nature of genitive phrase movement, speculating that  $AGR_P$ , if present, would trigger overt movement of the genitive phrase, but otherwise the N head attracts the genitive phrase in covert syntax (i.e., the genitive Case feature is weak in Japanese). Under this scenario, the driving force for overt movement resides in the EPP-feature of the  $AGR_P$  head, which attracts the closest relevant feature, presumably the D-feature of a nominal. It is immaterial for this head, therefore, whether the closest nominal element bears nominative or genitive. This is why the nominative subject blocks overt movement of the genitive phrase into the spec of  $AGR_P$  in overt syntax: the nominative subject is closer from the viewpoint of  $AGR_P$ . The following derivation illustrates this point.

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<sup>18</sup> This conclusion is inconsistent with Miyagawa (1999), who argues that either subject or object can satisfy the EPP-feature of INFL in Japanese, because subject and object are equidistant in this language (due to a (special type of) V-to-INFL movement). It remains to be seen how this conflict is resolved in a principled manner.

- (41) a.  $[_{IP} [_{VP} \text{John-Nom tennis-Gen V}] \text{INFL}]$  (INFL attracts subject)  
 $\quad \quad \quad | \quad \quad \quad \uparrow \text{CH}_{FF}$
- b.  $[_{IP} \text{John-Nom} [_{VP} (\text{John-Nom}) \text{tennis-Gen V}] \text{INFL}]$   
 $\quad \quad \quad \uparrow \quad \quad \quad | \text{CH}_{CAT}$  (pied-piping of *John*)
- c.  $[_{AGRDP} [_{IP} \text{John} [_{VP} \text{tennis-Gen V}] \text{INFL}] \text{N}] \text{AGR}_D]$   
 $\quad \quad \quad \quad \quad \quad | \quad \quad \quad * \quad \quad \quad \uparrow$

Abstractly, the situation is identical to the superraising case in English (42). Here, too, the matrix INFL has a strong EPP-feature and fails to attract *John*, since *it* is closer.<sup>19</sup>

- (42) \_\_ seems [it was told John that .....]

On the other hand, covert movement of the genitive phrase is triggered by the N head for Case reasons. Suppose that attraction for Case searches for the closest visible Case feature, where Case becomes invisible once it is checked off (see Ura 1999: 248).

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<sup>19</sup> Ura (1994, 1996b) argues that Japanese allows superraising, based on dative subject constructions. As shown in (i), when the subject is marked with dative, the object can be marked with nominative, but not with accusative. Ura then provides (ii), claiming that the embedded object can be marked with accusative in this case. Ura argues that the accusative Case is available in the matrix clause in (ii) (from the verb *omou* 'think'), and the accusative Case of *eigo* 'English' can be checked after it has moved into the higher clause in LF, crossing the dative subject.

- (i) John-ni eigo-ga/\*o dekiru  
 John-Dat English-Nom/\*Acc can  
 'John can speak English'
- (ii) Boku-wa [John-ni eigo-ga/o dekiru to] omou  
 I-Top John-Dat English-Nom/Acc can that think  
 'I think that John can speak English'

Although the grammatical status of (ii) with accusative object is not very clear to me, Ura's claim and my proposal in the text share one important feature in common: Japanese allows superraising in covert syntax.

Then, as shown below, when the N attracts the closest visible Case feature, it is the genitive Case of the object that is the closest. This is why (38a) is grammatical.

- (43) a.  $[[_{IP} \text{ Subject-Nom } [_{VP} \text{ t Object-Gen ... }]] \text{ N}]$  (Overt syntax)

↑ \_\_\_\_\_ |

- b.  $[[_{IP} \text{ Subject } [_{VP} \text{ t Object-Gen ... }]] \text{ N}]$  (Covert syntax)

| \_\_\_\_\_ ↑

Note that the data in (38) (and also (39) to be discussed below) is significant in another respect. The movement of genitive subject is not due to scrambling (Saito 1985), since scrambling allows the object to be fronted crossing the subject.<sup>20</sup>

Let us consider (39), repeated below.

- (44) a. John-no tennisu-ga dekiru riyuu-o osiete  
 John-Gen tennis-Nom can reason-Acc tell me  
 'Tell me the reason that John can play tennis'
- b. \*Tennisu-ga John-no dekiru riyuu-o osiete  
 tennis-Nom John-Gen can reason-Acc tell me

Let us examine (44a) first. Recall that the genitive subject raises out of the prenominal gapless clause in either overt or covert syntax. Hence, we need to consider two

<sup>20</sup> This is consistent with Saito's (1985: 228) observation that genitive phrases do not scramble within NPs.

- (i) a. Yuubokumin-no sono toshi-no hakai  
 nomad-Gen that city-Gen destruction  
 'the nomad's destruction of that city'
- b. \*Sono toshi-no yuubokumin-no hakai  
 that city-Gen nomad-Gen destruction



different derivations. In one derivation, where  $AGR_D$  is present, the genitive subject moves to the spec of  $AGR_D P$  in overt syntax. In the other derivation, where  $AGR_D$  is not in the Numeration, the genitive subject stays inside the gapless clause in overt syntax. Where is the genitive subject located in the second case? Given the fact that it precedes the nominative object, which moves to the specifier of IP (see 3.5.2), I assume that the former is likewise in the specifier of INFL in overt syntax. This means that Japanese INFL has the EPP-feature, which attracts the closest D(P) (whose Case has not been checked off) in overt syntax. Recall also that Japanese INFL has the property of Attract all F for nominative (see discussion in 3.5.2), attracting all nominative features in its c-command domain in overt syntax.<sup>21</sup> The property of INFL in Japanese is summarized below.

- (45) Japanese INFL has the property:
- a. Attract 1 F for the EPP, and
  - b. Attract all F for nominative features

Assuming (45), let us return to the derivations for (44a). When INFL and the VP are merged, the INFL attracts the closest D-feature (i.e., that of the subject), as shown in (46b). Further, INFL attracts the nominative feature of the object (46c). Note that following Richards (1998), I assume that movement into multiple specifiers of the same head must “tuck in,” which is why the subject precedes the object when they both move to the specifiers of IP. Now, depending on whether or not  $AGR_D$  is in the numeration,

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<sup>21</sup> Recall that when both subject and object are nominative, both of them must be attracted by INFL in overt syntax.

- (i) [<sub>IP</sub> John-ga [<sub>IP</sub> migime-dake-ga [t t tumur-eru]] (koto)  
       John-Nom right eye-only-Nom close-can fact  
       ‘(the fact that) John can close only his right eye’  
       \*can > only (John can wink his right eye.)  
       only > can (It is only his right eye that he can close.)



- (48) [<sub>IP</sub> [<sub>VP</sub> John-Gen tennis-Nom can] INFL] (Attract for Case)

| \_\_\_\_ \* \_\_\_\_ ↑

To summarize, I argued that overt movement of the genitive phrase is blocked by the presence of a closer DP while covert movement of genitive subject enjoys a wider distribution. The asymmetry follows from the type of the attractor in each case, which in turn supports the postulation of an optional functional category for both Japanese and English.

### 3.5.4 Alternative approach

Let us consider (38) and (39), repeated below, in terms of Chomsky's (1995) "unforced violation of procrastinate," especially as explicated by Ura (1996).

- (49) Nominative subject + genitive object

- a. John-ga tennis-no dekiru kanousei-o osiete  
 John-Nom tennis-Gen can probability-Acc tell me  
 'Tell me the probability that John can play tennis'
- b. \*Tennisu-no John-ga dekiru kanousei-o osiete  
 tennis-Gen John-Nom can probability-Acc tell me

- (50) Genitive subject + nominative object

- a. John-no tennis-ga dekiru riyuu-o osiete  
 John-Gen tennis-Nom can reason-Acc tell me  
 'Tell me the reason that John can play tennis'

- b. \*Tenisu-ga John-no dekiru riyuu-o osiete  
 tennis-Nom John-Gen can reason-Acc tell me

According to this approach, the relevant feature of the head, whether it is  $AGR_D$  or  $N$ , which is responsible for the movement of genitive phrase is weak, but it tolerates an unforced violation of procrastinate, in which case movement takes place overtly. For the sake of discussion, let us suppose that the relevant head is  $N$ ; its feature is weak but tolerates an unforced violation of procrastinate. An advantage of this alternative is that it is not necessarily to postulate a functional head which is optionally present in the numeration.

However, this approach fails to account for the contrast in (49) under the assumption that Japanese INFL has the EPP (Ura 1996, 1999). The nominative subject is attracted in overt syntax for the EPP in both examples in (49), as shown in (51a). By the time  $N$  attracts the closest genitive Case feature (overtly or covertly), there is no significant difference between the two cases, as shown in (51b and b'): the attractor is the Case of  $N$  in both cases, and the only difference is whether the operation occurs overtly or covertly.<sup>22</sup> Since there is no way to block the overt attraction in (51b') while allowing the covert attraction in (51b), the contrast in (49) remains unaccounted for.

- (51) a. [<sub>IP</sub> Subject-Nom [<sub>VP</sub> t Object-Gen ... ]] (Overt movement)

↑ \_\_\_\_\_

- b. [[<sub>IP</sub> Subject-Nom [<sub>VP</sub> t Object-Gen ... ]]  $N$ ] (Covert attraction)

| \_\_\_\_\_ ↑

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<sup>22</sup> Recall that under the analysis presented in the previous subsection, (49b), which would be derived if the genitive object moves overtly to the spec of  $AGR_DP$ , cannot be generated because the attractor for the overt movement of genitive object is the EPP-feature of  $AGR_D$ , which attracts the closest D-feature.

b.' [Object-Gen [<sub>IP</sub> Subject-Nom [<sub>VP</sub> t t ... ]] N]

↑ \_\_\_\_\_ ]

(Overt attraction in violation of Procrastinate)

To summarize the discussion in this section, I compared two potential approaches to the optionally involved in the movement of genitive phrases in Japanese: 1) optionality of a functional head with the EPP-feature and 2) Ura's execution of unforced violation of Procrastinate. As discussed above, the two approaches in fact make different empirical predictions. In particular, the first approach indeed is superior. Further, I argued for the following points.

- (52) a. Japanese INFL has the property of Attract 1 F for the EPP and Attract all F for nominative features.
- b. The EPP-feature attracts the closest D-feature.
- c. Case feature of the target attracts the closest visible Case feature.<sup>23</sup>

Let me discuss one consequence of the analysis presented here. I adopted the claim in the recent literature that Japanese INFL has the EPP, and hence at least one DP must move into spec of IP in overt syntax. What if Japanese lacks the EPP and hence the subject must stay within VP in overt syntax (see Takahashi 1994)? Consider (53).

- (53) [[[John-ka Mary]-no tennis-ga dekiru] kanousei]-ga 50% ijyoo da  
 John-or Mary-Gen tennis-Nom can probability-Nom 50% over is  
 i. 'the probability that John or Mary can play tennis is over 50%'

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<sup>23</sup> Recall that Case features become invisible once they are checked off.

- ii. 'the probability that John can play tennis or the probability that Mary can play tennis is over 50%'

probability > [John or Mary]; [John or Mary] > probability

The reading in (i) would be derived from the derivation in which the genitive subject stays within the prenominal clause in overt syntax, i.e., within VP. Let us consider its derivation in covert syntax. As shown below, cyclicity dictates that INFL attracts before N does. However, INFL should fail to attract the nominative object, since the genitive subject is closer (and it has not had its genitive Case checked off yet), and the derivation does not converge, a wrong result.<sup>24</sup> Hence, I conclude that Japanese INFL has the EPP.

(54) [<sub>NP</sub> [<sub>IP</sub> [<sub>VP</sub> J or M-Gen tennis-Nom can] INFL] N] (Covert syntax)

| \_\_\_\_\_ \* \_\_\_\_\_ ↑

Naturally, the conclusion drawn above raises a question about the lack of subject condition effects in Japanese, as discussed in chapter 2. Recall that, following Takahashi (1994), I attributed the lack of subject condition effects in Japanese to the fact that subject in this language has the option of staying in-situ in overt syntax. Hence, overt extraction out of the subject is possible, since the latter does not form a non-trivial chain in overt syntax. This claim appears to be incompatible with the claim that Japanese INFL has the EPP. In order to reconcile the two claims, I slightly modify the account above and stipulate

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<sup>24</sup> Note that Chomsky (1999) claims that in transitive constructions, some element must move out of VP (or  $\bar{v}P$ ) overtly. If applied to Japanese, this also excludes the derivation in which both subject and object stay within VP in overt syntax.

that Japanese subject has the option of being merged with INFL directly.<sup>25</sup> Even under this modification, the (b)-examples below are ruled out.

(55) Subject-ga + object-no

- a. John-ga tennis-no dekiru kanousei-o osiete  
John-Nom tennis-Gen can probability-Acc tell me  
'Tell me the probability that John can play tennis'
- b. \*Tennisu-no John-ga dekiru kanousei-o osiete  
tennis-Gen John-Nom can probability-Acc tell me

(56) Subject-no + object-ga

- a. John-no tennis-ga dekiru riyuu-o osiete  
John-Gen tennis-Nom can reason-Acc tell me  
'Tell me the reason that John can play tennis'
- b. \*Tennisu-ga John-no dekiru riyuu-o osiete  
tennis-Nom John-Gen can reason-Acc tell me

Consider (55b) under the assumption that the nominative subject is merged with IP.

(57) [<sub>IP</sub> John-Nom [<sub>VP</sub> tennis-Gen can] INFL]

Now, the only way to get the word order in (55b) is for the genitive object to be attracted by the AGR<sub>D</sub> head; crucially, it cannot be attracted by INFL, since the EPP is already satisfied by the merger of the nominative subject (and INFL has no genitive Case property). From the viewpoint of AGR<sub>D</sub>, the D-feature of the nominative subject is the

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<sup>25</sup> This, of course, raises questions. Why does Japanese allow base-generation of subject in the spec of IP? Is it only the subject which has this special property. At this point, I have leave these questions open.

closest. Hence, (55b) is ungrammatical whether the former is base-generated within VP or in IP.

(58)  $[_{AGRDP} [_{NP} [_{IP} \text{John-Nom} [_{VP} \text{tennis-Gen can}] \text{INFL}] \text{N}] \text{AGR}_D]$

| \_\_\_\_\_ \* \_\_\_\_\_ ↑

Let us consider (56b), again assuming that the subject can be merged directly with IP. In this case, two possible derivational paths are available at the point in the derivation where INFL and the VP are merged, as in (59a). One is to attract the nominative object and the other is to merge the genitive subject. I assume, following Chomsky (1995), that Merge takes precedence over Move as in (59b). After the genitive subject is merged with IP, INFL attracts the nominative object. I adopt Richards' (1998) idea and assume that movement into multiple specs must 'tuck in' (59c). If so, the surface order in (56b) will not be generated.

- (59) a.  $[_{IP} [_{VP} \text{tennis-Nom can}] \text{INFL}]$   
 b.  $[_{IP} \text{John-Gen} [_{VP} \text{tennis-Nom can}] \text{INFL}]$   
 c.  $[_{IP} \text{John-Gen tennis-Nom}_j [_{VP} t_j \text{can}] \text{INFL}]$

### 3.6. Raising vs. control

In this section, I examine genitive phrases within relative clauses. Recall that Miyagawa's scope tests are not available to genitive subjects in relative clauses, since as shown in (11), repeated below, there is no difference between nominative subject as well as genitive subject in a relative clause in terms of scope; both show a scope ambiguity.



- (60) Tom-wa [[John-ka Mary]-ga/no yonda hon]-o mise-ro to itta  
 Tom-Top John-or Mary-Nom/Gen read book-Acc show-Imp that said
- i. 'Tom demanded that I show him books that either John or Mary read'
  - ii. 'Tom demanded that I show him books that John read or I show him books that Mary read'

Hence we must resort to other sets of data to determine the nature of movement associated with genitive subjects in a relative clause. Given the conclusion that genitive subject raises overtly or covertly into its Case position in the case of the gapless clause of *kanousei* 'probability' etc., we might expect the same for relative clauses as well. Building on Sakai's (1994) insight, however, I provide independent evidence that movement of genitive phrase from within relative clauses is restricted to covert syntax, much in line with Miyagawa's (1993) position.

Sakai (1994) points out that examples like (61) have more than one interpretation. *John* in (61) might have driven someone else's car, in which case he is merely an agent of the action of driving, or he might have driven his own car, in which case he is a possessor of a car as well as an agent of driving the car. Note that Sakai is exclusively concerned with genitive subjects of relative clauses, although we will consider more data below.<sup>26</sup>

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<sup>26</sup> In the examples to be examined in this section such as (61) and (62), there is an additional reading in which someone else drove John's car. This reading is set aside here. Note that such reading can be captured by Sakai's analysis, which posits a structure in which *pro* occurs as the subject of a relative clause (see (63c) below); *pro* may refer to John or someone else.

(61) John-no kinoo unten-shite-ita kuruma

John-Gen yesterday drive-doing-was car

- a. 'the car that John was driving yesterday (John = agent)
- b. 'John's car that he was driving yesterday (John = agent + possessor)<sup>27</sup>

(see Sakai 1994)

As Sakai notes, this ambiguity ceases to exist if the relative clause precedes the genitive phrase. In the following example, only one reading obtains, in which *John* is both an agent and a possessor.

(62) [kinoo unten-shite-ita] John-no kuruma

yesterday drive-doing-was John-Gen car

- a. \*'the car that John was driving yesterday (John = agent)
- b. 'John's car that he was driving yesterday (John = agent + possessor)

(see Sakai 1994)

Sakai attributes the ambiguity of examples like (61) to their structural ambiguity. The genitive phrase may originate within the relative clause (and undergo raising),<sup>28</sup> or it may be base-generated in the spec of DP and be co-indexed with a *pro* within the relative clause (see also Harada 1976). Assuming tentatively that raising of the genitive phrase from

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<sup>27</sup> Following the standard practice in the literature, I am using the term "possessor" in its extended sense. As Anderson (1983-4) and Williams (1982) among others discussed, the thematic relation between a "possessor" and the head noun is determined in part based on the context. For instance, *John's car* could be interpreted as the car which John owns, the car which John built, or the car which John adores etc. The term "possessor" in the text is used to encompass such readings ("the metaphorical extension of possession," to borrow Anderson's (1983-84) term), although without a specific context, the most likely interpretation would be that of literal possession in the case of nouns such as *kuruma* 'car'.



- (64) a. Raising → 'agent' reading  
 b. Control → 'agent + possessor' reading

(see Sakai 1994)

One advantage of this analysis is that the lack of ambiguity observed in (62) receives a rather plausible explanation. Recall that (62) lacks the reading in which *John* is merely an agent, which means, under the line of analysis being pursued here, that the (overt) raising structure is not well-formed. It is plausible that (overt) raising is not allowed in this case because the resulting structure is in violation of the Proper Binding Condition (PBC), as shown in (65a).<sup>30</sup> In contrast, the "control" structure shown in (65b) does not violate the PBC, since it does not involve movement.

- (65) a.  $*[_{DP} [t_i \text{ kinoo unten-shite-ita}]_j \quad \text{John-no}_i \quad t_j \text{ kuruma}]$   
           yesterday drive-doing-was John-Gen car  
 b.  $[_{DP} [\text{pro}_i \text{ kinoo unten-shite-ita}]_j \quad \text{John-no}_i \quad t_j \text{ kuruma}]$   
           yesterday drive-doing-was John-Gen car

(66) Proper Binding Condition (PBC)

Traces must be bound.

(see Fiengo 1974 and Saito 1989)

Let us now examine the gapless clause of *kanousei* 'probability' and *riyuu* 'reason' in the same manner. The order in which the gapless clause precedes the genitive phrase yields very low acceptability.

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<sup>30</sup> We will see later, however, that (65a) should be excluded independently of the PBC.

- (67) a. [Shinju-no kotoshi yasuku-naru kanousei]-ga 80% izyoo da  
 pearl-Gen this year cheap-become probability-Nom 80% over be  
 'The probability that pearls become cheap this year is over 80%'
- b. \*[Kotoshi yasuku-naru shinju-no kanousei]-ga 80% izyoo da  
 this year cheap-become pearl-Gen probability-Nom 80% over be  
 'The probability that pearls become cheap this year is over 80%'
- (68) a. [Shinju-no kotoshi yasuku-naru riyuu]-o osiete.  
 pearl-Gen this year cheap-become reason-Acc tell me  
 'Tell me the reason why pearls become cheap this year'
- b. \*[Kotoshi yasuku-naru shinju-no riyuu]-o osiete  
 this year cheap-become pearl-Gen reason-Acc tell me

This indicates that the (a)-examples above are unequivocally raising. If the "control" structure were available, the (b)-examples should be fine. I suggest that overt raising structure is ruled out by the PBC.<sup>31</sup>

- (69) a. \*[[t<sub>i</sub> kotoshi yasuku-naru] shinju-no<sub>i</sub> kanousei]  
 this year cheap-become pearl-Gen probability
- b. \*[[t<sub>i</sub> kotoshi yasuku-naru] shinju-no<sub>i</sub> riyuu]  
 this year cheap-become pearl-Gen reason

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<sup>31</sup> This parallels Kuno's (1976: 35) observation regarding raising to object constructions in Japanese.

- (i) a. John-wa Mary-o totemo kashikoi to omotteiru  
 John-Top Mary-Acc very clever that think  
 'John considers Mary (to be) very clever clever.'
- b. \*John-wa [totemo kashikoi to] Mary-o omotteiru  
 John-Top very clever that Mary-Acc think

Why is the “control” structure not available in (67) and (68)? If we follow Grimshaw (1990: chapter 3), a noun which takes a sentential complement clause is either a result nominal or a simple event nominal, both of which lack a theta grid. According to Anderson (1983-84), a prenominal genitive NP occurring with such a noun is assigned a “possessor” theta role (i.e., “the metaphorical extension of possession”) by the lexical possessive element (realized as ‘s in English). As Anderson discusses, there is a limit to this metaphorical extension of possession, and I suspect that *shinju* ‘pearl’ is not an appropriate “possessor” for such nouns as *kanousei* ‘probability’ and *riyuu* ‘reason’ in this sense.<sup>32</sup>

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<sup>32</sup> See Grimshaw (1990: 93) and Kumiko Murasugi (1990: 65) for the view that the “possessor” - *modifier* possessives, not *complement* possessives (such as those in passive nominals) in the sense of Grimshaw (1990) - is restricted to animate elements (although it is not obvious that this view is correct, as there are examples such as *the book’s cover* and *the car’s headlights* etc. (Mona Anderson (p.c.)). It is worth noting in this connection that one speaker judged examples such as (ib)-(iib) to be more or less acceptable, which are schematically identical to (67) and (68) but contain animate genitive phrases (although the acceptability judgment varies among the speakers I consulted).

- (i) a. [Nomo-no kotoshi 20 shoo-suru kanousei]-ga takai  
Nomo-Gen this year 20 win-do probability-Nom high  
‘the probability that Nomo will win 20 games this year is high’
- b. [[Kotoshi 20 shoo-suru] Nomo-no kanousei]-ga takai  
          this year 20 win-do Nomo-Gen probability-Nom high
- (ii) a. [Nomo-no kotoshi 20 shoo-sita riyuu]-o osiete  
Nomo-Gen this year 20 win-did reason-Acc tell me  
‘Tell me the reason that Nomo won 20 games this year’
- b. [[Kotoshi 20 shoo-sita] Nomo-no riyuu]-o osiete  
          this year 20 win-did Nomo-Gen reason-Acc- tell me

If the contrast between (ib-iib) and (67b-68b) is indeed real, then it may be indicating that the “control” structure is (marginally) possible with *kanousei* ‘probability’ and *riyuu* ‘reason’ with animate possessives. As discussed in the text, under Anderson’s (1983-4) analysis, a lexical possessive element (realized as ‘s in English) which assigns an ‘extended’ possessive theta role to an (animate) phrase, can freely occur with a noun, concrete or abstract. Thus, nothing in her analysis precludes nouns such as *kanousei* ‘probability’ and *riyuu* ‘reason’ from occurring with the lexical possessive.

If the “control” structure is available with *kanousei* and *riyuu* (in particular, with animate phrases), however, the contrast between (iii) and (iv) below demands an explanation.

- (iii) [Mary-no [kyonen (kanojyo-ga) anda] seetaa]  
Mary-Gen last year she-Nom knitted sweater  
‘Mary’s sweater that she knitted last year’

(cont.)



The following example illustrates the same point, perhaps more clearly. I employ an idiom *chuui-o harau* 'attention-Acc pay (pay attention),' which has the effect of eliminating the base-generation possibility of the genitive phrase in the spec of DP. As expected, (72c) is ungrammatical.<sup>33</sup>

- (72) a. (seifu niyotte) jyuubun-na chuui-no harawarete-inai chiiki  
           government by enough attention-Gen paid-not area  
           'the area which enough attention is not paid to (by the government)'
- b. Totemo mazushii, (seifu niyotte) jyuubun-na chuui-no  
      very poor government by enough attention-Gen  
      harawarete-inai chiiki  
      paid-not area  
      'the very poor area which enough attention is not paid to (by the  
      government)'
- c. \*jyuubun-na chuui-no, totemo mazushii, (seifu niyotte)  
      enough attention-Gen very poor government by  
      harawarete-inai chiiki  
      paid-not area
- 

<sup>33</sup> The corresponding example using the gapless clause is grammatical (although somewhat awkward), as shown in (ii).

- (i) computer-ga keisan-shita, jyuubun-na chuui-no dono chiiki-ni-mo  
      computer-Nom calculated enough attention-Gen any area-Dat-Q  
      harawaretei-nai kanousei  
      paid-not probability  
      '[the probability that enough attention is not paid to any area] which the computer  
      calculated'
- (ii) jyuubun-na chuui-no, sono computer-ga keisan-shita, dono chiiki-ni-mo  
      enough attention-Gen that computer-Nom calculated any area-Dat-Q  
      harawaretei-nai kanousei  
      paid-not probability



Note that given this conclusion, we no longer require the PBC to account for the lack of ambiguity of examples like (62), repeated below as (73).

- (73) [kinoo unten-shite-ita] John-no kuruma  
 yesterday drive-doing-was John-Gen car
- a. \*‘the car that John was driving yesterday (John = agent)
- b. ‘John’s car that he was driving yesterday (John = agent + possessor)

I attributed the lack of the (a)-reading to the lack of the overt raising structure, which is excluded by the PBC. Yet, given the conclusion that overt raising from within the relative clause is not possible even when the PBC is irrelevant, we no longer require the PBC as a means to exclude (73a). Rather, whatever excludes overt raising from the relative clause for (70) should also exclude the raising structure for (73) (see below for discussion).<sup>34</sup>

Note also that covert raising of the genitive subject from within the relative clause must be possible, given the grammaticality of examples like (74).

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<sup>34</sup> Still, the PBC is required to account for the ungrammaticality of (67b) and (68b). We know that the prenominal gapless clause of *kanousei* ‘probability’ and *riyuu* ‘reason’ allows overt movement of genitive subject from it. Hence, given that the possibility that prenominal clauses can be scrambled within the DP, the (b)-examples must be ruled out by some constraint like the PBC.

- (i) a. Overt movement of genitive subject  
 [Shinju-no<sub>i</sub> [t<sub>i</sub> kotoshi yasuku-naru] kanousei]  
 pearl-Gen this year cheap-become probability
- b. Scrambling of the gapless clause  
 [[t<sub>i</sub> kotoshi yasuku-naru] shinju-no<sub>i</sub> kanousei]  
 this year cheap-become pearl-Gen probability

- (74) [kinoo John-no unten-shite-ita] kuruma  
 yesterday John-Gen drive-doing-was car
- a. 'the car that John was driving yesterday' (John = agent)
  - b. '\*John's car that he was driving yesterday' (John = agent + possessor)

Thus, (75) holds.

- (75) Covert raising of genitive subject from within the relative clause is possible.

To summarize, we observed that genitive subjects do not behave in a unified manner in the two types of prenominal clauses.

- (76) Gapless clauses (with *kanousei* 'probability' etc.)

- a. Covert raising; yes
- b. Overt raising; yes

- (77) Relative clauses

- a. Covert raising; yes
- b. Overt raising; no

### 3.8 Attract F and locality conditions

#### 3.8.1 Questions

There are a few theoretical issues which arise from our discussion so far. First,

- (78) Why is overt raising of genitive subject possible from within prenominal gapless clauses (with *kanousei* 'probability' etc.) but not from within relative clauses?

I propose that the relative clause is an adjunct whereas the gapless clause is a true complement to N. Since an adjunct domain is known to constitute a barrier for (overt) A-bar movement, it is natural that it blocks (overt) A-movement as well, since in general, A-movement is even more limited than A-bar movement. If, on the other hand, the prenominal gapless clause occurring with head nouns such as *kanousei* 'probability' and *riyuu* 'reason' is a true complement (contra Stowell 1981) in Japanese, then it would not constitute a barrier for extraction.

There is an observation in the literature which supports this distinction. Haig (1976) and Saito (1985) observe that scrambling out of a relative clause yields low acceptability whereas scrambling out of a pure complex NP (which contains a prenominal gapless clause) is significantly better.

- (79) a.    ?*\*Sono hito-ni John-ga [[Peter-ga t ageta] hon]-o*  
           that person-Dat John-Nom Peter-Nom gave book-Acc  
           *sagashiteiru rasii*  
           searching seems  
           ‘\*It seems that that person, John is searching for [the book [that Peter gave t]]’
- b.       ?*Sono hito-ni John-ga [[Peter-ga t hon-o ageta]*  
           that person-Dat John-Nom Peter-Nom book-Acc gave  
           *kanousei]-o sirabeteiru rasii*  
           probability-Acc checking seems  
           ‘?It seems that that book, John is checking [the probability [that Peter bought t]]’

Assuming with Murasugi (1991) that relative clauses in Japanese are IPs which need not involve relative operator movement, there would be no categorial difference between the two types of prenominal sentential modifiers (i.e., both are IPs). The contrast above follows from the distinction alluded to above. (79a) is an adjunct condition violation, while (79b) is not.<sup>35</sup>

Given this consideration, however, the following question arises.

- (80) Why is covert raising of genitive subject possible from within relative clauses (see 77a)?

If our answer to (78) is right (i.e., the relative clause in Japanese is an adjunct and hence disallows (overt) extraction from it), it raises the question why covert movement from such a domain is allowed.<sup>36</sup>

The two chain hypothesis entertained in Chapter 2 offers a straightforward account of this fact. For the sake of concreteness, I will adopt Murasugi's (1991) claim that relative clauses in Japanese are IPs which need not involve an operator movement (the relative gap may be a *pro*). Now, let us consider the following example.

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<sup>35</sup> Note that this claim does not necessarily extend to English, although a similar paradigm exists in this language (see Chomsky 1986a).

- (i) \*What did you want to know [the person [who bought t]]
- (ii) ?\*What did you want to know [the probability [that Peter bought t]]

(i), but not (ii), involves a relative operator movement within the complex NP, which may be responsible for the contrast between the two examples; (i) induces a Relativized Minimality effect while (ii) does not. This leaves open the possibility that in both (i) and (ii), the postnominal clause is an adjunct (see Stowell 1981).

<sup>36</sup> This point was made by Watanabe (1997) against the standard analysis of *ga/no* conversion such as Miyagawa (1993).



in (83b).<sup>37</sup> This is why overt movement of the genitive subject out of the relative clause is not allowed.

- (83) a.  $[_{AGRDP} [_{NP} [_{IP} [_{VP} \text{John-Gen } pro_i \text{ was-driving}]] \text{ car}_i] AGR_D]$   
 $\quad \quad \quad | \text{_____} \uparrow CH_{FF}$
- b.  $[_{AGRDP} \text{John}_j\text{-Gen } [_{NP} t_j [_{IP} *t_j [_{VP} t_j \text{ pro}_i \text{ was-driving}]] \text{ car}_i] AGR_D]$   
 $\quad \quad \quad \uparrow \text{_____} || \text{_____} || \text{_____} CH_{CAT}$

There is one technical question with this analysis, however. Recall from Chapter 2 that the UCA has a derivational character (see also Fukui and Saito 1998). I also concluded in this chapter that Japanese INFL has the EPP. Given these two points, the following derivation should converge without violating the UCA derivationally.

- (84) a.  $[_{IP} [_{VP} \text{John-Gen } pro \text{ was-driving}]] INFL]$  (Attraction by INFL)  
 $\quad \quad \quad | \text{_____} \uparrow CH_{FF}$
- b.  $[_{IP} \text{John-Gen } [_{VP} (\text{John-Gen}) \text{ pro was-driving}]] INFL]$   
 $\quad \quad \quad \uparrow \text{_____} | CH_{CAT}$  (Pied-piping)
- c.  $[_{AGRDP} [_{NP} [_{IP} \text{John-Gen } [_{VP} \dots ] INFL] N] AGR_D]$  (Attraction by  $AGR_D$ )  
 $\quad \quad \quad | \text{_____} \uparrow CH_{FF}$
- d.  $[_{AGRDP} \text{John-Gen } [_{NP} \text{John-Gen } [_{IP} \text{John-Gen } [_{VP} \dots ] INFL] N] AGR_D]$   
 $\quad \quad \quad \uparrow \text{_____} || \text{_____} || \text{_____} CH_{CAT}$  (Pied-piping)

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<sup>37</sup> Recall that for Takahashi (1994), traditional substitution into the specifier of XP is analyzed as adjunction to XP (or X').



- c.  $[_{\text{AGRDP}} [_{\text{NP}} [_{\text{TP}} [_{\text{AGRDP}} \text{John-Gen ...}] \text{T}] \text{N}] \text{AGR}_D]$  (Attraction by  $\text{AGR}_D$ )  
 $\quad \quad \quad | \quad \quad \quad \uparrow \text{CH}_{\text{FF}}$
- d.  $[_{\text{AGRDP}} \text{John-Gen} [_{\text{NP}} \text{t} [_{\text{TP}} *t [_{\text{AGR}_D} \text{t ....}] \text{T}] \text{N}] \text{AGR}_D]$   
 $\quad \quad \quad \uparrow \quad \quad \quad || \quad || \quad \quad | \text{CH}_{\text{CAT}}$  (Pied-piping)

Finally, a question arises as to why raising in nominals is not possible in English (see Williams 1981).

- (87) a. the belief that John is clever  
 b. \*John's belief [t to be clever]

One possibility is that genitive Case in English is inherent (Chomsky 1986b) whereas it is structural in Japanese. This excludes (87b), since there is no theta relation between *John* and *belief*.

To summarize this section, our analysis of *ga/no* conversion lends strong empirical support to a particular version of Attract F, namely, the hybrid theory of movement incorporating both Attract and Move.

### 3.8. *Ga/no* conversion and NP-deletion

The whole discussion in this chapter is based on the claim that the genitive phrase movement into its Case position is sometimes overt and sometimes covert. In this last section of the chapter, I discuss Saito and Murasugi's (1990, 1993) analysis of NP deletion in Japanese and see how it interacts with our analysis.<sup>38</sup>



Saito and Murasugi (1990) argue that examples such as (88a) involve NP-deletion, as shown in (88b).

- (88) a. Taro-no kenkyuu-ni taisuru taido-wa ii ga,  
 Taro-Gen research-Dat toward attitude-Top good but  
 Hanako-no-wa yoku-nai  
 Hanako-Gen-Top good-not  
 'Taro's attitude toward research is good, but Hanako's is not'
- b. [<sub>DP</sub> Taro-no [<sub>NP</sub> [<sub>P</sub> t kenkyuu-ni taisuru] taido]-wa ii ga,  
 Taro-Gen research-Dat toward attitude-Top good but  
 [<sub>DP</sub> Hanako-no [<sub>NP</sub> ]]-wa yoku-nai  
 Hanako-Gen-Top good-not  
 'Taro's attitude toward research is good, but Hanako's is not'

Saito and Murasugi (1993), however, revise this analysis by postulating the following pre-deletion structure of (88a):<sup>39</sup>

- (89) [<sub>DP</sub> Taro-no<sub>i</sub> [<sub>NP</sub> [pro<sub>i</sub> kenkyuu-ni taisuru] taido]-wa ii ga,  
 Taro-Gen research-Dat toward attitude-Top good but  
 [<sub>DP</sub> Hanako-no<sub>j</sub> [<sub>NP</sub> pro<sub>j</sub> taido]]-wa yoku-nai  
 Hanako-Gen attitude-Top good-not

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<sup>38</sup> I am grateful to Kazuki Kuwabara (p.c.) for bringing my attention to this issue.

<sup>39</sup> Saito and Murasugi (1993) postulate PRO instead of pro. I will use the latter.

This structure corresponds to what we dubbed as “control” structure in section 3.6. This revision by Saito and Murasugi (1993) is based on the grammaticality of examples such as the following.

- (90) [[John-ga Mary-ni yoseru] sinrai]-wa [Bill-no e] yorimo atui  
 John-Nom Mary-Dat have trust-Top Bill-Gen than deep  
 ‘The trust that John has in Mary is deeper than Bill’s e’

The grammaticality of this example is rather surprising for the analysis of Saito and Murasugi (1990), since apparently, the identity required for NP-deletion is not met here; the antecedent phrase does not contain a genitive phrase.

One possibility, which is rejected by Saito and Murasugi (1993), is to assign (90) the following pre-deletion structure.

- (91) [<sub>DP</sub> [John-ga<sub>i</sub> Mary-ni yoseru] [<sub>NP</sub> pro<sub>i</sub> sinrai]]-wa  
 John-Nom Mary-Dat have trust-Top  
 [<sub>DP</sub> Bill-no<sub>j</sub> [<sub>NP</sub> t<sub>j</sub> sinrai]] yorimo atui  
 Bill-Gen trust than deep

Assuming with Lasnik and Saito (1992) that *promise* is ambiguous between a control predicate and a raising predicate,<sup>40</sup> Saito and Murasugi (1993) demonstrate that A-trace and PRO (or pro) do not count as identical for the purpose of deletion. The (a)-examples below are the pre-deletion structures for the (b)-examples, which are ungrammatical.

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<sup>40</sup> For instance, *promise* can take part of an idiom chunk as its subject.

(i) ?Headway promises [t to be made by John]

- (92) a. John promises [t to be successful], and Mary actually promised [PRO to be successful]  
 b. \*John promises [t to be successful], and Mary actually did
- (93) a. John often promises [PRO to be successful], but Mary is the one who really promises [t to be successful]  
 b. \*John often promises [PRO to be successful], but Mary is the one who really does

On the basis of this fact, Saito and Murasugi (1993) claim that (90) has the following as a pre-deletion structure.

- (94) [<sub>DP</sub> [John-ga<sub>i</sub> Mary-ni yoseru] [<sub>NP</sub> pro<sub>i</sub> sinrai]]-wa  
 John-Nom Mary-Dat have trust-Top  
 [<sub>DP</sub> Bill-no<sub>j</sub> [<sub>NP</sub> [pro<sub>j</sub> sinrai]] yorimo atui  
 Bill-Gen trust than deep

This hypothesis is indeed confirmed by the following data.

- (95) a. Kenkyuu-ni taisuru Taro-no taido-wa ii  
 research-Dat toward Taro-Gen attitude-Top good  
 'Taro's attitude toward the research is good'
- b. [[pro<sub>i</sub> kenkyuu-ni taisuru] Taro-no<sub>i</sub> taido]  
 research-Dat toward Taro-Gen attitude

Here the prenominal clause precedes the genitive phrase *Taro-no* 'Taro-Gen' and the example is acceptable. This shows that the "control" structure is available.

Given this much of discussion, let us consider more data which involve gapless clauses occurring with nouns like *kanousei* 'probability'. As discussed in section 3.6, *kanousei* does not allow base-generation of "possessors" (at least inanimate "possessors" such as *rubii* 'ruby'). Hence we will only have the raising structure. In particular, compare the following two examples.

- (96) a. Taro-wa kinoo, rubii-no rainen yasuku-naru kanousei-to  
 Taro-Top yesterday ruby-Gen next year cheap-become probability-and  
 shinju-no-(to-)o hikaku-shita  
 pearl-Gen-and-Acc compare-did  
 'Yesterday Taro compared the probability that the ruby becomes cheap next year and the pearl's'
- b. ??Taro-wa kinoo, rainen rubii-no yasuku-naru kanousei-to  
 Taro-Top yesterday next year ruby-Gen cheap-become probability-and  
 shinju-no-(to-)o hikaku-shita  
 pearl-Gen-and-Acc compare-did

The contrast in (96) is predicted under the analysis of this chapter. (96b) is not acceptable because the genitive subject is not raised in the antecedent clause, which is clear from the fact that *rubii-no* 'ruby-Gen' follows the modifier *rainen* 'next year,' which is an element of the prenominal clause. (97) below shows the structures of the relevant  $AGR_P/NP$  of (96).

- (97) a. [ $_{AGRDP}$  rubii-no [ $_{NP}$  [ $_{IP}$  t rainen yasuku-naru] kanousei]  $AGR_P$ ]  
 ruby-Gen next year cheap-become probability  
 [ $_{AGRDP}$  shinju-no [ $_{NP}$  [ $_{IP}$  t rainen yasuku-naru] kanousei]  $AGR_P$ ]  
 pearl-Gen next year cheap-become probability

- b.     [<sub>NP</sub> [<sub>P</sub> rainen    rubii-no   yasuku-naru]   kanousei]  
           next year ruby-Gen   cheap-become probability  
       [<sub>AGRDP</sub> shinju-no [<sub>NP</sub> [<sub>P</sub> rainen    t yasuku-naru]   kanousei] AGR<sub>D</sub>]  
           pearl-Gen        next year   cheap-become probability

Also, unlike (90), the following example is unacceptable. This is because the “control” structure is not available in this case.

- (98)    ??Taro-wa [[Rubii-ga yasuku-naru]   kanousei]-to  
           Taro-Top   ruby-Nom cheap-become probability-and  
           [shinju-no]-(to-)o   hikaku-shita  
           pearl-Gen-and-Acc compare-did  
           ‘Taro compared the probability that the ruby becomes cheap next year and the  
           pearl’s’

Finally, this analysis makes an obvious prediction. Recall that examples such as (99), in which the genitive phrase appears at the left edge of the prenominal sentential modifier, are ambiguous due to the fact that the genitive phrase raises out of the gapless clause in overt or covert syntax.

- (99)    [[[Rubii-ka shinju]-no yasuku-naru]   kanousei]-ga  
           ruby-or   pearl-Gen cheap-become probability-Nom  
           50% izyoo da  
           50% over is  
       i.     ‘The probability that rubies or pearls become cheap is over 50%’

- ii. 'The probability that rubies become cheap or the probability that pearls become cheap is over 50%'

probability > [ruby or pearl]; [ruby or pearl] > probability

It is predicted then that this ambiguity disappears in NP-deletion contexts. Although the judgment is subtle, I believe that this prediction is borne out. In (100b), the higher scope of the genitive subject is strongly preferred (if not forced for some speakers).

- (100) a. Rubii-ka shinju-no yasuku-naru kanousei-wa 50% ijyoo da ga,  
 ruby-or pearl-Gen cheap-become probability-Top 50% over is but  
 safaia-ka diamondo-no yasuku-naru kanousei-wa 10% ika da  
 sapphire-or diamond-Gen cheap-become probability-Top 10% under is
- i 'The probability that the rubies or pearls become cheap is over 50%,  
 but the probability that sapphires or diamonds become cheap is  
 under 10%'
- ii 'The probability that rubies become cheap or the probability that  
 pearls become cheap is over 50%, but the probability that sapphires  
 become cheap or the probability that diamonds become cheap is  
 under 10%'
- b. Rubii-ka shinju-no yasuku-naru kanousei-wa 50% ijyoo da ga,  
 ruby-or pearl-Gen cheap-become probability-Top 50% over is but  
 [safaia-ka diamondo-no g]-wa 10% ika da  
 sapphire-or diamond-Gen -Top 10% under is
- i ??'The probability that the rubies or pearls become cheap is over  
 50%, but the probability that sapphires or diamonds become cheap  
 is under 10%'

- ii 'The probability that rubies become cheap or the probability that pearls become cheap is over 50%, but the probability that sapphires become cheap or the probability that diamonds become cheap is under 10%'

### 3.9 Conclusion

To summarize, I first argued that *ga/no* conversion in Japanese and the ECM in English show a parallel behavior and hence should be given a unified account. In particular, I proposed a modification of Miyagawa's (1993) analysis of *ga/no* conversion by arguing that the genitive subject within the prenominal gapless clause raises into its Case position overtly or covertly, which has the desired consequences on both empirical and conceptual grounds. I claimed that the technical implementation of the optionality suggested by Lasnik (1998) can be extended to Japanese *ga/no* conversion if we take Abney's (1987) original conception of the DP hypothesis. In addition, we saw that the postulation of a functional category with the EPP property receives empirical support from data with nominative/genitive object.

It was further shown in section 3.6 that when the genitive subject originates within a relative clause, it raises only in covert syntax, much in line with Miyagawa's (1993) original position. This non-uniform behavior of genitive phrases is argued to follow from the distinction between the two clausal modifiers; prenominal gapless clauses are true complements whereas relative clauses are adjuncts. Given this distinction, the fact that covert A-movement out of the relative clause is allowed is somewhat surprising, but is in fact expected under Attract F. Just like argument *wh*-in-situ in Japanese, movement of genitive subject is subject to the 'closest' requirement on Attract F (the Minimal Link Condition), while it is allowed to take place across non-RM type islands such as the adjunct domain.

## **Chapter 4**

### **The Syntax of Adjunct Wh-NPs and Feature Strength**

#### **4.1 Introduction**

Throughout the thesis, I am assuming the virus theory of feature strength. As discussed briefly in chapter 1, this particular approach virtually forces a strong feature to be a property of the target of movement rather than of the moving item. Notice, however, that nothing in principle precludes the possibility that a strong feature resides in the moving item. I will argue in this chapter that there are in fact adjunct wh-phrases across languages which are best analyzed as having strong features. Several theoretical consequences will follow from this analysis.

#### **4.2 On adjunct wh-NPs**

This chapter investigates the type of wh-questions discussed by Kurafuji (1996a, b, 1997), in which the wh-word used is ‘what,’ but in which the interpretation is best translated as ‘why.’<sup>1</sup>

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<sup>1</sup> This work presented here would have been impossible without the help of many individuals. In particular, I thank Klaus Abels, Adolfo Ausín, Sigrid Beck, Cedric Boeckx, Željko Bošković, Edit Doron, Miriam Engelhardt, Hajime Hoji, Pai-Ling Hsiao, Tina Hsin, Howard Lasnik, Shigeru Miyagawa, Nobu Miyoshi, Jairo Nunes, Rosanne Pelletier, Yael Sharvit, Penka Stateva, Arthur Stepanov, Sandra Stepanović, Koji Sugisaki, Juan Uriagereka, and Saša Vukić.



- (1) John-wa naze/nani-o awateteiru no  
 John-Top why/what-Acc panicking Q  
 'Why is John panicking' (Japanese)

The presence of *nani-o* 'what-Acc' is curious, since *awateru* 'panic' does not take a direct object.

- (2) \*John-wa asita-no siken-o awateteiru  
 John-Top tomorrow-Gen exam-Acc panicking  
 'John panicking for/because of tomorrow's exam'

Anticipating the discussion in the next section, where it will be shown that this "adjunct-like" wh-NP is truly an adjunct, let us refer to this type of 'what' as the adjunct wh-NP.

Kurafuji (1997) reports that this type of wh-question is also found in Russian and Modern Greek.

- (3) a. Počemu/Čto ty smejoshsja (Russian)  
 why/what you laugh  
 'Why do you laugh'
- b. Giati/Ti trehi esti aftos (Modern Greek)  
 why/what runs so he  
 'Why is he running like this' (see Kurafuji 1996a, b, 1997)

There are in fact more languages which allow the adjunct *wh*-NP. First, Chinese allows *sheme* 'what' to be interpreted as 'why,' as shown in (5).<sup>2</sup> Note that predicates such as *pao* 'run' do not allow the direct object (5b).

- (4) a. John *weisheme* *pao*  
       John why       run  
       'Why is John running'
- b. John *wei-le zhege yuanying* *pao*  
       John for    this   reason   run  
       'John is running for this reason'
- (5) a. John *pao sheme*  
       John run what  
       'Why is John running'
- b. \*John *pao jiankang / zhege yuanying*  
       John run health /   this   reason  
       'John is running for health/this reason' (Chinese)

Chinese data are particularly enlightening, since they show that *weisheme* 'why' in (4a) and the adjunct *wh*-NP *sheme* 'what' in (5a) occur in different positions. I will return to this point shortly.

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<sup>2</sup> Kurafuji (1996a) claims that Chinese does not have the adjunct *wh*-NP, based on the ungrammaticality of (i).

- (i) \*Ni *weisheme*/\**sheme* *kude zheme lihai*  
       you why/what       cry so   much  
       'Why do you cry so much'

As can be seen in (5), however, the adjunct *wh*-NP does occur in Chinese, but is restricted to a postverbal position.

There are also more wh-fronting languages which allow adjunct wh-NPs; German, Hebrew, Bulgarian, and Serbo-Croatian.

- (6) Ich frage mich, warum/was Hans so gestresst ist  
 I ask myself why/what Hans that stressed is  
 'I wonder why Hans is so stressed' (German)
- (7) a. Lama/Ma ata rac  
 why/what you run  
 'Why are you running' (Hebrew)
- b. Lama/Ma ata kore et ha-sefer ha-ze  
 why/what you read Acc the-book the-this  
 'Why are you reading this book'
- (8) a. Zašto/Kakvo si se umârlusila  
 why/what aux self get down  
 'Why are you so depressed?' (Bulgarian)
- (9) a. Zašto/Šta si ustao tako rano  
 why/what have get up so early  
 'Why did you get up so early' (Serbo-Croatian)

It will be shown below that the adjunct wh-NP in wh-in-situ languages and its counterpart in wh-fronting languages exhibit different properties. I will argue, however, that such differences can be attributed to one simple syntactic difference in the two language groups: the merging site of the adjunct wh-NP.

Although why-questions and what-questions are often synonymous, the two are not identical. For instance, wh-questions with the adjunct wh-NP are most appropriate in a context in which the speaker is emotionally affected (i.e., puzzled, annoyed, etc.) to a certain degree. For instance, (10b), with *nani-o* 'what,' is best uttered in a situation in

which the speaker is annoyed or surprised by John's running. In this sense, it is more appropriate to translate *nani-o* in (10b) as "why the hell."

- (10) a. John-wa naze hashitteru no  
 John-Top why running Q  
 'Why is John running'
- b. John-wa nani-o hashitteru no  
 John-Top what-Acc running Q  
 'Why the hell is John running'

Note that (10a) can be used in the same set of contexts suitable for (10b), but it is also felicitous in emotionally neutral contexts. This point holds in every language listed above; the use of the adjunct wh-NP is restricted by some pragmatic factors.

It is worth considering at this point whether questions employing adjunct wh-NPs are true questions rather than rhetorical questions. The fact that adjunct wh-NPs occur within complements of verbs which select interrogative clauses indicates that they are true wh-phrases.<sup>3</sup>

- (11) a. Japanese  
 Boku-wa [John-ga nani-o hashitteiru (no) ka] Tom-ni tazuneta  
 I-Top John-Nom what-Acc running Q Tom-Dat asked  
 'I asked Tom why John is running'

---

<sup>3</sup> In addition, wh-in-situ languages allow multiple wh-questions with the adjunct wh-NP, suggesting that it is a wh-phrase. See section 4.5 for discussion.

- (i) Dare-ga naze/nani-o sawaideiru no  
 who-Nom why/what-Acc clamoring Q  
 'Who is clamoring why' (Japanese)

## b. Chinese

Wo xiang-zhidao John po sheme

I wonder John run what

'I wonder why John is running'

## c. German

Ich frage mich, was Hans so gestresst ist

I ask myself what Hans that stressed is

'I wonder why Hans is so stressed'

### 4.3 Adjunct wh-NPs in wh-in-situ languages

#### 4.3.1 Adjunct wh-NPs as VP-level adjuncts in wh-in-situ languages

The adjunct wh-NP bears an accusative Case particle *-o* in Japanese. Does this show that what we are calling the adjunct wh-NP is an argument (complement) of a verb, not an adjunct? Focusing on wh-in-situ languages, this section provides evidence that this phrase is an adjunct which is base-generated within VP in Japanese and Chinese.

One piece of evidence for the adjunct status of the adjunct wh-NP is provided by the fact that the adjunct wh-NP occurs with a direct object in transitive constructions (see Kurafuji 1997).

(12) a. John-wa nani-o monku-o itteiru no

John-Top what-Acc complaint-Acc say Q

'Why is John complaining'

b. John-wa nani-o hara-o tateteiru no

John-Top what-Acc belly-Acc make Q

'Why is John angry'

Note that these examples are fine, despite the fact that there are two nouns with *-o*, which usually leads to ill-formedness (i.e., the double *-o* constraint). It is also known, however, that double *-o* is allowed when one of the *-o* phrases is an adjunct (see Kuroda 1992: chapter 6). Let me illustrate this point below. In Japanese, causee can normally be marked with either the dative marker *-ni* or the accusative marker *-o*.

- (13) John-ga Mary-ni/-o aruk-ase-ta  
 John-Nom Mary-Dat/-Acc walk-Caus-Past  
 'John made Mary walk'

When the embedded clause contains an accusative object, the causee cannot be marked with *-o*, which is due to the constraint on double *-o*.

- (14) a. Mary-ga hon-o yonda  
 Mary-Nom book-Acc read  
 'Mary read a book'
- b. John-ga Mary-ni/\*-o hon-o yom-ase-ta  
 John-Nom Mary-Dat/\*-Acc book-Acc read-Caus-Past  
 'John made/let Mary read a book'

However, the effect of this constraint is much weaker when one of the *-o* marked phrases is an adjunct.

- (15) a. Mary-ga hamabe-o arui-ta  
 Mary-Nom shore-Acc walk-Past  
 'Mary walked on the shore'

- b. John-ga Mary-ni/?o hamabe-o aruk-ase-ta  
 John-Nom Mary-Dat/?-Acc shore-Acc walk-Caus-Past  
 'John made/let Mary walk on the shore'

Returning to (12), the well-formedness of these examples demonstrates the adjunct status of the adjunct wh-NP.

The second piece of evidence for the adjunct status of the adjunct wh-NP comes from paradigms using a floating numeral quantifier (NQ) *oozei* 'many' in Japanese. It is known that there is an argument/adjunct asymmetry with respect to the element which can occur between subject and the subject-oriented NQ; an argument such as the direct object cannot occur between the two while some adjuncts can.<sup>4</sup> Thus, (16a) is fine, where the adjunct wh-phrase *naze* 'why' occurs between *kodomo-tachi* 'children' and the NQ *oozei* 'many.' In contrast, (16b), in which the argument *nani-o* 'what' intervenes between the subject and the subject-oriented NQ, is degraded. As illustrated in (16c), the adjunct wh-NP behaves like an adjunct in this respect, thus confirming the adjunct status of *nani-o* 'what-Acc' in (16c).

- (16) a. Asoko-de Kodomo-tachi-ga naze oozei hashaideru no  
 There-at child-pl-Nom why many clamoring Q  
 'Why are many children clamoring over there'
- b. \*Asoko-de Kodomo-tachi-ga nani-o oozei tsukutteiru no  
 There-at child-pl-Nom what-Acc many making Q  
 'What are many children making over there'

---

<sup>4</sup> It remains to be seen how to account for this argument/adjunct asymmetry.

- c. Asoko-de Kodomo-tachi-ga nani-o oozei hashaideru no  
 There-at child-pl-Nom what-Acc many clamoring Q  
 'Why are many children clamoring over there'

I therefore conclude that the adjunct wh-NP is a true adjunct.

Having established the adjunct status of the adjunct wh-NP, I now provide arguments that the adjunct wh-NP is a VP-level adjunct in wh-in-situ languages. One clear piece of evidence for this claim comes from Chinese. As we saw above, the adjunct wh-NP *sheme* 'what' occurs postverbally, unlike *weisheme* 'why.'

- (17) a. John weisheme pao  
 John why run  
 'Why is John running'
- b. John pao sheme  
 John run what  
 'Why is John running' (Chinese)

In transitive constructions, the adjunct wh-NP occurs between the verb and the direct object, as shown below.

- (18) a. John qiao sheme men  
 John knock what door  
 'Why is John knocking on the door'
- b. ?John qiao men qiao sheme  
 John knock door knock what  
 'Why is John knocking on the door'



Assuming with Huang (1994) that Chinese main verbs raise inside the VP-shell but do not raise out of VP, I conclude that the adjunct wh-NP *sheme* 'what' occurs within VP.<sup>5</sup>

As for the base-generation site of adjunct wh-NPs in Japanese, Kurafuji (1997) provides evidence that it occurs rather low in the clausal structure. For example, the adjunct wh-NP in Japanese is subject to inner island effects induced by the clausemate negation, unlike *naze* 'why.'

- (19) a. Taro-wa naze awatetei-nai no  
 Taro-Top why panic-not Q  
 'Why is Taro not panicking'
- b. \*Taro-wa nani-o awatetei-nai no  
 Taro-Top what-Acc panic-not Q  
 'Why is Taro not panicking'

The contrast above follows if *naze* 'why' is base-generated in a position higher than negation while the adjunct wh-NP is base-generated in a position lower than negation, such as within a VP.

Data involving VP-fronting support the hypothesis that the adjunct wh-NP occurs within VP in Japanese as well. As shown in (20b-c), there is an asymmetry between subject and object when VP-fronting applies; subject but not object can be stranded. I follow Yatsushiro (1997) and attribute the ill-formedness of (20c) to the Proper Binding

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<sup>5</sup> The distribution of *sheme* 'what' is parallel to that of nominal duration adverbs (i), thereby confirming the adjunct status of *sheme* 'what.'

- (i) a. John qiao-le san-ci men  
 John knock-ASP three-times door  
 'John knocked on the door three times'
- b. John qiao men qiao-le san-ci  
 John knock door knock-ASP three-times  
 'John knocked on the door three times'

Condition (PBC), as shown in (21). In contrast, (20b) does not violate the PBC, assuming that subject in Japanese has the option of being merged directly with AGRs (see chapter 3).

- (20) a. John-ga hon-o uri-sae shita  
 John-Nom book-Acc sell-even did  
 'John even sold books'
- b. Hon-o uri-sae John-ga shita  
 book-Acc sell-even John-Nom did
- c. \*Uri-sae John-ga hon-o sita  
 sell-even John-Nom book-Acc did

- (21) [<sub>VP</sub> t<sub>i</sub> sell]<sub>j</sub> John book<sub>i</sub> t<sub>j</sub> did

Now consider (22) and (23). The (a)-examples serve as the base-line data for the (b)-examples. (22b) involves a predicate fronting which strands *naze* 'why' and it is grammatical. In contrast, (23b), which is similar to (22b) but strands the adjunct wh-NP *nani-o* 'what,' is ungrammatical.

- (22) a. John-wa naze kodomo-ni tsuraku-atari-sae shiteiru no  
 John-Top why child-Dat badly-treat -even doing Q  
 'Why is John even treating his child badly'
- b. [Kodomo-ni tsuraku-atari]-sae John-wa naze shiteiru no  
 child-Dat badly-treat-even John-Top why doing Q  
 '[Even treating his child badly], why is he doing t?'

- cf.     **Naze kodomo-ni tsuraku-atari-sae John-wa shiteiru no**  
           **why child-Dat treat badly-even John-Top doing Q**
- (23) a.     **John-wa nani-o kodomo-ni tsuraku-atari-sae shiteiru no**  
           **John-Top what-Acc child-Dat badly-treat-even doing Q**  
           **'Why is John even treating his child badly'**
- b.     **\*[Kodomo-ni tsuraku-atari]-sae John-wa nani-o shiteiru no**  
           **child-Dat badly-treat-even John-Top what-Acc doing Q**  
           **'[Even treating his child badly], why is he doing t'**
- cf.     **Nani-o kodomo-ni tsuraku-atari-sae John-wa shiteiru no**  
           **what-Acc child-Dat badly-treat-even John-Top doing Q**

I claim that (23) is excluded for the same reason as (20c) (the PBC for Yatsushiro (1997)).  
 The data here show that the adjunct wh-NP in Japanese is base-generated within VP.

#### 4.3.2 Remarks on Kurafuji's (1997) analysis

Let us examine Kurafuji's (1997) analysis. Based on the fact that the adjunct wh-NP is sensitive to the inner island effect induced by the clausemate negation, Kurafuji argues that this wh-phrase is base-generated lower than the negation, a point for which I provided additional evidence from Chinese and Japanese. However, Kurafuji's claim is somewhat different from mine. He argues that the adjunct wh-NP in Japanese is base-generated in a position where its accusative Case is checked off (i.e., the spec of AGRoP or  $\bar{y}P$ ), which is lower than negation. This claim and my claim that the adjunct wh-NP is base-generated within VP can be made compatible if we adopt the split VP hypothesis of Koizumi (1995), where each VP-shell is immediately dominated by a functional head (AGR head). For instance, the specifier of AGRP2 in (24) is a Case checking position within VP.

(24)  $[_{\text{AGRP1}} \text{AGR1 } [_{\text{VP1}} \text{V1 } [_{\text{AGRP2}} \text{AGR2 } [_{\text{VP2}} \text{V2 } \dots$

Nevertheless, there are reasons to doubt that the adjunct wh-NP is base-generated in the accusative Case checking position (even in Japanese). Let us consider in more detail the reasoning behind Kurafuji's claim. It is based on the premise that the adjunct wh-NP has a structural (accusative) Case to be checked off. Kurafuji then argues that since the adjunct wh-NP is an adjunct, the position where it is base-generated is an A-bar position. Then, if the adjunct wh-NP were base-generated in a non-Case checking A-bar position, then this wh-NP would have to move from the A-bar position to an A-specifier position (such as the spec of AGRoP or yP) in order to check off its accusative Case feature. However, movement from an A-bar position to A-position is not found cross-linguistically.<sup>6</sup> Kurafuji therefore concludes that the adjunct wh-NP must be generated in the position where its Case is checked off (without movement).

A few remarks are in order. First, it is doubtful that the adjunct wh-NP in general needs (accusative) Case, despite the fact that the accusative Case marker is visible in Japanese (*nani-o* 'what-Acc'). I agree with Kurafuji that the adjunct wh-NP does not occur in passive clauses where there is no accusative Case available.

- (25) \*John bei ma(-le) sheme  
 John PASS scold-Asp what  
 'Why is John scolded' (Chinese)

---

<sup>6</sup> As Željko Bošković (p.c.) points out, examples such as (i) are counterexamples to this claim, assuming that *yesterday* originates in an A-bar position in NP.

(i)  $[_{\text{NP}} \text{Yesterday's } [_{\text{NP}} \text{destruction of the city } t]]$

- (26) \*Šta ste toliko istuceni  
 'What are you so much beaten' (SC)

However, the adjunct *wh*-NP occurs with unaccusatives (contrary to Kurafuji's claim). In Russian, genitive of negation serves as a test for unaccusativity. As discussed by Pesetsky (1982), those arguments which are in the object position at some point in the derivation (including subjects of accusatives and passives) can optionally be marked with genitive when there is a negation present in the same clause. Thus, the direct object (27) and the subject of unaccusatives (28b) can be marked with genitive, while the subject of intransitives cannot (29b).

- (27) Ja ne polučal pis'ma/pisem  
 I Neg received letters (acc pl)/letters (gen pl)  
 'I didn't receive letters'
- (28) a. Otvet iz polka ne prixel  
 answer (masc nom sg) from regiment Neg arrive (masc sg)  
 'The answer from the regiment didn't arrive'
- b. Otveta iz polka ne prixlo  
 answer (masc gen sg) from regiment Neg arrive (neut sg)
- (29) a. Takie sobaki ne kusajutsja  
 such dogs (fem nom pl) Neg bite (3 pl)  
 'Such dogs don't bite'
- b. \*Takix sobak ne kusaetsja  
 such dogs (fem gen pl) Neg bite (3 sg)

Crucially, as (30) shows, *priexal* 'arrive,' a typical unaccusative verb, occurs with the adjunct *wh*-NP. Further, Russian adjunct *wh*-NPs bear either nominative or genitive Case.

- (30) Čego/Čto                      on priexal  
 what-Gen/what-Nom he arrived  
 'Why did he arrive'

Serbo-Croatian (SC) also confirms this point. Saša Vukić (p.c.) provides a potential test for unaccusativity in SC. According to Vukić, there is a particular ending for deverbal adjectives, *-li* (in its various forms), which selects unaccusative verbs, in contrast to *-ni*, which attaches to other types of verbs such as transitives and unergatives.

- (31) a.        Transitives  
               Marko je slomio prozor                      Slomljeni prozor  
               'Marko has broken the window'               broken window
- b.        Unergatives  
               Djeca su se nasmijala                      Nasmijana djeca  
               'The children laughed'                      Laughing children
- c.        Unaccusatives  
               Gosti su dosli/stigli                      Pristigli/pridosli putnici  
               'The guests have come/arrived'               come/arrived passengers

As shown below, (potentially) unaccusative verbs in SC in fact occur with *šta* 'what.'

- (32) Šta ste dosli/stigli/ustali tako rano  
 What have come/arrive/risen so early  
 'Why have you come/arrive/risen so early'

Therefore, it is unclear whether the adjunct *wh*-NP has anything to do with accusative Case cross-linguistically.

Even if we disregard the facts from other languages and focus only on Japanese, there is evidence to suggest that the accusative Case checking position in Japanese is higher than the negation, contrary to Kurafuji's assumption. Consider the following examples discussed in the appendix 2 of chapter 2. (33) shows that the object *wh*-phrase can be attracted in the presence of the clausemate negation. As (34b) shows, however, negation does block movement of the object *wh*-phrase when the former is clearly higher than the latter.

(33) John-ga nani-o kawa-na-katta no

John-NOM what-ACC buy-NEG-past Q

'What didn't John buy'

(34) a. Hanako-wa [Taro-ga nani-o katta to] itta no

Hanako-Top Taro-Nom who-Acc bought that said Q

'What did Hanako report that Taro bought'

b. ??Hanako-wa [Taro-ga nani-o katta to] iwa-na-katta no

Hanako-Top Taro-Nom who-Acc bought that say-neg-past Q

'(??)What didn't Hanako report that Taro bought'

Based on Takahashi's (1994) insight, I argued in the Appendix 2 of chapter 2 that negation does not block the movement of *nani* 'what' in (33) because it is structurally lower than the position where the accusative Case is checked off. Hence, *wh*-movement starts out from a position higher than negation.

(35) [John [<sub>AGRoP</sub> [<sub>NegP</sub> [<sub>VP</sub> what buy] NEG] AGRo] Q]



A-movement      wh-movement

On the other hand, (34b) is degraded, since the local A-movement would not help in this case. Wh-movement necessarily starts out in a position lower than negation.

(36) [Hanako [<sub>NegP</sub> [<sub>VP</sub> [<sub>CP</sub> Taro [<sub>AGRoP</sub> [<sub>VP</sub> what buy] AGRo] C] say] NEG] Q]



A-movement      wh-movement

This shows that the accusative Case checking position is in fact higher than negation in Japanese. Hence, if the adjunct wh-NP were merged in the position where accusative Case is checked (as Kurafuji claims), we would expect that the adjunct wh-NP does not show inner island effects induced by a clausemate negation, contrary to the fact. I thus suggest that adjunct wh-NPs are not structurally Case-marked, merely speculating that these nominal wh-phrases are inherently case-marked in a way similar to bare NP adverbs.<sup>7</sup>

One final note about Kurafuji's analysis. Assuming that the accusative Case checking position is outside VP, Kurafuji provides an argument for his claim that adjunct wh-NPs originate in a position outside the VP. His main argument for this claim comes from some Japanese data involving (what he regards as) VP-fronting, as shown in (37).

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<sup>7</sup> See Larson (1985), Fowler and Yadoff (1993), Franks and Dziwirek (1993) among others for discussion of Case properties of adjunct NPs.



- (37) Saikin-no gakusei-wa sasaina riyuu-de kenkyuu-o yameru  
 Recent-Gen student-Top trivial reason-for research-Acc quit  
 [Gakkoo-o yame]-sae karera-wa sasaina riyuu-de suru  
 school-Acc quit-even they-Top trivial reason-for do

'These days, students give up their research for trivial reasons. Even leave school, they do for trivial reasons.'

Kurafuji's point is that the reason-phrase *sasaina riyuu-de* 'for trivial reasons' is not included in the fronted constituent, which is assumed by Kurafuji to be a whole VP. Hence, the adjunct wh-NP must be base-generated outside VP.

However, this argument is not conclusive for several reasons. First, this argument holds only if the adjunct wh-NP and other reason phrases are base-generated in the same position. However, we already know from Chinese that the typical reason adjunct wh-phrase *weisheme* 'why' and the adjunct wh-NP *sheme* 'what' occur in distinct syntactic positions. The former occurs VP-externally while the latter occurs VP-internally. Thus, it is not clear to which adjunct wh-phrase the reason phrase in (37) corresponds.

In addition, there is a reason to doubt that the movement of the sort employed in (37) necessarily affects the whole VP. As (38b) from Yatsushiro (1997) shows, not all elements of VP need to be fronted. Here, the dative object *Tom-ni* 'to Tom' is stranded and the example is fine.

- (38) a. John-ga Tom-ni Mary-o syookai-shita  
 John-Nom Tom-Dat Mary-Acc introduce-did  
 'John introduced Mary to Tom'
- b. [Peter-o syookai-shi]-sae kare-wa Tom-ni shita  
 Peter-Acc introduce-do-even he-Top Tom-Dat did  
 'Even introduce Peter, he did to Tom'

One might argue that (38b) involves scrambling of the dative object *Tom-ni* 'to Tom' followed by movement of the VP which contains the trace of the dative object, as shown in (39).

- (39) [t<sub>i</sub> Peter-o syookai-shi]-sae kare-wa Tom-ni<sub>i</sub> shita  
 Peter-Acc introduce-do-even he-Top Tom-Dat did

As Yatsushiro points out, however, this line of approach fails to distinguish (39) from the ungrammatical (40), which strands the accusative object instead.

- (40) \*[Bill-ni t<sub>i</sub> syookai-shi]-sae kare-wa Mary-o<sub>i</sub> shita.  
 Bill-Dat introduce-do-even he-Top Mary-Acc did  
 'Even introduce to Bill, he did Mary.'

Let us assume with Yatsushiro (1997) that (40) is ruled out as a violation of the Proper Binding Condition. Then, (38b) must be derived by affecting a verbal constituent smaller than the full VP.

Returning to (37), the fact that the reason phrase *sasaina riyuu-de* 'for trivial reasons' in (37b) is not preposed along with the fronted constituent does not rule out the possibility that it originates within VP. Hence, Kurafuji's argument that the adjunct wh-NP is base-generated outside VP is not conclusive.

To sum up, I agree with Kurafuji (1997) that the adjunct wh-NP is base-generated quite low in the clausal structure (i.e., lower than *naze* 'why'). Departing from Kurafuji's specific points, however, I provided empirical arguments that in both Chinese and Japanese, the adjunct wh-NP is base-generated as an adjunct within the VP.

#### 4.4 wh-in-situ languages vs. wh-fronting languages

Having established that the adjunct wh-NP is an adjunct within VP in Japanese and Chinese, let us compare the two language groups; wh-in-situ languages and wh-fronting languages. As will be shown, the adjunct wh-NP exhibits different properties in the two language groups.

##### 4.4.1 Locality

Locality is one aspect in which adjunct wh-NPs in the two language groups show distinct properties. Let us consider wh-in-situ languages first. In Japanese, the adjunct wh-NP shows the locality of *naze* 'why,' as pointed out by Kurafuji (1997). It can be construed non-locally, as long as there is no island (41). As shown in (42), Chinese adjunct wh-NP shows the same pattern.

- (41) a. Kimi-wa [John-ga nani-o awateteiru to] omou no  
           you-Top John-Nom what-Acc panicking that think Q  
           'Why do you think that John is panicking'
- b. \*Kimi-wa [[nani-o awateteiru] hito]-o shikatta no  
           You-Top what-Acc panicking person-Acc scolded Q  
           '\*Why did you scold [a person [who was panicking t]]'
- c. \*Kimi-wa [John-ga nani-o awateteiru kadooka] tazuneta no  
           you-Top John-Nom what-Acc panicking whether asked Q  
           '\*Why did you ask [whether John is panicking t]'
- d. \*Kimi-wa [John-ga nani-o awateta toki] okotta no  
           you-Top John-Nom what-Acc panicked when angry Q  
           '\*Why did you get angry [when John panicked t]'

- (42) a. (?)Ni renwei John qiao sheme men  
           you think John knock what door  
           ‘Why do you think [John is knocking on the door t]’
- b. \*Ni taoyen [[e qiao sheme men]-de ren]  
           you hate knock what door DE person  
           \*‘Why do you hate [a person who knocks on the door t]’

Turning to wh-fronting languages, it turns out that the interpretation of the adjunct wh-NP is strictly clause-bound, which is confirmed on a cross-linguistic scale. This distinguishes the adjunct wh-NP from other adjunct wh-phrases, including ‘why.’ In the following examples from German, Serbo-Croatian, and Hebrew, the (a)-examples (with regular adjunct wh-phrases ‘why’) are ambiguous whereas the (b)-examples (with the adjunct wh-NP) are not.

- (43) a. Warum glaubst du daß er so lange schlafat  
           why believe you that he so long sleeps  
           ‘Why do you believe [that he sleeps so long] t’  
           ‘Why do you believe [that he sleeps so long t]’
- b. Was glaubst du daß er so lange schlafat  
           what believe you that he so long sleeps  
           ‘Why do you believe [that he sleeps so long] t’  
           \*‘Why do you believe [that he sleeps so long t]’ (German)
- (44) a. Zašto Petar tvrdi da se Ivan pokunjio  
           why Peter claims that self Ivan got-depressed  
           ‘Why does Peter claim [that Ivan is depressed] t’  
           ‘Why does Peter claim [that Ivan is depressed t]’

- b.     **Šta Petar tvrdi da se Ivan pokunjo**  
           what Peter claims that self Ivan got-depressed  
           ‘Why does Peter claim [that Ivan is depressed] t’                   (SC)  
           \*‘Why does Peter claim [that Ivan is depressed t]’
- (45) a.   **Lama ata xoSev Se dani azav**  
           why you think that Dani left  
           ‘Why do you think that Dani left’                   (ambiguous)
- b.   **Ma ata xoSev Se dani azav**  
           what you think that Dani left  
           ‘Why do you think that Dani left’                   (matrix reading only) (Hebrew)

#### 4.4.2 Multiple wh-questions

The second aspect in which the two language groups differ is multiple wh-questions. Wh-in-situ languages allow multiple wh-questions with the adjunct wh-NP. (46) indicate that both *naze* ‘why’ and the adjunct wh-NP *nani-o* ‘what’ occur in multiple wh-questions (see Kurafuji 1996a, b).<sup>8</sup> Chinese shows the same pattern (47).<sup>9</sup>

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<sup>8</sup> As noted by Kurafuji, the adjunct wh-NP in Japanese exhibits anti-superiority effects (on a par with *naze* ‘why’). In fact, the effect seems even stronger in (ib) than in (ia).

- (i)    a.     ?*\*Naze dare-ga awateteru no*  
               why who-Nom panicking Q  
               ‘Who is panicking why’  
       b.     *\*Nani-o dare-ga awateteru no*  
               what-Acc who-Nom panicking Q

<sup>9</sup> A word is in order regarding Chinese data. Some speakers do not accept multiple wh-questions to begin with. Thus, the data reported here only applies to those who accept multiple wh-questions. Crucially, those speakers who accept (47a) also accept (47b).

- (46) a. Dare-ga naze awateteru no  
 who-Nom why panicking Q  
 'Who is panicking why'
- b. Dare-ga nani-o awateteru no  
 who-Nom what-Acc panicking Q  
 'Who is panicking why'
- (47) a. Shei weisheme qiao men  
 who why knock door  
 'Who is knocking on the door why'
- b. Shei qiao sheme men  
 who knock what door  
 'Who is knocking on the door why'

However, wh-fronting languages disallow the adjunct wh-NP in multiple wh-questions. In (48-51), the (a)-examples are fine with 'why,' as opposed to the (b)-examples with the adjunct wh-NP. Note further that Serbo-Croatian does not show superiority effects in simple matrix questions (see Bošković 1997a), as shown in (52a-b). As (52c-d) illustrate, multiple wh-questions with the adjunct wh-NP are ungrammatical irrespective of the order of wh-phrases.

- (48) a. Koj zašto je zamil taja kola  
 who why her za-wash this car  
 '\*Who is washing this car why'
- b. \*Koj kakvo je zamil taja kola  
 who what her za-wash this car (Bulgarian)

- (49) a. ?Wer schlaeft warum so lange  
           who sleeps why so long  
           ‘\*Who sleeps why so long’  
       b. \*Wer schlaeft was so lange  
           who sleeps what so long (German)
- (50) a. ?Kto zachem toropitsja  
           who why hurrying  
           ‘\*Who is hurrying why’  
       b. \*Kto chto toropitsja  
           who what hurrying (Russian)
- (51) a. ??Mi memaher lama  
           who hurrying why  
           ‘Who is hurrying why’  
       b. \*Mi memaher ma  
           who hurrying what (Hebrew)
- (52) a. Ko se zašto pokunjio  
           who self why get-depressed  
           ‘\*Who is depressed why’  
       b. Zašto se ko pokunjio  
           why self who get-depressed  
       c. \*Ko se šta pokunjio  
           who self what get-depressed  
           ‘\*Who is depressed why’  
       d. \*Šta se ko pokunjio  
           what self who get-depressed (SC)

It is important to note here that the lack of multiple *wh*-questions in *wh*-fronting languages is not due to the semantic incompatibility between the adjunct *wh*-NP and other (ordinary) *wh*-phrases. It is true, as noted at the beginning of this chapter, that *wh*-questions with the adjunct *wh*-NP often have a rhetorical flavor. One may thus suppose that the adjunct *wh*-NP and other *wh*-phrases cannot be interpreted by the same interrogative *C*. As shown above, however, *wh*-in-situ languages do allow 'absorption' of the adjunct *wh*-NP and other *wh*-phrases, demonstrating that the lack of multiple *wh*-questions with the adjunct *wh*-NP observed in *wh*-fronting languages is not universal, hence, presumably not due to any deep semantic property.

#### 4.5 *How come* and *why* (Collins 1991)

So far, I noted two areas in which the adjunct *wh*-NP shows different properties in the two language groups. The adjunct *wh*-NP in the former group behaves like a typical adjunct *wh*-phrase. What is puzzling is the behavior of the adjunct *wh*-NP in the latter group; its locality is strictly clause-bound and it does not occur in multiple *wh*-questions.

Interestingly, these two properties are also shared by *how come* in English, as discussed by Collins (1991). As shown below, *how come* differs from *why* in that it is clause-bound (53) and does not occur in multiple *wh*-questions (54).<sup>10</sup>

- (53) a.      Why did John say Mary left              (ambiguous)  
       b.      How come John said Mary left          (matrix only)
- (54) a.      Why did John eat what

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<sup>10</sup> There is some disagreement with respect to the status of examples such as (54a). Lasnik and Saito (1984, 1992) among others find them acceptable while authors such as Epstein (1998) regard them as unacceptable. In this chapter, I will focus on the former dialect.



- b. \*How come John ate what

Let us therefore consider Collins' analysis of *how come* and see if it can be extended to the adjunct wh-NP in wh-fronting languages. Collins (1991) argues that *how come* is base-generated as a C head. This immediately accounts for the lack of subject-aux inversion in examples such as (53b); since the C position is filled with *how come*, INFL has no place to move to.

Collins further argues that the strict locality of *how come* follows from the strict locality of head movement, such as the Head Movement Constraint (HMC).

- (55) [<sub>CP</sub> [<sub>C</sub> how come] [<sub>IP</sub> John said Mary left]]

As for the lack of multiple wh-questions with *how come*, Collins adopts the following condition from Chomsky (1973).

- (56) Condition on Question Interpretation

Assign a wh-phrase not in Comp to some higher structure [<sub>COMP</sub> + wh] and interpret as in (248) where the interpretation is uniform in this COMP node (note: (248) is a rule that interprets wh-quantifiers that bind a trace).

The idea is that the interpretation of multiple wh-phrases must be 'uniform' in the sense that all wh-phrases interpreted by the same C must bind a trace. For instance, assuming that *whether* is directly merged with the interrogative C, (57) fails to satisfy (56), according to Chomsky (1973) and Collins (1991).

- (57) \*I wonder [whether C [<sub>IP</sub> John ate what]]

This example, if grammatical, would have the reading “I wonder which of these things are such that John did or didn’t eat them” (see Hornstein 1995: chapter 7). Returning to the paradigm in (54), the crucial difference between the two examples is that *how come* does not bind a trace.

Although it may be debatable whether Collins’ explanation for the lack of multiple wh-questions with *how come* holds, since the interpretation of (57) indicated above may be pragmatically odd (as Howard Lasnik (p.c.) observes), the lack of a trace/variable bound by *how come* helps us account for the fact that *how come* does not scopally interact with quantifiers. As observed by Collins, *why* interacts with quantifiers for scope, while *how come* does not.

- (58) a. Why does everyone hate John (ambiguous)  
 b. How come everyone hates John (how come > every)

Collins accounts for this contrast in the following way. Suppose that the reading in which *everyone* takes scope over a wh-phrase obtains when the former c-commands a trace/copy of the latter. (58a) is ambiguous because *why* c-commands *everyone*, and *everyone* c-commands the trace/copy of *why* in IP (or VP), as shown in (59a). On the other hand, *everyone* does not take scope over *how come* in (58b), since there is no trace of *how come*.

- (59) a. [Why<sub>i</sub> does [<sub>IP</sub> everyone hate John t<sub>i</sub>]]  
 b. [How come [<sub>IP</sub> everyone hates John]]

We find the parallel contrast between *Zašto* ‘why’ and the adjunct wh-NP *Što* ‘what’ in SC (although the contrast is somewhat subtle). This is accounted for in the same manner under the hypothesis that *Zašto* ‘why’ but not the adjunct wh-NP *Što* ‘what’ moves to the specifier of CP, thus leaving a trace in IP.

- (60) a. **Zašto je svako toliko nervozan danas** (ambiguous)  
 why is everyone so nervous today  
 'Why is everyone depressed today'
- b. **Šta je svako toliko nervozan danas** (why > every, \*every > why)  
 what is everyone so nervous today

Turning to Japanese, a *wh*-in-situ language, the adjunct *wh*-NP patterns with ordinary reason *wh*-phrases with respect to *wh*-quantifier interactions.<sup>11</sup> There is a variation among Japanese speakers. Some speakers find (61a) and (61b) unambiguous while others find both examples to be ambiguous. Although it is not clear how this variation can be explained, it suffices for my purpose to report that *naze* 'why' and *nani-o* 'what' pattern alike in Japanese.

- (61) a. **Minna-ga naze awateteiru no** (why > every, ok/\*every > why)  
 everyone-Nom why panic Q  
 'Why is everyone panicking'

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<sup>11</sup> Aoun and Li (1993: chapter 6) claim that Chinese examples such as (i) are ambiguous whereas examples such as (ii) are not. However, my informants find (i) ungrammatical (while accepting (ii)). They also reject (iii) with the adjunct *wh*-NP *sheme* 'what.' It seems that they do not accept examples in which the adjunct *wh*-phrase is c-commanded by another quantifier (which is reminiscent of Beck effect). I expect that those speakers who accept (i) would also accept (iii) (and if (i) is ambiguous, then (iii) should be, too).

- |       |                                 |                         |
|-------|---------------------------------|-------------------------|
| (i)   | <b>Meigeren dou weisheme po</b> | (ambiguous)             |
|       | everyone all why run            |                         |
|       | 'Why is everyone running'       |                         |
| (ii)  | <b>Weisheme meigeren dou po</b> | (unambiguous)           |
|       | why everyone all run            |                         |
|       | 'Why is everyone running'       |                         |
| (iii) | <b>*Meigeren dou po sheme</b>   | (Aoun and Li 1993: 165) |
|       | everyone all run what           |                         |
|       | 'Why is everyone running'       |                         |

- b. Minna-ga nani-o awateteiru no (why > every, ok/\*every > why)  
 everyone-Nom why panic Q  
 'Why is everyone panicking'

I thus conclude that *how come* and adjunct wh-NPs in wh-fronting languages (but not those in wh-in-situ languages) should be given a unified account.

Does Collins' analysis extend directly to adjunct wh-NPs? The answer is negative. We saw that in wh-in-situ languages, adjunct wh-NPs occur as adjuncts. In particular, the adjunct wh-NP in Japanese scrambles freely, indicating that it is not a (C) head.

- (62) a. John-wa nani-o awateteiru no  
 John-Top what-Acc panicking Q  
 'Why is John panicking'
- b. Nani-o John-wa awateteiru no  
 what-Acc John-Top panicking Q

The following Bulgarian example shows that the adjunct wh-NP is likewise not a C in wh-fronting languages. The adjunct wh-NP *kakvo* 'what' occurs with the interrogative C *li*.

- (63) Kakvo li te pitom  
 what C you ask-I (Bulgarian)  
 'Why on earth am I asking you (why do I even bother to ask you)'

Thus, the hypothesis that the adjunct wh-NP is a C head is not correct. Nonetheless, Collins' idea that *how come* is different from *why* in not binding a trace is an insightful one, since it offers an explanation for the lack of multiple wh-questions and wh-quantifier interactions involving adjunct wh-NPs in wh-fronting languages. Maintaining the essence

of Collins' idea, I will offer an analysis of the adjunct wh-NP (and *how come* in English), which is crucially based on feature strength in minimalism.

#### 4.6 Feature strength and the virus theory

Let us start the discussion with the adjunct wh-NP in wh-fronting languages. Recall the essence of the 'virus' theory.<sup>12</sup> According to this hypothesis, a strong feature (of a functional head) must be checked off 'as soon as possible.' I repeat Chomsky's (1995: 234) characterization of a strong feature below.

- (64) Suppose that the derivation D has formed  $\Sigma$  containing  $\alpha$  with a strong feature F. Then D is canceled if  $\alpha$  is in a category not headed by  $\alpha$ .

Now, nothing in the virus theory precludes the possibility that a strong feature resides in "moving items" such as wh-phrases. I propose that the curious properties of adjunct wh-NPs in wh-fronting languages (and *how come* in English) are due to the fact that they have a strong feature - call it the strong wh-feature - which needs to be checked against the interrogative C. The hypothesis forces the adjunct wh-NP to be merged directly with the interrogative C, upon which the strong feature of the adjunct wh-NP is checked off. If it were merged elsewhere, such as VP or IP-internally, then the derivation would not converge, since the strong wh-feature of the adjunct wh-NP could not be checked off 'immediately'; the operation Merge must merge the interrogative C with the existing structure before the adjunct wh-NP has a chance to check off its strong feature.

---

<sup>12</sup> This term should not be confused with the 'virus theory' in the sense of Sobin (1997).

- (65) a.  $[_{IP} \dots \text{what}]^{13}$   
 b.  $[_{CP} C [_{IP} \dots \text{what}]]$  Derivation canceled

This hypothesis provides a simple account for the lack of long-distance movement of adjunct *wh*-NPs. It is well established that an element in an operator position (such as the spec of CP) is “frozen” for a further movement. Consider the ungrammaticality of (66) and its possible derivation. First, the embedded interrogative C attracts the closest relevant feature, that of *who* as shown in (66a). Later in the derivation, the matrix interrogative C needs to attract the closest relevant feature. Again, it is the feature of *who*. Thus, the derivation illustrated here does not run afoul of the closest Attract, and yet the example is ungrammatical. It thus seems to be necessary to stipulate that a feature (or a phrase containing it) in an operator position is frozen for a further syntactic operation.

- (66) \*Who do you wonder bought what
- a.  $[_{CP} \text{who } C [_{IP} t \text{ bought what}]]$   
       ↑ \_\_\_\_\_|
- b. Who do you wonder  $[_{CP} t C [_{IP} t \text{ bought what}]]$   
       ↑ \_\_\_\_\_|| \_\_\_\_\_|

Hence, once the adjunct *wh*-NP is merged with the interrogative C, it is frozen for further movement.

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<sup>13</sup> If we adopt (64) literally, the derivation may be canceled at the point shown in (a), assuming that the adjunct *wh*-NP is “in” IP.

Further, the fact that the adjunct wh-NP does not occur in multiple wh-questions in wh-fronting languages follows from the fact that it does not bind a trace (see Collins' analysis of *how come*).

Note that I am assuming that regular adjunct wh-phrases in wh-fronting languages are base-generated in IP (or VP), which is why they are not frozen for movement and can occur in multiple wh-questions (as they bind a trace after they move to the spec of CP). However, nothing in my proposal prevents those regular adjunct wh-phrases from being merged directly with the interrogative C, as long as that is not forced. It could be that regular adjunct wh-phrases have more than one merging site, spec of CP and within IP. This is still compatible with my proposal. In short, the crucial difference between adjunct wh-NPs and other regular adjunct wh-NPs in wh-fronting languages is that the former must be merged with the interrogative C while the latter can but need not to be merged with the interrogative C.

Turning to Japanese and Chinese, I propose that the relevant feature of the adjunct wh-NP is not strong in these languages. Then, the adjunct wh-NP is merged in-situ (within VP). Further, there are pieces of evidence that the merger of the adjunct wh-NP with the interrogative C is not even an option in wh-in-situ languages. First, the paradigms in (22) and (23), repeated below, show that the adjunct wh-NP must be base-generated quite low in the structure (i.e., within VP, assuming that what is fronted here is a VP). If this wh-phrase could be merged elsewhere, (68b) would be predicted to be fine.

- (67) a. John-wa naze kodomo-ni tsuraku-atari-sae shiteiru no  
 John-Top why child-Dat badly-treat -even doing Q  
 'Why is John even treating his child badly'
- b. [Kodomo-ni tsuraku-atari]-sae John-wa naze shiteiru no  
 child-Dat badly-treat-even John-Top why doing Q  
 '[Even treating his child badly], why is he doing t?'

- cf.     **Naze kodomo-ni tsuraku-atari-sae John-wa shiteiru no**  
           **why child-Dat treat badly-even John-Top doing Q**
- (68) a.     **John-wa nani-o kodomo-ni tsuraku-atari-sae shiteiru no**  
           **John-Top what-Acc child-Dat badly-treat-even doing Q**  
           **‘Why is John even treating his child badly’**
- b.     **\*[Kodomo-ni tsuraku-atari]-sae John-wa nani-o shiteiru no**  
           **child-Dat badly-treat-even John-Top what-Acc doing Q**  
           **‘[Even treating his child badly], why is he doing t’**
- cf.     **Nani-o kodomo-ni tsuraku-atari-sae John-wa shiteiru no**  
           **what-Acc child-Dat badly-treat-even John-Top doing Q**

Second, recall that the adjunct *wh*-NP shows inner island effects induced by the clausemate negation as shown in (69b) (Kurafuji 1997).

- (69) a.     **Taro-wa naze awatetei-nai no**  
           **Taro-Top why panick-not Q**  
           **‘Why is Taro not panicking’**
- b.     **\*Taro-wa nani-o awatetei-nai no**  
           **Taro-Top what-Acc panick-not Q**  
           **‘Why is Taro not panicking’**

As shown below, this example does not improve in its status even if the adjunct *wh*-NP occurs sentence-initially. If *nani-o* ‘what’ has the option of being merged directly with the interrogative *C*, then (70) is expected to be good (see discussion in section 4.7.2 for more on inner island effects).



- (70) \*Nani-o Taro-wa awatetei-nai no  
 what-Acc Taro-Top panick-not Q  
 'Why is Taro not panicking'

## 4.7 Consequences

In this section, I will discuss several consequences of the proposed analysis.

### 4.7.1 *How come* revisited

The analysis presented in the last section is crucially based on Collins' analysis of *how come*, which shares the same properties with adjunct wh-NPs in wh-fronting languages. Building on Collins' insight, I argued that the strong feature of the adjunct wh-NP forces it to be merged with the interrogative C, which accounts for its inability to move and to occur in multiple wh-questions. The natural question is whether the proposed analysis can be extended to *how come*. Note that most of the properties of *how come* follow from the account proposed here if *how come* has a strong wh-feature and hence must be inserted directly into the specifier of CP. The remaining (and strongest) argument for the head (C) status of *how come* is the lack of subject-aux inversion in *how come* questions, which would be puzzling if this element is in the specifier of CP.

- (71) a. Why should you leave  
 b. \*Why you should leave
- (72) a. How come John should leave  
 b. \*How come should John leave



#### 4.7.2 Inner island effects

As noted above and shown in (74) below, the adjunct wh-NP in Japanese is constrained by inner island effects induced by the clausemate negation (see Kurafuji 1997). As shown in (75), Chinese shows the same pattern. This is consistent with the hypothesis that the adjunct wh-NP is a VP-level adjunct. Assuming that 1) adjunct wh-phrases must move to the position of interrogative C and 2) negation is higher than VP (which is visible in the case of Chinese), it follows that the negation blocks covert movement of the adjunct wh-NP in (74a) and (75b).

- (74) a. John-wa naze/\*nani-o awatetei-nai no (Japanese)  
           John-Top why/what-Acc panic-Not Q  
           ‘Why is John not panicking’  
       b. naze/\*nani-o John-wa awatetei-nai no  
           why/what-Acc John-Top panic-Not Q
- (75) a. John weisheme bu huang-zhang  
           John why not hurry  
           ‘Why isn’t John hurrying’

- 
- (i) How come won’t you be here tomorrow

Interestingly, she also informs me that there is a correlation between subject-aux inversion and the possibility of long-distance construal of *how come*. To the extent that (iib) is acceptable, it is ambiguous with respect to the interpretation of *how come*.

- (ii) a. How come you think that John is angry (matrix only)  
       b. How come do you think that John is angry (ambiguous)

- b.     \*John bu  huang-zhang sheme  
           John not hurry         what  
           ‘Why isn’t John hurrying’                   (Chinese)

As discussed at the end of the last section, the ungrammaticality of (74b) shows that the direct merger of *nani-o* ‘what-Acc’ and the interrogative C is not an option. There is one more derivation of (74b) to be examined, however. Suppose that *nani-o* originates within VP but undergoes A-scrambling, crossing the negation. Then this example should be fine. I speculate that scrambling from an A-bar position to A-position is not allowed, although more needs to be said about this restriction.

It is predicted then that adjunct wh-NPs in wh-fronting languages are not constrained by the inner island effect due to the clausemate negation, since they are base-generated in the specifier of CP and do not involve movement at all. This prediction is borne out in wh-fronting languages such as Hebrew and Russian.<sup>17</sup> In this respect, they pattern with *how come*.

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<sup>17</sup> This is not true for all the wh-fronting languages, however. Bulgarian and Serbo-Croatian do not allow the adjunct wh-NP with a clausemate negation. (i) is an example from Bulgarian. This is curious especially because *Zašto* ‘why’ does occur in the same configuration (ii).

- (i)     \*Šta ne se e omurlušil ošte Ivan  
           what not self is depressed yet Ivan  
           ‘Why is Ivan not depressed yet’  
 (ii)    Zašto ne se e omurlušil ošte Ivan  
           why not self is depressed yet Ivan  
           ‘Why is Ivan not depressed yet’

I have no explanation for the ungrammaticality of (i) at this point.

- (76) Lama/Ma hu lo ba (Hebrew)  
 why/what he not come  
 'Why is he not coming'
- (77) Počemu/Čto ty ne prišel včera (Russian)  
 why/what you not came yesterday  
 'Why didn't you come yesterday'
- (78) How come John is not coming

#### 4.7.3 More adjunct wh-phrases with a strong wh-feature

Jairo Nunes (p.c.) informs me that Brazilian Portuguese (BP) has a wh-phrase which can be analyzed as having a strong wh-feature.<sup>18</sup> Let us first consider the nature of wh-questions in BP. They are similar to those in French in some crucial respects (although there may be some differences between the two). Like French, for instance, BP allows both wh-fronting and wh-in-situ for matrix wh-questions.<sup>19</sup> Also, wh-in-situ is not possible for embedded questions (80) (as in French).

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<sup>18</sup> Also, as Željko Bošković (p.c.) reminds me, French *pourquoi* 'why' cannot occur in-situ but must occur in the spec of CP (at least in some dialects), unlike other adjunct wh-phrases (Rizzi 1990). It would be interesting to see if *pourquoi* in such dialects shows the same restrictions as adjunct wh-NPs in wh-fronting languages.

<sup>19</sup> In BP matrix wh-questions, wh-in-situ is allowed even when the wh-phrase is in the embedded clause (ib), which is apparently not allowed in French, according to Bošković (1998) (but see Boeckx, Stateva, and Stepanov (1999) for the claim that French wh-in-situ is possible in such configurations).

- (i) a. O que o João acha que o Pedro comprou  
       what the João think that the Pedro bought  
       'What does João think that Pedro bought'
- b. O João acha que o Pedro comprou o que  
       the João think that the Pedro bought what

- (79) a. O que o Pedro comprou  
           what the Pedro bought  
           ‘What did Pedro buy’
- b. o Pedro comprou o quê  
           the Pedro bought what
- (80) a. O João quer saber o que o Pedro comprou  
           the João want to-know what the Pedro bought  
           ‘John wants to know what Pedro bought’
- b. \*O João quer saber o Pedro comprou o quê  
           the João want to-know the Pedro bought what

Let us adopt Bošković’s (1998) analysis of French (see appendix 2 of chapter 2) and assume here that BP also allows covert insertion of the phonologically null C, which has a strong feature. If this C is inserted in overt syntax, overt wh-movement is triggered to check off the strong feature of the C. If inserted covertly, wh-movement takes place in covert syntax. Covert insertion of the interrogative C is not allowed in (80) because acyclic insertion of an element with a strong feature causes the derivation to cancel (Chomsky 1995: chapter 4 and Bošković and Lasnik 1999).

The wh-phrase *Como* in BP (as well as in Spanish) is ambiguous between ‘how’ and ‘how come.’ The two readings are disambiguated by stress; if *como* is strongly stressed (which I represent as *COMO*), it means ‘how come.’

- (81) a. Como o João consertou o carro  
           how the João fix the car  
           ‘How did João fix the car’

- b. **COMO** o João consertou o carro  
 how come the João fix the car  
 'How come João fixed the car'

In BP, both *wh*-movement and *wh*-in-situ are possible options for *como* 'how' (82).

Interestingly, *COMO* 'how come' is not allowed in-situ (83).

- (82) a. **Como** o João consertou o carro  
 how the João fix the car  
 'How did João fix the car'
- b. O João consertou o carro **como**  
 the João fix the car how
- (83) a. **COMO** o João consertou o carro  
 how come the João fix the car  
 'How come João fixed the car'
- b. \*O João consertou o carro **COMO**  
 the João fix the car how come

These data can be accounted for if *COMO* 'how come' has a strong *wh*-feature while *como* 'how' does not. Then, *COMO* 'how come' must be merged directly with the interrogative *C* in overt syntax; if *COMO* 'how come' is merged in-situ, its strong feature would cause the derivation to crash or cancel. Note that *COMO* 'how come' cannot be merged in covert syntax, since LF cannot cope with the phonological property of this *wh*-phrase.

It is predicted then that *como* 'how' can occur in multiple *wh*-questions while *COMO* 'how come' cannot. This prediction is indeed borne out.

- (84) a. *Como* o João consertou o quê  
 how the João fix what  
 'How did João fix what'
- b. \**COMO* o João consertou o quê  
 how come the João fix what  
 '\*How come João fixed what'

Also, *Como* 'how' but not *COMO* 'how come' can be construed non-locally. Thus, (85a) allows the downstairs reading of *Como* 'how' while (85b) allows only the matrix reading of *COMO* 'how come.'

- (85) a. *Como* você acha que o Pedro consertou o carro  
 how you think that the Pedro fixed the car  
 'How do you think that Peter fixed the car'
- a. *COMO* você acha que o Pedro consertou o carro  
 how come you think that the Pedro fixed the car  
 'How come you think that Peter fixed the car'

In addition, *Como* 'how' and *COMO* 'how come' also differ with respect to inner island effects. As expected, only the latter can occur with a clausemate negation.

- (86) a. \**Como* você não consertou o carro  
 How you not fix the car  
 '\*How didn't you fix the car'
- b. *COMO* você não consertou o carro  
 How come you not fix the car  
 'How come you didn't fix the car'



All these properties follow from the hypothesis that *COMO* 'how come' (but not *Como* 'how') has a strong wh-feature and thus must be merged directly with the interrogative C.

Let me finally note in this connection that Spanish *cómo* 'how/how come' can be analyzed in the same way.

- (87) Me pregunto cómo ha mandado Juan a su hijo a ese colegio privado  
 (I) wonder how (come) sent Juan his child to that school private  
 'I wonder how/how come Juan sent his child to that private school'

(Uribe-Echevarria 1991)

Just like in BP, the 'how come' usage of *cómo* is impossible in multiple wh-questions (Adolfo Ausín (p.c.)).<sup>20</sup>

- (88) a. Cómo arregló Juan qué coche  
 how/how come fixed Juan what car  
 i. ??How did Juan fix what car'  
 ii. \*How come Juan fixed what car'
- b. Qué coche arregló Juan cómo  
 what car fixed Juan how/how come  
 i. ?How did Juan fix what car'  
 ii. \*How come Juan fixed what car'

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<sup>20</sup> Also, although I don not have data, I was informed that the 'how come' usage of *cómo* cannot be construed in a long-distance manner, which contrasts with the 'how' usage of the same wh-phrase.

Suppose therefore that the 'how come' usage of *cómo* in Spanish has a strong wh-feature and must be directly merged with the interrogative C. What is worth noting about Spanish data is the fact that there is no difference between *por qué* 'why' and the 'how come' usage of *cómo* with respect to the availability of subject-aux inversion. As shown below, both wh-phrases optionally trigger inversion.

- (89) a. Me pregunto por qué ha mandado Juan a su hijo a ese colegio privado  
 (I) wonder why sent Juan his child to that school private  
 'I wonder why Juan sent his child to that private school'
- b. Me pregunto por qué Juan ha mandado a su hijo a ese colegio privado  
 (I) wonder why Juan sent his child to that school private
- (90) a. Me pregunto cómo ha mandado Juan a su hijo a ese colegio privado  
 (I) wonder how come sent Juan his child to that school private  
 'I wonder how come Juan sent his child to that private school'
- b. Me pregunto cómo Juan ha mandado a su hijo a ese colegio privado  
 (I) wonder how come Juan sent his child to that school private

Crucially, this property of *cómo* distinguishes it from *how come* in English, which does not trigger subject-aux inversion (see 4.7.1). This fact corroborates my suggestion (see 4.7.1) that the lack of subject-aux inversion with *how come* is exceptional; it is due to the fact that *how come* happens to contain a verbal element (i.e., *come*), thus satisfying the verbal property of the interrogative C (hence no need for the C to attract INFL). *Cómo* in Spanish is not verbal, which is why there is no difference between this wh-phrase and other adjuncts such as *por qué* 'why' with respect to the possibility of subject-aux inversion.

#### 4.7.4 Argument vs. adjunct asymmetry

Recall that the adjunct *wh*-NP in Japanese (and Chinese) behaves like a typical adjunct *wh*-phrase in terms of locality.

- (91) a. Kimi-wa [John-ga nani-o awateteiru to] omou no  
 you-Top John-Nom what-Acc panicking that think Q  
 ‘Why do you think that John is panicking’
- b. \*Kimi-wa [[nani-o awateteiru] hito]-o shikatta no  
 You-Top what-Acc panicking person-Acc scolded Q  
 ‘\*Why did you scold [a person [who was panicking t]]’
- c. \*Kimi-wa [John-ga nani-o awateteiru kadooka] tazuneta no  
 you-Top John-Nom what-Acc panicking whether asked Q  
 ‘\*Why did you ask [whether John is panicking t]’
- d. \*Kimi-wa [John-ga nani-o awateta toki] okotta no  
 you-Top John-Nom what-Acc panicked when angry Q  
 ‘\*Why did you get angry [when John panicked t]’

One may think that there is no theoretical significance here, since whatever account can be provided for the distribution of adjunct *wh*-phrases will extend to the above paradigm as well. Nevertheless, the fact that the adjunct *wh*-NP patterns with *naze* ‘why’ in terms of locality has important theoretical implications for the nature of *wh*-in-situ, as Nobuhiro Miyoshi (p.c.) points out.

In the recent literature, authors such as Tsai (1994) and Reinhart (1995) claim that the traditional argument/adjunct asymmetry should be recast in terms of the nominal vs. non-nominal asymmetry; typical argument *wh*-phrases such as *who* and *what* are nominals whereas typical adjunct *wh*-phrases such as *why* and *how* are non-nominals. Capitalizing

on this distinction, Tsai (1994) and Reinhart (1995) argue that nominal *wh*-phrases in-situ are licensed by unselective binding, an option not available for adverbial *wh*-phrases in-situ. As a technical implementation of this idea, Reinhart (1995) sets up the semantics of unselective binding in such a way that only the function variables (in the D-position) which bind N-variables (in N) can be unselectively bound (via choice function), which is not available for *wh*-adverbs. Hence, non-nominal *wh*-phrases must move to the spec of the Q-Comp for interpretation.

Reinhart (1995) provides empirical evidence for the hypothesis that the noun vs. non-noun distinction is the relevant one for *wh*-in-situ. Consider (92). Let us assume with Chomsky (1995) and other authors (see also chapter 2) that in languages such as English, only one *wh*-phrase is attracted to satisfy the morphological requirement of the interrogative C. In (92), the subject *who* is attracted as it is the closest *wh*-phrase from the viewpoint of the C. The object *wh*-phrase has no need to be attracted and hence remains in-situ (it is interpreted via unselective binding). Let us now consider (93). Given that *how* and *what way* are synonymous, the contrast in grammaticality in (93) could be due to the categorial difference between the two *wh*-phrases; *what way* is an NP whereas *how* is not. Hence only *what way* in (53c) can be interpreted by unselective binding, according to Reinhart.

(92) Who kissed who

(93) a. \*Who kissed Mary how

b. Who kissed Mary [<sub>NP</sub> what way] (see Reinhart 1995)

Keeping this discussion in mind, let us turn to Japanese cases involving additional *wh*-effects (see Watanabe 1992). Recall from chapter 2 that the contrast in paradigms such as (94) follows from the nature of Attract. In particular, the improved status of (b) is due to the fact that the morphological requirement of the interrogative C is satisfied by attracting

*dare-ni* 'who-Dat,' which is outside the *wh*-island. As a result, the *wh*-phrase inside the *wh*-island (*dare-ga* 'who-Nom') need not be attracted. It remains in-situ and is interpreted via unselective binding.

- (94) a. ??John-wa [*dare-ga* *awateteiru kadooka*] Mary-ni *tazuneta no*  
           John-Top who-Nom panicking whether Mary-Dat asked Q  
           '\*Who did John ask Mary [whether *t* is panicking]'
- b. John-wa [*dare-ga* *awateteiru kadooka*] *dare-ni tazuneta no*  
      John-Top who-Nom panicking whether who-Dat asked Q  
      'Who did John ask *t* [whether who is panicking]'

Now, (95) and (96) show that *naze* 'why' and the adjunct *wh*-NP *nani-o* 'what' cannot be interpreted in-situ, unlike *dare-ga* 'who-Nom' in (94b).

- (95) a. \*John-wa [*Peter-ga* *naze awateteiru kadooka*] Mary-ni *tazuneta no*  
           John-Top Peter-Nom why panicking whether Mary-Dat asked Q  
           '\*Why did John ask Mary [whether Peter is panicking *t*]'
- b. \*John-wa [*Peter-ga* *naze awateteiru kadooka*] *dare-ni tazuneta no*  
      John-Top Peter-Nom why panicking whether who-Dat asked Q  
      '\*Who did John ask *t* [whether Peter is panicking why]'
- (96) a. \*John-wa [*Peter-ga* *nani-o* *awateteiru kadooka*] Mary-ni *tazuneta no*  
           John-Top Peter-Nom what-Acc panicking whether Mary-Dat asked Q  
           '\*Why did John ask Mary [whether Peter is panicking *t*]'

- b. \*John-wa [Peter-ga nani-o awateteiru kadooka] dare-ni tazuneta no  
 John-Top Peter-Nom what-Acc panicking whether who-Dat asked Q  
 ‘\*Who did John ask t [whether Peter is panicking why]’

The fact that the adjunct wh-NP cannot be interpreted via unselective binding, despite its nominal status, shows that the nominal status of an in-situ wh-phrase is not sufficient (or not even necessary) for the purpose of unselective binding. Departing from Tsai (1994) and Reinhart (1995), therefore, I make the following claim:

- (97) Only argument wh-(nominal) phrases can be licensed via unselective binding.

It is not totally obvious to me if ‘argumenthood’ is a sufficient condition for unselective binding, or if a wh-phrase must also be a nominal for the purpose of unselective binding. Either way, according to (97), the adjunct wh-NP cannot be licensed via unselective binding, because it is not an argument (although it remains to be seen how to make the argument vs. adjunct distinction precise in current theoretical terms).

Given this discussion, we need to reconsider Reinhart’s (1995) empirical argument in favor of the noun vs. non-noun distinction in (93), repeated below as (98). Recall that according to Reinhart, *what way* in (98b) can be licensed in-situ due to its nominal status, whereas *how* in (98a) cannot, because it is not a noun. But this is not conclusive, since (98b) might contain a null preposition in the sense of Huang (1982). Under Huang’s analysis, then, *what way* is an argument of the preposition (99a) while *how* is not (99b).

- (98) a. \*Who kissed Mary how  
 b. Who kissed Mary [<sub>NP</sub> what way]  
 (99) a. \*Who kissed Mary [in/by [how]]

- b. Who kissed Mary [<sub>TP</sub> (in) [<sub>NP</sub> what way]]

In short, Reinhart's example is not conclusive in this respect. On the basis of the discussion here, I propose that 'argumenthood' plays a crucial role for the purpose of unselective binding.

#### 4.7.5 Another *nani* 'what'-question

The discussion above has some consequences for the syntax of *wh*-numeral quantifiers in Japanese. Numeral quantifiers (NQs) consist of a number and a classifier, whose choice is determined by the type of objects being counted. For instance, the classifier *-nin* is used for counting persons (100a). Of interest in this section is the *wh*-NQs. As shown in (100b), the *wh*-NQ consists of *nan*, a phonological variant of *nani* 'what,' and a classifier.

- (100) a. Gakusei-ga san-nin Pari-e itta  
 student-Nom three-CL Paris-to went  
 'Three students went to Paris'
- b. Gakusei-ga nan-nin Pari-e itta no  
 student-Nom what-CL Paris-to went Q  
 'How many students went to Paris'

NQs are best analyzed as adjuncts. For instance, NQs behave like adjuncts with respect to long-distance scrambling. Saito (1985) points out that in Japanese, arguments but not adjuncts can undergo long-distance scrambling, as shown in (101a-b). Now, as Miyagawa (1989) points out, long-distance scrambling of NQs like *go-satsu* 'five-CL'

results in the marginal status of the sentence (101c), thus patterning with an adjunct in this respect.

- (101) a. Hon-o John-ga [Taro-ga t katta to] omotteiru (koto)  
 book-Acc John-Nom Taro-Nom bought that think (fact)  
 ‘(the fact that) books, John thinks that Taro bought’
- b. ?\*[Riyuu mo naku] John-ga [Taro-ga t hon-o katta to]  
 reason also without John-Nom Taro-Nom book-Acc bought that  
 omotteiru (koto)  
 think (fact)  
 ‘(the fact that) without a reason, John thinks [that Taro bought books t]’
- c. ??Go-satsu John-ga [Taro-ga hon-o t katta to] omotteiru (koto)  
 five-CL John-Nom Taro-Nom book-Acc bought that think (fact)  
 ‘(the fact that) five, John thinks that Taro bought books’
- (see Miyagawa 1989)

The adjunct status of NQs is also corroborated by the fact that there is no *pro* corresponding to them. Consider (102a), where the object of *yomu* ‘read’ within the adjunct clause is missing. We can assume that *pro* occupies that position, as shown in (102b).

- (102) a. John-wa [Peter-ga yomu mae-ni] sono hon-o yonda.  
 John-Top Peter-Nom read before that book-Acc read  
 ‘John read that book before Mary read it.’
- b. John-wa [Peter ga *pro*<sub>i</sub> yomu mae-ni] sono hon-o<sub>i</sub> yonda.  
 John-Top Peter-Nom read before that book-Acc read



Let us turn to (103a). This example is grammatical, but does not have the reading 'John read three books before Peter read three magazines.' This indicates that the structure shown in (103b) is not available, where there is a *pro* co-indexed with *san-satsu* 'three-CL.' Assuming with Murasugi (1991) that there is no *pro* corresponding to an adjunct, this fact reinforces the adjunct status of NQs.<sup>21</sup>

- (103) a. John-wa [Peter ga zasshi-o yomu mae-ni]  
 John-Top Peter-Nom magazine-Acc read before book-Acc  
 hon-o san-satsu yonda.  
 book-Acc three-CL read  
 'John read three books before Peter read a magazine/magazines.'
- NOT 'John read three books before Peter read three magazines.'
- b. \*John-wa [Peter ga zasshi-o pro<sub>i</sub> yomu mae-ni]  
 John-Top Peter-Nom magazine-Acc read before book-Acc  
 hon-o san-satsu yonda.  
 book-Acc three-CL read

At the same time, however, NQs behave like arguments in terms of locality in wh-questions. Consider (104). Recall that adjunct wh but not argument wh is subject to islands such as the Complex NP constraint, as illustrated in (104a-b). As pointed out by Miyagawa (1989), the wh-NQ is fine inside this island (104c), thus behaving like an argument wh-phrase.

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<sup>21</sup> One might object to this argument by saying that there is no *pro* corresponding to NQs because the latter are not nominals. It is easy to show that NQs are nominal in some respects. For instance, NQs can be modified by demonstratives such as *ano* 'that/those' (i).

- (i) Keisatsu-ga [ano san-nin]-o tsukamaeta  
 police that three-CL-Acc captured  
 'The police captured those three (people)'

- (104) a. John-ga [[nani-o katta] hito]-ni atta no  
 John-Nom what-Acc bought person-Dat met Q  
 '??What did John meet a person [who bought t]'
- b. \*John-ga [[naze hon-o katta] hito]-ni atta no  
 John-Nom why book-Acc bought person-Dat met Q  
 '\*Why did John meet a person [who bought a book t]'
- c. John-ga [[hon-o nan-satsu katta] hito]-ni atta no  
 John-Nom book-ACC what-CL bought person-Dat met Q  
 '\*How many books did John meet [a person [who bought t]]'

(see Miyagawa 1989)

Wh-NQs also pattern with argument wh-in-situ in showing (weak) wh-island effects.

- (105) a. ??John-wa Mary-ni [Peter-ga nani-o katta kadooka]  
 John-Top Mary-Dat Peter-Nom what-Acc bought whether  
 tazuneta no  
 asked Q  
 '??What did John ask Mary [whether Peter bought t]'
- b. \*John-wa Mary -ni [Peter-ga naze sono hon-o katta kadooka]  
 John-Top Mary-Dat Peter-Nom why that book-Acc bought whether  
 tazuneta no  
 '\*Why did John ask Mary [whether Peter bought that book t]'

- c. ??John-wa Mary-ni [Peter-ga hon-o nan-satsu katta kadooka]  
 John-Top Mary-Dat Peter-Nom book-Acc what-Acc bought whether  
 tazuneta no  
 asked Q  
 ‘\*How many did John ask Mary [whether Peter bought t books]’

We know from the previous section that the nominal status of *nani* ‘what’ is not crucial for the locality of wh-in-situ. Rather, it is the argument vs. adjunct distinction that plays a crucial role. We then seem to face a puzzle here, since the NQ is an adjunct but the wh-NQ behaves like an argument in terms of locality.

In order to solve this puzzle, I adopt the gist of Huang’s (1982) insightful analysis of temporal and locative wh-phrases. Huang argues that *when/where* is selected by a preposition (which could be phonologically null but could be overt, as in (106a-b)), and the whole PP is an adjunct.

- (106) [<sub>PP</sub> e [<sub>NP</sub> when/where]]  
 a. Since when  
 b. From where

This analysis offers an elegant account for the facts that 1) *when/where* pattern with adjuncts as far as overt movement is concerned (107c) but 2) they pattern with arguments when they are in-situ (108c).

- (107) a. ??What did you wonder [whether Peter bought t]  
 b. \*Why did you wonder [whether Peter bought a book t]  
 c. \*when/where did you wonder [whether Peter bought a book t]  
 (108) a. Who felt upset [after Peter bought what]

- b. \*Who felt upset [after Peter bought a book why]
- c. Who felt upset [after Peter bought a book [<sub>PP</sub> e [<sub>NP</sub> when/where]]]

Let us consider (107c). Since the PP containing *when/where* is an adjunct, it is correctly predicted that (107c) under the derivation in (109a) is on a par with (107b); both involve extraction of adjunct out of an island. Moreover, the alternative derivation of (107c) shown in (109b), in which only the NP *when/where* moves, violates the CED, since the PP is an adjunct. The severe ungrammaticality of (107c) is explained in this manner, according to Huang.

- (109) a. [<sub>PP</sub> e [<sub>NP</sub> when/where]] did you wonder [whether Peter bought a book t]
- b. [<sub>NP</sub> when/where] did you wonder [whether Peter bought a book [<sub>PP</sub> e t]]

Let us turn to (108c). As the CED is not operative in covert syntax for Huang, extraction of the argument *when/where* out of the adjunct PP is fine. Alternatively, for the analysis in chapter 2 and this chapter, *when/where* can be licensed via unselective binding as they are arguments. This is why (108c) patterns with (108a), not with (108b).

Returning to the syntax of NQs in Japanese, I argue that *nani* 'what' in the wh-NQ is an argument (complement) of the classifier head of the Classifier Phrase (CLP), which is an adjunct.

- (110) [<sub>CLP</sub> [<sub>NP</sub> what] CL]

Since the CLP itself is an adjunct, the facts that it resists long-distance scrambling (see 101) and there is no pro corresponding to the NQ (see 102) are expected. Further, recall from (104), repeated below, that wh-NPs behave like arguments. This is because *nan(i)* 'what' is an argument of the classifier head.

- (111) a. John-ga [[nani-o katta] hito]-ni atta no  
 John-Nom what-Acc bought person-Dat met Q  
 '??What did John meet a person [who bought t]'
- b. \*John-ga [[naze hon-o katta] hito]-ni atta no  
 John-Nom why book-Acc bought person-Dat met Q  
 '\*Why did John meet a person [who bought a book t]'
- c. John-ga [[hon-o nan-satsu katta] hito]-ni atta no  
 John-Nom book-ACC what-CL bought person-Dat met Q  
 '\*How many books did John meet [a person [who bought t]]'

Finally, according to this analysis, (b) below is fine on a par with (108c). The wh-phrase *nan(i)* 'what' in (b) is an argument and hence can be interpreted in-situ.

- (112) a. ??John-wa Mary -ni [Peter-ga hon-o nan-satsu katta kadooka]  
 John-Top Mary-Dat Peter-Nom book-Acc what-Acc bought whether  
 tazuneta no  
 asked Q
- b. John-wa dare -ni [Peter-ga hon-o nan-satsu katta kadooka]  
 John-Top who-Dat Peter-Nom book-Acc what-Acc bought whether  
 tazuneta no  
 asked Q

## 4.8. Remaining puzzles

In this final section, I raise three points which are left for future research.

### 4.8.1 Feature strength and cross-linguistic perspectives

I argued above that the adjunct wh-NP may or may not have a strong wh-feature.

In particular, the adjunct wh-NP is argued to have a strong feature in wh-fronting languages, but not in wh-in-situ languages. This analysis expects that there are more language types. For instance, there should be a wh-in-situ language L in which an adjunct wh-NP has a strong feature. In L, all wh-phrases are in-situ except for the adjunct wh-NP. More specifically, L has a weak C (which is why wh-phrases need not be attracted in overt syntax) but the adjunct wh-NP in L must be merged directly with the interrogative C, so that its strong wh-feature can be checked off immediately against the interrogative C.<sup>22</sup>

I also expect to find a wh-fronting language (i.e., a language with a strong interrogative C) in which the adjunct wh-NP has no strong wh-feature. Such language should look like wh-fronting languages examined here with respect to single wh-questions but should nonetheless allow adjunct wh-NPs in long-distance construal and multiple wh-questions. This is a topic for future research.

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<sup>22</sup> Stepanov (1998) argues that Russian has no wh-movement in the standard sense (i.e., movement into the specifier of CP). Although all the wh-phrases must be fronted in Russian, Stepanov argues (following the analysis of Stepanović (1995) for Serbo-Croatian) that the wh-fronting is due to the focus movement. If this analysis is correct, it follows that the interrogative C is not strong in Russian. Then, the adjunct wh-NP in Russian checks off its strong wh-feature against the (weak) interrogative C.

## 4.8.2 Sluicing puzzles

There is another curious fact about adjunct wh-NPs. Cross-linguistically, the adjunct wh-NP does not occur in sluicing constructions, unlike other wh-phrases, including 'why.'<sup>23</sup> In (113-115), I show data from German, Hebrew, and Serbo-Croatian.

(113) Hans ist gestresst, aber ...

Hans is stressed, but

a. ich weiss nicht warum (Hans ist gestresst).

I know not why Hans is stressed

b. ich weiss nicht was \*(Hans ist gestresst).

I know not what Hans is stressed

'Hans is stressed but I don't know why.'

(German)

(114) Yosi ruc aval aui lo yodea lama/\*ma.

Yosi run but I not know why/what

'Yosi is running but I don't know why.'

(Hebrew)

(115) A: Vidi Ivana, sav se pokunjio.

look-at Ivan, all self got-depressed

'Look at Ivan, he is all depressed.'

B: a. Da, zanima me zašto (se pokunjio).

yes it-interests me why self got-depressed

'Yes, I'd like to know why (he got depressed).'

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<sup>23</sup> However, *how come* occurs in sluicing.

(i) A: John is panicking  
B: How come

- b. Da, zanima me šta \*(se to on pokunjio).  
 yes it-interests me what self he got-depressed  
 'Yes, I'd like to know why (he got depressed).' (SC)

Japanese adjunct wh-NPs also resist sluicing (although the presence of a Case particle -o improves the example to some extent).

- (116) John-ga awateteiru ga, ...  
 John-Nom panicking but  
 dare-mo [naze/??nani-o/ \*nani ka] siranai  
 nobody why what-Acc what Q know-not  
 'John is panicking, but nobody knows why.' (Japanese)

It remains to be seen how these facts are accounted for in a principled manner.<sup>24</sup>

#### 4.8.3 Adjunct tags (see Uriagereka 1988)

Finally, I note that Spanish has another peculiar 'what'-questions. This is a construction discussed by Uriagereka (1988: 2.3.2.3, 3.3.3.2); what he calls *adjunct tags*, which have the abstract form of *[qué [ ... t [tag]]]*. As shown below, *Qué*-questions can be used to ask information about place, time, manner, and reason.

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<sup>24</sup> It could be that the inability of the adjunct wh-NP to occur in sluicing contexts is related to its strongly focused nature. As discussed at the outset of this chapter, the adjunct wh-NP very often has the flavor of 'surprise' questions, something akin to 'why-the-hell' and 'why-on earth' in English. It is worth noting in this connection that those wh-phrases tend to resist sluicing as well (I thank Howard Lasnik and Diane Lillo-Martin (p.c.) for this point).

(i) John is hurrying, but I don't know why/??why-the-hell/??why on earth

See Ochi and Hsin (1999) for discussion of this puzzle.



- (117) a. Qué ha ido, al cine  
 what has-he gone to-the movies  
 '(lit.) What has he gone, to the movies?'
- b. Qué ha llegado, esta mañana  
 what has-he arrived this morning  
 '(lit.) What has he arrived, this morning?'
- c. Qué lo ha hecho, con las manos  
 what it has-he done with his hands  
 '(lit.) What has he done it, with his hands?'
- d. Qué lo ha hecho, porque sí  
 what it has-he done because yes  
 '(lit.) What has he done it, just because?'

There are some differences between adjunct tags and what I have been referring to as adjunct wh-NP questions, however. First, the former need tags (such as *al cine* 'to the movies' in (117a)), which is not the case with the latter.

- (118) \*Qué ha ido  
 what has-he gone (cf. 117a)

Second, *qué* can be construed not only as asking for a reason as in (117d), but also as asking information about place, time, and manner, depending on the content of tags. This is not the case with adjunct wh-NPs, which must be construed as (something akin to) 'why.' Nonetheless, it would be interesting to see if adjunct tags have any of the properties discussed in this chapter.

#### 4.9 Concluding remarks

This chapter investigated the syntactic nature of adjunct wh-NPs, which are found across different language types. Departing from Kurafuji (1997) in certain respects, I first argued that the adjunct wh-NP in wh-in-situ languages is an adjunct within VP. Then, I pointed out that adjunct wh-NPs in wh-fronting languages (but not those in wh-in-situ languages) show two perplexing properties; 1) they do not undergo long-distance movement and 2) they do not occur in multiple wh-questions. The fact that *how come* in English also has those properties led me to consider Collins' (1991) analysis. Building on the insight of Collins' analysis, I developed an analysis according to which the adjunct wh-NP in wh-fronting languages (and *how come* in English) has a strong feature which needs to be checked against the interrogative C. Together with the virus theory of feature strength, this proposal forces the adjunct wh-NP in wh-fronting languages to be merged directly with the interrogative C, where it takes scope. As discussed in section 4.6, this analysis accounts for the two properties alluded to above. Adjunct wh-NPs in Japanese and Chinese behave like regular adjunct wh-phrases in terms of their syntactic properties. Nonetheless, I argued that the nature of in-situ adjunct wh-NPs has an important theoretical contribution to the nature of unselective binding.

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