Scrambling in German and Japanese:

Adjunction versus Multiple Specifiers[*]

G. Grewendorf and J. Sabel - Universität Frankfurt am Main

This paper argues that short (clause-internal) scrambling to a pre-subject position has A-properties in Japanese but A'-properties in German, while long scrambling (scrambling across sentence boundaries) from finite clauses, which is possible in Japanese but not in German, has A'-properties throughout. It is shown that these differences between German and Japanese can be traced back to parametric variation of phrase structure and the parameterized properties of functional heads. Due to the properties of Agreement, sentences in Japanese may contain multiple (Agro- and Agrs-) specifiers whereas German does not allow for this. In Japanese, a scrambled element may be located in a Spec AgrP, i.e. an A- or L-related position, whereas scrambled NPs in German can only appear in an AgrP-adjoined (broadly-L-related) position, which only has A'-properties. Given our assumption that successive cyclic adjunction is generally impossible, elements in German may not be long scrambled because a scrambled element that is moved to an adjunction site inside an embedded clause may not move further. In Japanese, long distance scrambling out of finite CPs is possible since scrambling may proceed in a successive cyclic manner via embedded Spec- (AgrP) positions. Our analysis of the differences between German and Japanese scrambling provides us with an account of further contrasts between the two languages such as the existence of surprising asymmetries between German and Japanese remnant-movement phenomena, and the fact that unlike German, Japanese freely allows wh-scrambling. Investigation of the properties of Japanese wh-movement also leads us to the formulation of the "Wh-cluster Hypothesis", which implies that Japanese is an LF multiple wh-fronting language.

1. Introduction

Crosslinguistic investigations have revealed that languages vary with respect to the systematic properties of syntactic reordering as observed in scrambling languages. Not only has it been argued that scrambling, conceived of as adjunction movement, has A-properties in one language and A'-properties in another language, it has also been claimed that the properties of scrambling vary within one and the same language. For example, Mahajan (1990) has argued, using weak crossover and anaphora binding as the familiar diagnostic properties, that clause-internal scrambling in Hindi can in principle be A- or A'-movement, while scrambling out of finite clauses exclusively displays the properties of A'-movement. On the basis of criteria such as weak crossover and parasitic gaps, Webelhuth (1989) has tried to show that scrambling in German is movement to a third kind of position, namely to a non-A, non-operator position which has the binding properties of both A- and A'-positions. With respect to Japanese, Saito (1992, 1994b) has argued, on the basis of the familiar diagnostics (A-binding, reconstruction, weak crossover) that clause-internal (i.e. short) scrambling has A-properties if it is adjunction to VP and A- as well as A'-properties if it is adjunction to IP, while scrambling out of finite clauses, which is not possible in German, has only A'-properties. For example, the A-properties of Japanese clause-internal scrambling to IP are taken to be reflected in the fact that the scrambled phrase can be the antecedent of a lexical anaphor (although slightly marginal for some speakers, see Tada 1989, Saito 1992 for discussion):

(1) a. ?*[[$_{IP}$ otagai$_i$-no   sensei]-ga [$_{VP}$ karera-o   hihansita]]](koto).

　　　　　each other$_{gen}$ teacher$_{nom}$ they$_{acc}$ criticized fact

　　　　Each other's teacher criticized them.

　　b. ? [$_{IP}$ *karera$_i$-o* [[$_{IP}$ otagai$_i$-no   sensei]-ga [$_{VP}$ *t* hihansita]]](koto).

　　　　　they$_{acc}$ each other$_{gen}$ teacher$_{nom}$ criticized fact

　　　　Them, each other's teachers criticized.　　　　　　　　　　　　(Saito 1992:74f.)

The claim that the same kind of scrambling also shows A'-properties is illustrated by pointing out that a configuration of A-binding which has been destroyed by scrambling the anaphor to a position higher than its antecedent can be restored by reconstruction, as shown in (2):

(2) a. [IPkarera_i-ga [VP otagai_i-o   hihansita]] (koto).

         they_nom   each other_acc   criticized   fact

         They criticized each other.

    b. [IP*otagai_i*-o [IP   karera_i-ga [VP *t* hihansita]]](koto).

         each other_acc   they_nom   criticized   fact   (Saito 1994b:285)

In this paper we wish to show that, contrary to widely held generalizations, German scrambling has A'-properties *throughout*, while Japanese scrambling has mostly A-properties with the exception of scrambling out of tensed clauses. Our main argument will be that from the classical tests for A- and A'-properties of scrambling, only A-binding provides conclusive results. We will then demonstrate that this ambivalence between A- and A'-properties is not associated with one and the same position but originates from the fact that different positions are involved with scrambling in both languages and that only the landing position of short scrambling in Japanese provides an escape hatch for scrambling out of finite clauses.

Note that by "short scrambling" we mean clause-internal scrambling to a pre-subject position and all discussion of earlier analyses of scrambling which follows will be referring to pre-subject scrambling throughout. We will not extensively discuss other cases of what is traditionally covered by the notion of short scrambling such as scrambling in the post-subject domain (but see section 2.2) since there is independent evidence that the latter can mostly be analyzed as object shift in the sense of overt movement to a Case position within AgroP. As already pointed out, long scrambling is taken to be scrambling across sentence boundaries.

We will show that a uniform explanation for the different A-/A'-movement properties of scrambling as well as for its different locality restrictions can be given if certain ideas about sentence structure presented in Chomsky's (1994) theory of 'Bare Phrase Structure' are adopted and connected with various assumptions about the different agreement systems of both languages. We argue that the above-mentioned differences between German and Japanese can be traced back to parametric variation in phrase structure and the parameterized properties of functional heads. In particular, due to the properties of Agreement, sentence structure in Japanese may contain multiple (Agro- and Agrs-) specifiers whereas German may not. On the basis of this difference we argue for the Scrambling Generalization stated in (3):

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(3)   *Scrambling Generalization*

        A scrambling language allows A-scrambling as well as scrambling out of finite

        clauses iff multiple Agr-specifiers are licensed in the language.

    In addition to the parametric variation of Agr, our account for the differences between German and Japanese makes use of a constraint on adjunction movement. In Grewendorf and Sabel (1994) we have shown that scrambling is not permitted to operate in a successive cyclic way. Given this condition and the word order found in (4) we concluded that the only possible derivation is (4) and not (6), although the intermediate landing site in (6) is a potential landing site (5).

(4) $[_{WP} ZP [_{WP} W [_{XP} X [_{YP} Y t_{ZP}]]]]$

(5) $[_{WP} W [_{XP} ZP [_{XP} X [_{YP} Y t_{ZP}]]]]$

(6) $* [_{WP} ZP [_{WP} W [_{XP} t_{ZP}' [_{XP} X [_{YP} Y t_{ZP}]]]]]$

The main reason for treating scrambling as not being subject to Minimize Chain Links (MCL) (Chomsky and Lasnik 1993), which states that it is impossible to skip potential landing sites, derives from the fact that MCL would force a scrambled element to neutralize barriers for movement, leaving the locality restrictions observed with scrambling unexplained. Hence in Grewendorf and Sabel (1994) we proposed the constraint mentioned above, which rules out the intermediate adjunction strategy as a derivational possibility for neutralizing islandhood. Furthermore, in Sabel (1995, 1996b) several arguments are presented showing that the "Constraint on Adjunction" is in fact a universal (movement-) constraint. It is shown that it holds for X°-movement, Quantifier Raising, A- and *wh*-movement as well. This necessitated a stronger version according to which movement in general may not proceed via intermediate adjunction, in other words, adjunction is a "dead end" for every kind of movement.[1] The analyses in this paper will provide further evidence for the adequacy of this constraint on

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[1]To constrain adjunction movement in one way or another, several suggestions have previously been made. For example, irrespective of whether we dispense with the notion of a barrier altogether or limit it to noncomplements as in Chomsky and Lasnik (1993), it seems necessary to ban at least intermediate adjunction to AgrsPs, adjuncts, subjects, and categories moved to the Spec of CP.

adjunction. For example, it allows one to account for the differences in grammaticality between subject/object/adjunct scrambling from finite clauses and for the fact that Japanese long scrambling (i.e. scrambling across sentence boundaries) out of finite clauses may only target IP but not VP - long scrambling to VP is much more degraded than long scrambling to IP in Japanese (Saito 1994b:265):

(7) a. [IP *sono   hon-o* [IP John-ga [VP Bill-ni [CP Mary-ga *t* motteiru to] itta]]](koto).
         that   book_{acc}   J._{nom}   B._{dat}   M._{nom}   have   C   said   fact
     That book, John said to Bill that Mary has.

   b. ??[IP John-ga [VP *sono   hon-o* [VP Bill-ni [CP Mary-ga *t* motteiru to] itta]]](koto).
       J._{nom}   that   book_{acc}   B._{dat}   M._{nom}   have   C   said   fact

Further asymmetries between German and Japanese can be shown to follow from these phrase-structural differences between the two languages and the constraint on adjunction. For example, we will argue that the analysis provides a solution for the so-called "Remnant Movement Dilemma" in that it correctly predicts that in German scrambling out of a scrambled category is impossible (Grewendorf and Sabel 1994), while in Japanese this is well-formed (Saito 1992, 1994a:226):

(8) *daß [IP den Hund_i [IP zweifellos [IP [t_i zu füttern]_j keiner t_j   versuchte]]].
     that   the dog_{acc}   undoubtedly   to feed   nobody_{nom} tried
     Undoubtedly, nobody tried to feed the dog.

(9) [IP sono hon-o_i [IP John-ga [CP[IP[CP Mary-ga t_i katta   to]_j [IP Bill-ga t_j itta]] to]
       that book_{acc} J._{nom}   M._{nom}   bought C   B._{nom}   said C
    omotteiru]].
    think
   That book, John thinks that [that Mary bought *t*] Bill said.

Our analysis has implications for the analysis of further differences between German and Japanese. We will derive an account for the fact that *wh*-phrases in Japanese freely undergo scrambling (10b) (Saito 1985, Takahashi 1993 among others), while in German scrambling of *wh*-phrases is severely restricted (Fanselow 1990, Sauerland 1997):

(10) a. John-ga [Mary-ga nani-o katta ka] sitteiru.

    John$_{nom}$ *Mary$_{nom}$*   *what$_{acc}$* *bought* *Q*   *knows*

    John knows what Mary bought.

   b. *Nani-o* John-ga [Mary-ga *t* katta   ka] sitteiru.

    what$_{acc}$ *John$_{nom}$* *Mary$_{nom}$*   *bought* *Q*   *knows*

    John knows what Mary bought.

(11) * Wer   glaubt   daß *was*   der Mann gestern *t* repariert hat?

    who$_{nom}$ *believes* *that* *what$_{acc}$* *the* *man*   *yesterday* *fixed*   *has*

    Who believes that the man fixed what yesterday?

We will show that the various properties of *wh*-scrambling follow from the interaction between distinct properties of the Japanese and German Agr-systems, the constraint on adjunction, and the Scrambling Generalization in (3).

Further support for our analysis of *wh*-movement in Japanese is shown to come from the fact that it provides us with a natural account of the constraints which determine covert multiple *wh*-fronting, such as the so-called "additional-*wh* effect" (Watanabe 1992, Saito 1994a).

The paper is organized as follows. In section 2, we establish certain generalizations concerning the different properties of Japanese and German scrambling and argue against the validity of most of the traditional tests used to determine the A-/A'-properties of scrambling in these languages. Section 3 develops the theory of multiple specifiers in the Agreement system, which provides the clue for our account of the Scrambling Generalization in (3) and constitutes the basis for our account of scrambling in German and Japanese developed in section 4. From this account, in section 5 we derive an explanation for the fact that in contrast to German, Japanese allows scrambling out of scrambled categories. In section 6, we offer our account of *wh*-scrambling and section 7 develops the new analysis of the additional-*wh* effect.

2.   The A-/A'-Properties of Scrambling

In this section, we will discuss the familiar tests used to diagnose those properties of Japanese and German scrambling which have traditionally been called the "A-/A'-properties" of scrambling. We will show that in most cases, they do not provide conclusive evidence. In this discussion, we will use the traditional expressions "A-properties" and "A'-properties" as

descriptive terms referring to the tests thought to be indicative of the A-/A'-distinction. In later sections, we will dispense with this distinction and instead refer to L-relatedness in the sense of Chomsky (1993, 1995), which is necessitated by the VP-internal subject hypothesis and the split Infl hypothesis (see fn. 12).

2.1 Differences between German and Japanese: The Case of A-Binding

In an analysis which takes scrambling to be a movement phenomenon, this movement is traditionally analyzed as Chomsky-adjunction to a maximal projection. This is illustrated by the derivation in (12b) and (13b), where an NP is scrambled to IP:[2]

(12) a. [$_{IP}$ karera$_i$-ga [$_{VP}$ otagai$_i$-o   hihansita]]   (koto).

    they$_{nom}$ each other$_{acc}$ criticized   fact

   They criticized each other.

 b. [$_{IP}$ *otagai$_i$-o*   [$_{IP}$ karera$_i$-ga   [$_{VP}$ *t* hihansita]]] (koto).

    each other$_{acc}$ they$_{nom}$ criticized   fact   (Saito 1994b)

(13) a. daß die beiden$_i$ immer noch einander$_i$ lieben.

    that the both$_{nom}$ still   each- other$_{acc}$ love

   The two still love each other.

 b. daß [$_{IP}$ *einander$_i$* [$_{IP}$ die beiden$_i$ immer noch *t* lieben]].

    that   each-other$_{acc}$ the both$_{nom}$ still   love

It has been argued in the literature that clause-internal scrambling to IP (or AgrsP) counts as both A- and A'-movement in Japanese (Mahajan 1990, Saito 1992, 1994b). Concerning German it has been assumed that movement to this position has A- and A'-properties simultaneously (Webelhuth 1989) or only A-properties (Santorini 1991).

As already mentioned in the introduction, we will take another route here and argue that a single landing site can only have either A- or A'-properties. We will try to demonstrate that scrambling in German is always A'-movement, whereas in Japanese only long scrambling out of finite clauses has A'-properties. Japanese short scrambling as well as scrambling out of infinitives is shown to have only A-movement properties.

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[2]We assume that subjects in Japanese (cf. Fukui 1993a, Nemoto 1993, Saito 1994b, Koizumi 1995, Toyoshima 1997, among others) and German move to Spec IP in the overt syntax (see also fn. 14).

The argument presented in favor of our view proceeds from the assumption that the crucial diagnostic for the A-/A'-movement characteristics of scrambling lies in the question of whether a moved category can act as a binder for an anaphoric expression that is unbound in its base position. We will argue that this is the only conclusive measure to test the A-/A'-properties of scrambling.

The impossibility of anaphoric binding with respect to A'-moved (potential) antecedents can be seen from examples involving topicalization (14) and *wh*-movement (15). ((15a-c) are taken from Chomsky 1989, class lectures):

(14)   * *The guests$_i$,* [each other$_i$'s dance partners] criticized *t*.
         (cf. The guests criticized each other's dance partners.)

(15)   a. * *How many actors$_i$* did [pictures of each other$_i$] convince the director that he should interview *t*?
       b. * *Which actors$_i$* did [pictures of themselves$_i$] convince the director that he should interview *t*?
       c. * *Whose friends$_i$* did [each other$_i$'s pictures] convince the director that he should interview *t*?

On the other hand, as is well known, A-moved elements may function as antecedents:

(16)   a.   *The men$_i$* seem to each other$_i$ [*t* to be nice].
       b.   *Susan$_i$* would be [pleased   *t*] by these pictures of herself$_i$.
       c.   John thinks that *the men$_i$* were [kissed   *t*] by each other$_i$'s wives.

With this in mind let us return to scrambling. In (17a) the anaphor is not A-bound, and hence (17a) represents a violation of Principle A of the Binding Theory. In (17b) scrambling must be A-movement because the anaphor is licensed. Therefore we can conclude that short scrambling is A-movement in Japanese.

(17) a. ?*[[Otagai$_i$-no   sensei]-ga [karera$_i$-o hihansita]] (koto).
           each other$_{gen}$ teacher$_{nom}$ they$_{acc}$ criticized fact
         Each other's teachers criticized them.

b. ? [*Karera$_i$-o* [[otagai$_i$-no   sensei]-ga [*t* hihansita]]] (koto).

    they$_{acc}$ *each other$_{gen}$ teacher$_{nom}$*   *criticized*   *fact*

    Them, each other's teachers criticized.   (Saito 1992:74f.)

In contrast to the situation with Japanese, a scrambled category cannot bind an anaphor in German, as can be seen from (18b):

(18) a. * weil [die Lehrer   von sich$_i$]   zweifellos   den Studenten$_i$ in guter

    since [the teachers of   himself]$_{nom}$ undoubtedly   the student$_{acc}$ in good

    Erinnerung behalten   haben.

    memory   kept   have

      * The teachers of himself have undoubtedly kept the student in good memory.

b. * weil *den Studenten$_i$* [die Lehrer   von sich$_i$]   zweifellos *t*   in guter

    since the   student$_{acc}$ [the teachers of   himself]$_{nom}$ undoubtedly   in good

    Erinnerung behalten   haben.

    memory   kept   have

c. weil der Student$_i$ [die Lehrer   von sich$_i$]   zweifellos   in guter

    since the student$_{nom}$ [the teachers of   himself]$_{acc}$ undoubtedly in good

    Erinnerung behalten   hat.

    memory   kept   has

    The student has undoubtedly kept the teachers of himself in good memory.

The binding phenomena in (17)-(18) provide evidence for the fact that short scrambling is A-movement in Japanese, whereas it is A'-movement in German.

Scrambling from control infinitives in Japanese and German acts exactly like short scrambling, having A-properties in the former and A'-properties in the latter language. A category that has been scrambled out of an infinitive in Japanese, irrespective of whether it has been scrambled to VP or IP, can A-bind an anaphor in the matrix clause (19b-c):

(19) a. * [John-ga [[otagai$_i$-no   sensei]-ni [PRO karera$_i$-o homeru yooni]

    J$_{nom}$ *each other$_{gen}$ teacher$_{dat}$*   *they$_{acc}$* *praise* *to*

    tanonda]] (koto).

asked fact

John asked each other_i's teachers to praise them_i.

b. ? [John-ga [*karera_i-o* [[otagai_i-no sensei]-ni [PRO *t* homeru yooni] tanonda]]] (koto).

c. ? [*Karera_i-o* [John-ga [[otagai_i-no sensei]-ni [PRO *t* homeru yooni] tanonda]]] (koto).

(Saito 1994b)

Hence, Japanese scrambling out of control infinitives functions again like A-movement.

Concerning German, we can observe that as was the case with short scrambling, scrambling out of control infinitives exhibits only A'-properties. In contrast to the Japanese examples in (19b-c), in German an NP scrambled out of an infinitive cannot bind an anaphor:

(20) a. * weil *dem Jungen_i* [der Vater von sich]_i [PRO *t* ein Geschenk zu

  since the boy_{dat} [the father of himself]_{nom} a present_{acc} to

  machen] versucht hat.

  make tried has

  * The father of himself has tried to give a present to the boy.

b. * weil der Direktor *den kranken Schüler_i* [dem Lehrer von sich]_i

  since the director_{nom} the sick pupil_{acc} [the teacher of himself]_{dat}

  [PRO *t* zu besuchen] erlaubt.

    to visit allows

  * The director allows the teacher of himself to visit the sick pupil.

Now let us turn to long distance scrambling from finite CPs. Although scrambling from finite clauses is generally prohibited in German (21), it is possible in Japanese, even if only for objects rather than subjects and adjuncts as shown in (22):

(21) * daß [_{IP} *dieses Buch* [_{IP} Hans [_{VP} dem Studenten gesagt hat [_{CP} daß Maria *t*

  that this book_{acc} H._{nom} the student_{dat} told has that M._{nom}

  besitzt]]]].

  owns

  Hans told the student that Mary owns this book.

(22) a. [IP *sono hon-o* [IP John-ga [VP Bill-ni [CP Mary-ga *t* motteiru to] itta]]](koto).

        that book$_{acc}$ J.$_{nom}$ B.$_{dat}$ M.$_{nom}$ *have*   *C*   *said*   *fact*

        That book, John said to Bill that Mary has.

    b. * [IP *sono hon-ga* [IP John-ga [CP *t* yoku ureteiru to] omotteiru]].

        that book$_{nom}$ J.$_{nom}$ *well sell*   *C*   *think*

      * That book, John thinks that *t* sells well.

    c. * [IP *riyuu-mo naku* [IP Mary-ga [CP John-ga *t* sono setu-o sinziteiru to]

        reason-even without   M.$_{nom}$ J.$_{nom}$ *that theory$_{acc}$* *believes*   *that*

        omotteiru]] (koto).

        thinks   *(fact)*

        Without any reason, Mary thinks that John believes in that theory.

                                   (Saito 1985, Nemoto 1993:17)

In contrast to short scrambling and scrambling from infinitives, scrambling out of finite clauses has only A'-properties in Japanese. This can be demonstrated by examples like (23) (Saito 1992:85, Watanabe 1992). A long scrambled NP cannot bind an anaphor in the matrix clause:

(23)   * [*Karera$_i$-o* [[otagai$_i$-no sensei]-ga [Hanako-ga *t* hihansita to] itta]] (koto).

        they$_{acc}$ *each other$_{gen}$* *teacher$_{nom}$* H.$_{nom}$ *criticized*   *C*   *said*   *fact*

        Them each other's teachers said that Hanako criticized.

On the basis of this criterion, we can conclude that in Japanese, scrambling out of finite clauses is A'-movement, in contrast to scrambling out of infinitives and short scrambling, which is A-movement. In contrast to this, scrambling in German is generally A'-movement.

Before developing our account of these differences, we will briefly show that other criteria, which have led others to different conclusions about the A-/A'-properties of German and Japanese scrambling, do not in fact provide any conclusive evidence in this regard. The relevant tests come from reconstruction effects, weak crossover effects, and parasitic gap phenomena.

2.2 Reconstruction, Weak Crossover Effects, and Parasitic Gaps

A common test for determining whether short scrambling is A- or A'-movement comes from examples in which a structural relation required by A-binding of anaphoric expressions is destroyed by scrambling. Given the assumptions that the Binding Theory applies at LF (Chomsky 1993) and that reconstructability of a moved element is an A'-property (Saito 1989, Chomsky 1993), the examples in (24b) and (25b) are often taken to show that short scrambling may be A'-movement and thus operates like long distance scrambling, as can be seen from (24c) (cf. Nemoto 1993:25, Saito 1994b).

(24) a. [$_{IP}$ karera$_i$-ga [$_{VP}$ otagai$_i$-o   hihansita]] (koto).

         they$_{nom}$ each other$_{acc}$ criticized   fact

      b. [$_{IP}$ *otagai$_i$-o*   [$_{IP}$ karera$_i$-ga [$_{VP}$ *t* hihansita]]](koto).

         each other$_{acc}$ they$_{nom}$ criticized   fact

      c. *Zibun-zisin$_i$-o* Joe-ga [Michael$_i$-ga *t* kiratteiru to] omotteiru (koto).

         self-self$_{acc}$ J.$_{nom}$ M.$_{nom}$ hate   C   thinking (fact)

         Himself, Joe thinks that Michael hates.

(25) a. daß die beiden$_i$ immer noch einander$_i$ lieben.

         that the both$_{nom}$ still   each- other$_{acc}$ love

      b. daß [$_{IP}$ *einander$_i$* [$_{IP}$ die beiden$_i$ immer noch *t* lieben]].

         that   each-other$_{acc}$ the both$_{nom}$ still   love

Since German does not allow long scrambling out of finite clauses (for reasons to which we return presently), a German counterpart of (24c) cannot be constructed.

If it is assumed that short scrambling is A-movement in Japanese but A'-movement in German, how can we explain that anaphoric binding is possible in (24b), still assuming that reconstruction is a typical property of A'-moved elements and that the Binding Theory applies at LF?

There are empirical reasons for questioning the assumption that the Binding Theory applies only at LF. Note that anaphors which are contained in elements that are A-moved out of the c-command domain of their antecedents do not violate Principle A (26) (cf. Barss 1986:108; Belletti and Rizzi 1988; Johnson 1985:41ff., 1987, 1992; Pesetsky 1987; among others).

(26) a. *Pictures of himself*$_{i}$ [$_{VP}$ [please *t*] John$_{i}$].

b. *Each other*$_{i}$*'s pictures* seem to the men$_{i}$ [$_{IP}$ *t'* to be *t* the most beautiful].

The dependent elements in (26) act as if they were contained in A'-moved phrases (27):

(27) a. *Which pictures of himself*$_{i}$ does John$_{i}$ like *t*?

b. John wonders [$_{CP}$ *which pictures of himself*$_{i}$ Bill$_{i}$ likes *t*].

c. *Which pictures of himself*$_{i/j}$ does John$_{j}$ think[$_{CP}$ *t'* that Bill$_{i}$ likes *t*]?

If we assume that the Binding Theory exclusively applies at LF and that reconstruction is impossible for A-moved elements, the examples in (26) cannot be accounted for.[3] Hence we conclude that (24b-c), (25b) also do not provide evidence for the question of whether scrambling is A- or A'-movement. In order to explain binding data such as that in (24)-(25) and (26)-(27), we rather assume that Principle A of the Binding Theory can be stated in derivational terms as in (28) (cf. Belletti and Rizzi 1988, Uriagereka 1988, Lebeaux 1991, Sabel 1996b):

(28) Principle A of the Binding Theory can be fulfilled at any point of the derivation.

(28) accounts for the well-formedness of (24)-(25) and (26)-(27) without referring to the question of whether or not the anaphor (or the element that contains the anaphor) has undergone A- or A'-movement. Given this analysis, the binding data in (24b-c) and (25b) does not provide a test for the A-/A'-properties of scrambling.[4]

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[3] Examples like those in (26) along with particular scope facts have been used as arguments for the claim that A-movement also reconstructs. However, examples like *John seems to himself to be a nice guy* suggest that this claim cannot be correct. For further evidence against A-movement reconstruction see Chomsky (1995). An alternative analysis of the relevant scope facts in connection with A-movement which does not rely on reconstruction is suggested in May (1985).

[4] A reviewer points out that the derivational version of Principle A of the Binding Theory might face a problem in view of the fact that a subject-anaphor in Spec of VP may be bound at a certain stage of the dervation by an object moved to Spec of AgroP and then raise to Spec of AgrsP yielding the ungrammatical sentence (i) (VP-internal object trace omitted):

(i) *weil[$_{AgrsP}$ sich$_{i}$ [$_{TP}$ [$_{AgroP}$ den Mann$_{i}$ [$_{VP}$ t$_{sich}$ verletzt]]] hat].
since himself$_{nom}$ the man$_{acc}$ hurt has

A related reconstruction problem seems to arise in the case of bound pronouns. At first sight, reconstruction of pronoun binding seems to provide evidence for the A'-movement analysis of scrambling in German:

(29) weil $[_{AgrP}[$ PRO   sie$_i$ nicht zu vergessen$]_j$ $[_{AgrP}$ Peter {jeder/keiner}   Frau$_i$ t$_j$

   since   her$_{acc}$ not   to   forget   P.-$_{nom}$ {every/no}   woman$_{dat}$

   versprochen   hat]].
   promised   has

   Peter has promised every/no woman not to forget her.

However, as was pointed out by a reviewer, the same situation as in German is observed with short CP-scrambling in Japanese (Hoji 1985:115), which might be taken to indicate that short scrambling in Japanese has A'-properties too:

(30) $[pro_i$ hitome   mita   hito]-o$_j$ dare$_i$ -ga   t$_j$ sukini   natta   no?

      one-glance saw   person   who$_{nom}$ fall-in-love   Q

   The person that he$_i$ saw, who$_i$ fell in love with?

If short scrambling in Japanese is only A-movement, as we tried to establish in section 2.1, the question arises as to how binding of the empty pronoun in (30) is achieved. Pronoun-binding cannot be attributed to LF-movement of the operator since this should lead to a weak crossover effect.

   We would like to argue that pronoun-binding in the examples (29)-(30) cannot be taken as evidence that A'-movement is involved, since it must be given an account that is independent of the A-/A'-distinction. As can be seen from the examples (32)-(33) in contrast to (31), the bound variable reading of a pronoun can also be licensed when the pronoun has left the c-command domain of its binder as a result of A-movement (examples (31)-(32) from Engdahl 1986 and Koizumi 1992, mentioned in Abe 1993):

Note, however, that this derivation is excluded if we follow the analysis suggested by Chomsky (1995), Koizumi (1995), and Collins and Thráinsson (1996) according to which the subject is base-generated in a position higher than the Case position into which the object is raised.

   Moreover, the question may arise as to whether Principles B and C can also be stated in a derivational way. This is indeed the case. A derivational version of Principle C is suggested in Lebeaux (1991) and Heycock (1995), who argue that Principle C is an "Everywhere Condition". As far as a derivational version of Principle B is concerned, see Sabel (1996b).

(31) *Which of his$_i$ parents* do you believe that every man$_i$ likes [*t* best]?

(32) *Its$_i$ nose* seems to every intelligent robot$_i$ [*t* to be ugly].

(33) *Sein$_i$ Sohn* scheint jedem$_i$ Vater   ein Genie [*t* zu sein].

      his   son$_{nom}$ seems   every father$_{dat}$ a   genius   to be

      His son seems to every father to be a genius.

Licensing of the bound variable reading of a pronoun is therefore independent of the A- or A'- movement properties of the constituent containing the pronoun. Following Abe (1993), who concludes that the c-command requirement on bound variables must be stated in terms of chain-binding, and Reinhart (1983), who argues that bound pronouns can be treated as a subcase of Principle A of the Binding Theory, we would like to suggest an account of this requirement which parallels a derivational version of the Binding Theory: a pronoun can be interpreted as a bound variable if it is A-bound by an operator at *any* point in the derivation.[5] The question as to why LF-movement of the *wh*-phrase in (30) does not yield a weak crossover violation can then be answered along similar lines: the A'-binder of a pronoun that is A-bound at one step of the derivation does not induce a weak crossover effect. We can therefore conclude that neither the examples concerning the reconstruction of anaphoric binding nor those concerning the reconstruction of pronoun binding provide evidence against our claim that short scrambling in Japanese is A-movement. It goes without saying that they do not provide evidence for the A'-movement properties of German scrambling either.

    A further diagnostic commonly used to determine whether scrambling is A- or A'- movement relates to the phenomenon of weak crossover. According to Lasnik and Stowell (1991), weak crossover effects occur if there is a configuration in which an element A'-binds both a trace and a pronoun contained in an argument XP that c-commands the trace. Consider the following examples from Japanese and German:

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[5]As can be seen from the following example, variable binding is also possible when a direct object containing an empty pronoun is scrambled to a position in front of an indirect *wh*-object (Hoji 1985:125):

(i) Kimi-wa [$_{NP}$[$_{CP}$ *pro$_i$*   okuttekita] hon]-o$_j$ dare$_i$-ni t$_j$ okurikaesita no?

    you-top   *sent-over   book$_{acc}$ who$_{dat}$ sent-back   Q*

    Who$_i$ did you send t$_i$ back the book that he$_i$ sent to you?

(34) a. ?*[[Soitu$_i$-no hahaoya]-ga [dare$_i$-o aisiteru]] no?

   the guy$_{gen}$ mother$_{nom}$ who$_{acc}$ love   Q

   His$_i$ mother loves who$_i$?

   b. ? *Dare$_i$-o* [[soitu$_i$-no   hahaoya]-ga [*t* aisiteru]] no?

   who$_{acc}$ the-guy$_{gen}$ mother$_{nom}$ love   Q   (Saito 1992:73)

(35) a. * weil   seine$_i$ Mutter   jeden Studenten$_i$ liebt.

   since   his   mother$_{nom}$ every student$_{acc}$ loves

   His$_i$ mother loves every student$_i$.

   b.   weil   [$_{IP}$ *jeden Studenten$_i$* [$_{IP}$ seine Mutter$_i$ *t*   liebt]].

   since   every student$_{acc}$ his   mother$_{nom}$ loves

In (34a), LF-movement of the *wh*-phrase proceeds to an A'- or operator-position in front of the subject, thus resulting in the weak crossover effect. This seems to be correct in general for LF-movement as it is also evident in the German example (35a). In (34b, 35b), on the other hand, scrambling places the operator phrase in front of the argument that contains the pronoun without yielding a weak crossover violation. Given this patterning, several authors have been led to conclude that short scrambling to IP as in (34b, 35b) can be regarded as A-movement in German as well as in Japanese.

   There are several empirical problems concerning the view that (34b, 35b) provide evidence for the claim that scrambling can be A-movement. First, we can observe that short *wh*-movement (36) and topicalization (37) to Spec CP, i.e. obvious instances of A'-movement, do not yield weak crossover effects in German either:

(36) a. [$_{CP}$ *Wen$_i$* [$_{C'}$ *liebt* [$_{IP}$ seine$_i$ Mutter   *t*   t$_V$]]]?

   who$_{acc}$ loves   his   mother$_{nom}$

   Who$_i$ does his$_i$ mother love?

Given that it is generally agreed upon that short scrambling to VP is A-movement in Japanese (Tada 1989, Saito 1992; 1994b, Nemoto 1993, Sakai 1994), (i) provides further support for an account in terms of derivational

b. Maria   weiß   nicht [_CP_ *welchen Jungen*_i_ [_IP_ seine_i_ Mutter *t*   verstoßen hat]].

M. _nom_ knows   not   which   boy_acc_   his   mother _nom_ disowned has

Mary does not know which boy_i_ his_i_ mother has disowned.

(37)   [_CP_ *Jeden Studenten*_i_ [_C'_ *liebt* [_IP_ seine_i_ Mutter *t*   *t*_V_]]].

*every student_acc_   loves   his   mother_nom_*

Every student_i_, his_i_ mother loves.

Secondly, several authors have shown that the distribution of weak crossover effects is inherently linked not to construction types but to the types of NPs extracted, i.e. a weak crossover effect does not occur in constructions where the element which is moved is not quantificational (Lasnik and Stowell 1991, Culicover 1992, Authier 1993, Postal 1993). Finally, Williams (1994) and Hornstein (1995) provide evidence that weak crossover effects should be accounted for in terms of a Leftness Condition - i.e. without recourse to the A-/A'-distinction. Further arguments against the idea that weak crossover data can be used as a diagnostic for the A-/A'-properties of movement can be found in Cho (1991), Georgopoulos (1991), Nemoto (1993), Browning and Karimi (1994), Williams (1994), Hornstein (1995), Bresnan (1996). We therefore conclude that weak crossover data of type (34b, 35b) does not provide a test for the A-/A'-properties of scrambling. This implies that contrary to widely held assumptions, examples like (35b) do not undermine the claim that short scrambling is A'-movement in German.

Certain properties of parasitic gap constructions seem to pose a final problem for our claim that scrambling in German is of an A'-nature. Bennis and Hoekstra (1984) have argued that scrambling in Dutch licenses parasitic gaps (but see Zwart 1993:311ff., Bobaljik 1995 for an opposing view). Parasitic gaps seem to be licensed only by (overt) A'-movement ((38a) vs. (38b)), if the trace does not c-command the parasitic gap and the A'-moved element c-commands the parasitic gap as well as its trace (38a):

(38) a.   *Wen*   hat der Arzt   [ohne *e* anzuschauen] *t* untersucht?

Who_acc_   has the doctor_nom_ [without   looking-at e]   examined

Who has the doctor examined without looking at?

---

variable binding as opposed to an analysis in terms of reconstruction.

b. * Der Arzt   ließ den Patienten [ohne *e* zu beruhigen] schreien.

   the doctor_{nom} let the patient_{acc} [without   to calm   e] cry-out

   The doctor let the patient cry without calming him down.

(39) a. * weil der Arzt   [ohne *e* anzuschauen] den Patienten untersucht hat.

   since the doctor_{nom} [without looking-at e] the patient_{acc} examined has

   The doctor has examined the patient without looking at him.

   b.   weil den Patienten der Arzt   [ohne e anzuschauen] t untersucht hat.

   since the patient_{acc} the doctor_{nom} [without looking-at e]   examined has

As can be seen from (39b), parasitic gaps also seem to exist in German scrambling examples, which is compatible with our claim that scrambling in German is always A'-movement. However, sentences like (40) may appear to present a problem for the analysis:

(40) ? weil *die Gäste*   der Student [ohne *e* anzuschauen]

   since the guests_{acc} the   student_{nom} without   to-look-at

   [_{VP} einander   *t*   vorgestellt hat].

   each-other_{dat} introduced   has

   The student has introduced the guests to each other without looking at them.

In (40) the direct object has been scrambled into a position from where it acts simultaneously as an A-binder with respect to the reciprocal expression and as an A'-binder licensing the parasitic gap (Webelhuth 1989). This implies that scrambling in German is not an instance of pure A'-movement. In light of a theory that assumes that structural case assignment is mediated via Spec-head agreement, the phenomenon shown in (40) can be interpreted in a different way, as pointed out by Mahajan (1990) (see also Vanden Wyngaerd 1989). Consider the possibility that the scrambled NP in (40) is moved via an AgroP specifier position in order to check its case (Chomsky 1993). Then, given the derivational version of Principle A, a scrambled NP should be able to bind the reciprocal from the position of the case marked trace *t'* as represented in (40').[6]

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[6]The reciprocal expression *einander* 'each other' remains in VP in (40) because it cannot be (structurally) case-marked, as can be seen from the fact that case absorption does not take place in passive constructions (Müller 1995):

(40') ? weil *die Gäste* der Student [ohne *e* anzuschauen][$_{AgroP}$ *t'* [$_{VP}$ einander *t*
     since the guests$_{acc}$ the student$_{nom}$ without to-look-at   each-other$_{dat}$

     vorgestellt hat]].
     introduced has

The next movement step targets an adjoined position, which - as we assume - is always a position with A'-properties. This movement step licenses the parasitic gap.[7] Again we reach the conclusion that parasitic gap constructions do not provide evidence against the view that scrambling in German has A'-properties throughout. In addition, parasitic gap constructions cannot be taken as a test for the A-/A'-properties of scrambling in Japanese. As argued in Saito (1992:72) parasitic gaps do not exist in Japanese.

Let us summarize the discussion so far. Certain tests for the A-/A'-movement properties of scrambled elements, such as reconstruction properties of scrambled elements, weak crossover phenomena, and the licensing of parasitic gaps, have been shown not to undermine our suggestions made concerning the A-/A'-properties of scrambling in German and Japanese. We can therefore sustain the result achieved in section 2.1: In German, scrambling is exclusively A'-movement. In Japanese, short scrambling and scrambling out of control infinitives is solely A-movement while long scrambling out of finite clauses is A'-movement.

In the sections to follow we will offer an explanation for these contrasts which is based on the idea that scrambling in German and Japanese uses different landing sites. The differences between scrambling in German and Japanese can be explained if the landing site of A-scrambling in Japanese is a specifier position and therefore has properties different from those of the landing site of scrambling in German, which we take to be an adjunction position, uniformly associated with A'-properties. One obvious prerequisite for an explanation along these lines is the existence of a sufficient number of appropriate positions to account for the A-properties of scrambling in Japanese. In the next section we provide evidence for the existence of multiple specifiers in Japanese and capture the systematic correlation already expressed in the Scrambling Generalization of section 1, repeated here for convenience:

(i) daß einander hier   nicht angelogen wurde.
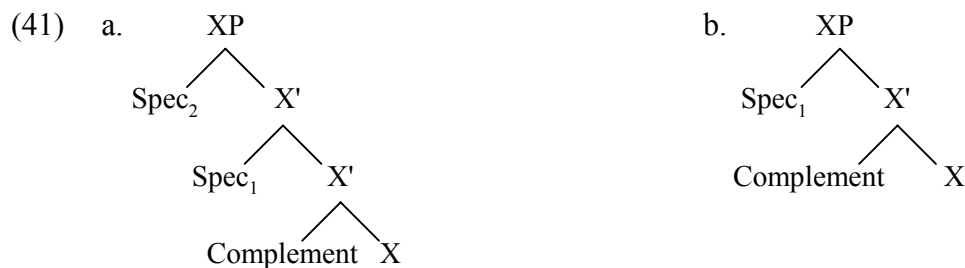   *that each-other here   not   lied-to   was*

[7]As should be clear from the discussion of (40) and as already pointed out in section 1, we make a distinction between object shift as movement to a Case position and scrambling as movement to a non-Case position; see section 3 for discussion.

19

(3) *Scrambling Generalization*

A scrambling language allows A-scrambling as well as scrambling out of finite clauses
iff multiple Agr-specifiers are licensed in the language.

3. Layered Specifiers in the Japanese Agreement System

Chomsky (1994) proposes to eliminate X-bar theory, deriving instead some of its effects from
what he calls "Bare Phrase Structure". The core of the Bare Phrase Structure Theory is an
algorithm called "Merge", which takes two syntactic units and joins them together,
asymmetrically projecting one of the two inputs. Merge is a binary structure-building
operation that applies cyclically, assembling trees from bottom to top. Two *terms*
(constituents) are combined to form a complex term (constituent), which has the properties of
its head (cf. Chomsky 1994:12ff.). For example, a DP like *[DP the book]* is a result of Merge.
The complex term {(D) *the* {(D) *the*, (N) *book*}} results from merging the terms *the* and *book*
where D (*the*) is the (projecting) head of the complex term DP. A crucial property of this
theory is that in contrast to X-bar theory, the notion of maximality is no longer incorporated
into the system: minimal and maximal projections must be determined from the structure in
which they appear, without any specific marking. In other words, maximality and minimality
are relational rather than inherent properties of categories. As an important consequence of the
relational character of maximality and minimality, the bare theory does not exclude a structure
with multiple specifier positions such as (41a) (Chomsky 1994:41ff.) in contrast to traditional
X-bar structures such as (41b):

(41) a.

b.

Based on a suggestion made by Chomsky (1995) according to which the projection of
multiple specifiers constitutes a parameterized property, we would like to argue that contrary
to German, the agreement system in Japanese permits layered specifiers and that these layered
Agr-specifiers are licensed by the ability of the Agr-heads to check multiple sets of relevant
features, Case being only checked in $Spec_1$. If Case is checked in $Spec_1$ in German (41b) as

well as in Japanese (41a) and if scrambling is a feature-driven process triggered by the head X, which we will in fact argue for, (short) scrambling in Japanese may proceed into $Spec_2$ of a functional projection whereas it must be adjunction to XP in German. Note that the Spec of a functional category is not projected until a feature-mediated relation between the head and its Spec position is established.

Ample evidence can be put forth to support the claim that the Japanese agreement system permits multiple specifiers. First, Kuroda (1992) has tried to establish that unlike English, Japanese is not what he calls a "forced agreement" language. By this he means, among other things, that there is a lack of a uniqueness effect in Japanese in the sense that nothing constrains the number of maximal categories (including *wh*-elements) that enter into an agreement relation. A typical example is represented by the multiple subject or nominative construction as illustrated in (42) (see Doron and Heycock 1998 for further elaboration of the multiple specifier analysis of (42)):

(42) a.   Mary-ga   kami-ga nagai (koto).

          M.$_{nom}$ *hair$_{nom}$*   *long*   *(fact)*

          Mary has long hair.

      b.   Yoi   otya-ga   nihonzin-ga   kononde nomu (koto).

          good green-tea$_{nom}$ *Japanese$_{nom}$* *enjoying drink* *(fact)*

          Good green tea [is such that] Japanese people drink it with pleasure.

It can be taken as a consequence of the properties described by Kuroda that Japanese allows "super-raising" (i.e. long NP-movement beyond the subject of a clause). Ura (1994) points out that covert super-raising occurs in the so-called "dative-subject construction" as illustrated in (43a):

(43) a.   Boku-wa [John-ni piano-o/-ga hik-er-u   to]   omow-u.

          I$_{Top}$ *J.$_{dat}$*   *piano$_{acc/nom}$* *play-can$_{pres}$* *C*   *think$_{pres}$*

          I think that John can play the piano.

      b. * John-ni   piano-o   hik-er-u.

          J.$_{dat}$ *piano$_{acc}$* *play-can$_{pres}$*

          John can play the piano.

      c.   John-ni   piano-ga hik-er-u.

          J.$_{dat}$ *piano$_{nom}$* *play-can$_{pres}$*   (Ura 1994)

In (43a), the embedded subject is marked as dative. As can be seen from (43b) and (43c), the presence of a dative subject somehow absorbs the accusative case in simple clauses so that the direct object can only appear as nominative. However, the embedded object in (43a) can be marked as nominative or as accusative. Given the absorption of the accusative case as reflected in (43b), Ura concludes that the embedded accusative in (43a) can only be checked in the matrix clause. Since this checking takes place at LF, (43a) represents an instance of a covert super-raising configuration. Since super-raising is ruled out in languages such as English by the conspiracy of Relativized Minimality and the ban against illicit A-A'-A chains as an instance of improper binding, there must be an additional position with A-properties in Japanese that is available as an escape hatch for the object in the embedded clause of (43a). Unlike Ura (1994), who takes this position to be an adjoined position, we assume, to maintain our basic claim mentioned above, that it is a specifier position in the Agr-system.

Finally, the Japanese subject of a clausal complement or relative clause embedded under certain non-derived nouns such as *uwasa* (rumor), *houkoku* (report), and *giwaku* (suspicion) allows the so-called "*ga/no*-conversion", i.e. its case, which is usually realized as nominative, may be realized as genitive (Miyagawa 1993, Ura 1993). The *ga/no*-conversion is accounted for by Miyagawa (1993) and Ura (1993) as LF-Case checking of the embedded subject in the specifier position of the matrix DP (*uwasa* in example (44)), which is analyzed as movement of the subject from Spec VP through the embedded Spec AgrsP (where it may trigger "honorification-agreement") to Spec DP of the higher noun. Interestingly, as pointed out by Ura (1993:389), *ga/no*-conversion can occur even though the subject position of the clause embedded under the appropriate noun is filled with another NP:

(44) [$_{DP}$[$_{NP}$[$_{CP}$[$_{AgrsP}$ Handai-ga   dansi gakuseii-ga/-no kinben-da] toyuu] uwasa]]

         Osaka Univ.$_{nom}$ male students$_{nom/gen}$ diligent-be C   rumor

     the rumor that male students at Osaka University are diligent

In (44), the nominative marked DP *Handai-ga* occupies the Spec AgrsP position, since at LF its Case-feature is checked by the embedded T. If the genitive-marked DP *gakuseii-no* moves out of the embedded AgrsP in one step, it causes a violation of Relativized Minimality by the Spec of AgrsP. The grammaticality of (44) can therefore be taken as evidence for the presence of a second specifier position (Spec$_2$) of AgrsP that can be used by the genitive DP to undergo A-movement to the Spec position of the matrix DP, where its Case-feature is checked.

In conclusion, we assume that in Japanese, due to parametric properties of the agreement system, there are multiple positions with A-properties available as specifiers of the agreement head.[8] These positions are independently licensed in languages containing Agr-heads capable of checking multiple sets of features, one of them being checked in the higher Spec position (Spec$_2$). The features checked in Spec$_2$ may be multiple inherent Case features (as is the case with multiple subject constructions), particular agreement features or, as we shall see shortly, a scrambling feature.[9] The specifier position that is not a Case position (Spec$_2$) can be employed in super-raising constructions, thereby escaping the ban against illicit A-A'-A movement. Due to the equidistance of the two Spec positions, the lower Spec position (Spec$_1$), which is filled by the NP that mandatorily requires Case checking does not induce a Relativized Minimality effect.

4. Explaining the Differences between German and Japanese Scrambling

Based on the conclusion drawn in section 3, we would like to suggest a feature-based theory of scrambling which proceeds from the assumption that A- and A'-properties are associated with different kinds of positions, and which not only offers an account of the different properties of Japanese and German scrambling, as illustrated in section 2, but also relates the specific nature of Japanese scrambling to independent properties of this language.

Analyzing scrambling as a syntactic process which is driven by feature-checking is conceptually motivated by the idea that the Last Resort condition is a defining property of Move (Chomsky 1995:253). According to this idea, scrambling should only ever be possible if it is obligatory movement motivated by feature-checking. However, if scrambling is analyzed

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[8]In principle, i.e. according to the algorithm of Bare Phrase Structure Theory, there is no upper limit to the number of specifiers. It depends on the feature system of a language whether or not it provides for multiple specifiers, which categories allow them, and how many specifiers are licensed. Thus the number of specifiers is determined by the sets of features that need to enter a feature-mediated relation with elements of the checking domain.

[9]Koizumi (1994) suggests a theory of layered specifiers to analyze topicalization in English, embedded verb second in Yiddish and the Scandinavian languages, and multiple *wh*-fronting in the Slavic languages. In this theory, he presents evidence that the head of a phrase with multiple specifiers must contain *hierarchically ordered features* so that feature checking is associated with specific specifiers. This idea can possibly be derived from the assumption that lexical elements are taken to be sequences of features and checked in a certain order, as suggested in Chomsky (1995:195) to capture the effects of Baker's Mirror Principle in minimalist terms.

A reviewer raises the question of whether there are independent reasons for the assumption that a feature F is checked in a specifier position in one language and in an adjoined position in another language. The answer that we would like to suggest is that in Japanese, the φ-features of an argument can be checked in different Agr-projections. We take this to be a minimalist interpretation of Kuroda's (1992) idea that Japanese is not a "forced

as a feature-driven process, one expects the feature triggering this process to have some kind of morphological reflex. It can in fact be shown that scrambling is associated with morphological effects that may vary across languages. As Chomsky (1995) points out, there are "surface effects" on interpretation involving topic-focus and theme-rheme structures, which are typically associated with movement processes like scrambling and which exhibit morphological reflexes as, e.g., definiteness effects associated with scrambling in German (Lenerz 1977) or focus marking as observed in languages such as Sinhala (Gair and Sumangala 1991).[10]

Without committing ourselves to a particular instance of these morphological concomitants, we will subsume the various morphological effects of scrambing under the cover notion of a "scrambling feature Σ" and proceed from the assumption that scrambling is indeed triggered by feature checking.[11] For reasons that will become clear in the following discussion, we would like to propose that the [Σ]-feature is realized with Agr-heads. Let us therefore state the crucial assumption of a feature-based theory of scrambling as follows:

(45) *Scrambling as a feature-mediated process*

Scrambling is a feature-mediated process driven by a scrambling feature [Σ] that is optionally realized with Agr-heads.

Let us first discuss our assumption that the scrambling feature is associated with Agr-heads. In order to establish this assumption, we would first like to proceed along the lines of Rizzi (1991b), who suggests that Inflcan carry *wh*-feature on the grounds that in some languages, the verb manifests a special morphology in interrogatives. Given that scrambling likewise shows morphological effects in some languages, as indicated above, we conclude that the scrambling feature is located in Agr rather than in some other functional head.

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agreement" language. Therefore, in contrast to German, an object may check its φ-features in Spec of AgrsP in Japanese, which implies the existence of a further specifier position and provides a landing site for scrambling.

[10] Miyagawa (1997) shows that contrary to widely held assumptions, scrambling in Japanese is not semantically vacuous but can be analyzed as obligatory focus driven movement.

[11] Fukui (1993b) takes a different point of view and argues that optional movement should be allowed in a language if this movement is in consonance with the setting of the head-parameter. He assumes that SVO languages may have optional movement to the right whereas SOV languages, such as Japanese, may have optional movement to the left, and that both movements do not count for economy. However, unpredicted in Fukui's analysis is the fact that SVO languages like Polish and Russian also have scrambling (hence optional movement under his view to the left) and that SOV languages like German have optional extraposition of Heavy NPs, PPs and infinitivals. A further (logical) possibility, as pointed out to us by Noam Chomsky (p.c.), would be to assume that (optional) movement like scrambling takes place in a different computational system.

Further evidence for this assumption can be gained from the fact that there is a systematic correlation between certain properties of Agr and the availability of scrambling, which has been attributed to parametric properties of the features associated with Agr-heads (Infl in former terms) (see Koster 1986, Reuland and Kosmeijer 1988, Sabel 1996b, among others). It can be observed that languages which do not exhibit the phenomenon of scrambling may divide into two groups, that is, languages like English or French in which *pro* is not licensed, and *pro*-drop languages such as Italian. On the other hand, we do not know of scrambling languages in which *pro* does not occur. Thus, for example, scrambling languages such as German, Hindi, Japanese, Korean, Modern Persian, Polish, Russian, and Turkish all license (argumental or non-argumental) *pro*. Crosslinguistic evidence therefore suggests that the possibility for Agr to realize a scrambling-feature is linked to an additional language-specific property of Agr (-eement); in other words, the ability to license *pro*-subjects is a necessary (but not a sufficient) condition for a language to have scrambling. This correlation may be accounted for in terms of strength by saying that an agreement head is not strong enough to bear a scrambling feature unless it is strong enough to license *pro*. A similar rationale for the assumption that the property of Agr to license empty subjects correlates with the property of Agr to determine variations of word order is given in Kayne (1989), where this correlation is attributed to the "strength" of Infl.

It is a consequence of the assumption stated in (45) that the scrambling feature [Σ] requires checking within the Agr-projection, i.e. in an L-related or broadly L-related position of AgrP both of these being in the checking domain of Agr° (assuming the analysis in Chomsky 1993, see also fn. 13). [12] Whether the scrambling feature is checked in an L-related or in a broadly L-related position depends on an independent property of the scrambling language in question, namely on the availability of multiple specifiers. Irrespective of which option is realized,

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[12]Following Mahajan (1990:10f.) and Chomsky (1995:64, 86, 196) among others, we take Spec and complement positions as L-related if they are in a local relation to a head that bears a lexical feature (L-feature). Since L-features are associated with lexical categories and the functional elements T and Agr, L-related positions include Spec and complement positions of lexical categories as well as of Agr and T. By movement to L-related positions we mean movement to *narrowly* L-related positions, i.e. non-adjoined positions, since adjoined positions are "broadly L-related" and (along with Spec CP) do not count as L-related positions. Recall that Chomsky (1995:196) substitutes the notion of a narrowly L-related position for the notion of an A-position and the notion of a non L-related and broadly L-related (adjoined) position for the notion of an A'-position. In the following we will maintain the traditional notions of A-/A'-movement and A-/A'-binding. A-movement is understood as movement to an L-related position and A-binding as binding from an L-related position. Accordingly, by A'-movement we mean movement to a broadly L-related or non-L-related position and by A'-binding we mean binding from a broadly L-related or non-L-related position.

scrambling to IP will then in fact be scrambling to AgrsP and scrambling to VP will be scrambling to AgroP.

The feature-mediated process of scrambling operates in a way analogous to the assignment of *wh*-features in the case of long *wh*-movement. Given that successive cyclic *wh*-movement involves multiple applications of Move, each application must be conceived of as a feature-driven movement to every intermediate CP, even if features are not ultimately checked there (cf. Chomsky 1995; Collins 1993, 1997; Ferguson and Groat 1994, Sabel 1996a). As pointed out by Ferguson and Groat (1994) and Collins (1993), there is in fact morphological evidence from Dutch and German as well as from other languages that intermediate Comps bear *wh*-features of some sort, even if they are not the site of the *wh*-operator at LF.

Applying this idea to the feature-driven process of scrambling, we suggest that assignment of the scrambling feature to Agrs implies assignment of a scrambling feature to each intermediate Agrs, and assignment of the scrambling feature to Agro implies assignment of a scrambling feature to each intermediate Agro. Consequently, in a sentence such as (46) displaying long scrambling out of a finite clause to AgrsP, the scrambling feature is located in both Agrs of the matrix and Agrs of the embedded clause and has to be checked off in both cases (the analogue of (46) with long scrambling to AgroP would be triggered by the scrambling feature in both Agro of the matrix and Agro of the embedded clause, see the discussion below):

(46) [$_{\text{AgrsP}}$ *sono hon-o* [$_{\text{AgrsP}}$ John-ga [$_{\text{VP}}$ Bill-ni [$_{\text{CP}}$[$_{\text{AgrsP}}$ *t'* Mary-ga *t* motteiru to]

      that book$_{acc}$ *J.$_{nom}$*   *B.$_{dat}$*   *M.$_{nom}$*   *have*   *C*

      itta]]]] (koto).

      said fact

      That book, John said to Bill that Mary has.

Of course, in a simple sentence with short scrambling to AgrsP, only Agrs and the constituent to be scrambled contain the scrambling feature.

Let us now consider how the differences between German and Japanese scrambling can be explained on the basis of a featured-based theory of scrambling and in terms of the parameterization of phrase structure outlined in section 3.

4.1 The A-/A'-Properties of Clause-Internal Scrambling in German and Japanese

First we shall answer the question of why short scrambling to AgroP/AgrsP is always A-movement in Japanese. In (47) (= (1b)) the scrambled object is located in the $Spec_2$ AgrsP position, i.e. a position with A-properties from where it can act as an A-binder for the anaphor.

(47)   ?[*Karera$_i$-o* [[otagai$_i$-no   sensei]-ga [*t* hihansita]]](koto).

   they$_{acc}$ each other$_{gen}$ teacher$_{nom}$ criticized   fact

   Them$_i$, each other$_i$'s teachers criticized.   (Saito 1992:74f.)

Consider the abstract representation of the example (47) with short scrambling of the NP-object to AgrsP in Japanese:

(48) $[_{AgrsP}$ Spec$_2$ $[_{Agrs'}$ Spec$_1$ $[_{TP}$ $[_{AgroP}$ Spec$_1$ $[_{VP}$ Subject   Object ...]]]Agr(Σ)]]

We assume that movement from Spec AgrP to Spec AgrP (Agr = Agro or Agrs) is subject to a restriction which is based on the intuitive idea that head movement extends the domain in which XP-movement may apply. This idea was originally stated as the claim (Baker 1988) that head movement opens barriers for XP-movement. In Chomsky (1993) it is theoretically expressed in terms of the notion of equidistance, according to which the chain of verb movement limits the domain in which XP-movement may apply. In the special case of A-movement, the idea that verb raising extends the domain in which A-movement can apply can be given a theoretical treatment in terms of a slightly extended notion of L-relatedness along the lines of Kikuchi, Oishi, and Yusa (1994) (for discussion see also Saito 1992). Based on this intuitive idea, we argue that movement from Spec AgrP to Spec AgrP (Agr = Agro or Agrs) is contingent on verb raising. Since verb movement to Agrs applies in Japanese finite clauses (Nemoto 1993, Hoshi 1994, Koizumi 1995), the object may move via Spec$_1$ of AgroP (where it checks its case) on to Spec$_2$ of AgrsP to check the Σ-feature (cf. assumption (45)). Spec$_1$ of AgrsP is occupied by the raised subject. The Spec$_2$ position in AgrsP counts as an L-

related position for the scrambled object in (47) because the finite verb moves up to Agrs in Japanese. The scrambling feature can therefore be checked via movement to $Spec_2$ of AgrsP.

The A'-properties of German clause internal scrambling follow from the fact that in this language, multiple Specs are not available. The only position available for checking the Σ-feature in German is a position adjoined to AgrP. Given Chomsky's (1993) definition of 'Checking domain', a Σ-feature of Agr (Agro or Agrs) may be checked either via adjunction to AgrP or via substitution into a Spec position of AgrP.[13] In contrast to Japanese, the short scrambled object in (49) (= (18b)) is in an AgrsP-adjoined (broadly L-related) position, which - as we assume - has only A'-properties. Therefore the scrambled NP may not act as an A-binder for the anaphor:

(49) * weil *den Studenten*ᵢ [die Lehrer   von sichᵢ]   zweifellos *t*   in guter
          since the student$_{acc}$ *[the teachers of   himself*ᵢ*]*$_{nom}$ *undoubtedly*   *in good*
          Erinnerung behalten   haben.
          memory   kept   have

In sum, the fact that short scrambling has A-properties in Japanese (47) but A'-properties in German (49) follows from the different phrase-structural properties in both languages, which are due to parametric properties of agreement. Let us now turn to the question of how this theory accounts for the locality effects observed with scrambling from finite clauses.

4.2 Locality Effects and A-/A'-Properties with Scrambling from Finite Clauses

In this section we will show that our theory provides an account for the fact that scrambling out of finite clauses is impossible in German, whereas it can apply in Japanese. Furthermore, we will suggest an explanation as to why in Japanese, scrambling out of finite clauses is possible with objects rather than subjects and adjuncts. Finally, we will briefly address the question as to why scrambling out of finite clauses cannot target VP (AgroP) but has to be adjunction to IP (AgrsP).

As pointed out above, we assume that long overt *wh*-movement is derived by movement of the *wh*-phrase through every intermediate Spec CP position. In the case of *wh*-movement there is some kind of feature-spreading, i.e. the embedded C°-heads bear some defective or quasi
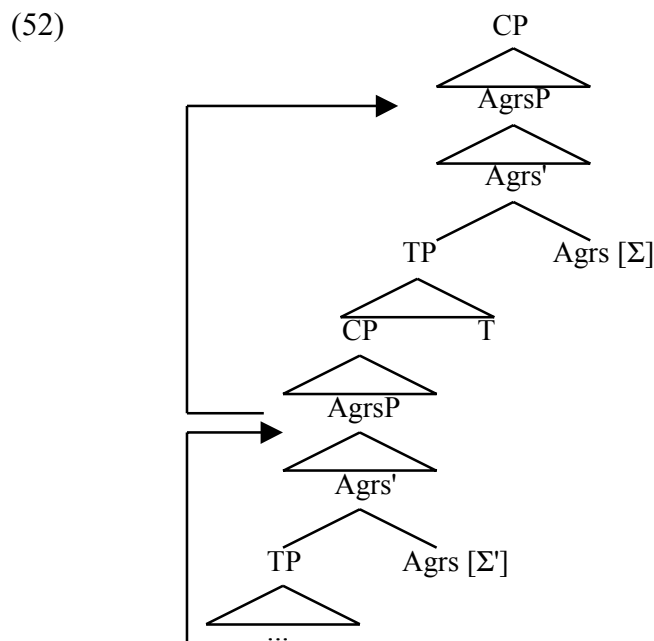
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[13]According to Chomsky (1993), an element α is in the checking domain of a head (X) if (i) it is in a Spec-head relation with X, or (ii) it is in a position adjoined to the head X, or (iii) it is adjoined to the maximal projection of X, or (iv) it is adjoined to the Spec of X.

wh-features [wh'] that need to be checked (Collins 1993, Ferguson and Groat 1994, Sabel 1996a). Applying this idea to the feature-driven process of scrambling (cf. assumption (45)), we have suggested that the assignment of the scrambling feature to Agrs/Agro results in assignment of a scrambling feature to each intermediate Agrs or Agro, i.e. to each Agrs or Agro located between the element to be scrambled and its target position. In (50)-(51) the scrambling feature is located in Agrs of the matrix and embedded clause, as can be seen from (52):

(50)　[$_{AgrsP}$ *sono hon-o* [$_{Agrs'}$　John-ga　[$_{VP}$ Bill-ni [$_{CP}$ [$_{AgrsP}$　*t'*　Mary-ga　*t*　motteiru to]]

　　　　　that　book$_{acc}$　　J.$_{nom}$　　　　B.$_{dat}$　　　　　　　M.$_{nom}$　　　have　　C

　　　itta]]]　(koto).
　　　said　fact
　　　That book, John said to Bill that Mary has.

(51)　*　daß　[$_{AgrsP}$　*dieses Buch*　[$_{AgrsP}$ Hans　[$_{VP}$ dem Studenten　gesagt hat [$_{CP}$ daß　*t'*

　　　that　　　　this　　book$_{acc}$　H.$_{nom}$　　the student$_{dat}$　said　has　　that

　　　Maria　*t*　besitzt]]]]].
　　　M.$_{nom}$　　owns
　　　That book, Hans said to the student that Mary has.

(52)

The scrambled elements in (50)-(51) have to check both Σ-features. The Σ-feature on the embedded Agrs is checked via adjunction to AgrsP in German and via substitution into Spec$_2$ of AgrsP in Japanese.

Now recall the condition on adjunction that we introduced in section 1 and that we are defending in this paper (cf. the discussion of (6)). According to this constraint, successive cyclic adjunction is ruled out in general, i.e. an element that is moved into an adjoined position may not be moved further. It follows that a scrambled element that is moved to an adjunction site inside the embedded clause, like AgrsP in (51), may not move further into the matrix clause. This is the reason why in German scrambling out of finite clauses is not possible.

On the other hand, scrambling in Japanese may proceed in a successive cyclic manner via the embedded Spec AgrsP position as in (50), i.e. not via XP-adjunction. Hence we derive the different locality effects that hold for scrambling out of finite clauses in German and Japanese from the constraint on adjunction in conjunction with our assumption that Agr in German and Japanese licenses different types of phrase structure.[14]

A further locality effect that needs to be explained concerns another generalization stated in section 2.1, namely that in Japanese only objects may undergo scrambling out of finite clauses; adjuncts (53b) may not be long scrambled (Saito 1985:175, Nemoto 1993, Bošković and Takahashi 1995):

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[14]A reviewer remarks that some differences between Japanese and German scrambling may be explained in a different way, suggesting that the subject may remain in VP in Japanese whereas it must move to Spec IP in German, so that contrary to German, clause internal scrambling in Japanese may use Spec IP as a landing site (see also Kuroda 1992). However, for several reasons an analysis along these lines cannot be sustained. First of all, Japanese allows for more than one element to undergo long distance scrambling (cf. fn. 21) and secondly, if clause internal scrambling is in fact movement to Spec IP one would wrongly predict that clause internal scrambling blocks long scrambling since the latter would have to use Spec IP as an intermediate landing site. Finally, although a detailed discussion of VP-internal subjects in Japanese is beyond the scope of this paper, it should be noted that the subjects in the examples from Japanese discussed in the text act differently from VP-internal subjects. For example, Toyoshima (1997) argues that NegP is base-generated outside of VP in Japanese, but given that *ga*-marked subjects in Japanese are always outside of the scope of negation, these subjects cannot be located inside VP (see Toyoshima 1997). For further arguments in support of overt movement of the subject to Spec IP in Japanese see the literature cited in fn. 2.

(53) a.   Mary-ga [John-ga riyuu-mo   naku   sono setu-o   sinziteiru to]

   M.$_{nom}$ J.$_{nom}$ reason-even without that theory$_{acc}$ believes that

   omotteiru (koto).

   thinks (fact)

   Mary thinks that John believes in that theory without any reason.

 b. * *Riyuu-mo naku Mary-ga [t′ John-ga t sono setu-o   sinziteiru to]*

   reason-even without M.$_{nom}$ J.$_{nom}$ that theory$_{acc}$ believes that

   omotteiru (koto).

   thinks (fact)

The restriction illustrated by (53b) follows from the fact that only L-related elements may use the Spec$_2$ position of AgrPs as intermediate landing sites in Japanese. The adjunct *riyuu-mo naku* (without any reason) in (53) may not check the embedded Σ-feature ([Σ'] on Agrs in (52)) via movement through the embedded Spec$_2$ position of the embedded AgrsP because it is not an L-related element. Consequently, the adjunct has to adjoin to the embedded AgrsP (as in the case of argument scrambling in German) to check the Σ-feature. But then, the constraint on adjunction forbids further movement into the matrix clause. (53b) thus represents an illicit derivation of the kind disallowed by the ban against successive cyclic adjunction (see (6)).[15]

 There are two remaining locality effects associated with scrambling from finite complement CPs in Japanese which our analysis is able to explain: first, the question as to why scrambling out of finite clauses cannot target VP (AgroP), and secondly, a restriction according to which long scrambling of subjects, in contrast to long scrambling of objects, is impossible in Japanese.

 Let us start with the explanation of the impossibility of long subject scrambling. Only objects may undergo long scrambling out of finite clauses in Japanese. Subjects may not be long scrambled, as illustrated in (54) (Saito 1985, Nemoto 1993:17):

(54) * *Sono hon-ga* [John-ga [*t* yoku ureteiru to] omotteiru].

   that book$_{nom}$ J.$_{nom}$ well sell C think

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[15] Note that long scrambling of selected categories other than NP may likewise move to Spec$_2$ of AgrP given a slightly extended notion of L-relatedness according to which a SpecAgrP-position and its head also count as L-related if they share a θ-feature, which is the case if V-to-Agr applies. For a treatment of thematic information as featural see Bošković and Takahashi (1995), Kim (in press), Lasnik (1996).

Our theory accounts for this fact in a way analogous to the explanations given for (51) and (53b), thus enabling us to provide a uniform account for the fact that there is no scrambling whatsoever out of finite clauses in German and that there is no scrambling of adjuncts and subjects out of finite clauses in Japanese. The account given for (51) and (53b) crucially involves our constraint on adjunction. Let us consider how this account can be appplied to (54) as well. We know that the embedded subject in (54) has to move to $Spec_1$ of AgrsP for case checking. In addition to case checking, the subject has to check its Σ-feature against the head of the embedded Agrs. If we now can ensure that the Σ-feature of the subject cannot be checked in the outer Spec of the embedded AgrsP, the subject could only check this feature by adjoining to AgrsP. But in this case, the constraint on adjunction would prevent the subject from undergoing any further adjunction.

The required prohibition of moving the subject from the inner Spec of AgrsP to its outer Spec does not need to be stipulated. It follows from a constraint argued for in Fukui (1993a) according to which movement cannot be vacuous. To account for several extraction phenomena, for example the absence of subject condition effects in Japanese, Fukui takes movement to an adjacent position to be vacuous if it crosses only one node. Given the existence of multiple specifiers, we can manage with a version of this vacuous movement constraint according to which movement to an adjacent position is vacuous if it crosses only a non-maximal projection. Let us therefore adopt this constraint and assume that movement from $Spec_1$ to the adjacent $Spec_2$ is not allowed.[16]

As a consequence of this assumption, the ungrammaticality of scrambling a Japanese subject out of a finite clause now follows from our constraint on adjunction: the only way for the embedded subject to check the Σ-feature of the embedded Agrs is by adjunction to the embedded AgrsP. Then, however, no further adjunction is allowed. Notice that movement in one swoop from $Spec_1$ of the embedded AgrsP to the matrix AgrsP is not allowed because the Σ-feature in the embedded clause remains unchecked.[17]

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[16] Note that the prohibition against movement from $Spec_1$ to $Spec_2$ is required for independent reasons, since it is a prerequisite of Chomsky's (1995) multiple specifier analysis of transitive expletive constructions in Icelandic that the expletive element merged in $Spec_1$ of TP may not move to $Spec_2$ to check the EPP feature twice (the option of being checked twice is a parametric property of the EPP feature in Icelandic).

[17] A question raised by a reviewer concerns the fact that Case checking and Σ-checking cannot take place in the same Spec of AgrsP but involves different positions. The answer to this question is based on the idea that every step of visible movement can only have one motivation, which can possibly be derived from economy principles along the lines of Taraldsen's (1994) feature-based interpretation of economy of representation, according to which the relevant evaluation metric compares specified features. In other words, movement must be

Further evidence for the assumption that movement from Spec₁ to the adjacent Spec₂ is not allowed is provided by the fact that it enables us to give an explanation for the observation that in the case of scrambling out of finite clauses, it is only possible to move the long scrambled object to IP (AgrsP) (50), i.e. scrambling to VP (AgroP) is much more degraded (Saito 1994b:265):

(55) ??[$_{IP}$ John-ga [*sono   hon-o* [Bill-ni [$_{CP}$ Mary-ga *t* motteiru to] itta]]] (koto).

        J.$_{nom}$ *that   book$_{acc}$ B.$_{dat}$*   *M.$_{nom}$*   *have   C   said   fact*

      John said to Bill that Mary has that book.

According to our analysis, the long scrambled element targets the matrix AgroP in (55). This implies that the embedded as well as the matrix Agro must bear a Σ-feature. The derivation proceeds as follows. The embedded object moves to the embedded Spec₁ of AgroP (to check its case). However, it cannot move to Spec₂ of the embedded AgroP because of the 'vacuous movement' constraint mentioned above. The embedded object thus has to adjoin to AgroP in order to check the Σ-feature, hence, it cannot move further into the matrix clause.

Let us now turn to the fact that scrambling out of tensed CPs only shows A'-properties. Recall that only Spec₂ positions may function as intermediate landing sites for scrambling. Hence, in contrast to German (57), successive cyclic (long) scrambling of an embedded object may occur in Japanese.[18] A typical example is (24c), repeated here as (56):

(56) *Zibun-zisin$_i$-o* Joe-ga [*t'* Michael$_i$-ga *t*   kiratteiru to]   omotteiru (koto).

      self-self$_{acc}$ *J.$_{nom}$*   *M.$_{nom}$*   *hate*   *C*   *thinking (fact)*

      Himself, Joe thinks that Michael hates.

(57) * daß [$_{AgrsP}$ *dieses Buch* [$_{AgrsP}$ Hans [$_{VP}$ dem Studenten gesagt hat [$_{CP}$ daß   *t'*

      that   *this*   *book$_{acc}$*   *H.$_{nom}$*   *the student$_{dat}$*   *told*   *has*   *that*

---

unambiguously triggered. Technically speaking, it is excluded that a particular step of overt movement is triggered by two different strong features. Consequently, if a functional head contains two strong features, these two features must be checked in two different positions. This implies that only weak features can be checked as "free riders". An empirical consequence is that for example, movement of the subject to Spec₁ of AgrsP, as in (54), is unable to check two strong features simultaneously.

[18]Note that long-distance scrambling may not apply via the Spec CP position. As already pointed out, the Σ-feature is only associated with Agr-heads, hence Spec CP is not a checking position and therefore scrambling through Spec CP is excluded by Last Resort.

Maria   *t*   besitzt]]]].

M._{nom}   owns

That book, Hans told the student that Mary owns.

As already pointed out, the fact that adjuncts may not be long scrambled out of finite clauses follows from the fact that Spec AgrP-positions are L-related positions. The fact that L-related positions may only be used by L-related elements has further consequences. Consider example (58). As argued in section 2.1, long distance scrambling in Japanese shows A'-properties. The ungrammaticality of (58) results from a violation of Principle A, as expected. However, in contrast to short scrambling, long scrambling of a potential antecedent out of a finite clause to a position in front of the anaphor does not result in grammaticality in (59):

(58)   *Otagai-no   sensei-ga   [Hanako-ga   karera-o   hihansita   to]   itta   (koto).
         each other$_{gen}$ teacher$_{nom}$ Hanako$_{nom}$ they$_{acc}$ criticized   C   said   (fact)

(59)   *Karera$_i$-o   otagai$_i$-no   sensei-ga [Hanako-ga *t* hihansita   to]   itta   (koto).
         they$_{acc}$ each other$_{gen}$ teacher$_{nom}$ Hanako$_{nom}$ criticized   C   said   (fact)

The fact that long scrambling out of finite clauses has only A'-properties in Japanese can be explained along the following lines. An argument that is long scrambled does not count as L-related with respect to the Agr heads of the matrix clause in (59). Hence, it may not move into the Spec$_2$ position of the matrix AgrsP in (59) in order to check the Σ-feature. Consequently, it has to adjoin to AgrsP for feature-checking, and - according to our analysis - XP-adjunction creates positions with A'-properties. Therefore the scrambled element may not A-bind the anaphor in (59). [19]

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[19]Our analysis seems to imply that scrambling out of finite clauses can only cross one clause boundary. The fact that scrambling across two (or more) CP nodes should not be possible is a consequence of Σ-feature checking and the ban on successive cyclic adjunction. On the other hand, examples of "super-scrambling", where a scrambled element crosses two CP nodes, seem to be attested in Japanese (Takahashi 1993:665, Sakai 1994:308). However, as Shigeru Miyagawa (p.c.) has pointed out to us, these constructions act differently from scrambling across one CP node in that they exhibit the properties of left-dislocation structures. This idea receives support from the observation (Nishigauchi 1990:8) that scrambling of *wh*-phrases (which cannot be left-dislocated) across two clause boundaries is impossible.

4.3 The A-/A'-Properties of Scrambling out of Control-Infinitives

Let us now turn to scrambling out of infinitives. In Grewendorf and Sabel (1994) it was argued that scrambling out of infinitives is possible in German if verb incorporation between the embedded and the matrix verb takes place. For example, *versuchen* 'try' in (60) is an incorporation verb, whereas *behaupten* 'claim' (61) is not:

(60) a. daß jemand [PRO die Frau   zu heiraten]   versuchte.

        that someone$_{nom}$ the woman$_{acc}$ to marry   tried

    b. daß *die Frau*   jemand [PRO *t* zu heiraten^k] versuchte^k.

        that the woman$_{acc}$ someone$_{nom}$ to marry   tried

        Someone tried to marry the woman.

(61) a. daß jemand [PRO die Frau   zu heiraten] behauptete.

        that someone$_{nom}$ the woman$_{acc}$ to marry   claimed

    b. *daß *die Frau*   jemand [PRO *t* zu heiraten] behauptete.

        that the woman$_{acc}$ someone$_{nom}$ to marry   claimed

        Someone claimed to marry the woman.

Leaving technical details of this analysis aside, it should be mentioned that verb incorporation was assumed to take place at LF, but coindexation (indicated by superscripts) between the finite verb and non-finite verb, a mechanism established by Baker (1988) called 'abstract incorporation' or 'reanalysis', ensured that the infinitive was already transparent in the overt syntax. The incorporation analysis, if it is extended to Japanese infinitives, predicts that in connection with long scrambling out of infinitives, the Spec AgrP positions in the matrix clause should count as potential landing sites for long scrambled arguments according to our assumption that movement from Spec AgrP to Spec AgrP is contingent on head raising. Hence, long scrambling out of infinitives should behave like A-movement in Japanese because incorporation of the infinitive verb into the matrix verb applies. This prediction is in fact borne out (cf. Saito 1994b:266):

(62) a. *John-ga [[otagai$_i$-no   sensei]-ni [PRO karera$_i$-o homeru yooni]

       *John$_{nom}$ each other$_{gen}$ teacher to   they$_{acc}$ praise   to

       tanonda] (koto).

       asked   fact

       *John asked each other's teachers to praise them.

  b. ?John-ga *karera$_i$-o* [[otagai$_i$-no   sensei]-ni [PRO *t* homeru yooni]

       *John$_{nom}$ they$_{acc}$ each other$_{gen}$ teacher to   praise   to

       tanonda] (koto).

       asked   fact

  c. ?*Karera$_i$-o* John-ga [[otagai$_i$-no   sensei]-ni [PRO *t* homeru yooni]

       *they$_{acc}$ John$_{nom}$ each other$_{gen}$ teacher to   praise   to

       tanonda] (koto).

       asked   fact

In (62b), the embedded object is scrambled to the Spec$_2$ position of the matrix AgroP, whereas it is located in the Spec$_2$ position of the matrix AgrsP in (62c). The Spec$_2$ position of the matrix Agr-phrases is accessible due to verb-raising. As a result of the above-mentioned 'restructuring' process, the matrix and embedded clause behave like a 'monosentential' structure. Consequently, percolation of the Σ-feature does not take place. For example, in (62b-c) the Σ-feature is only located in Agro and Agrs of the matrix clause.

    Let us now turn to scrambling out of infinitives in German. In (63a) it is the Σ-feature in the matrix Agrs that triggers scrambling, whereas in (63b) it is the Σ-feature located in Agro. However, the situation is different from Japanese. Although in (63) too a head chain is established, scrambling out of infinitives has A'-properties in German, since German does not allow multiple specifiers so that the scrambled NP must adjoin to AgrP as in the case of short scrambling:

(63) a. * weil *dem Jungen$_i$* [der Vater   von sich$_i$] [PRO *t*   ein Geschenk zu

       *since the boy$_{dat}$ the father$_{nom}$ of   himself   a   present$_{acc}$ to

       machen] versucht hat.

       make   tried   has

       To the son, the father of himself tried to make a present.

b. * weil der Direktor *den kranken Schüler*$_i$ [dem Lehrer von sich$_i$]

    since the director$_{nom}$ *the sick pupil*$_{acc}$ *[the teacher of himself]*$_{dat}$

[PRO *t* zu besuchen] erlaubt.

      to visit allows

The director, *the sick pupil* allows the teacher of himself to visit *t*.
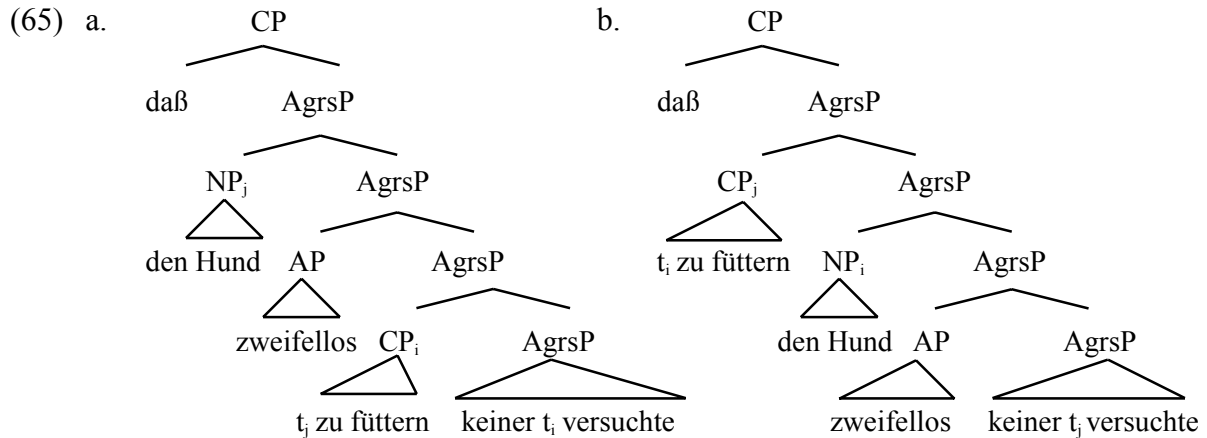

To sum up, a natural explanation for the different locality restrictions of scrambling as well as for its different A-/A'-movement properties in German and Japanese can be given if certain ideas about sentence structure presented in Chomsky's (1994) theory of "Bare Phrase Structure" are adopted and connected with a number of assumptions relating to the different agreement systems of these languages. Having provided an analysis which is exclusively based on conditions that have been established on independent grounds, we have derived the scrambling generalization (3), according to which a scrambling language allows long A'-scrambling out of finite clauses and short A-scrambling if multiple Agr-specifiers are licensed in this language.

We next consider how the analysis developed so far also allows us to account for various independent phenomena, thus providing the analysis itself with further support. In the following sections we establish the claim that the theory developed in sections 3-4 not only allows us to account for the differences between German and Japanese scrambling with respect to locality effects and A-/A'-properties (section 4), but also provides us with accounts of the so-called "remnant movement dilemma" (section 5), of the existence of *wh*-scrambling in languages such as Japanese (section 6), and of the "additional-*wh* effect" in Japanese (section 7).

5.   Further Evidence: The Remnant Movement Dilemma

As shown in the examples (64a) and (64b) with the structures depicted in (65a) and (65b), scrambling of an XP out of a (short) scrambled category is impossible in German. This is so irrespective of whether or not the scrambled XP binds its trace – in (64b) the object *den Hund* is first scrambled to its surface position and then the infinitive remnant containing the trace of the object is scrambled to a higher position, resulting in a configuration in which the object will no longer c-command and be able to bind its trace. However, in (64a) the infinitive clause is first (short) scrambled and then the object *den Hund* is scrambled higher out of this infinitive, leaving a trace which it will c-command and may therefore bind – yet the example is still unacceptable (Grewendorf and Sabel 1994):
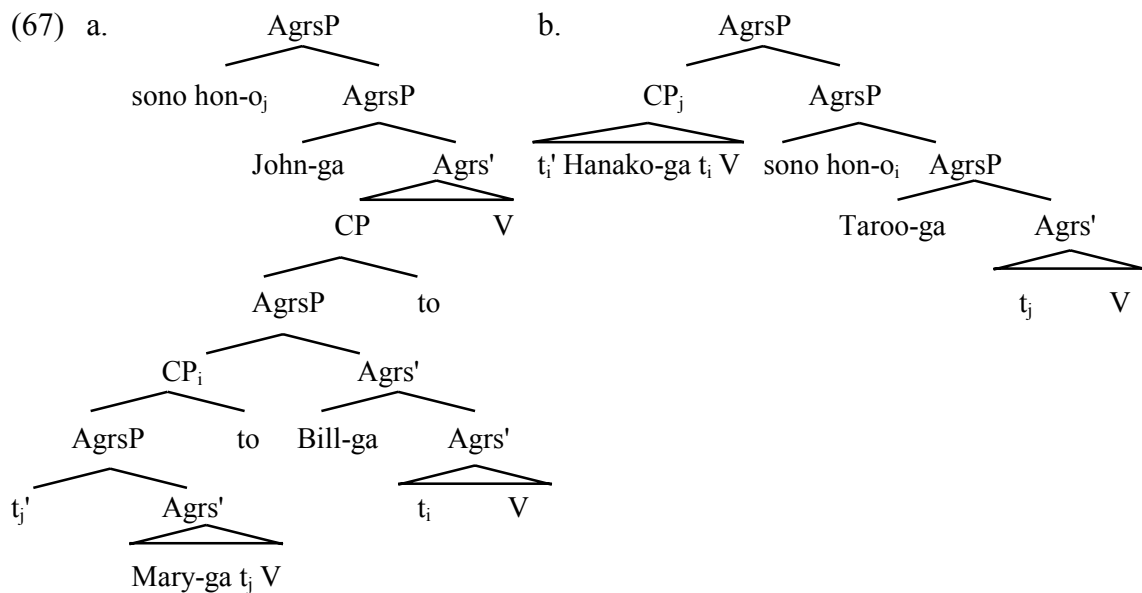
(64) a. *daß [den Hund]$_j$ zweifellos [t$_j$ zu füttern]$_i$ keiner t$_i$ versuchte.

  that the dog$_{acc}$ undoubtedly to feed   nobody$_{nom}$ tried

b. *daß [t$_i$ zu füttern]$_j$ zweifellos [den Hund]$_i$ keiner t$_j$ versuchte.

  that   to feed   undoubtedly the dog$_{acc}$ nobody$_{nom}$ tried

  Undoubtedly, nobody tried to feed the dog.

(65) a.

In contrast to German, Japanese prohibits scrambling of an XP out of a short scrambled category only if the scrambled XP does not bind its trace, as is the case in (66b). If the trace of the scrambled XP is bound by its antecedent, as in (66a), then scrambling out of a scrambled category is grammatical (Saito 1992, 1994a:226). The structures of (66) are given in (67):[20]

(66) a. [$_{AGRSP}$ sono hon-o$_j$ [$_{AGRSP}$ John-ga [$_{CP}$[$_{AGRSP}$[$_{CP}$ Mary-ga t$_j$ katta   to]$_i$

  that book$_{acc}$ J.$_{nom}$ M.$_{nom}$ bought C

  [$_{AGRSP}$ Bill-ga t$_i$ itta]] to] omotteiru]].

  B.$_{nom}$ said C think

  That book, John thinks that [that Mary bought t] Bill said.

b. *[$_{AGRSP}$ [$_{CP}$ Hanako-ga t$_i$ yonda to]$_j$[$_{AGRSP}$ sono hon-o$_i$ [Taroo-ga t$_j$ itta]]].

  H.$_{nom}$ read C   that book$_{acc}$ T.$_{nom}$ said

  Taroo said that Hanako read that book.

---

[20] In structure (67a), the scrambled NP seems to cross two clause boundaries, which should be excluded since successive cyclic adjunction is disallowed. However, our constraint on adjunction does not create a problem in a case like (67a), where CP$_i$ has undergone short scrambling. In this case, the Σ-feature in the intermediate CP is checked by the short-scrambled CP$_i$ and there is no Σ-feature for the scrambled NP to check in the intermediate CP. Therefore, the scrambled NP does not undergo adjunction within the intermediate CP.

(67) a.

```
                AgrsP                          b.          AgrsP
          /          \                              /            \
   sono hon-o_j      AgrsP                        CP_j           AgrsP
                  /       \                    /       \       /       \
              John-ga    Agrs'          t_i' Hanako-ga t_i V  sono hon-o_i  AgrsP
                        /    \                                          /        \
                      CP      V                                    Taroo-ga    Agrs'
                   /     \                                                    /    \
               AgrsP     to                                                t_j     V
             /      \
          CP_i      Agrs'
        /     \    /    \
    AgrsP     to Bill-ga  Agrs'
   /    \                /    \
 t_j'   Agrs'          t_i     V
       /    \
   Mary-ga t_j V
```

We call this crosslinguistic difference in the scrambling of remnant categories "the remnant movement dilemma" since the account suggested in Grewendorf and Sabel (1994) for the remnant scrambling facts of German implies that languages should uniformly disallow scrambling out of adjoined categories. Without going into the theoretical details of this account, let us state its implication as follows: Scrambling traces are disallowed within adjoined categories. Given that scrambling in German may not use Spec positions of Agr, as can be seen from the structures in (65), the scrambled remnants in (65) must be adjoined categories; the ungrammaticality of the examples in (64) is then correctly accounted for by our analysis.

Although the Japanese data in (66a) at first sight create a problem for this approach, it should become clear upon closer inspection that scrambling out of a scrambled category is not predicted to be generally ungrammatical in languages where scrambling may take place to landing sites other than adjoined positions. Consider again the structures in (67). As we have seen in section 3, short scrambling in Japanese is movement to a position with A-properties. Given that the scrambled CP_i in structure (67a) occupies the $Spec_2$-position of the AgrsP the subject of which is *Bill-ga,* the trace of the scrambled object *sono hono* 'that book' is not located inside an adjoined category so that (66a) is correctly predicted to be grammatical.

As for (67b), recall that scrambling from finite clauses in Japanese is obligatorily adjunction to AgrsP. This implies that the long scrambled object *sono hon-o* in (66b) is adjoined to the AgrsP the subject of which is *Taroo-ga*. Therefore the (short) scrambled CP in

(66b) cannot be located in Spec$_2$ of AgrsP, but must also be in an adjoined position. But this leads to ungrammaticality since scrambling traces are disallowed within adjoined categories.

It should be emphasized that contrary to the analysis in Saito (1992), our account of (66b) is not based on the fact that the scrambling trace in (66b) is not properly bound. If scrambling can be freely undone at the level of LF, as assumed by Saito, an account of (66b) in terms of the Proper Binding Condition can only be maintained if it is assumed that this condition not only applies at LF but also in the overt syntax. However, concerning the latter assumption, serious empirical problems result from the observation that in a language like German, there is a contrast between scrambling out of a scrambled category, which is ungrammatical as in (68a), and scrambling out of a topicalized category as in (68b), which is grammatical: the trace t_i in (68b) would not seem to be properly bound in the overt syntax (Grewendorf and Sabel 1994):

(68) a. *[$_{C'}$ daß [$_{AGRSP}$ [t_i zu füttern]$_j$[$_{AGRSP}$ [den Hund]$_i$[$_{AGRSP}$ keiner t_j versucht hat]]]].
         that   to feed   the dog$_{acc}$ nobody$_{nom}$ tried   has
      Nobody has tried to feed the dog.

     b. [t_i zu füttern]$_j$[$_{C'}$ hat [$_{AGRSP}$ [den Hund]$_i$[$_{AGRSP}$ keiner t_j versucht]]].
         to feed   has   the dog$_{acc}$ nobody$_{nom}$ tried

Notice that our analysis of (66a) and (66b) implies the following prediction for a configuration in which scrambling of an XP takes place out of a scrambled category that occupies an L-related position, and in which the trace of this XP is not properly bound by its antecedent: In this case, a violation of the Proper Binding Condition should arise since A-movement cannot be reconstructed. This prediction is in fact borne out by the observation that it is ungrammatical in Japanese to scramble an object to AgroP and then scramble the VP-remnant to an L-related position in front of the subject, as in (69b) (examples from Nakayama and Tajima 1993:8):

(69) a. [$_{VP}$ ano   wain-o kai]-sae$_i$ [John-ga t_i shita].
         that wine$_{acc}$ buy even   J.$_{nom}$ did
      Even buy that wine, John did.

     b. *[$_{VP}$ t_i kai]-sae$_j$ [John-ga [ano wain-o]$_i$ t_j shita].
        *Even buy, John did that wine.

6. *Wh*-Scrambling

In this section, we wish to show that the properties of *wh*-scrambling in Japanese can be accounted for in terms of our analysis of scrambling and the constraint on adjunction. At first sight, the fact that there are languages like Japanese that allow scrambling of *wh*-elements may be taken to create problems for our constraint on adjunction. If long scrambling is adjunction, long scrambled *wh*-elements should not be able to undergo any further operator movement at the level of LF. However, it will become clear as we proceed that in our analysis of *wh*-scrambling, this problem does in fact not arise.

We would like to make use of the idea, entertained by Rizzi (1990b, 1991b) on morphological grounds, that Infl can be base-generated with *wh*-features. We will suggest that in languages like Japanese, a strong [+wh] feature is realized in Agrs, and that it can be checked by XP-adjunction to AgrsP in a position that is broadly L-related to Agrs, whereas a weak [+wh] feature is in C°. Japanese thus exhibits properties which can also be observed in languages such as Polish and Czech, where overt *wh*-movement can take the form of substitution into Spec CP as well as adjunction to IP (AgrsP) (Rudin 1988, Cheng 1991 among others). On the other hand, *wh*-in-situ languages are traditionally assumed to have only a weak [+wh] feature in C, while in languages with overt *wh*-movement like English and German, a strong [+wh] feature is only realized in C° and checked in the Spec CP position. These cross-linguistic differences show that a single parameter associated with a single functional head is not sufficient to capture the various appearances of *wh*-movement in natural languages. Rather, the close relationship between C and I (Agrs), which has often been pointed out in the literature, leads one to expect that the C system as well as the I system can be involved in the required parameterization.

We also assume that a *wh*-feature that is located in Agrs cannot be checked in a specifier position of AgrsP since such a position does not constitute an operator position. We thus need to establish that XP-adjunction to an AgrsP whose head bears a [+wh] feature exhibits the properties of an operator position and as such requires no further movement at LF. To achieve this goal let us consider the following examples (Takahashi 1993):

(70) a. John-ga [CP Mary-ga nani-o katta ka] sitteiru.

      J.nom   M.nom   whatacc bought Q   knows

      John knows what Mary bought.

b. *Nani-o*   John-ga [CP Mary-ga *t* katta   ka] sitteiru.

  what_{acc}   J._{nom}   M._{nom}   bought Q   knows

  John knows what Mary bought.

In example (70b), the *wh*-phrase has been long scrambled to the matrix clause but takes scope in the embedded clause, as indicated by the question marker *ka*. We have already seen that the target position of scrambling out of finite clauses is adjunction to IP (AgrsP). Since example (70b) represents a declarative sentence with an embedded *wh*-question and thus has the same interpretation as (70a), the adjoined *wh*-phrase must be located in a *wh*-operator position of the embedded clause at the level of LF. Example (70b) therefore provides an illustrative instance of the fact pointed out by Saito (1989) that scrambling as A'-movement can be undone at LF. Note that scrambling in (70b) is triggered by Σ-feature-checking. After reconstruction the *wh*-phrase moves to the embedded Spec CP in order to check the weak [+wh] feature in C°, as is also the case in (70a).

   Now compare (70) with (71) (Takahashi 1993):

(71) a. John-wa [CP Mary-ga nani-o   tabeta ka] siritagatteiru   no?

    J._{Top}   M._{nom}   what_{acc} ate   Q   want-to-know   Q

    Does John want to know what Mary ate? or

    What does John want to know whether Mary ate?

   b. *Nani-o*   John-wa [CP Mary-ga *t* tabeta ka] siritagatteiru   no?

    what_{acc}   J._{Top}   M._{nom}   ate   Q   want-to-know Q

   *Does John want to know what Mary ate?

    What does John want to know whether Mary ate?

The examples in (71) differ from those in (70) in that they have a question marker in both the embedded clause and the matrix clause. Since the question marker *ka* is ambiguous between a scope marker for a *wh*-phrase and a complementizer corresponding to *whether* in English, sentence (71a) is ambiguous with respect to the scope of the *wh*-phrase *nani-o*. As indicated in the translations, it can either be a yes/no question with an embedded *wh*-question or a *wh*-question with an embedded *whether*-question.

   The interesting fact about (71b) is that long scrambling of the embedded *wh*-object has the effect that in contrast to (71a), the *wh*-phrase in (71b) can only have matrix scope. Unlike the

scrambled *wh*-phrase in (70b), the scrambled *wh*-phrase in (71b) obviously cannot be reconstructed at LF. Takahashi (1993) concludes from this observation that long movement of a *wh*-phrase to the initial position of a clause headed by a [+wh] Comp counts as *wh*-movement in Japanese. He assumes that the target position of the *wh*-phrase is the Spec CP position in that case and attributes the fact that the *wh*-phrase in (71b) cannot undergo LF-movement (reconstruction) to a constraint (Lasnik and Saito 1992, Epstein 1992) according to which overt movement of a *wh*-phrase to a [+wh] Comp prevents this *wh*-phrase from undergoing any further movement at LF.

There is evidence, however, against the view that in Japanese, movement of a *wh*-phrase to the initial position of a [+wh] clause is movement to the Spec CP position. This evidence consists in the observation that in Japanese, short (72) and long (73) overt movement of a *wh*-phrase to the initial position of a [+wh] clause may co-occur with scrambling of a non-*wh*-phrase into a position to the left of this *wh*-phrase (examples due to Mamoru Saito p.c.):[21]

(72) John-ga [Bill-ni$_j$ nani-o$_i$ Mary-ga t$_j$ t$_i$ watasita ka] siritagatteiru.

J.$_{nom}$ *Bill-to*   *what$_{acc}$* *M.$_{nom}$*   *handed*   *Q*   *want-to-know*

John wants to know what Mary handed to Bill.

(73) Tom-ga [Bill-ni$_j$ nani-o$_i$ John-ga [Mary-ga t$_j$ t$_i$ watasita to]

T.$_{nom}$ *Bill-to*   *what$_{acc}$* *J.$_{nom}$*   *M.$_{nom}$*   *handed*   *that*

omotteiru ka] siritagatteiru

think   *Q*   *want-to-know.*

Tom wants to know what John thinks that Mary handed to Bill.

---

[21]Note that the scrambled indirect object *Bill-ni* in (72) and (73) cannot be taken to occupy a VP- or AgroP-adjoined position in the highest clause since scrambling out of a finite clause obligatorily targets IP (Agrs). Furthermore, the same ordering of scrambled non-*wh*- and *wh*-phrases as in (72) and (73) can be found in non-embedded contexts:

(i)   Bill-ni$_j$ nani-o$_i$ John-ga [Mary-ga t$_j$ t$_i$ watasita to]   omotteiru no?

       Bill-to *what$_{acc}$* *J. $_{nom}$*   *M.$_{nom}$*   *handed*   *that*   *think*   *Q*

       What does John think that Mary handed to Bill?

A reviewer suggests that long scrambling of the non-*wh* phrase in (i) may also target Spec of CP. This assumption however, faces theoretical as well as empirical problems. First, as example (73) shows, the configuration in (i) with a long scrambled *wh* phrase preceded by a long scrambled non-*wh* phrase also occurs in embedded contexts. But in this case, the selected [+wh] Comp would not tolerate a non-*wh* phrase in its Spec. An empirical problem also arises since the availability of multiple CP specifiers would imply that *wh*-adjuncts should be able to extract from *wh*-islands, contrary to fact.

We therefore assume that Japanese overt (long) *wh*-movement from a finite clause to the initial position of a [+wh] clause is adjunction to AgrsP. However, we would like to maintain an important aspect of Takahashi's analysis of (70) and (71), namely that in Japanese, overt *wh*-movement to the initial position of a [+wh] clause prohibits further movement at LF. We therefore restate the above mentioned constraint (Lasnik and Saito 1992, Epstein 1992) in the sense that overt movement of a *wh*-phrase to a [+wh] operator position prevents the *wh*-phrase from undergoing any further movement at LF.

What we have seen so far is that scrambling of a *wh*-phrase to the initial position of a [-wh] clause can be undone at LF (70b), whereas this is not possible if the clause is headed by a question marker (71b). Given that apart from this difference, *wh*-scrambling in Japanese generally conforms to the constraints on scrambling developed in the preceding sections, we can assume that in (71b), the long scrambled *wh*-object adjoins to the matrix AgrsP and that no further LF-movement is required since it already occupies an operator position. This analysis is supported by the fact that the scrambled *wh*-object in (71b) only has matrix scope. Note that this analysis of (71b) does not give rise to any violation of the constraint on adjunction.

Examples such as (74), taken from Takahashi (1993), provide further evidence for our analysis of scrambling:

(74) John-wa [*nani-o*   Mary-ga *t* tabeta ka] siritagatteiru   no?

      J.$_{Top}$ *what$_{acc}$* *M.$_{nom}$*   *ate*   *Q*   *want-to-know* *Q*

      Does John want to know what Mary ate? or

      What does John want to know whether Mary ate?

As was the case with the examples in (71), in (74) the embedded clause as well as the matrix clause are marked as interrogative sentences. However, unlike (71), the scrambled *wh*-phrase in (74) permits a wide scope reading as well as a narrow scope reading, as indicated in the translation. According to the analysis of scrambling that we have developed in the preceding sections, short scrambling in Japanese proceeds to a position with A-properties. We can therefore assume that the scrambled *wh*-phrase in (74) is not located in an operator position (adjoined to AgrsP) but occupies the Spec$_2$-position of the embedded AgrsP. In order to reach an operator position from there, it can either move to the embedded or to the matrix C-system (yielding the narrow or the wide scope reading for the *wh*-phrase), both options being in line with the constraint on adjunction as well as with the generalization derived from

(71b). The difference between (71b) and (74) can then be taken to lend further support to the present analysis of scrambling in Japanese.

However, as was first brought to our attention by Mamoru Saito (p.c.), Japanese *wh*-scrambling also allows a combination of long scrambling into a [-wh] clause and upward LF-movement into an operator position that seems to confront our constraint on adjunction with serious empirical problems. A relevant example can be found in Takahashi (1993):

(75) Kimi-wa [$_{CP}$ *nani-o* John-ga [$_{CP}$ Mary-ga *t* tabeta ka] sitteiru to] omotteiru no?

   you$_{Top}$ *what$_{acc}$* *J.$_{nom}$*   *M.$_{nom}$*   *ate*   *Q know C think*   *Q*

   Do you think that John knows what Mary ate?

   What do you think that John knows whether Mary ate?

In (75), the *wh*-object *nani-o* is long scrambled, hence adjoined to a [-wh] clause. As indicated in the translation, this *wh*-phrase may take scope at the [+wh] Comp of the highest clause, which contains the question marker *no*. This leads to the assumption that the long scrambled *wh*-phrase is able to undergo LF-movement to an operator position in the highest clause, which, as we have argued, is again movement to the C-system. The steps of movement that seem to be involved in (75) can then be schematized as follows:

(76) [$_{CP}$ [+wh] ..... [$_{CP}$ [-wh] [$_{AgrsP}$ *nani-o* [$_{AgrsP}$ ..... [$_{CP}$ [+wh] ...*t*...]]]]]]

                LF-mvt.   overt mvt.

It is obvious that the steps of movement indicated in (76) violate the constraint that adjunction must not operate in a successive cyclic way. A solution to this problem becomes available if we take note of the fact that long scrambling of the *wh*-phrase in (75) takes place to the initial position of a [-wh] clause. As we have seen in the case of (70b), this sort of scrambling is triggered by a Σ-feature and can be undone at LF. We can therefore assume that the *wh*-phrase in (75) is reconstructed at LF to its base position and then moved either to the operator position of the lowest clause to create the narrow scope reading or the operator position of the highest clause to create the wide scope reading (cf. also the discussion of example (70)). As already pointed out, we assume that it is only the *strong wh-feature* that is located in Agrs in Japanese whereas the *weak wh-feature* is associated with C°, as traditionally assumed. We thus ensure that *at LF* there is successive cyclic *wh*-movement through Spec CP. If we

conceive of LF-movement as feature movement along the lines of Chomsky (1995), who assumes that covert operations consist of adjoining a set of features to a head, our analysis would be tantamount to saying that LF *wh*-movement in Japanese involves the C-head while overt *wh*-movement involves the Agr-system.[22]

Note that the solution proposed for (75) receives independent support from the fact that it can also explain why the *wh*-phrase has only the intermediate clause as its scope if the intermediate and the matrix verbs in (75) are replaced by a verb selecting a [-wh] clause and one selecting a [+wh] clause respectively (cf. Takahashi 1993, fn. 5):

(77) Kimi-wa [*nani-o*   John-ga [Mary-ga *t* tabeta to] omotteiru ka] kikimasita ka?

      you$_{Top}$ *what$_{acc}$* *J.$_{nom}$*   *M.$_{nom}$*   *ate*   *C*   *thought*   *Q*   *asked*   *Q*

      Do you ask what John thought that Mary ate?

    *What do you ask whether John thought that Mary ate?

Here the selectional properties of the matrix verb *kikimasita* (asked) require the intermediate clause to be an interrogative clause. Contrary to what is found in (75), the *wh*-phrase, which is again long scrambled to the initial position of the intermediate clause, is now moved to the initial position of a [+wh] clause and, unlike (75), takes scope only in its surface position. Now the analysis suggested here for (75) permits us to treat (75) on a par with (70b) and (77) on a par with (71b). In other words, unlike (75), where the *wh*-phrase can be reconstructed, the *wh*-phrase in (77) has been long scrambled to an operator position and thus cannot undergo any further movement at LF according to the constraints suggested in Lasnik and Saito (1992) and Epstein (1992).

A consequence of our analysis is that there are three types of movement of *wh*-elements in Japanese, only two of which count as operator movement:

(78) a. Movement of *wh*-phrases to L-related positions

        • movement to Spec$_2$ of AgrP in the presence of a Σ-feature

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[22]The assumption that successive cyclic LF movement of *wh*-"phrases" involves the C-system is required on independent grounds. Lasnik and Saito (1992:37) point out that in Japanese (as well as in Chinese) the existence of successive cyclic LF movement is reflected in the fact that a *wh*-adjunct that is embedded in a declarative embedded clause can take scope over the matrix clause.

b. Movement of *wh*-phrases to adjoined (broadly L-related) positions

- adjunction of *wh*-phrases to AgrsP in a higher [-wh] clause in the presence of a Σ-feature

- adjunction of *wh*-phrases to AgrsP in the presence of a strong *wh*-feature (operator movement)

c. Movement of *wh*-phrases to non L-related positions (operator movement)

- movement to Spec CP in the presence of a weak *wh*-feature

In contrast, *wh*-phrases in German may not bear Σ-features and Agrs may not bear a [+wh] feature. Hence *wh*-scrambling is impossible in this language. Our analysis therefore implies that movement of *wh*-phrases is no longer conceived of as a special type of *wh*-movement with specific properties. It is rather considered an instance of movement whose properties follow from independent properties of the language at issue. Such a view of *wh*-movement is also in full accord with basic assumptions of the Minimalist Program.

In this section, we have presented independent evidence that *wh*-scrambling targets either Spec$_2$ of AgrP or adjoined positions. The behavior of *wh*-scrambling thus fares well with our general analysis of scrambling suggested in the previous sections.

7. Multiple Fronting of *Wh*-Elements

In this section we would like to present one more piece of evidence in favor of our analysis of scrambling as movement to Spec$_2$ of AgrP or to an adjoined position. It pertains to restrictions on the so-called "additional-*wh* effect" in Japanese (Saito 1994a). We will suggest an account of this effect and some of the restrictions it is subject to which crucially relies on our analysis of Japanese scrambling as developed in the preceding sections. This account of the additional-*wh* effect makes use of a new account of multiple *wh*-in-situ, which will be briefly outlined and motivated. We will first give a brief outline of the additional-*wh* effect in Japanese.

In traditional terms, Japanese exhibits an ECP effect in a base-generated configuration where an adjunct *wh*-phrase like *naze* precedes a *wh*-object, as in (79a). Interestingly, this effect disappears when a higher *wh*-phrase is added either by movement as in (79b), where the *wh*-object is scrambled into a position preceding the *wh*-adjunct, or by base generation as in (79c) where a third *wh*-phrase is introduced (Watanabe 1992, Saito 1994a):

(79) a. * John-ga   naze   nani-o katta   no?

         J.$_{nom}$ *why*   *what$_{acc}$* *bought* *Q*

    b. *Nani-o* John-ga naze *t* katta   no?

        what$_{acc}$ J.$_{nom}$ *why*   *bought* *Q*

    c. Dare-ga naze   nani-o katta   no?

        who$_{nom}$ *why*   *what$_{acc}$* *bought* *Q*

Saito (1994a) shows that the additional-*wh* effect is subject to a clause-boundedness restriction according to which this effect is not operative when the added higher *wh*-element is long scrambled out of a deeper clause. This restriction is illustrated by the contrast in examples (80) and (81) (Saito 1994a):

(80) a. *Naze   dare-ga Mary-ni [$_{CP}$ John-ga sono hon-o   katta   to] itta   no?

        why   *who$_{nom}$ M.$_{dat}$*   *J.$_{nom}$*   *that book$_{acc}$ bought C   said Q*

        Q who told Mary [that John bought that book]why?

    b. *Mary-ni*   naze dare-ga *t* [$_{CP}$ John-ga sono hon-o   katta   to] itta no?

        M.$_{dat}$ *why who$_{nom}$*   *J.$_{nom}$*   *that book$_{acc}$ bought C   said Q*

    c. *Dare-ni* naze dare-ga *t* [$_{CP}$ John-ga sono hon-o   katta   to] itta no?

        who$_{dat}$ *why who$_{nom}$*   *J.$_{nom}$*   *that book$_{acc}$ bought C   said Q*

(81) a. *Sono hon-o*   naze dare-ga Mary-ni[$_{CP}$ John-ga *t* katta   to] itta   no?

        that book$_{acc}$ why who$_{nom}$ M.$_{dat}$ *J.$_{nom}$*   *bought C   said Q*

        Q who told Mary [that John bought that book] why?

    b. ?**Nani-o* naze dare-ga Mary-ni [$_{CP}$ John-ga *t* katta   to] itta no?

        what$_{acc}$ why who$_{nom}$ M.$_{dat}$ *J.$_{nom}$*   *bought C   said Q*

        Q who told Mary [that John bought what] why?

(80c) shows that the *wh*-adjunct *naze* in the matrix clause can be rescued by scrambling the indirect *wh*-object *dare-ni* (as opposed to a non-*wh* object (80b, 81a)) of the matrix clause to the front of the *wh*-adjunct. (81b) shows that *naze*-rescuing is not achieved if the *wh*-phrase that is moved to the front of *naze* is scrambled out of a finite clause.

    In the following we want to suggest an account of the additional-*wh* phenomenon in Japanese that provides further evidence for our analysis of scrambling in Japanese. In this

account, we will make initial use of an assumption of Saito's (1994a), who bases his analysis of the additional-*wh* effect on the idea that an offending *wh*-phrase can be saved by covertly adjoining to another *wh*-phrase which is added in a higher position. The complex *wh*-element thus formed then moves to the Spec CP position. We will develop an alternative explanation by deriving Saito's idea from a more general account of movement of *wh*-phrases.

Consider again the examples in (80) and (81). Following Saito (1994a) and Saito and Fukui (1996), we assume that *naze*-rescuing in (80c) is achieved by adjunction of the *wh*-adjunct to the scrambled *wh*-argument *dare-ni,* which, according to our analysis, occupies the L-related position Spec$_2$ of AgrsP.[23] Obviously, a similar derivation is not possible for (81b). We will show in the following that this contrast can be accounted for in terms of our analysis of scrambling as movement to Spec$_2$ of AgrP or to an adjoined position. Since this account makes crucial use of the formation of complex *wh*-elements, we will first attempt to provide a general answer to the question of why it is that languages seem to form complex *wh*-elements.

We would like to suggest that due to morphological properties of *wh*-words, *wh*-phrases may establish internal operator positions which attract *wh*-elements in multiple *wh*-constructions. For reasons that will become clear as we proceed, we want to restrict this possibility to *wh*-elements in L-related positions. We will refer to this sort of *wh*-cluster formation as the *Wh*-cluster Hypothesis.

(82) *Wh-cluster Hypothesis*

    a. A *wh*-element acts as a checker for other *wh*-elements (*wh*-arguments as well as *wh*-adjuncts).

    b. Adjunction to a *wh*-element is only possible if this element is located in an L-related position.

(82a) implies that *wh*-elements count as potential landing sites for *wh*-movement and subjects *wh*-movement to the Minimal Link Condition in a much stricter sense than in the case of Comp-to-Comp movement. We wish to suggest that at stake here is a fundamental property of

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[23]The question may arise as to whether in (80c) the scrambled *wh*-argument *dare-ni,* which precedes the base-generated adjunct *naze,* can occupy Spec$_2$ of AgrsP if the adjunct is adjoined to AgrsP. In an attempt to solve this problem, we would like to point out that the theory of Bare Phrase Structure does not prevent an adverbial phrase from being adjoined between the inner and the outer Spec (see Chomsky 1995:353). However, we want to restrict this possibility to the case of Merge since adjunction by movement establishes a checking relation with non L-related or broadly L-related elements and thus can plausibly be taken to "close off" the generation of narrowly L-related specifiers within the same projection.

wh-movement which affects *wh*-phrases in general and, furthermore, determines typological properties of languages depending on whether it is operative, if at all, in the overt or in the covert syntax. As far as the overt syntax is concerned, let us briefly illustrate this hypothesis with examples from Bulgarian.

As is well known, the characteristic aspect of multiple fronting languages like Bulgarian (and Romanian) is that every *wh*-word has to be fronted obligatorily in multiple *wh*-questions, as can be seen from the ungrammaticality of (84b):

(83)   *Koj   kogo t* vidjal *t*?
        Who   whom   saw
        Who saw whom?

(84) a. *Koj   kude   mislis   [ce   t   e   otisul   t*]?
        who   where   think-2S   that   has gone
        Who do you think that went where?

   b. **Koj* mislis   [ce   *t* e   otisul *kude*]?
        who   think-2S   that   has gone   where   (Rudin 1988)

If one suggests that a *wh*-phrase in Bulgarian projects an operator or checking position in accordance with (82a), (84a) may plausibly be derived by first adjoining the *wh*-adjunct to the *wh*-argument and then moving the complex *wh*-phrase to Spec CP. In the first step of this derivation, the *wh*-adjunct checks its [wh]-feature against the [+wh] head of the *wh*-argument; in the second step, the *wh*-argument checks its [wh]-feature against the [+wh]-feature of C°. A similar derivation occurs when two *wh*-arguments are present, as in (83).[24] Following Rudin (1988), we assume that in overt multiple fronting languages like Bulgarian and Romanian, the fronted *wh*-elements constitute a complex *wh*-phrase in Spec CP, but contrary to Rudin, we argue that this complex has to be formed prior to "*wh*-movement" to Spec CP. (82a) gives an

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[24]Independent evidence for this analysis of overt multiple *wh*-fronting can be gained from restrictions on the ordering of the fronted *wh*-phrases. Crucial for the *Wh*-cluster Hypothesis is the claim that a *wh*-phrase, as a parametric property, may create an operator position. Our assumption that this parametric property is correlated with morphological properties of *wh*-words draws empirical support from a generalization stated by Cheng (1991:79ff.):

(i) *Cheng's generalization*
     Wh-words in multiple fronting languages always have an affix in the case of the indefinite reading, while non-multiple fronting languages have no morphological alternations.

For a theoretical elaboration of this analysis see Grewendorf (1998a,1998b).

answer to the question as to what exactly motivates this sort of *wh*-complex formation. The theoretical status of the restriction on *wh*-cluster formation stated in (82b) will be discussed below.

Before we turn to the account of (79)-(81) using our scrambling analysis and the *Wh*-cluster Hypothesis (82a), we will briefly show that this hypothesis also applies to *wh*-in-situ languages. There is indeed empirical evidence that the situation which occurs covertly in Japanese multiple *wh*-in-situ questions is analogous to that which we encounter overtly in Bulgarian multiple fronting constructions; in other words, (82a), if operative at all, is supposed to be parameterized as to whether it applies in the overt or in the covert syntax. Let us look at two pieces of empirical evidence that can be provided in support of its application in covert syntax (for further evidence see Grewendorf 1998b).[25]

Japanese *wh*-questions are subject to island constraints in that LF-extraction of a *wh*-adjunct seems to be disallowed. This can be seen from the examples in (85) (Saito 1994a), where (85a) illustrates the case for complex NP islands and (85b) for adjunct islands:

(85) a. *John-wa [$_{NP}$ [$_{IP}$ sono hon-o   naze katta] hito]-o   sagasiteru   no?

        J.$_{Top}$ *that book$_{acc}$ why bought person$_{acc}$ looking-for Q*

        Q John is looking for [the person [that bought that book why]]?

   b. *John-wa [$_{PP}$ [$_{IP}$ Mary-ga sono hon-o   naze katta]   kara] okotteru   no?

        J.$_{Top}$ *M.$_{nom}$*   *that book$_{acc}$ why bought since   angry   Q*

        Q John is angry [because Mary bought that book why]?

Unlike *wh*-adjuncts, *wh*-arguments are allowed to occur within these islands. Interestingly, if the *wh*-adjunct is preceded in the same clause by a *wh*-argument, the example improves considerably. Compare (85a) and (85b) with (86a) and (86b), respectively (Saito 1994a):

(86) a. ??John-wa [$_{NP}$ [$_{IP}$ nani-o   naze katta] hito]-o   sagasiteru no?

        J.$_{Top}$ *what$_{acc}$ why bought person$_{acc}$ looking-for Q*

        Q John is looking for [the person [that bought what why]]?

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[25]It is a consequence of the *Wh*-cluster Hypothesis that in languages with *wh*-cluster formation, all *wh*-phrases have to undergo (overt or covert) movement. As for languages such as English, where due to morphological properties of *wh*-words no *wh*-cluster formation can be assumed (see fn. 24), nothing forces *wh*-elements in-situ

b. ?John-wa [PP [IPMary-ga nani-o naze katta] kara] okotteru no?

    J.Top   *M.nom*   *whatacc* *why* *bought* *since* *angry*   *Q*

    Q John is angry [because Mary bought what why]?

If the *wh*-phrases in (86a) and (86b) are extracted from the islands one by one, one would expect these sentences to be as ungrammatical as (85a) and (85b) because of the island sensitivity of adjuncts. We can therefore conclude that the *wh*-phrases in (86) do not in fact extract from the island configurations by moving individually, forming an adjunction structure within Spec CP of the matrix clause. Rather, there is reason to assume that they form a *wh*-cluster before exiting the island and that ultimately it is only one (complex) *wh*-phrase that moves to the matrix Spec CP.[26]

    The second piece of evidence is provided by the contrast between the examples (87a) and (87b) from Maki (1994):

(87)   a. ??[John-ga [Mary-ga nani-o katta kadooka] oboeteiru ka] osiete kudasai.

         J.nom   *M.nom*   *whatacc* *bought* *whether* *remember* *Q* *tell*   *please*

        Please tell me [Q John remembers [whether Mary bought what]].

    b. [Dare-ga [Mary-ga nani-o katta kadooka] oboeteiru ka] osiete kudasai.

        whonom   *M.nom*   *whatacc* *bought* *whether* *remember* *Q* *tell*   *please*

        Please tell me [who remembers [whether Mary bought what]].

(87b) differs from (87a) in that in the former the matrix subject is changed to the *wh*-phrase *dare-ga*, this having the consequence that the sentence improves considerably. If the marginality of (87a) is in fact due to the crossing of two IP nodes, as assumed by Nishigauchi (1990) among others, then the *Wh*-cluster Hypothesis offers an answer to the question of why the embedded *wh*-phrase in (87b) is able to satisfy its requirements without crossing two IP nodes. This hypothesis requires that the more deeply embedded *wh*-phrase has to adjoin to the higher *wh*-phrase. On these grounds, the embedded *wh*-argument adjoins to the matrix subject *dare-ga in* (87b) followed by movement of the *wh*-cluster to the matrix Spec CP. In (87a), on

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to undergo LF-movement (see also the discussion in Reinhart 1993, Chomsky 1995). As a consequence, in sentences like *Who bought what* the *wh*-object may remain in-situ at LF.

[26]Let us briefly point out that adjunction to arguments in non-adjoined positions is not at variance with Chomsky's (1986a) condition, according to which adjunction is only possible to non-arguments. The cases that are relevant in the present context concern *wh*-adjunction to A-moved *wh*-arguments. These targets, however, do not occupy θ-positions since neither Spec$_2$ positions nor the Spec$_1$ position of AgrsP are θ-positions.

the other hand, the first possible landing site which licenses the embedded *wh*-argument is Spec CP of the matrix clause. Thus the *wh*-argument has to cross two IP nodes to reach its final position.

Having motivated the suggestion that *wh*-cluster formation applies covertly in Japanese, we will now show that our analysis of Japanese short scrambling as movement to Spec$_2$ of AgrP and of scrambling out of finite clauses as movement to an adjoined position receives further support from the fact that it provides us with an account of the additional-*wh* effect and its clause-boundedness constraint. Let us first turn to the additional-*wh* effect as illustrated in (79), repeated here as (88)

(88) a. * John-ga naze   nani-o katta   no?

    J.$_{nom}$ *why*   *what$_{acc}$* *bought* *Q*

  b. *Nani-o* John-ga naze *t* katta   no?

    what$_{acc}$ J.$_{nom}$ *why*   *bought* *Q*

  c. Dare-ga naze   nani-o katta   no?

    who$_{nom}$ *why*   *what$_{acc}$* *bought* *Q*

(88) is accounted for along the following lines: even though the *Wh*-cluster Hypothesis requires that the two *wh*-phrases in (88a) form a *wh*-cluster, this requirement cannot be fulfilled since, as a consequence of (82b), *nani-o* cannot adjoin to *naze* since *naze* is located in a non-L-related position. Furthermore, the Minimal Link Condition prevents *nani-o* from crossing *naze* and moving to Spec CP first; if *naze* is moved to Spec CP, no adjunction to *naze* is possible because of (82b). The situation is different in the case of (88b). In (88b), *nani-o* has undergone short scrambling, which according to our analysis is movement Spec$_2$ of AgrsP, a position with A-properties. Therefore, (82b) does not exclude *wh*-cluster formation in this case, since *nani-o* is located in an L-related position. The [wh]-feature of the attracting *wh*-phrase is then checked by moving the entire cluster to Spec CP. (88c) displays a situation analogous to (88b): a *wh*-argument that precedes a *wh*-adjunct and occupies an L-related position attracts the *wh*-adjunct, the only difference being that the attracting *wh*-element in (88c) is not scrambled. Checking of the three *wh*-elements in (88c) is ensured as follows: the Minimal Link Condition requires that *naze* moves first to *dare-ga* followed by adjunction of *nani-o* to the *wh*-cluster so formed; finally, the entire cluster moves to Spec CP where *dare-ga*

enters a checking relation with the [wh]-feature in C.[27] We can thus conclude that the assumption that short scrambling is movement to an L-related position provides us with a unitary account for the behavior of multiple *wh*-elements which are clause-mates.

Let us now turn to the clause-boundedness constraint represented in (80) and (81) and repeated here as (89) and (90):

(89) a. *Naze dare-ga Mary-ni [CP John-ga sono hon-o katta to] itta no?

    why who_nom M.dat J.nom that book_acc bought C said Q

    Q who told Mary [that John bought that book] why?

  b. **Mary-ni* naze dare-ga *t* [CP John-ga sono hon-o katta to] itta no?

    M.dat why who_nom J.nom that book_acc bought C said Q

  c. *Dare-ni* naze dare-ga *t* [CP John-ga sono hon-o katta to] itta no?

    who_dat why who_nom J.nom that book_acc bought C said Q

(90) a. **Sono hon-o* naze dare-ga Mary-ni [CP John-ga *t* katta to] itta no?

    that book_acc why who_nom M.dat J.nom bought C said Q

    Q who told Mary [that John bought that book] why?

  b. ?**Nani-o* naze dare-ga Mary-ni [CP John-ga *t* katta to] itta no?

    what_acc why who_nom M.dat J.nom bought C said Q

    Q who told Mary [that John bought what] why?

On the basis of the scrambling theory developed in the preceding sections and the *Wh*-cluster Hypothesis the data in (89) can be analyzed along the following lines: even though the latter hypothesis requires that the two *wh*-phrases in (89a) form a *wh*-cluster, this requirement cannot be fulfilled since, as a consequence of the prohibition against adjunction to *wh*-elements in non- and broadly L-related positions (82b), *dare-ga* cannot adjoin to *naze* either in its base-position or if moved to Spec CP. Furthermore, the Minimal Link Condition prevents *dare-ga* from crossing *naze* and moving to Spec CP first. In (89c), on the other hand, the indirect object *dare-ni* has undergone short scrambling to Spec₂ of AgrsP. Since, according to

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[27] Our analysis of *wh*-cluster formation crucially assumes that multiple adjunction to one and the same element is permitted and, as pointed out by Marcel den Dikken, is thus in conflict with Kayne's (1994) restrictions on multiple adjunction. Overt multiple *wh*-fronting of more than two elements including an adjunct, as attested in languages such as Bulgarian (cf. (i)), provides independent evidence for this assumption:

(i)   [CP Koj kak kogo [C' e tselunal]]? (Bošković 1997)

    who how whom is kissed

    Who kissed whom how?

our theory, the target position of this scrambling operation is an L-related position, the required *wh*-cluster can be formed by adjunction of *naze* and *dare-ga* to *dare-ni* in a way exactly analogous to the derivation of (88c).[28] (89b) shows again that non *wh*-phrases are unable to attract *wh*-elements, as is implied by the *Wh*-cluster Hypothesis (82a).

The ungrammaticality of example (90b), which displays the intricate clause-boundedness restriction on the additional-*wh* effect, can then be accounted for as follows. According to our analysis of long *wh*-scrambling to a [+wh] clause, as developed in section 6, the long scrambled object *nani-o* already occupies an (adjoined) operator position in the matrix clause and need not undergo any further LF-movement. As a consequence of (82b), no *wh*-element in (90b) can be checked by being moved to the long scrambled *nani-o* since *nani-o* is not located in an L-related position. On the other hand, no *wh*-element in (90b) can be checked by moving to Spec CP since this would involve a violation of the Minimal Link Condition, *nani-o* constituting a closer checker than the [wh]-feature in Comp. Finally, no *wh*-element other than the long scrambled *nani-o* can be checked by adjunction to AgrsP against the [wh]-feature of Agrs since crossing *nani-o* would again involve a violation of the Minimal Link Condition. We can thus conclude that an account of the clause-boundedness constraint illustrated in (90b) crucially relies on the fact that long scrambling out of finite clauses is movement to an adjoined position.

Our account of (90b) makes two interesting predictions. The first prediction is that (90b) would also be ungrammatical if the matrix clause contained only the argument *wh*-phrase *dare-ga*. This prediction also appears to be in accordance with the facts, as can be seen from (91) from Takahashi (1993:664):

(91)　　??*Nani-o*　John-ga　dare-ni　[Mary-ga　*t*　tabeta to]　itta　no?
　　　　　what$_{acc}$　J.$_{nom}$　　who$_{dat}$　M.$_{nom}$　　　ate　C　said　Q
　　　　　What did John tell who that Mary ate?

The second prediction is that the long scrambled object *nani-o* may rescue the *wh*-adjunct in examples like (90b) if it originates from a control infinitive rather than from a finite clause. This prediction is in fact borne out, as shown by example (92) taken from Nemoto (1993):

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[28]Recall our assumption that the *wh*-adjunct *naze* in (89) and (90) is base-generated in an AgrsP-adjoined position. If it occupied its position in (89c) as a result of movement, then our constraint on adjunction would imply that it cannot be "rescued" by undergoing further adjunction to the rescuing higher *wh*-phrase. Thus, if we want to maintain Saito's basic idea of *naze*-"rescuing" by adjoining the *wh*-adjunct to a *wh*-argument, we are forced to assume that the adjunct *naze* in (89) and (90) is base-generated in the AgrsP-adjoined position.

(92)   *Nani-o*   naze   dare-ga   Michael-ni   [PRO *t* utau   yoo(ni)]   itta   no?

         what$_{acc}$ *why*   *who$_{nom}$*   *M.$_{dat}$*   *sing*   *told*   *Q*

         What, why who told Michael to sing?

Following from our analysis of scrambling out of infinitives, in (92) the long scrambled *wh*-object occupies the Spec$_2$ position of the matrix AgrsP. Since this position is an L-related position, the *wh*-adjunct *naze* can be rescued in the same way as in (88), i.e. by adjoining to the scrambled *wh*-object at LF. Then, nothing prevents the complex *wh*-element (or its [wh]-feature, cf. Chomsky 1995) from moving to the operator position at LF.

The explanations given in this section are crucially based on the restriction on *wh*-cluster formation stated in (82b), according to which adjunction to a *wh*-element is only possible if this element is located in an L-related position. We will now give independent theoretical reasons for assuming such a restriction. Recall that "L-related" in (82b) is taken to mean "narrowly L-related" referring to positions with A-properties as opposed to the notions "broadly L-related" and "non-L-related", which are intended to refer to positions with A'-properties (see also Mahajan 1990). (82b) is taken to be a derivational rather than a representational constraint in a sense analogous to Chomsky's (1995:223) view of head adjunction and is supposed to restrict possible adjunction sites for *wh*-elements. It implies that *wh*-elements in Spec CP, *wh*-adjuncts, and *wh*-elements in adjoined positions are unable to attract other *wh*-phrases.

As far as independent evidence for (82b) is concerned, our claim is that (82b) can be derived from the Uniformity Condition on Chains (Chomsky and Lasnik 1993) and from an independent property of adjuncts. Given the Copy Theory of movement, which applies to A'-movement rather than A-movement (Chomsky 1995), it is a necessary condition for the uniformity of a chain that its head and its tail have the same shape. It follows that adjunction to an element in Spec CP is not permissible since such an adjunction would make the chain of this element non-uniform as its tail (the variable) does not have an element adjoined to it. Adjunction to elements which have undergone adjunction movement, and thus have been moved to a broadly L-related position, is disallowed for the same reason. The third implication of (82b), according to which base-generated adjuncts may not be the target of

adjunction, follows from the fact that adjuncts do not provide an operator position.[29] It should be clear that adjunction to elements in L-related positions does not violate the uniformity condition since the Copy Theory of movement does not apply to A-movement.

To sum up, the multiple *wh*-fronting phenomena analyzed in this section provided additional evidence in favor of our analysis of scrambling in Japanese as movement to Spec$_2$ of AgrP or, in the case of scrambling out of finite clauses, as movement to an adjoined position. Combined with the *Wh*-cluster Hypothesis, this analysis enabled us to suggest a new account of the additional-*wh* effect including one of its fundamental clause-boundedness restrictions and to account for interesting island effects in Japanese.

8. Conclusion

In this article we have discussed scrambling in German and Japanese on the basis of different properties of the Agr-system in both languages. We argued that differences between the A-/A'-properties of scrambling in both languages as well as the locality restrictions holding for long scrambling out of finite clauses can be attributed to the fact that different structural positions are used as landing sites for scrambling in the two languages. With reference to a consequence of 'Bare Phrase Structure Theory' (Chomsky 1994) we argued that unlike German, where scrambling is XP-adjunction, the Agr-system in Japanese exhibits layered specifiers which function as positions with A-properties and provide landing sites for scrambling. The discussion of *wh*-scrambling in Japanese has shown that overt *wh*-movement in Japanese also involves the Agr-system in contrast to German, where the [+wh] feature is only located in C°. We have argued that *wh*-scrambling in Japanese may apply overtly to check a strong [+wh] feature in Agrs, whereas the weak [+wh] feature may be located in C° and in *wh*-words, triggering covert movement and putting covert *wh*-movement in Japanese on a par with *wh*-movement in languages with overt multiple *wh*-fronting such as Bulgarian. This analysis accounts for several scope ambiguities found with *wh*-scrambling in Japanese as well as for the additional-*wh* effect.

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[29]Saito and Fukui (1996) generally exclude adjunction to adjoined categories in terms of their *Principle of Unique Licensing,* This principle prohibits adjunction to an adjoined category as this would create a configuration in which the adjunction site is no longer unique: the element which is adjoined to an adjoined category would simultaneously be adjoined both to this category and to the category to which the adjoined category is adjoined, which results in the indeterminacy of the adjunction site.

Empirical evidence for the prohibition against adjunction to an adjoined category can be derived from the fact noted by Rudin (1988) (see also Cheng 1991:99, Bošković 1994) that overt multiple fronting languages do not allow the fronting of more than one adjunct. The only way to have more than one adjunct is to have a preposed conjoined phrase containing two adjuncts.

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Institut für Deutsche Sprache und Literatur II

Universität Frankfurt/Main

Gräfstr. 76

60054 Frankfurt/Main

Germany

grewendorf@lingua.uni-frankfurt.de

sabel@lingua.uni-frankfurt.de