

**On Scrambling:  
A Reply to Bošković and Takahashi\***

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Abstract: In this article, I argue against Bošković and Takahashi's (1998) analysis of Scrambling as base-generation (with Lowering for A'-cases). I present evidence from Russian of scope and anti-reconstruction effects and Scrambling/*wh*-movement parallels, all implicating a "classical" overt movement account of A'-Scrambling. I then discuss theoretical issues unresolved by the Base-generation/Lowering account. Having shown that A'-Scrambling is (upward ) movement, I argue that the account of A-scrambled arguments as base-generated also loses its force. In conclusion I suggest an alternative way to eliminate the apparent optionality associated with Scrambling, while maintaining the classical analysis of Scrambling as upward movement.

Bošković and Takahashi (1998) (hereafter B&T) claim that Scrambled elements are base-generated in their surface (adjunct) position and undergo a post-syntactic process of lowering into  $\theta$ -position, in A'-cases, under a view where  $\theta$ -roles are formal features, in the sense of Chomsky 1995. This reverses the standard analysis that Scrambling is optional, semantically vacuous movement (Ross 1967, Saito 1989, 1992).<sup>1</sup> Instead, B&T's approach allows optionality in Scrambling to be eliminated by eliminating the "Scrambling" itself, replacing it with base-generation.

However, as I show in this article, B&T's approach runs into various difficulties. Empirically, it leaves restrictions on Scrambling unexplained and makes certain predictions that are falsified by the data. It also loses significant generalizations. Further, I argue that it does not fully solve the problem that it sets out to resolve, namely that of the apparent optionality of Scrambling. Given these difficulties, I argue that the "classical" view of Scrambling as upward movement must be maintained.

The article is structured as follows: Section 1 presents the classical view of Scrambling and B&T's alternative, identifying predictions to test between them. Section 2 presents evidence from Russian against the predictions made by B&T. Section 3 raises some theoretical issues that are problematic for B&T and returns to the original question of optionality. Section 4 discusses A-Scrambling under B&T's account. A possibility for eliminating the apparent optionality of Scrambling while maintaining upwards movement is presented in Section 5.

\* I would like to thank Olga Arnaudova, Leonard Babby, John Bowers, Barbara Citko, Marcel den Dikken, Daniel Finer, Richard Larson, Gil Rappaport, Mark Volpe, John Whitman, audiences at WCCFL XIII, and at Princeton, Leipzig and Potsdam universities and anonymous LI reviewers for helpful discussion. All mistakes remain my own. This research was partly supported by IREX and the Social Science Research Council.

## 1 Two Views of Scrambling


Let us begin by laying out the "classical" analysis of Long Distance Scrambling (LDS), followed by B&T's view. The Scrambling phenomenon is observed in sentence pairs like (1a,b) below, from Japanese. Members of this pair differ in word order, but are otherwise identical in grammatical relations, truth-conditions and morphology ((1a,b) from B&T):

- (1) a. John-ga [Mary-ga **sono hon-o** katta to] omotteiru  
John-Nom Mary-Nom that book-Acc bought that thinks  
'John thinks that Mary bought the book.'
- b. **sono hon-o** John-ga [Mary-ga t katta to] omotteiru

Starting with Ross (1967), many researchers have taken pairs like (1a,b) to be related by a "Scrambling" transformation which derives (1b) from (1a) by reordering constituents.<sup>2</sup> The contrast between the "classical" analysis and B&T's alternative concerns whether or not (1a) is the transformational source sentence of (1b). The "classical" view, which I argue for in this article, claims that it is; B&T's alternative argues for distinct base-generated positions for *sono hon-o* in (1a) and (1b).

### 1.1 The Classical Analysis of Scrambling

The classical view takes the structural relationship between a predicate and its arguments and modifiers in Scrambling languages to resemble that found in non-Scrambling languages. Specifically, arguments and modifiers begin in a local relation with their associated predicates, and only later are scrambled away. On this view, (1a) must be the source structure in our pair since only in (1a) does *sono hon-o* ('that book') stand in a local structural relation with its predicate *katta* ('bought'). Thus (1b) must derive from (1a) by Scrambling *sono hon-o* away from its base position through raising, as in (2).

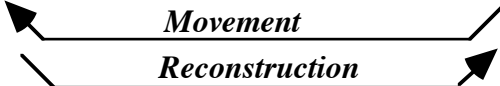
- (2)      **sono hon-o**      John-ga      [Mary-ga      **t**      katta      to]      ometteiru  
          [that book-Acc]      John-Nom      Mary-Nom                      bought      that      thinks
- 
  
*Movement*

Within Government and Binding Theory, the generally accepted view was that Scrambling is an instance of Move- $\alpha$ , constrained by universal principles such as Subjacency, the ECP, and the Constraint on Extraction Domains (CED). Debates have involved the kind of movement (A or A'), and the correct analysis of cases like (3a,b) (taken from B&T), where a scrambled element is interpreted in its base position, despite surface displacement.

- (3) a.    **Nani-o<sub>i</sub>**      John-ga      [Mary-ga      **e<sub>i</sub>**      katta      ka]      sitteiru  
          what-Acc      John-Nom      Mary-Nom      bought      Q      knows  
          'John knows what Mary bought.'
- b.    [**Mary-ga      nani-o      katta      to**]<sub>i</sub> John-ga      [Bill-ga      **e<sub>i</sub>**      itta ka] sitteiru  
          Mary-Nom      what-Acc      bought that John-Nom      Bill-Nom said      Q      knows  
          'John knows what Bill said that Mary bought.'

In (3a), the scrambled *wh*-object takes embedded scope, despite being in the main clause. Similarly for (3b): there an entire CP containing a *wh*-phrase is scrambled, but the *wh*-phrase contained in it is interpreted in the lower position.

The picture emerging from these considerations was one of (Long Distance) Scrambling as a form of A'-movement that *reconstructs* at Logical Form (LF) to base position where interpretation occurs.<sup>3</sup> A fuller picture of the classical analysis is (4).

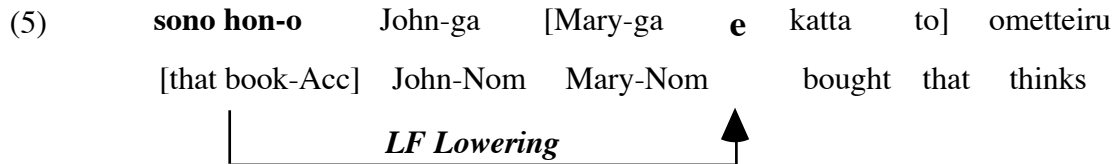
- (4)      **sono hon-o**      John-ga      [Mary-ga      **t**      katta      to]      ometteiru  
          [that book-Acc]      John-Nom      Mary-Nom                      bought      that      thinks
- 
  
*Movement*  
*Reconstruction*

Reconstruction effects can be viewed as preliminary evidence in favor of the Raising-movement analysis of Scrambling in as far as they appear parallel to reconstruction

effects found in *wh*-movement, and other instances of A' movement. We return to Russian *wh*-movement and Scrambling parallels below.

### 1.2 Bošković and Takahashi (1998)

Bošković and Takahashi 1998 invert the classical picture of (1a,b), claiming that the position of *sono hon-o* ('that book') in (1b) is in fact base-generated. On their alternative proposal, neither of (1a,b) is derivationally related to the other, however at LF the scrambled (for B&T: base-generated) object undergoes an obligatory lowering operation, which derives an LF structure essentially identical to (1a):



Thus in place of raising and LF reconstruction, there is *only* LF lowering. The differences between the two views and relevant definitions are summarized in (6).

#### (6) *Differences between Traditional (4) and B&T (5) approaches to Scrambling:*

- a. In (4), the derivation involves **Raising**. In (5) it does not.
- b. In (4) the derivation involves **Reconstruction**. In (5) it does not.
- c. In (5) the derivation involves **Obligatory Lowering**. In (4) it does not.

**Raising:** (standard) upwards movement, forming a chain, leaving a trace, subject to constraints (Subjacency, ECP, CED, etc.).<sup>4</sup>

**Reconstruction:** LF movement of an element *back* to its base-generated spot (or, in the Copy Theory, deletion of the higher copy) for interpretive purposes.

**Obligatory Lowering:** Feature-driven downward movement (as proposed by B&T)

The motivation for this proposal arises from the particular theory B&T assume, and from specific interpretive properties of Scrambling. B&T frame their account within the Minimalist Program (Chomsky 1995), according to which there should be no optional movement, for reasons of Economy. Although I differ from B&T on the driving force of

Scrambling and its mechanics, I share their determination to eliminate pure optionality from the grammar of natural language. This shared assumption serves as the backdrop for the discussion to follow.<sup>5</sup> As B&T observe, classical Scrambling, on its movement analysis, appears to be optional. It is not motivated by case considerations or the kind of feature checking that characterizes *wh*-movement.

Furthermore, Scrambling appears to be inert semantically. That is, it appears to *obligatorily* reconstruct to its base-position in the LF component (Saito 1989, 1992). In the examples in (3), for instance, the displaced *wh*-phrase and clause *must* be interpreted in their source site. With *wh*-movement and Topicalization, by contrast, "undoing" the moved phrase is impossible; the movement is morphologically driven. B&T observe that "the fact that Scrambling can be undone is puzzling under the standard assumption that, like *wh*-movement and Topicalization, which cannot be undone, Scrambling in the constructions under consideration involves overt A'-movement." (B&T p. 359)<sup>6</sup>

B&T's account derives this apparent non-parallelism between Scrambling and *wh*-Movement/Topicalization on an analysis in which the former is something quite different from movement. Their view relies crucially on the assumption that  $\theta$ -roles are formal features, which are parameterized in strength, like other formal features. A "Scrambling" language (like Japanese) has *weak*  $\theta$ -roles and arguments need not merge into  $\theta$ -position. Rather, they can be base-generated in scrambled position (adjoined to SpecIP), as in (5), and lower into  $\theta$ -position at LF. This LF movement is, of course, obligatory (or the  $\theta$ -features would never be checked), and the Last Resort problem goes away. Japanese and English then differ in the strength of their formal  $\theta$ -features.<sup>7</sup>

Such an analysis accounts for the following generalizations: I) Scrambling obligatorily reconstructs. (This falls out for B&T -- scrambled arguments *always* lower into  $\theta$ -position.) (II) Extraction out of scrambled elements is acceptable, as shown in (7).

- (7) a. John-ga [Mary-ga **sono hon-o** katta to] omotteiru  
John-Nom Mary-Nom that book-Acc bought that thinks  
'John thinks that Mary bought the book.'

- b. [sono hon-o<sub>i</sub> [John-ga [<sub>cp</sub>[<sub>ip</sub>[<sub>cp</sub> Mary-ga e<sub>i</sub> katta to]<sub>2</sub>] [Bill-ga e<sub>2</sub>  
that book-Acc John-Nom Mary-Nom bought that Bill-Nom  
itta]] to] omotteiru]].  
said that think

'That book<sub>1</sub>, John thinks that [that Mary bought e<sub>1</sub>]<sub>2</sub>, Bill said e<sub>2</sub>.'

(7a) contains no Scrambling. In (7b) the direct object appears outside of its containing CP, which is also not in its selected position, causing no violation. (This is expected for B&T since after LF Lowering, there is no violation.) (III) Scrambling contributes nothing to the semantics of the sentence. (This follows for B&T on the assumption that interpretative relations are established at LF -- for them the displaced element is always in  $\theta$ -position at LF.) Given assumptions shared by B&T and this article, the B&T approach makes the following predictions:

8) Predictions under B&T:

Prediction A: *There should be no interpretive effects associated with surface (scrambled) position. ["radical reconstruction"]*

Prediction B: *There should be no constraints on the configurational relationship between the surface and  $\theta$ -positions of scrambled elements.*

Prediction C: *Only elements with  $\theta$ -roles should participate in Scrambling*

Certain points must be clarified to see how these predictions follow from B&T. Prediction A follows from the obligatory nature of LF Lowering for B&T. Scrambled elements are in  $\theta$ -position at LF; they must therefore be interpreted there. This follows from the Minimalist assumptions that LF is the unique level of interface with the interpretive component of the grammar, and therefore the only level at which interpretive information can be encoded.<sup>8</sup> Prediction B follows from the fact that *Lowering requires the absence of any trace* in the base-generated position (B&T's claim), or the Proper Binding Condition would be violated. This claim is *central* for B&T to allow the Proper Binding Condition to still rule out *overt* Lowering, which remains generally unattested. "Overt lowering and lowering of elements that for independent reasons must leave traces are disallowed." (B&T, p. 351) Although B&T do not provide a specific formulation, the Proper Binding Condition ruling out overt lowering can be defined as (9).

(9) Proper Binding Condition (applies at LF): Traces must be bound

Assuming standard c-command definitions of binding, (9) rules out any Lowering process that leaves a trace, and would rule out B&T's proposed Lowering, were such movement to leave a trace. B&T specifically require, therefore, that the Lowering involved in (1b) *leaves no trace*. "We follow Lasnik & Saito (1992) in assuming that movement does not have to leave a trace when no principle requires it... Then, the LF movement deriving (1b) does not have to leave a trace, rendering the Proper Binding Condition inapplicable." (B&T, p. 351) Importantly, on the assumption that a chain is defined as the relation between a trace and its antecedent (or between two copies of an element under the Copy Theory), the lack of a trace for B&T in turn denies the existence of any chain relating the base-generated spot and the (LF)  $\theta$ -position. Constraints on chain-formation therefore should not apply in such constructions, and Scrambling should be generally unconstrained (Prediction B).<sup>9</sup> Prediction C is a central prediction of B&T's theory, namely that Scrambling is a property of  $\theta$ -marked elements.<sup>10</sup> We will see that these predictions are disconfirmed by the Russian data.

Russian is clearly a Scrambling language in the original "stylistic" sense intended by Ross (1967) and picked up by Saito (1989), (1992). It also has overt *wh*-movement, as discussed by Müller & Sternefeld (1993) and B&T themselves, among many others.<sup>11</sup> The situation with Russian Scrambling is therefore a good testing ground for the B&T account.<sup>12</sup>

## **2 Empirical arguments against Scrambling as Lowering**

### **2.1 Interpretive effects of overt Scrambling**

Prediction A of B&T's analysis is that scrambled position is not relevant to LF interpretation, (for A'-Scrambling). This follows from Obligatory Lowering, which expressly disallows any trace or copy in the scrambled position (the base-generated position for B&T). However, the prediction of the absence of any interpretive effects associated with the scrambled position is too strong; in fact, we now turn to various cases in which scrambled position is directly relevant to interpretation.

2.1.1 *Russian Scope Effects* B&T do not provide an explicit statement of how scope is to be determined, which remains a serious unanswered question for the Lowering account, as pointed out by an LI reviewer. However, B&T do not claim to be assuming anything other than the usual account of Scope, namely configurational LF relations, and thus scrambled orders should not produce changes in scope relations, since for B&T scrambled elements undergo Obligatory Lowering at LF into  $\theta$ -position to check  $\theta$ -features. At LF, they therefore occupy canonical argument position. The scrambled position is simply not available as a position for scope interpretation. Prediction A of B&T's analysis, namely that no interpretive effects should be associated with the surface position of scrambled elements, should thus apply to Scrambling and scope in Russian. And yet scrambled orders differ from non-scrambled orders with respect to scope in Russian. This is shown in the contrast in (10).<sup>13</sup>

- (10) a. Kto-to                    xočet, čtoby Boris uvidel každogo mal'čika.  
 Someone-NOM    wants that Boris saw [every boy]-ACC  
 'Someone wants Boris to see every boy.'  
 i)  $\exists x \forall y$       ii)  $*\forall y \exists x$
- b. [Každogo mal'čika] kto-to                    xočet, čč toby Boris uvidel t<sub>i</sub>.  
 [every boy]-ACC someone-NOM    wants that Boris saw  
 'Every boy someone wants Boris to see.'  
 i)  $*\exists x \forall y$       ii)  $\forall y \exists x$

(10a) and (10b) are both unambiguous, but with different relative scope. The lack of ambiguity in (10a) is expected under standard versions of QR as a clause-bounded process. The possibility of wide scope for *every boy* in (10b), however, goes against the prediction made by the Lowering hypothesis. This fact is a problem for an account that requires Obligatory Lowering into  $\theta$ -position at the same level where scope relations are determined. Both sentences should have the same interpretation.<sup>14</sup>

2.1.2 *Russian anti-reconstruction effects* It is well-known that Reconstruction with *wh*-movement differs for different kinds of phrases, as shown in (11) (The same holds for English Topicalization. See Huang 1993 and Heycock 1995 for discussion).

- (11) a. \***[how proud of John<sub>i</sub>]** do you think **he<sub>i</sub>** should be **t**?  
 b. **[which question that Gore<sub>i</sub> got during the debate]** do you think **he<sub>i</sub>** messed up on **t** the worst?

In (11a), reconstruction occurs, creating an LF configuration in which Principle C is violated. (11b), however, does not reconstruct; Principle C is not violated. Both Huang (1993) and Heycock (1995) argue that the distinction reduces to a difference in LF position, although they differ on the nature of the distinction between the two. Anti-reconstruction effects thus provide a diagnostic for whether there has been no reconstruction. Thus anti-reconstruction effects such as (11b) should disappear with Scrambling. However, the same contrast shown in (11) obtains with Russian Scrambling. This is shown in (12).

- (12) a. on **[dovol'noj rabotoj Marii<sub>i</sub>]<sub>k</sub>** sčitaet ee<sub>j/\*i</sub> **t<sub>k</sub>** davno  
 he-Top satisfied-fem w.work Mary-Gen considers her long since  
 'He has considered her<sub>i</sub> satisfied with Mary's<sub>i</sub> work long since.'  
 b. on **[sluxi o Marii<sub>i</sub>]<sub>k</sub>** xočet, čtoby ona<sub>i</sub> uslyšala **t<sub>k</sub>**  
 he-Top [rumors about Mary<sub>i</sub>] wants that she<sub>i</sub> hear  
 'He wants her<sub>i</sub> to hear rumors about Mary<sub>i</sub>.'  
 c. **[...nekotorye voprosy Goru<sub>i</sub>]<sub>j</sub>** ja xoču, čtoby on<sub>i</sub> srazu zabyt **t<sub>j</sub>**  
 some questions Gore-Dat I want that he soon forget  
 'Some questions to Gore<sub>i</sub> I want him<sub>i</sub> to immediately forget.'

The predicate in (12a) reconstructs, triggering a Principle C violation.<sup>15</sup> The arguments in (12b-c), on the other hand, are interpreted in their surface position; there is no Principle C violation. This is the opposite of what we would expect under B&T. Under Obligatory Lowering we should not expect any anti-reconstruction effects with Scrambling (Prediction A) since all scrambled arguments *obligatorily* lower for  $\theta$ -checking. However, such effects exist in Russian, as shown in (12). On the other hand a theory that allows Raising to scrambled positions (followed by Reconstruction) has the flexibility to handle these data. We now turn to Reconstruction in Raising accounts.

2.1.3 "Sensitive" Reconstruction Heycock (1995) discusses the Reconstruction facts in (11), and concludes that Reconstruction is obligatory for "non-referential" phrases and optional or impossible for others (primarily arguments). This is reminiscent of "optional" movement processes in Germanic (especially object shift) which are related to semantic effects by Diesing & Jelinek (1996) and others, whereby the LF "type" of an optionally shifted element determines its LF position (inside or outside of its home VP, for example.) If LF reconstruction after movement is "sensitive" to the semantic nature of the element, as such accounts maintain, we can allow for the distinctions found above while maintaining a classical Raising account. It is unclear how B&T would accommodate semantic sensitivity of this kind since all arguments (and only arguments) must Lower at LF to  $\theta$ -position. Clearly, some are not interpreted in  $\theta$ -position.<sup>16</sup> This accords with a general direction in LF literature going back to Chomsky 1976, 1981 and also found in Diesing 1992, Huang 1993, Collins & Thráinsson 1996 and elsewhere. The existence of "sensitive" Reconstruction appears to be incompatible with B&T's LF Lowering approach without further elaboration about the accompanying semantics.

## 2.2 Scrambling as Raising: Syntactic Constraints

I now turn to Prediction B, namely the claim of the *absence of any Raising process* in the derivation of alternate word orders under B&T's theory.

2.2.1 *Scrambling out of scrambled phrases* B&T make the argument that Scrambling out of scrambled phrases is possible because Scrambling involves a trivial chain, out of which further movement is acceptable. Recall (7), repeated as (13).

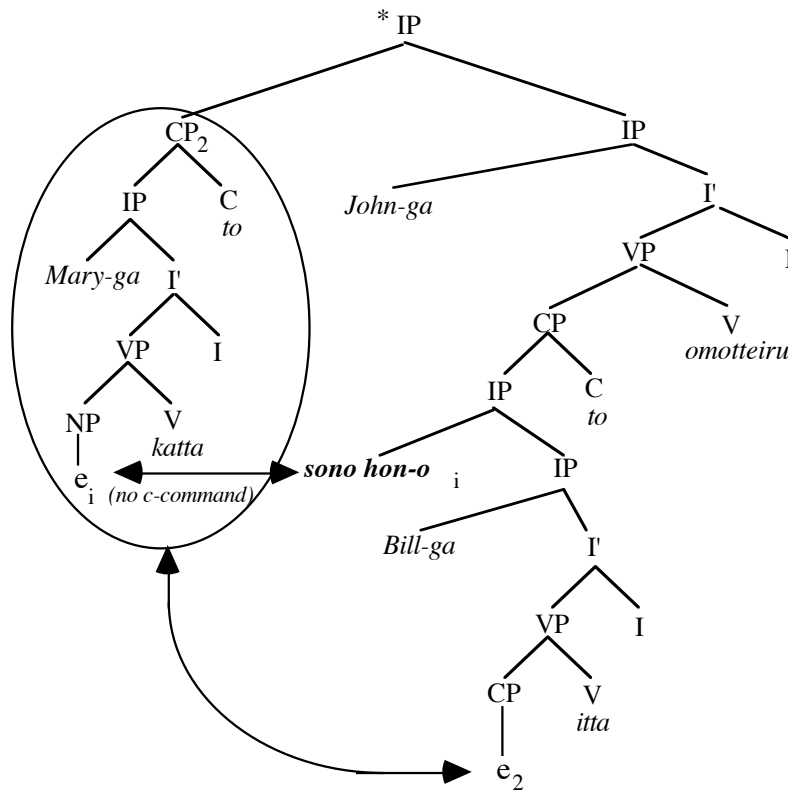
- (13) a. John-ga [Mary-ga **sono hon-o** katta to] omotteiru  
 John-Nom Mary-Nom that book-Acc bought that thinks  
 'John thinks that Mary bought the book.'
- b. [**sono hon-o<sub>i</sub>** [John-ga [<sub>cp</sub>[<sub>ip</sub>[<sub>cp</sub> Mary-ga e<sub>i</sub> katta to]<sub>2</sub> [Bill-ga **e<sub>2</sub>**  
 that book-Acc John-Nom Mary-Nom bought that Bill-Nom  
 itta]] to] omotteiru]].  
 said that think  
 'That book<sub>1</sub>, John thinks that [that Mary bought e<sub>1</sub>]<sub>2</sub>, Bill said e<sub>2</sub>.'

The B&T account is straightforward: (13b) involves two cases of base-generation followed by Lowering -- one of the CP and one of the embedded NP. For B&T, both the smaller (NP) and larger (CP) components are base-generated in adjoined position and undergo LF Lowering. Because there are no traces at all, the derivation is licit. "In (13b), no relevant extraction takes place, since both "scrambled" phrases are base-generated where they are at S-structure." (B&T, p. 357) Notice, however, that a Raising approach fares no worse here. The chains formed by overt movement deriving (13b) do not violate any derivational principles in a Raising account either. In particular,  $e_2$  is c-commanded by its antecedent, as is  $e_1$ . Where the two accounts differ, however, is with respect to a different derivation, namely one in which the two displaced constituents, CP<sub>2</sub> and NP<sub>1</sub>, appear *in the opposite order*. In such an instance, the Lowering analysis predicts grammaticality (in fact no variant orders should be worse than others), whereas the Raising analysis predicts a violation. This latter prediction is confirmed by the ungrammaticality of (14).

- (14) \*[[<sub>cp</sub> Mary-ga  $e_i$  katta to]<sub>2</sub> [John-ga [<sub>cp</sub> **sono** **hon-o**]<sub>i</sub> [Bill-ga  $e_2$   
 Mary-Nom bought that John-Nom that book-Acc Bill-Nom  
 itta]] to] omotteiru]].  
 said that think  
 '[that Mary bought  $e_1$ ]<sub>2</sub>, John [that book<sub>1</sub>] thinks that , Bill said  $e_2$ .'

The ungrammaticality of (14) is the expected result on a Raising analysis because there is an improper chain between [<sub>NP</sub>that book] and its trace, ruled out by the Proper Binding Condition, as shown below:

(15) Structure of (14):



Under the Lowering analysis, the order found in (14) is predicted to be grammatical, since the CP and NP lower into argument position, and there can be no Proper Binding Condition violation (on B&T's assumption that this kind of lowering leaves no trace). The sentence should fare no worse than (13b). It is not clear how B&T can account for the contrast between (13b) and (14).

2.2.2 *wh-movement and Scrambling Parallels* B&T's Lowering account of Long Distance Scrambling (LDS) denies the existence of a "record" in base-generated (adjoined) position; in this way LF Lowering is allowed. Thus we do not expect (typical) movement constraints to hold of LDS under B&T's analysis (Prediction B), assuming either that constraints hold of chains formed between traces and their antecedents or the structural position of traces left by movement. And yet there is evidence that such constraints do apply to Scrambling, and with considerable regularity,

providing additional support for the "classical" claim that LDS is overt A'-movement. Consider the Russian sentences in (16).

- (16) a. \***Kogo** Marina znaet čto [ Ivan ljubit **t<sub>i</sub>** ] ] ?  
who-Acc Marina-Nom knows that Ivan loves  
'Who does Marina know that Ivan loves?'
- b. \***Borisa<sub>i</sub>** Marina znaet [ čto [ Ivan ljubit **t<sub>i</sub>** ] ]  
Boris-ACC Marina knows that Ivanlikes  
'Marina knows that Ivan likes Boris.'

(16a) shows that *wh*-movement is ungrammatical out of an indicative embedded clause.

(16b) shows that the same restriction applies to Scrambling.<sup>17</sup>

Let us consider what the possibilities for B&T are with respect to such parallels. First, it is possible that (16b) **does not** involve Scrambling. If it involves no movement, the (ungrammaticality) parallel with *wh*-movement is unexpected.<sup>18</sup> If it is another kind of movement (not Scrambling), as an LI reviewer suggests, then the data are being excluded as belonging to another class of phenomena and we lose a significant generalization (either the *wh*-movement/Scrambling parallels or a unified account of Scrambling). The alternative remains, therefore, that (16b) **is** a case of Scrambling, and therefore for B&T it involves Lowering. Something about this Lowering, therefore, causes the violation. However, B&T claim that the *only* movement in such cases is Lowering (which leaves no trace), and in that case parallels such in (16) are unexpected. In Russian, (as in German -- see Webelhuth 1990), *wh*-movement and Scrambling are restricted in highly parallel fashion. A partial list of relevant constraints restricting movement is provided in (17) (see Fowler 1987 and Bailyn 1995 for discussion).

- (17) Movement constraints active in Russian:<sup>19</sup>
- a. Subjacency / Complex NP constraint
  - b. Constraint on extraction out of adnominal genitives
  - c. Coordinate Structure Constraint
  - d. The Empty Category Principle (includes that-*t* effect)
  - e. Constraint on Extraction Domains

Examples of Subjacency violations are shown in (18).

(18) a. \*Kogo<sub>i</sub>            ty            pozvonil    agentu    kotoryj    ljubiti ?  
 Whom-ACC    you-NOM    phone    spy-DAT    who        loves  
 'Whom did you phone a spy who loves?'

(18) b. \*Borisa<sub>i</sub>            ty            pozvonil    agentu    kotoryj    ljubiti    t<sub>i</sub>    !  
 Boris-ACC    you-NOM    phone    spy-DAT    who        loves  
 'It's BORIS you phoned a spy who loves!'

(18a) is a subjacency violation caused by *wh*-movement. (18b) is a subjacency violation caused by Scrambling. Such a parallel is predicted not to exist by a theory of Scrambling as Obligatory Lowering. Another example involves the Coordinate Structure Constraint which holds in strict form in Russian (and probably universally). As in (18), this constraint applies equally to Scrambling and to *wh*-extraction. This is shown in (19).

(19) a. \*Kogo            ty    xočeš',    čtoby Ivan    videl    [t<sub>i</sub>    i    Mašu] ?  
 whom<sub>i</sub>-Acc    you    want        that    Ivan    saw        and    Masha-Acc  
 'Whom do you want Ivan to see Masha and?'

b. \*Borisa            ty    xočeš',    čtoby Ivan    videl    [t<sub>i</sub>    i    Mašu] ?  
 Boris<sub>i</sub>-Acc    you    want        that    Ivan    saw        and    Masha  
 'Boris you want Ivan to see Masha and.'

In (19a) *wh*-movement violates the Coordinate Structure Constraint. (19b) is equally ungrammatical. This parallel cannot be captured under an Obligatory Lowering account: in (19b), *Borisa* should be generable in IP-adjoined position and then lower into  $\theta$ -position, without causing any violation, again because no trace is left and no chain is formed. In fact, however, the sentence is just as ungrammatical as the parallel *wh*-extraction case given in (19a). Examples of this kind abound. (See Bailyn 1995 for Russian and Webelhuth 1990 for German). B&T's analysis appears to leave such parallels unexplained.

### 2.3 Non-arguments

B&T's theory makes another strong testable prediction, Prediction C, namely that only elements assigned a  $\theta$ -role should be able to Scramble.<sup>20</sup> If  $\theta$ -role "checking" is the

driving force behind the ability to appear displaced from base position, then *only* those elements that receive  $\theta$ -roles should show variation in word order. Non- $\theta$ -marked items should never be found dislocated from their immediate clause. However, Russian demonstrates various Scrambling of adjectives, adverbs and other non-arguments:

- (20) a. Ja xoču, čtoby oni bystro dopisali kursovye  
I want that they quickly wrote papers  
'I want them to write their papers quickly.'
- (20) b. Ja **bystro** xoču, čtoby oni t dopisali kursovye  
I quickly want that they write papers  
'I want them to write their papers quickly.'
- c. \*Ja **bystro** znaju agenta, kotoryj pišet t  
I quickly know agent who writes  
'I quickly know an agent who writes.'

In (20b) the embedded manner adverb *bystro* ('quickly') is located in the main clause, yet it modifies the embedded verb just as in (20a). The acceptability of (20b) under B&T's theory is unexpected, without additional assumptions. In order for B&T to guarantee that *bystro* is interpreted in the lower clause, it must be in that position at LF. And yet there is no (feature-driven) motivation for such LF-movement. Prediction C is disconfirmed. (20c), a standard subjacency violation, provides additional evidence for the raising account of Scrambling even in adverb cases.

### 3 Theoretical Issues Raised by Lowering

In addition to the empirical problems, the theory proposed by B&T raises various theoretical issues involving  $\theta$ -Theory and Feature Checking, as well as the original issue of Optionality and Economy.

#### 3.1 $\theta$ -Theory, Feature Checking and Multiple Scrambling

In the Minimalist Program,  $\theta$ -marking occurs at Merge, but this requirement is given as a stipulation. It appears, however, that any theory of  $\theta$ -marking that does not associate it

with Merge greatly increases the empirical burden put on theories of phrase structure, which specifically rule out movement into complement position. If thematic relations are not checked at Merge, even those between a head and its complement, we lose the traditional arguments for sisterhood being the closest of available syntactic relations.

Indeed, in Chomsky 1995 it is made quite clear that  $\theta$ -roles are not formal features: "under any approach that takes Attract/Move to be driven by morphological features... *there should be no interaction between  $\theta$ -theory and the theory of movement.*" (p. 312, emphasis mine.) Some arguments in favor of this are the following: (i) The Chain Condition defines a chain, formed by Move, as meeting several conditions "which we take to be part of the definition of the operation [Move] itself.  $\alpha$  must c-command its trace, so that there cannot be an operation that lowers  $\alpha$ ...; *movement is raising*, in the specific sense defined by c-command." (p. 253). The tail of an A-chain is defined by its status as a  $\theta$ -position; the notion of an A-chain under B&T would then be different for Scrambling and non-Scrambling languages. (ii) Internal arguments are merged into complement position of their predicates. However, complements are crucially *not* within the checking domain of a head. Clearly, in a theory such as B&T's,  $\theta$ -checking will (often) not result from Merge at the base at all (in Japanese-type languages, at least) but will be subject to checking in the complement position. We might therefore expect arguments to be regularly generated in adjoined positions and to assume their  $\theta$ -positions only at LF, predicting multiple Scrambling to be the norm as there should be no preference for arguments to appear in  $\theta$ -position.<sup>21</sup> In fact, multiple long-distance Scrambling in Russian is not only rare, it is ungrammatical for many speakers, something the base-generation account does not predict:

- (21) a. Ivan        xočet, čtoby Boris peredal    **kassetu**        **Saše.**  
           Ivan-Nom wants that Boris give        cassette-Acc Sasha-Dat  
           'Ivan wants Boris to give the cassette to Sasha.'
- b. Ivan    xočet, čtoby **kassetu**<sub>1</sub>    Boris peredal    **t**<sub>1</sub>        Saše.
- c. Ivan    xočet, čtoby **Saše**<sub>2</sub>        Boris peredal    kassetu        **t**<sub>2</sub>.

(21b-c), with one argument scrambled, do not distinguish between the two theories. However, any attempt to scramble *both* arguments leads to a violation.

- (22) a. \*Ivan **Saše**<sub>2</sub> **kassetu**<sub>i</sub> xočet, čtoby **t'**<sub>i</sub> **t'**<sub>2</sub> Boris peredal **t**<sub>i</sub> **t**<sub>2</sub>.  
b. \*Ivan **kassetu**<sub>i</sub> **Saše**<sub>2</sub> xočet, čtoby **t'**<sub>i</sub> **t'**<sub>2</sub> Boris peredal **t**<sub>i</sub> **t**<sub>2</sub>.

On the base-generation and Lowering analysis, which involves no traces (or chain formation), such constructions should be commonplace, and certainly no less acceptable than (21) whereas under a Raising account (22a-b) can be ruled out by Relativized Minimality.<sup>22</sup> Thus we have both empirical and conceptual reasons not to abandon the idea that  $\theta$ -role assignment is unrelated to movement.<sup>23</sup>

### 3.2 Optionality and Economy

The most serious theoretical issue for B&T's account concerns the very problem they begin with: optionality. Recall the main motivation for B&T's analysis: to eliminate the apparent optionality associated with Scrambling. Notice, however, that in solving the Last Resort problem through base-generation and Obligatory Lowering, B&T create a new problem of optionality. Optionality becomes unresolvable in a new way, for although the *LF movement itself* can be seen as motivated, there arises now a new problem of optionality at Merge in a theory that allows more than one potential Merge positions for arguments. Under B&T, languages with weak  $\theta$ -roles have the *option* of base-generating arguments in either of two positions; optional *movement* may be eliminated, but *optionality* remains, being simply transferred to the base structure. Consider, for example, the Numerations associated with (1a) and (1b). They are identical, on standard assumptions. Consider now the operations involved in deriving (1a) and (1b) from this Numeration. Clearly, (1b) involves an additional step: the LF Lowering, which is absent in (1a). Thus (1b) should be blocked by (1a) in all cases by (global) Economy. B&T therefore adopt Collins' 1997 Local Economy view whereby there is no look ahead. However, if we are to maintain a strong theory of Economy, we should consider the possibility that (1a) and (1b) differ in some way and hence do not

have the same Numeration, a conclusion that would also solve the initial Optionality issue. The Numeration underlying (1b) must contain certain information that forces movement. This is in the spirit of recent accounts of Long-Distance Scrambling to which we return in Section 5. It is also behind current accounts of Object Shift (Collins & Thráinsson 1996) as well as accounts of Local Scrambling (Miyagawa forthcoming, Bailyn forthcoming) to which we next turn.<sup>24</sup>

#### **4 Local Scrambling**

Thus far, we have only examined cases of A'-Scrambling, which are the core cases covered by B&T. Indeed, B&T themselves emphasize Long-Distance Scrambling cases as their central concern. For local (short) Scrambling, B&T's proposal of base-generation does not involve Lowering. Rather, they maintain base-generation in IP-adjoined position in cases of Short Scrambling as well, *with no further movement*. This is consistent with the fact that Short Scrambling appears not to reconstruct, changes scope relations, and so on. To handle  $\theta$ -checking in these cases, B&T propose that these arguments check  $\theta$ -features *in situ* at LF, meaning they *never* occupy  $\theta$ -position. In particular "we hypothesize that when moved to  $I^0$ , a verb may  $\theta$ -mark its object in the IP-adjoined position, allowing it to stay there at LF." (B&T, p. 360). This leads B&T into certain problems with respect to apparent Reconstruction effects with Condition C which they resolve with a redefinition of the segment created by the initial IP-adjunction.

I will not take a strong stand on this account of local Scrambling, primarily because the advantage of claiming base-generation in such cases rests on the Lowering account of A'-Scrambling, which we have seen to be problematic. However, it is worth pointing out that many of the difficulties associated with the Lowering account of A'-Scrambling remain for these cases as well. First, there is the issue of rigidity of interpretation, in this case associated with the higher position, since the argument is never claimed to be in  $\theta$ -position. Indeed, Brown (2000), provides evidence from Russian for Reconstruction of A-chains, which comprises a counter example to B&T's account of local Scrambling. Again, "sensitive" reconstruction appears to be empirically closer to

the mark. Second, it is predicted again that (local) Scrambling should also be limited to  $\theta$ -marked elements, which appears to be too strong for Russian, where adverbials and other non-arguments can scramble locally, as shown in (23).

- (23) a. **Bystro**<sub>i</sub> Ivan **t<sub>i</sub>** čitaet knigu.  
Quickly Ivan reads book  
'Quickly Ivan reads the book.'
- b. [**O Nabokove**]<sub>i</sub> Ivan včera kupil knigu **t<sub>i</sub>**.  
about Nabokov Ivan yesterday bought book.  
'About Nabokov Ivan bought a book.'

Third, there is evidence from both Japanese and Russian that local Scrambling is not distinct from movement satisfying the EPP. Thus both Miyagawa (forthcoming) and Bailyn (forthcoming) analyze local argument Scrambling as EPP-driven movement applying to constituents other than the canonical subject. Fourth, it is unclear how case checking can work, if locally scrambled arguments do not lower even at LF. How, then, would a locally scrambled, say, direct object, be associated with the appropriate functional category where its case is checked? Fifth, the same difficulties with respect to Scope and binding discussed above will apply to local Scrambling cases as well. Sixth, under a base-generated account, there again appears to be no reason not to left-adjoin *all* internal arguments rather than (sometimes) base-generating them in actual  $\theta$ -position, since the mechanism for theta assignment to the higher spot is available. Thus we can see that the base-generation analysis for local Scrambling will also require further work before it is generally accepted.

## 5 An alternate account of apparent optionality

Let us return again to the optionality involved in (1a) and (1b). Logical possibilities for analyzing such apparent optionality are given in (24).

(24) Possible accounts of (1a) and (1b):

- i. *(1a) and (1b) are not derivationally related*
  - a. *Some languages allow non-configurational structures* (=non-configurationality: Hale 198)
  - b. *Obligatory Lowering accounts for (1b)* (=B&T 1998)
- ii. *(1a) is derived from (1b)* (requires overt lowering)
- iii. *(1b) is derived from (1a)*
  - a. *The Raising is truly optional, for independent reasons* (=Saito & Fukui 1998)
  - b. *The Raising is **not** optional, but rather related to another part of the grammar* (=Zubizarreta 1998, this article)

(24-ia) is assumed to be false by much work on languages like Russian and Japanese and is also incompatible with constraints on Scrambling. (24-ib) is the B&T approach. (24-ii) would amount to a B&T style account of *English* as well, under which an object in canonical object position is overtly lowered (forced by strong  $\theta$ -features). However, this would require loosening constraints on overt lowering, with obvious empirical difficulties. (24-iiia) is the Saito & Fukui (1998) account whereby certain movement is "truly optional", in the sense that it is not driven by feature-checking, but is costless depending on the directionality of phrase structure, so that a left-headed language allows optional movement to the right, whereas only right-headed languages allow left-(IP)-adjunction Scrambling. However, this account is clearly too narrow to accommodate right branching languages with left-adjunction Scrambling, such as Russian or Serbo-Croatian. Stjepanović (1998) demonstrates convincingly that this approach will simply not allow enough variation to account for such languages. Only (24-iiib), a (non-optional) Raising account remains. Such an approach would account for the parallel behavior noted above. It would also solve many of the conceptual problems discussed earlier. The central question remains, however: what motivates the movement that raises a constituent out of its position at Merge to a distinct surface location? Such movement is not for case reasons, and not for  $\theta$ -reasons. There is no relevant operator-variable chain, and therefore the typical feature-driven accounts will not hold. It is to this issue that I now turn.

### 5.1 Behind the optionality of Scrambling

In this section I indicate a possible direction for solving the paradox of apparent optionality of Scrambling while still allowing a strong derivational approach of alternative word orders. Following Zubizarreta (1998), I assume that Scrambling satisfies Last Resort in being forced by a mismatch between the Discourse Structure (her Assertion Structure) of the utterance and its intonational structure. Thus for Zubizarreta, Romance subject postposing is a case of "P(rosodic)-movement" without which the eventual discourse structure would be underivable by the given word order and intonation. This is also behind the account of Miyagawa (1997), who proposes that "long-distance Scrambling is associated with something like Focus". I claim that A'-Scrambling is related to the Topic-Focus or Information Structure component of the grammar (see Chomsky 1971, Jackendoff 1973, Rochemont 1980, Vallduví 1992, Lambrecht 1994, Zubizarreta 1998 among many others for similar ideas.)

It is well-known that word order variants in Russian are associated with distinct discourse interpretations. The usual description, given in Š vedova's (1980) Academy Grammar, tells us that "word order can vary, but at the same time *it is not free*: the meaning of a sentence, its *communicative goal*, differs with different word orders." (Š vedova 1980, p. 191, emphasis mine). The standard account goes as follows: Varying the word order affects the "functional perspective" of the sentence, with a systematic relationship holding between the Rheme and Theme. Thus a typical contrast is given in (25-26) for Russian.

- |         |   |    |   |
|---------|---|----|---|
| (25) a. | Kto čitaet knigu?<br>who reads book-Acc<br>'Who is reading the book?' | b. | Knigu čitaet Ivan<br>book-Acc reads Ivan-Nom<br>'IVAN is reading the book.' |
| (26) a. | Čto delaet Ivan?<br>what does Ivan-Nom<br>'What is Ivan doing?'       | b. | Ivan čitaet knigu<br>Ivan reads book<br>'Ivan is reading A BOOK'            |

(25a) and (26a) are questions that determine appropriate discourse relations in the answer (see Kovtunova 1976 for discussion of this question test). In particular, (25a) asks about

the reader of the book. In the answer, therefore, *Ivan* takes final position (usually allotted to the Rheme). In (26), however, the situation is reversed and *the book* is the Rheme, hence its position at the end of the sentence. Returning to (1a-b), repeated below, we note that similar factors are at play in Japanese as well.

(1) a. John-ga [Mary-ga **sono hon-o** katta to] omotteiru  
 John-Nom Mary-Nom that book-Acc bought that thinks  
 'John thinks that Mary bought the book.'

b. **sono hon-o** John-ga [Mary-ga **t** katta to] omotteiru

(1b) and (1a) differ in discourse structure in the expected way. In particular, (1b) (but not (1a)) is appropriate in contexts where *the book* is part of the preceding discourse or in the "shared common concern" in the sense of Yokoyama 1986. This is shown in (27-28).

(27) a. John-wa dou shiteiru no  
 John-Top how doing Q  
 'How is John doing?'

b. John-ga [Mary-ga **sono hon-o** katta to] omotteiru  
 John-Nom Mary-Nom that book-Acc bought that thinks  
 'John thinks that Mary bought the book.'

c. # **sono hon-o** John-ga [Mary-ga **t** katta to] omotteiru

(28) a. Sono hon nikanshite nani-ka atta no  
 that book about something happened Q  
 'Did anything happen to that book?'

b. # John-ga [Mary-ga **sono hon-o** katta to] omotteiru  
 John-Nom Mary-Nom that book-Acc bought that thinks  
 'John thinks that Mary bought the book.'

c. **sono hon-o** John-ga [Mary-ga **t** katta to] omotteiru

(27) shows that a question introducing *John* as the theme of the discourse elicits (27b) as a response, and not (27c). Conversely, a question such as (28a) that introduces *the book* as thematic elicits (28c) and not (28b). Thus the scrambled and unscrambled orders differ as to the discourse status of the utterance.<sup>25</sup> Minimalist assumptions force us now to take seriously such differences, since they bear directly on the linguistic encoding of

the sentence which only reflects factors relevant to the interfaces. The following generalization for LDS is a strong claim that I hope will provoke further discussion:

(29) **The Scrambling Generalization**

- a. *A'-Scrambled orders are always associated with different discourse/informational interpretations from non-scrambled orders.*<sup>26</sup>
- b. *The movement deriving scrambled orders is motivated by discourse/informational considerations.*<sup>27</sup>

(29a) is in keeping with traditional discourse-grammars. (29b), providing a motivation for LDS, is in full keeping with the spirit of B&T's account. Thus under (29), LDS is *not* optional. However, (29) associates its obligatoriness with discourse notions, not with  $\theta$ -relations. (29) captures the discourse effects mentioned above, and maintains a Raising account.<sup>28</sup> We also avoid the theoretical difficulties discussed in Section 3.

Preliminary evidence for (29a) involves the availability of so-called "functional ambiguity", whereby more than one discourse structure is available given a certain word order. As shown in Lavine (1998) and Bailyn (forthcoming), in Russian only canonical SVO orders (or orders derived with A-movement alone) allow functional ambiguity. Thus the discourse structure of an SVO sentence such as (30a) could be any of the structures given in (30b-d).

- 30) a. čto Ivan čitaet knigu  
 that Ivan reads book  
 '... Ivan reads/is reading a book'
- b. Ivan čitaet [knigu] (subject+verb = topic / NP object = comment)
  - c. Ivan [čitaet knigu] (subject = topic / VP = comment)
  - d. [Ivan čitaet knigu] (no topic / all comment)

However, once LDS has occurred, discourse structures is no longer ambiguous.<sup>29</sup> This is shown in (31).

- 31) a. čto knigu<sub>i</sub> [ Ivan čitaet t<sub>i</sub> ]  
 that book Ivan reads  
 'that the book, Ivan reads.'
- b. [knigu] Ivan čitaet (scrambled object = topic / subject+V = comment)
  - c. [knigu Ivan] čitaet ??? (scrambled object+subject = topic/verb=comment)
  - d. [knigu Ivan čitaet] \*(no topic / all comment)

How might a theory such as B&T represent discourse relations? Given that the scrambled element is associated with the higher position *only* before LF lowering, discourse relations would have to be represented at the level of initial phrase marker, that is at Merge, (if such a level could be isolated derivationally, contra general assumptions of Minimalism.) Relations established at this level would be "undone" by obligatory Lowering, and thus would not be represented at any unified interface level. This difficulty serves as an additional theoretical argument against the B&T approach, on the assumption that Zubizarreta (1998), Heycock & Kroch (1999) and others are right in associating discourse relations with the interpretive component of the grammar.

## 6 Conclusion

We have seen that B&T's claim of base-generation followed by obligatory LF Lowering creates more problems than it solves, empirically and theoretically. B&T's claim is both too weak and too strong. It is too weak in that it does not allow for constraints on Scrambling and does not account for the parallel behavior of *wh*-movement and Scrambling, whereas a Raising account does. On the other hand, their theory is too strong in terms of the nature of the LF process involved, which, if morphologically driven, cannot be sensitive to semantic considerations. And yet Scrambling in fact seems to pattern with *wh*-movement (and Topicalization) as undergoing (semantically-sensitive) Reconstruction, an unexpected result for B&T. Their claim also leads us to expect more Scrambling than is actually observed and introduces new issues of Optionality and Economy. Base-generation also does not allow for uniform representation of discourse relations at an interface level.

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<sup>1</sup>For movement accounts of Scrambling in German, see Webelhuth 1989, 1990; for Japanese see Saito 1989, 1992, Miyagawa 1997, 1998; for Russian see Yadroff 1992, Müller and Sternefeld 1993, Bailyn 1995, forthcoming; for Hindi see Mahajan 1990; for Korean see Lee & Santorini 1994. For non-movement accounts, see Bayer & Kornfilt 1994 and Neeleman 1994.

<sup>2</sup>Ross' original account limited the process to the local clause, and would not have accounted for Long-Distance cases such as (1b). However, the term Scrambling continued to be used in this

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derivational sense throughout Government and Binding theory, see Saito 1985 among many others. Under Minimalist assumptions, on the classical view, (1a) and (1b) share the same Numeration. We return to this important assumption in section 3.

<sup>3</sup>In more recent frameworks (Chomsky 1995), movement and reconstruction is replaced by copying and deletion (the Copy Theory). Reconstruction is handled by deleting the higher copy, leaving the lower copy at LF for interpretation. Assuming constraints on movement under the Copy Theory are still handled as applying to the relationship between copies of a single element (effectively, a condition on chains), the Copy Theory would either render licit all cases of Lowering (an unwelcome result) or would remain indistinct from a theory with traces, which is what both B&T and this article assume. In this article, I will use the movement terminology (base position, traces, etc.) proposed in classical accounts and maintained by B&T.

<sup>4</sup>This use of the term "Raising" should not be confused with the narrower use associated with NP-movement out of the complement of *seem*-type verbs, which is not relevant to this article. I use "Raising" simply to implicate *upwards* movement, in contrast to the Lowering proposed by B&T.

<sup>5</sup>There have been various attempts to soften the absolute ban on optionality in the literature, including Chomsky (1995), who argues that optionality is possible only when the identical number of steps is involved in two convergent derivations. Thus Saito and Fukui (1998) argue that the architecture of a language's basic structure building mechanisms allow for certain optional movements. I share with B&T the belief that a theory admitting true optionality is weaker than one without optionality. We return to the central issue of the apparent optionality of Scrambling in Section 3.

<sup>6</sup>B&T provide examples showing that both *wh*-movement and Topicalization do not allow scope dislocations. However, the claim that *wh*-movement and Topicalization are never "undone" appears to be too strong. Standard reconstruction effects hold of these constructions, as shown in (i-iii):

- (i) [**That picture of himself**]<sub>i</sub>2, I know John<sub>j</sub> likes t<sub>2</sub>. (good if reconstructs: Condition A)
- (ii) ??[**That story about him**]<sub>i</sub>2, I think John<sub>j</sub> heard t<sub>2</sub>. (possible if reconstructs: Condition B)
- (iii) \*[**That story about John**]<sub>i</sub>2, I think he<sub>j</sub> heard t<sub>2</sub>. (out if reconstructs: Condition C)

Clearly, any theory of reconstruction must accommodate (i-iii) on the one hand and the contrast between Scrambling and Topicalization on the other. We return to this issue in Section 2.

<sup>7</sup>B&T allow for another potential formalization of the typological difference between Scrambling and non-Scrambling languages, namely the availability of a base-generated IP-adjunction spot in the former but not in the latter. They themselves opt for the stronger claim of parameterized strength of formal q-features, and I therefore follow the stronger line in discussing their claim.

<sup>8</sup>An *LI* reviewer suggests that B&T can allow for several different kinds of processes at LF, but this additional complication of the grammar is not proposed by B&T and would require further justification.

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<sup>9</sup>The preceding remarks apply primarily to representational accounts such as B&T's. A derivational account employing lowering might be better equipped to capture constraints on Scrambling through economy conditions (Shortest Move) but would still face the of disallowing overt lowering while allowing Scrambling (as lowering) while at the same time accounting for its constrained behavior.

<sup>10</sup>An anonymous LI reviewer points out that this prediction does not appear to follow directly from B&T's analysis, and cites their example (13), repeated as (i) below, in which an adjunct *wh*-phrase is scrambled in Japanese, as a possible counter-example to Prediction C (addressed by B&T exactly because of its potentially unexpected behavior under their account.)

- i) ?Naze Mary-ga [John-ga sono setu-o sinziteiru ka] sitteiru.  
why Mary-NOM John-NOM that theory-ACC believes Q knows  
'Mary knows why John believes in that theory.'

However, in B&T's discussion of this example, they acknowledge that without piggy-backing on the *wh*-feature forcing movement in (i), the phrase in question would have no motivation for Lowering if base-generated, since it is an adjunct, and not q-marked. More precisely, then, Prediction C might read: Only elements with q-roles should participate in Scrambling, unless they are associated with *independent features* that force movement. In that case, the objection might continue that Russian adverbs, which we see to scramble freely, might well be associated with independent features that force their lowering from scrambled position, leaving B&T's base-generation account intact. Recall, however, that B&T claim the typological difference between Scrambling and non-Scrambling languages to lie in the strength of q-features. Therefore the effects of the parameter should not be found on any elements other than q-marked elements. Prediction C might then read: Only elements with q-roles should behave differently in Scrambling languages from non-Scrambling languages. Thanks to Richard Larson for discussion of this issue.

<sup>11</sup>Some recent accounts of Slavic *wh*-fronting have concluded that various apparent instances of *wh*-movement are in fact Scrambling or its discourse equivalent, Focus Movement. See Stepanov 1997, Bošković 1997, 1998, Boeckx & Stjepanović 2000 and Strakhov forthcoming. Such analyses rely crucially on the (classical) analysis of Scrambling as upwards movement; the resulting generalizations are lost if Scrambling does not involve movement. Thus it appears difficult to maintain such analyses and the analysis of B&T.

<sup>12</sup>Scrambling judgments vary considerably across Russian dialects. Scrambling is accepted freely in some dialects of Russian and is far more restricted in others. Yadroff 1994 is a good example of the former. The range of possibilities in itself argues for a more fine-grained notion of Scrambling, one that is possible with stricter and milder constraints on overt Raising, rather than a binary parameter of weak vs. strong q-features.

<sup>13</sup>Following Comrie 1973, Müller & Sternefeld (1993) and many others since, I assume that extraction in Russian is generally acceptable only out of **čtoby** (subjunctive) clauses, and not out of **čto** (indicative) clauses. Thus Russian examples of Long-distance Scrambling will be given in

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such structures. It is not crucial to the discussion here how the **čtoby** vs. **čto** distinction is to be handled, although see Avrutin & Babyonyshev 1996 for an interesting account.

<sup>14</sup>An LI reviewer raises the question of a distinct process of (overt) QR for (10b). However, covert QR is required for Russian, where scope ambiguities are common and overt QR is rare. And because QR is generally taken to be clause-bounded, overt QR could not account for (10b). Therefore, (10b) is Scrambling (Lowering for B&T), and there should be embedded scope, contrary to speaker judgments.

<sup>15</sup>Notice that the existence of a Principle C violation here is a problem under Prediction C as well, since it is not an argument and yet appears to reconstruct/lower.

<sup>16</sup>Here, and elsewhere, B&T would have to resort to introduction of another, different, kind of LF level (Huang's LF', for example) to allow both Lowering, and location in a different position at the time the Binding Theory applies (a possibility not discussed in B&T's account). (The same holds for Scope, as shown in 2.1.1.) In effect, this would amount to reintroduction of the scrambled position as relevant to the interface, and thus would undermine the spirit of their own analysis.

<sup>17</sup>The exact nature of the violation with extraction is the subject of some dispute. See Comrie 1973, Avrutin & Babyonyshev 1994 and Bailyn 1995 for various views. Solving this problem is beyond the scope of this article, but I take the parallel violations in (16) as evidence that upwards movement has taken place in both cases.

<sup>18</sup>There are constructions that appear to be grammatical versions of (16b), primarily with Nominative arguments. Indeed B&T cite such an example from Müller & Sternefeld (1993), going back to Comrie (1973) to show that *wh*-movement and Scrambling are not parallel. However, I show in Bailyn (1995) that these cases are not Scrambling, but Left-Dislocation with a null resumptive pronoun, which explains why Nominative morphology is strongly preferred. Without it, as in (16), Left-Dislocation is unavailable, Scrambling remain the only possibility, and the effect of movement constraints remains.

<sup>19</sup>In a footnote, B&T set aside the issue of (some of) these constraints as potentially not being movement constraints at all: "We ignore here the Coordinate Structure Constraint, the Left Branch Condition, and the Specificity Condition, since it is not at all clear that these are movement constraints." (B&T, fn 17, p. 358). I will not address that possibility further here until the case for the sudden exclusion of these well-known constraints is better made. Since their effects on *wh*-movement are well-known, I will continue to treat them in standard fashion.

<sup>20</sup>See footnote 10 for discussion of whether features other than *q*-roles could drive the lowering process. If they could, then B&T lose their typology of Scrambling.

<sup>21</sup>It is possible that there are languages that allow only this kind of dislocation strategy. They would not, however, have the properties of Russian and Japanese.

<sup>22</sup>The proper account of this violation assumes Rizzi's 1991 Relativized Minimality under which A'-movement over an occupied A'-position is a violation. For B&T such restrictions appear hard to capture.

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<sup>23</sup>Inherent case assignment, which relates lexical case marking to particular theta-roles, also raises serious questions for the B&T account as it stands. How can this relation be handled if inherently case-marked elements scramble (which is possible in both Japanese and Russian)? A full account of these difficulties and their potential solution, however, requires a theory of Inherent case marking under Minimalism that is beyond the scope of this article.

<sup>24</sup>Collins (1997) considers a similar issue in the derivation of Locative Inversion constructions in English, and comes to the conclusion that Economy is a local, not global condition. So long as Last Resort and Minimality are observed, Economy is not violated. However, since B&T's theory for the first time introduces optionality in the position of base-generation of arguments in Japanese, the Optionality problem (choosing IP-adjoined position over q-position) remains.

<sup>25</sup>Of course this distinction is nothing close to a new discovery in linguistics. It has a long tradition in Slavic linguistics, for example, going back at least to Mathesius (1939) and appearing throughout Soviet and Prague School Linguistics, and is picked up in various forms in many branches of pre-generative linguistics and functional approaches to syntax (see, among many others, Adamec 1966, Babby 1980, Kuno 1984, Yokoyama 1986, Prince 1986, Hajičová & Sgall 1987). Its integration with current understanding of derivational violations appears therefore to be a step forward in our understanding of human language.

<sup>26</sup>(29a) is limited to A'-Scrambling because A-Scrambling appears to be less discourse-related (if at all). On the other hand, A-Scrambling presents less of an optionality problem because of its possible association with formal features (such as the EPP). See Miyagawa (1998) and Bailyn (forthcoming) for discussion.

<sup>27</sup>The question arises here as to whether or not discourse-related movement is driven by formal features of Topic and Focus, or whether other factors are at play. This issue is beyond the scope of this article, but for the optionality problem to be solved, the numerations underlying (1a) and (1b) must be distinct, presumably differing by discourse-related information in one form or another. This issue is also left open in Zubizarreta (1998).

<sup>28</sup>Of course, some discourse effects, such as those resulting from Left-Dislocation, are indeed base-generated (see footnote 18). Others, clearly, are not. The claim here is unidirectional, namely that A'-Scrambling entails a discourse structure distinct from non-scrambled orders, but not that all such distinct discourse structures are derived by A'-Scrambling.

<sup>29</sup>Intonation also plays an important role in determining discourse status in spoken language. However, the relation between intonation and discourse structure is a complicated issue that falls mostly outside the scope of this article. For this example, I assume neutral intonation that follows some version of the Nuclear Stress Rule. For discussion, see Bryzgunova 1971, 1981, Rochemont 1980, Selkirk 1984 and Zubizarreta 1998.

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