

## Two Notes on ATB Movement<sup>\*</sup>

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This paper discusses two independent issues on the nature of across-the-board (ATB) movement. First, I address a question of whether distinct elements, not identical elements, can be extracted out of the conjuncts in an ATB fashion. It is argued that the answer is negative, based on multiple *wh*-fronting. Furthermore, I suggested that the relevant illicit ATB movement is reducible to vacuous quantification, adopting Fox's (2000) multidimensional approach to the Coordinate Structure Constraint (CSC) effects. Second, I discuss some restrictions on gaps created by ATB movement. I propose that ATB movement should take place from syntactically parallel positions. The proposal captures the relevant restrictions, combined with Chomsky's (2000, 2001) hypothesis that the edge of  $\bar{y}P$  is a landing site of successive cyclic movement.

Key words: ATB movement, coordination, successive cyclic movement, parallelism

### 1. Introduction

This paper discusses two independent issues concerning across-the-board (ATB) movement such as (1).

- (1) the man who<sub>i</sub> [John saw t<sub>i</sub>] and [Mary kissed t<sub>i</sub>]

One of them is an empirical question of whether it is possible to extract distinct elements in an ATB-fashion, as schematically illustrated in (2).

- (2) X      Y      [[t<sub>X</sub>] and [t<sub>Y</sub>]]
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- The diagram shows a horizontal line with two upward-pointing arrows. The first arrow is positioned under 'X' and the second under 'Y'. A horizontal line segment connects the two arrows, and a longer horizontal line segment extends from the second arrow to the right, ending under the bracketed text '[[t<sub>X</sub>] and [t<sub>Y</sub>]]'. This represents the extraction of distinct elements from different conjuncts.

Note that (2) is different from (1), where an identical element is extracted out of all the conjuncts of a coordinate structure. In this paper, movement such as (2) is referred to as **improper ATB movement**. I argue that (2) is illegitimate and then investigate how (2) is ruled out.

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As for the other issue, I discuss some restrictions on gaps created by ATB movement. Let us consider the contrast between (1) and (3).

- (3) \*I know a man who<sub>i</sub> [Bill saw t<sub>i</sub>] and [t<sub>i</sub> likes Mary]. (Williams 1978:34)

In (1), *wh*-movement applies to object positions in both of the conjuncts, which are syntactically parallel. In contrast, the relevant parallelism is not observed in (3). The first conjunct involves extraction of an object while a subject *wh*-phrase is extracted in the second conjunct. The contrast between (1) and (3) apparently indicates that gaps created by ATB movement should occupy syntactically parallel positions. However, this possibility is falsified by the following examples.

- (4) a. I know the man who<sub>i</sub> [John likes t<sub>i</sub>] and [we hope t<sub>i</sub> will win]. (ibid.)  
 b. Here is the prisoner who(m) [you saved t<sub>i</sub>] and [Foley said t<sub>i</sub> was torched].  
 (George 1980:157)  
 (5) \*Here is the prisoner who<sub>i</sub> [t<sub>i</sub> ratted on the punk] and [Foley said t<sub>i</sub> was torched]. (ibid.)

The examples in (4) are grammatical, though gaps created by ATB movement do not occupy syntactically parallel positions. There is a gap in an object position in the first conjunct, whereas there is a gap in an embedded subject position in the second conjunct. Interestingly, in (5), ATB movement creates gaps in subject positions, which are syntactically parallel, but the example is ungrammatical. What is the source of the (un)grammaticality of the examples above? This is the question I shall investigate.

This paper is organized as follows. Section 2 addresses the first issue. I provide empirical evidence in favor of the absence of improper ATB movement, based on multiple *wh*-fronting. Then I investigate how improper ATB movement is excluded. Fox (2000) argues that the Coordinate Structure Constraint (CSC) effects are reducible to vacuous quantification. I suggest that improper ATB movement is also reducible to vacuous quantification under his approach. Section 3 is devoted to the second issue. George (1980) gives an elegant explanation for the relevant examples under the Vacuous Movement Hypothesis. However, as pointed out later, his analysis faces an empirical problem. Alternatively, I propose a constraint on ATB movement, according to which ATB movement should take place from syntactically parallel positions. The proposed analysis resolves George's problem, adopting Chomsky's (2001) hypothesis that the edge of  $\bar{y}P$  of non-transitive predicates is not a landing site of successive cyclic movement. Section 4 summarizes the paper.

## 2. The first issue: Improper ATB movement

### 2.1 The absence of improper ATB movement

First, I argue that improper ATB movement, which is schematically shown in (2), repeated as (6), is prohibited at overt syntax, based on *wh*-fronting in multiple *wh*-fronting languages.



As shown in (7), Serbo-Croatian allows multiple *wh*-fronting.

- (7) Ko      koga      vidi?  
 who    whom    sees  
 ‘Who sees whom?’ (Rudin 1988:449)

Let us turn to the following example, where multiple *wh*-fronting out of both of the conjuncts is prohibited.

- (8) \*Koga<sub>1</sub>    sta<sub>2</sub>    on    [vidi t<sub>1</sub>]    i      [jede t<sub>2</sub>]?  
 whom    what    he    sees      and    eats  
 ‘Whom what does he see and eat?’ (Sandra Stjepanović p.c.)

As illustrated in (8), *koga* ‘whom’ and *sta* ‘what’ are objects of the verbs *vidi* ‘see’ and *jde* ‘eat’, respectively. Each *wh*-phrase undergoes *wh*-fronting out of the conjuncts. The ungrammaticality of (8) indicates that improper ATB movement is banned.<sup>1</sup>

One might say that in the first place, multiple *wh*-fronting of arguments of different predicates is banned, whatever its analysis may be.<sup>2</sup> However, there is nothing wrong

<sup>1</sup> The same point is confirmed by other multiple *wh*-fronting languages, such as Russian or Rumanian.

- (i) a. \*Kogo<sub>1</sub>    chto<sub>2</sub>    ty    [videl t<sub>1</sub>]    i    [el t<sub>2</sub>]? (Russian)  
 whom    what    you    saw      and    ate  
 ‘Whom what did you see and eat?’ (Tania Ionin p.c.)  
 b. \*Pe cine<sub>1</sub> ce<sub>2</sub>    ai      vazut t<sub>1</sub> si    ai      mancat t<sub>2</sub>? (Rumanian)  
pe who    what    have-2s    seen      and    have-2s    eaten?  
 (pe is an accusative marking preposition.)  
 ‘Whom what did you see and eat?’ (Simona Herdan p.c.)

<sup>2</sup> I thank an anonymous reviewer for bringing my attention to this point.

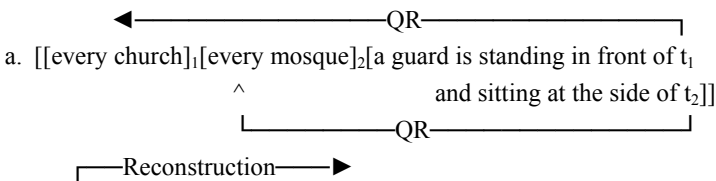
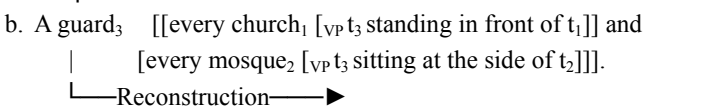
with multiple *wh*-fronting of arguments selected by different predicates. This is shown in (9), where *ko* ‘who’ is an argument of *tvrdi* ‘assert’ and *sta* ‘what’, and the other fronted *wh*-phrase, is an argument of both *kupuje* ‘buy’ and *prodaje* ‘sell’.

- (9) Ko<sub>1</sub> sta<sub>2</sub> t<sub>1</sub> tvrdi [da Jovan kupuje t<sub>2</sub>] i [da Peter prodaje t<sub>2</sub>]?  
 who what asserts that John buys and that Peter sells  
 ‘Who asserts that John buys what and that Peter sells what?’  
 (Bošković and Franks 2000:111)

The absence of improper ATB movement is also attested by LF-movement, particularly QR. The relevant example is given in Fox (2000).

- (10) A guard is [standing in front of every church] and [sitting at the side of every mosque].  
 (Fox 2000:59)

Fox argues that there are two possible derivations for wide scope of *every church* and *every mosque* over the subject. This is illustrated in (11).

- (11)
- a. 
- b. 

In (11a), *every church* and *every mosque* undergo QR out of the conjuncts. As illustrated in (11b), the objects undergo QR within each conjunct and the subject *a guard* undergoes ATB lowering into its base positions within VP. According to Fox (2000:59), “... for the LF in (11a) to be true, each pair of a mosque and a church must have a single guard standing both in front of the church and in front of the mosque. For the LF in (11b) to be true, the guards can vary independently with respect to the churches and the mosques.” The fact is that the latter interpretation is only available, which indicates that the representation given in (11a) is not available.

## 2.2 A note on ATB lowering

Before discussing an issue concerning what rules out improper ATB movement, I make a remark on the availability of ATB lowering. Let us consider the following example.

- (12) A (#different) student [respects every professor] and [hates every associate professor].  
(a > every, \*every > a)

In (12), however, wide scope of *every professor* and *every associate professor* is not available in any interpretation, as opposed to (10). This indicates that not only improper ATB movement but also ATB lowering is unavailable in (12). There are two more cases where ATB lowering is not allowed. The first relevant example is given in (13).

- (13) Some boy hugged every girl and kissed every girl. (\*every > some)  
(Bošković and Franks 2000:114)

Bošković and Franks (2000) argue that there is no ATB movement at LF, based on the absence of wide scope of *every girl* in (13). If *every girl* underwent QR in an ATB fashion, adjoining to TP, as illustrated in (14), then wide scope of the object would be available. The absence of the wide scope reading in question indicates that ATB movement does not take place at LF.<sup>3</sup>

<sup>3</sup> Bošković and Franks (2000) present further evidence in favor of the absence of ATB movement at LF.

- (i) \*Who said [that John bought what] and [that Peter sold what]?  
(Bošković and Franks 2000:110)

The ungrammaticality of (i) indicates that *what* in both of the conjuncts cannot undergo ATB movement at LF. I suggest that their argument also holds with other LF movement. Longobardi (1991) argues that negative phrases such as *niente* ‘nothing, anything’ and *nessuno* ‘nobody, anybody’ undergo movement to their scope position at LF. As (iia) shows, the scope of the negative phrase is unbounded and it has the relation with the negative marker *non* in the higher clause. The ungrammaticality of (iib, c) shows that *nessuno* and *niente* exhibit island effects.

- (ii) a. Non pretendo che tu dica niente.  
I(not) require that you say anything  
‘I do not require that you say anything.’ (Longobardi 1991:153)  
b. \*Non cerco una ragazza che fosse amica di nessuno.  
I(not) look-for a girl who was friend with anybody  
‘I did not look for a girl who was friend with anybody.’  
c. \*Non ho incontrato chi potrebbe fare niente.  
I(not) have meet who might do anything  
‘I did not meet who might do anything.’ (ibid.:156)

- (14)  $[_{TP} \text{ every girl}_i [_{TP} \text{ some boy} [_{\text{hugged } t_i}] \text{ and } [_{\text{kissed } t_i}]]]$
- 

However, it is important to note that the absence of wide scope of *every girl* draws another conclusion. It has been proposed that there is another way for the object QP to take wide scope over the subject QP. Aoun and Li (1993), Kitahara (1996), Hornstein (1995), and Johnson and Tomioka (1997), among others, argue that reconstruction of a subject QP to the lower position than a QRed object yields wide scope of the subject QP. In order for *every girl* to take wide scope over *some boy*, (14) must have the following derivation.

- (15)
- 
- $[_{TP} \text{ some boy}_2 [_{VP} \text{ every girl}_i [_{VP} t_2 \text{ hugged } t_i]] \text{ and } [_{VP} \text{ every girl}_i [_{VP} t_2 \text{ kissed } t_i]]]$
- Reconstruction
- Reconstruction

In (15), *every girl* undergoes QR within each conjunct and *some boy* undergoes ATB lowering into its original positions.<sup>4</sup> The absence of wide scope of *every girl* indicates the unavailability of ATB lowering in (15).

One might say that (13) involves VP-coordination, excluding the traces of the subject. If so, the absence of wide scope *every girl* would be due to the absence of the reconstruction site of *every girl*, not to the absence of ATB lowering at LF. However, this possibility seems to be difficult to maintain. Let us consider ditransitive verbs in English. I assume that two internal arguments of a ditransitive verb are base-generated within VP and that the verb must move to  $\bar{V}$  (Larson 1988), as shown in (16).

- (16)  $[_{VP} t_{\text{Subj}} [_{\bar{V}} \bar{V} [_{VP} \text{ argument } [_{V'} V \text{ argument}]]]]]$
- 

Under this assumption, it follows that the smallest maximal projection which includes  $\bar{V}$  is never VP, but  $\bar{V}P$ .

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Keeping this in mind, let us consider (iii), where each conjunct involves *niente*. The ungrammaticality of (iii) indicates that ATB movement of *niente* is prohibited.

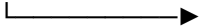
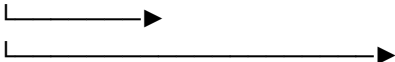
- (iii)\*Non ho mai preteso che tu [[comprassi niente] e [pagassi niente]].  
 (I)not have ever expected that you buy anything and pay-for anything  
 'I did not expect that you would buy anything and pay for anything.'  
 (Francesca Del Gobbo p.c.)

<sup>4</sup> A word is in order here: Johnson and Tomioka (1997) argue that the subject QP is reconstructed to a non-theta position, not its theta position.

Let us consider the third case where ATB lowering is prohibited. The relevant example is given in (17).

- (17) a. Everyone didn't eat sushi. (neg > every, every > neg)  
 b. Everyone [didn't eat sushi] and [didn't drink sake]. (\*neg > every, every > neg)

In (17a), negation can take wide scope over the subject, although wide scope of *everyone* is preferred. In contrast, wide scope of negation is not available in (17b), crucially. I assume that the subject undergoes lowering into its original position which is lower than negation for the wide scope interpretation of negation, as illustrated in (18a).

- (18) a. Everyone<sub>i</sub> didn't [t<sub>i</sub> eat sushi].  
  
 b. Everyone<sub>i</sub> [didn't t<sub>i</sub> eat sushi] and [didn't t<sub>i</sub> drink sake].  


Similarly, *everyone* must undergo ATB lowering for wide scope of negation, as illustrated in (18b). The absence of wide scope of negation in (17b) indicates that ATB lowering is unavailable.<sup>5</sup>

To sum up, I have argued that ATB lowering is not available in (12), (13), and (17b), as opposed to (10). Where does the asymmetry come from? At this point, I have no good explanation, but it seems that the type of predicates would be relevant. The latter includes unaccusative predicates while the former include transitive predicates. I leave this issue for future research.

### 2.3 Fox's (2000) multidimensional approach

This subsection addresses a question as to how improper ATB movement is ruled out. Fox (2000) argues that the CSC effects are reducible to vacuous quantification under his multidimensional approach to a coordinate structure.<sup>6</sup> In what follows, I

<sup>5</sup> The following example shows that topicalized reflexives do not undergo ATB lowering, as noted by Haik (1985).

(i) Himself, John likes and Bill hates. (Moltman 1992:126, originally due to Haik 1985)

Example (i) is interpreted as (iib), not (iia).

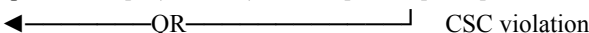
(ii) a. John likes himself and Bill hates himself.

b. John likes himself and Bill hates John.

The absence of (iia) falls under the present analysis, but I have no explanation for why the reading given in (iib) is available in this paper.

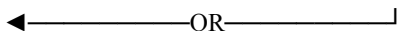
<sup>6</sup> Ross's (1967, 1986) formulation of the CSC is as follows.

examine in detail how improper ATB movement is also reduced to vacuous quantification in a similar way. First, I briefly review Fox's multidimensional approach to a coordinate structure. Let us consider the following example.

- (19) a. A (#different) student likes every professor and hates the dean.  
 (a > every, \*every > a) (Fox 2000:51)  
 b. [every professor<sub>1</sub> [ a (different) student [likes t<sub>1</sub>] and [hates the dean]]]  


In (19a), the object *every professor* cannot take wide scope over the subject. As discussed in Rodman (1976:171), May (1985:59), and Ruys (1992), among others, the absence of wide scope of *every professor* indicates that QR is subject to the CSC. In order to take wide scope over the subject, the object quantifier must undergo QR, as shown in (19b).

Interestingly, Ruys (1992) observes that if a bound pronoun is in the second conjunct, then the quantifier in the other conjunct can take wide scope over the subject QP. The relevant example is given in (20a).

- (20) a. A (different) student [[likes every professor<sub>1</sub>] and [wants him<sub>1</sub> to be on his committee]].  
 (a > every, every > a) (ibid.:52)  
 b. [every professor [a (different) student [[likes t<sub>1</sub>] and [wants him<sub>1</sub> to be on his committee]]]].  


In (20b), *every professor* undergoes QR out of the first conjunct, violating the CSC, which yields the wide scope interpretation of *every professor*. Following Goodall (1987), among others, Fox (2000) adopts a multidimensional approach to a coordinate structure. He captures the contrast between (19a) and (20a), with recourse to the following assumptions.

- (21) Fox's assumptions  
 a. Extraction out of a coordinate structure is possible only when the structure consists of two independent substructures, each composed of one of the coordinates together with material above it up to the landing site (henceforth, component structures).

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(i) The Coordinate Structure Constraint (CSC)

In a coordinate structure,

a. no conjunct may be moved,

b. nor may any element contained in a conjunct be moved out of that conjunct.

(Ross 1986:98-99)

Many exceptions to the CSC have been reported in Goldsmith (1985), Lakoff (1986) and Postal (1998), but discussion about the exceptions is beyond the scope of this paper.



- b. Grammatical constraints are checked independently in each of the component structures. (ibid.:50)

Given (21), (19b) and (20b) have the following component structure, respectively.

- (22) a. every professor<sub>1</sub> a (different) student [likes t<sub>1</sub>]  
           every professor<sub>1</sub> a (different) student [hates the dean]  
       b. every professor<sub>1</sub> a (different) student [likes t<sub>1</sub>]  
           every professor<sub>1</sub> a (different) student [wants him<sub>1</sub> to be on his committee]

In both (22a) and (22b), the verb phrases are conjoined and *every professor* and *a (different) student* are shared constituents. In (22a), *every professor* binds its trace in the first conjunct while there is nothing to be bound by *every professor* in the second conjunct, which yields vacuous quantification. In contrast, (22b) does not violate anything, because in the second conjunct *every professor* binds the bound pronoun *him*, as opposed to (22a). In this way, Fox reduces the CSC effects to vacuous quantification, successfully.

Now, let us carefully examine how Fox's approach correctly excludes improper ATB movement. I take up (12), which is repeated as (23), as an example.

- (23) A (#different) student [respects every professor] and [hates every associate professor].  
       (a > every, \*every > a)

As discussed earlier, *every professor* and *every associate professor* cannot take wide scope over the subject quantifier *a (different) student* in (23). QR of *every professor* and *every associate professor* out of the conjuncts yields wide scope over the subject. The relevant LF representation would be either (24a) or (24b).

- (24) a. [[every professor]<sub>1</sub> [every associate professor]<sub>2</sub> [a student respects t<sub>1</sub> and hates t<sub>2</sub>]]  
       b. [[every associate professor]<sub>2</sub> [every professor]<sub>1</sub> [a student respects t<sub>1</sub> and hates t<sub>2</sub>]]

Given (21), the relevant component structures would be either (25a) or (25b), respectively.

- (25) a. [every professor]<sub>1</sub> [every associate professor]<sub>2</sub> [a student respects t<sub>1</sub>]  
           [every professor]<sub>1</sub> [every associate professor]<sub>2</sub> [a student hates t<sub>2</sub>]  
           └─► Vacuous Quantification

- └─► Vacuous Quantification
- b. [every associate professor]<sub>2</sub> [every professor]<sub>1</sub> [a student respects t<sub>1</sub>]  
       [every associate professor]<sub>2</sub> [every professor]<sub>1</sub> [a student hates t<sub>2</sub>]  
   └─► Vacuous Quantification

As illustrated in (25a), *every associate professor* and *every professor* binds nothing in the first part of the component structure and the second part of the component structure, respectively. In short, both of the component structures involve vacuous quantification. Similarly, (25b) also violates the ban on vacuous quantification. It is concluded that under Fox's analysis, improper ATB movement is reducible to vacuous quantification.

However, one might say that the ungrammaticality of (26) is problematic for Fox's analysis.

- (26) \*A student [reads a paper which supports his<sub>1</sub> analysis] and [wants every professor<sub>1</sub> to be on his committee].

In (26), the first conjunct involves a variable to be bound by a quantifier in the second conjunct. For the wide scope interpretation of *every professor*, (26) would be the LF representation given in (27a) and the relevant component structure would be (27b).

- (27) a. [every professor<sub>1</sub> [a student reads a paper which supports his<sub>1</sub> analysis and wants t<sub>1</sub> to be on his committee]].  
       b. [every professor<sub>1</sub> [a student reads a paper which supports his<sub>1</sub> analysis]  
           [every professor<sub>1</sub> [a student wants t<sub>1</sub> to be on his committee]]

There is no problem with (27b) because the bound pronoun *his* and the trace of *every professor* are each bound by *every professor*.

The following example does not have any problem with respect to vacuous quantification, either. It involves a bound pronoun in the first conjunct, which should be bound by the quantifier in the second conjunct. The second conjunct also has a bound pronoun, which should be bound by the quantifier in the first conjunct.

- (28) \*A lecturer [introduced the person who criticized him<sub>2</sub> to every professor<sub>1</sub>] and  
                   [introduced the person who criticized him<sub>1</sub> to every associate professor<sub>2</sub>].

The two quantifiers undergo QR out of the conjuncts in (28), which would yield the following LF representation.

- (29) [every associate professor<sub>2</sub> [every professor<sub>1</sub>  
[a lecturer [introduced the person who criticized him<sub>2</sub> to t<sub>1</sub>] and  
[introduced the person who criticized him<sub>1</sub> to t<sub>2</sub>]]]].

The relevant component structures of (29) would be given in (30).

- (30) every associate professor<sub>2</sub> every professor<sub>1</sub> a lecturer [introduced the person who  
criticized him<sub>2</sub> to t<sub>1</sub>]  
every associate professor<sub>2</sub> every professor<sub>1</sub> a lecturer [introduced the person who  
criticized him<sub>1</sub> to t<sub>2</sub>]

In (30), *every professor* binds its trace and *every associate professor* binds its bound pronoun *him* in the first part of the component structure. In the second part of the component structure, *every associate professor* binds its trace and *every professor* binds its bound pronoun *him*. There is nothing wrong with (30) in terms of vacuous quantification. What is the source of the ungrammaticality of (26) and (28)? It is suggested that the ungrammaticality of (26) and (28) is reducible to Weak Crossover (WCO) effects such as (31).

- (31) \*His<sub>1</sub> mother loves everyone<sub>1</sub>.

In this paper, I assume that WCO effects are subject to Chomsky's (1976) leftness condition.<sup>7</sup> That is, (26) and (28) are ruled out as WCO effects independently. If so, then (26) and (28) would not be a counterexample for Fox's analysis.<sup>8</sup>

To sum up, in this section, I have discussed the first issue on ATB movement. I have argued that improper ATB movement is prohibited at overt syntax, based on

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<sup>7</sup> Chomsky (1976) formulates the relevant condition in the following way.

(i) A variable cannot be the antecedent of a pronoun to its left. (Chomsky 1976:342)

<sup>8</sup> It has been reported that WCO effects are very weak, if bound pronouns are deeply embedded, as shown in (i).

(i) a. [The person who produced it<sub>1</sub>] admires [every movie<sub>1</sub>].

b. [The expert who was invited to talk about it<sub>1</sub>] knows the capital of [every country<sub>1</sub>].

(Fox 2000:37)

The bound pronouns are deeply embedded in (26) and (28) as well and hence it may be the case that WCO effects are not the source of the ungrammaticality of (26) and (28). However, it is not conclusive enough to claim that WCO effects are not relevant to (26) and (28) because the grammatical status of (i) is not clear to many informants. For this reason, I suggest that (26) and (28) are ruled out as WCO effects. I thank an anonymous reviewer for suggesting this line of argument.

multiple *wh*-fronting. As a related issue, I have discussed the (un)availability of ATB lowering. Finally, it is suggested that Fox's multidimensional approach to the CSC effects correctly rules out improper ATB movement.

### 3. The second issue: Parallelism and ATB movement

In this section, I discuss the other issue on ATB movement. As mentioned in section 1, there are restrictions on gaps created by ATB movement. This section starts with brief review of George's (1980) analysis and then proposes an alternative analysis.

#### 3.1 George (1980)

George (1980) assumes that ATB movement indeed involves movement within each conjunct, and that a moved element is deleted in the second conjunct. In other words, movement does not take place 'across the board'. An alleged ATB-moved element undergoes movement within the first conjunct. According to his analysis, (1) has the derivation given in (32b).

- (32) a. the man who John saw and Mary kissed (= (1))  
 b. the man [*who*<sub>1</sub> John saw *t*<sub>1</sub>] and [~~*who*~~<sub>2</sub> Mary kissed *t*<sub>2</sub>]

As (32b) shows, *who* moves within each conjunct and then *who* is deleted in the second conjunct. George proposes that the relevant deletion takes place only when the moved elements stay in "parallel positions" between the conjuncts. In (32b), *who* stays in COMP in both of the conjuncts and hence there is nothing wrong with deletion of *who* in the second conjunct. His analysis correctly rules out (3), repeated as (33), coupled with the Vacuous Movement Hypothesis, according to which subject *wh*-phrases do not undergo local overt *wh*-movement.


- (33) \*I know a man who Bill saw and likes Mary. (= (3))

Given the Vacuous Movement Hypothesis, *who* in the second conjunct does not move to COMP but stays in the subject position, as opposed to *who* in the first conjunct, as illustrated in (34).

- (34) \*I know a man [*who*<sub>1</sub> [Bill saw *t*<sub>1</sub>]] and [[~~*WHO*~~ likes Mary]].  
 L► NOT MOVE

The *wh*-phrases do not stay in parallel positions, which prevents *who* in the second conjunct from being deleted in (34).

The examples in (4) and (5) also fall under George's analysis. Let us consider (4a), repeated as (35a), first. As illustrated in (35b), *who* in the second conjunct is a subject of the embedded clause and hence undergoes *wh*-movement to the matrix COMP, which is not a local movement. Deletion then applies to *who* in the second conjunct, successfully, since the relevant *wh*-phrases stay in the parallel positions, that is, COMP.


- (35) a. I know the man who John likes and we hope will win. (=4a)  
 b. I know the man [<sub>wh</sub><sub>1</sub> [John likes <sub>t</sub><sub>1</sub>]] and [<sub>wh</sub><sub>2</sub> [we hope <sub>t</sub><sub>2</sub> will win]].
- 

Let us turn to (5), repeated as (36a), next.

- (36) a. \*Here is the prisoner who rattled on the punk and Foley said was torched. (=5)  
 b. \*Here is the prisoner [WHO rattled on the punk] and [~~who~~<sub>2</sub> [Foley said <sub>t</sub><sub>1</sub> was torched]].
- L ► NOT MOVE

As illustrated in (36b), *who* in the first conjunct does not move to COMP but stays in the subject position. In contrast, *who* in the second conjunct is a subject of the embedded clause and hence undergoes *wh*-movement to COMP, in the same way as that in (35b). *Who* in the second conjunct cannot be deleted because the relevant *wh*-phrases do not stay in parallel positions.

So far, George's analysis captures the relevant data, successfully. However, (37a) challenges George's analysis.

- (37) a. \*the man who John saw and it was thought kissed Mary (Franks 1995:76)  
 b. \*the man [<sub>wh</sub><sub>1</sub> [John saw <sub>t</sub><sub>1</sub>]] and [~~who~~<sub>2</sub> [it was thought <sub>t</sub><sub>2</sub> kissed Mary]]
- 

Franks (1995) observes that a predicate of the matrix clause is passivized in the second conjunct in (37). Under George's analysis, (37a) would have the derivation given in (37b), where both of the *wh*-phrases move to COMP and nothing blocks *who* in the second conjunct from undergoing deletion. It is not clear how to rule out (37a), under George's analysis. The following example, which involves a raising predicate in the matrix clause in the second conjunct, is also problematic for his analysis.

- (38) a. \*the man who John saw and it seems to Bill kissed Mary  
 b. \*the man [who [John saw  $t_1$ ]] and [~~who~~<sub>2</sub> [it seems to Bill  $t_2$  kissed Mary]]
- 

There is nothing wrong with the derivation given in (38b), either. The next subsection presents an alternative analysis, which captures the ungrammaticality of (37a) and (38a), successfully.

### 3.2 An alternative analysis

First, I assume with Chomsky (2000) that *wh*-phrases move through each edge of the phases, i.e., CP and  $\bar{v}P$ . Fox (2000) argues that the edge of  $\bar{v}P$  is an intermediate landing site of *wh*-movement. Let us consider the following example.

- (39) [Which (of the) paper(s) that he<sub>1</sub> gave Ms. Brown<sub>2</sub>]<sub>3</sub> did every student<sub>1</sub> ask her<sub>2</sub> to read  $t_3$  carefully? (Fox 2000:165)

In (39), a *wh*-phrase is fronted with a relative clause involving both a bound pronoun bound by *every student* and an R-expression coindexed with *her*. If the fronted *wh*-phrase were reconstructed into its original position, then *Ms. Brown* would be bound by *her*, which yields a Condition C violation. Since the fronted *wh*-phrase involves a bound pronoun to be bound by *every student*, it should be reconstructed into the c-commanding domain of *every student*. Considering these two requirements, Fox argues that a reconstruction site of the fronted *wh*-phrase should be c-commanded by *every student* and not be c-commanded by *her*, as illustrated in (40). The relevant reconstruction site is the edge of  $\bar{v}P$  in the matrix clause.

- (40) [Which ...he<sub>1</sub>...Ms. B.<sub>2</sub>]<sub>3</sub> did every student<sub>1</sub> [ $\bar{v}P$   $t_3$  [ $\bar{v}P$   $t_1$  ask her<sub>2</sub> to read  $t_3$  carefully]]?
- 

Under this assumption, let us consider the examples in question. First, (1) involves the structure given in (41b), which involves TP coördination, prior to an application of ATB movement. In (41b), *who* moves to [Spec,  $\bar{v}P$ ] in each conjunct and the relevant *wh*-phrases stay in the syntactically parallel positions.

- (41) a. the man who John saw and Mary kissed (=1)  
 b. C [<sub>TP</sub> John<sub>2</sub> [ $\bar{v}P$  who<sub>1</sub> [ $\bar{v}P$   $t_2$  saw  $t_1$ ]]] and [<sub>TP</sub> Mary<sub>3</sub> [ $\bar{v}P$  who<sub>1</sub> [ $\bar{v}P$   $t_3$  kissed  $t_1$ ]]]
-

In this paper, I propose the following condition on ATB movement.<sup>9</sup>

(42) Parallelism Condition on ATB movement

ATB movement must take place from syntactically parallel positions.

Note that both of the *wh*-phrases stay in the parallel positions, [Spec,  $\bar{y}$ P] in (41b) and hence the condition given in (42) enables *who* to undergo *wh*-movement in an ATB fashion. Next, let us consider (3), repeated as (43a).

(43) a. \*I know a man who Bill saw and likes Mary. (=3))

- b. C [TP Bill<sub>2</sub> [ $\bar{y}$ P who<sub>1</sub> [ $\bar{y}$ P t<sub>2</sub> saw t<sub>1</sub>]]] and [TP who<sub>1</sub> [ $\bar{y}$ P t<sub>1</sub> likes Mary]]  
 $\hookrightarrow$  NOT PARALLEL  $\longleftarrow$

As illustrated in (43a), *who* in the first conjunct moves to the edge of  $\bar{y}$ P while *who* in the second conjunct A-moves to [Spec, TP]. Condition (42) does not allow an application of ATB movement to (43b) because the relevant *wh*-phrases do not occupy syntactically parallel positions, as opposed to (41).

The present analysis correctly predicts the (un)grammaticality of (4) and (5). Let us consider (4a), first.

(44) a. I know the man who John likes and we hope will win. (=4a))

- b. C [TP John<sub>2</sub> [ $\bar{y}$ P who<sub>1</sub> [ $\bar{y}$ P t<sub>2</sub> likes t<sub>1</sub>]]] and  
 [TP we<sub>3</sub> [ $\bar{y}$ P who<sub>1</sub> [ $\bar{y}$ P t<sub>3</sub> hope [CP t<sub>1</sub> [TP t<sub>1</sub> [ $\bar{y}$ P t<sub>1</sub> will win]]]]]]]

As shown in (44b), *who* moves to the edge of the matrix  $\bar{y}$ P in the second conjunct, and *who* in the first conjunct also moves to the edge of  $\bar{y}$ P. ATB movement of *who* from these positions satisfies (42). Let us turn to (5), repeated as (45a).

(45) a. \*Here is the prisoner who<sub>1</sub> [t<sub>1</sub> ratted on the punk] and [Foley said t<sub>1</sub> was torched]. (=5))

- b. C [TP who<sub>1</sub> [ $\bar{y}$ P t<sub>1</sub> ratted on the punk]] and  
 [TP Foley [ $\bar{y}$ P who<sub>1</sub> [ $\bar{y}$ P said [CP t<sub>1</sub> [TP t<sub>1</sub> was torched]]]]]

*Who* in the second conjunct moves to the edge of the matrix  $\bar{y}$ P successive cyclically in the same way as (44). However, *who* in the first conjunct A-moves to [Spec, TP], as illustrated in (45b). The condition given in (42) prevents *who* from undergoing ATB movement in (45b) because the *wh*-phrases do not occupy syntactically parallel positions.

<sup>9</sup> I speculate that (42) is derived from a parallelism requirement imposed on a coordinate structure in general. See Hornstein and Nunes (2002) for relevant discussion.

Chomsky (2001) suggests that the edge of  $\bar{v}P$  with passives and unaccusatives is not a target of successive cyclic movement. If it is correct, the present analysis correctly predicts the ungrammaticality of (37a), repeated below.

- (46) \*the man  $who_1$  [John saw  $t_1$ ] and [it was thought  $t_1$  kissed Mary] (= (37a))

Under the present analysis, (46) involves the following derivation prior to an application of ATB movement.

- (47) C [<sub>TP</sub> John<sub>2</sub> [ <sub>$\bar{v}P$</sub>   $who_1$  [ <sub>$\bar{v}P$</sub>   $t_2$  saw  $t_1$ ]]] and  
 [<sub>TP</sub> it was [ <sub>$\bar{v}P$</sub>  thought [<sub>CP</sub>  $who_1$  [<sub>TP</sub>  $t_1$  [ <sub>$\bar{v}P$</sub>   $t_1$  kissed Mary]]]]]

As illustrated in (47), *who* in the second conjunct is forced to stay at the edge of the embedded CP, as opposed to (45), because the edge of  $\bar{v}P$  of the passivized predicate in the second conjunct is not a landing site of successive cyclic movement. The relevant *wh*-phrases occupy syntactically non-parallel positions and hence an application of ATB movement is blocked. Example (38a), repeated as (48a), which involves an unaccusative predicate, confirms a similar point to (47). The relevant derivation is given in (48b).

- (48) a. \*the man  $who$  [John saw  $t$ ] and [it seems to Bill  $t$  kissed Mary]  
 b. C [<sub>TP</sub> John<sub>2</sub> [ <sub>$\bar{v}P$</sub>   $who_1$  [ <sub>$\bar{v}P$</sub>   $t_2$  saw  $t_1$ ]]] and  
 [<sub>TP</sub> it [ <sub>$\bar{v}P$</sub>  seems to Bill [<sub>CP</sub>  $who_1$  [<sub>TP</sub>  $t_1$  [ <sub>$\bar{v}P$</sub>   $t_1$  kissed Mary]]]]]

I have crucially assumed with Chomsky (2001) that *wh*-phrases do not move through the edge of  $\bar{v}P$  with passives and unaccusatives. However, this assumption is controversial. Particularly, Legate (2003) empirically argues that the edge of  $\bar{v}P$  with a non-transitive predicate is a target of *wh*-movement.<sup>10</sup> First, let us consider the following example.

- (49) [At which of the parties that he<sub>1</sub> invited Mary<sub>2</sub> to]<sub>3</sub> was every man<sub>1</sub> introduced to her<sub>2</sub>  $t_3$ ?  
 (Legate 2003:507)

The grammaticality of (49) indicates that the fronted *wh*-phrase is reconstructed into the position lower than *every man* and higher than *her*, as illustrated in (50). Legate argues that the relevant reconstruction site is the edge of the verbal phrase with a passivized predicate.

<sup>10</sup> I thank S.-I. Takahashi (p.c.) for bringing Legate's work to my attention.



- (50) [At which... he<sub>1</sub> invited Mary<sub>2</sub> to]<sub>3</sub> was every man<sub>1</sub> [t<sub>3</sub>[introduced t<sub>1</sub> to her<sub>2</sub> t<sub>3</sub>]]?  
 └──────────Reconstruction──────────▶

It is important to note that her argument crucially hinges on where adjuncts are base-generated. Legate (2003: note 3) crucially assumes, following Pesetsky (1995), that ‘*at* DP phrases are merged as the lowest argument in the VP’.<sup>11</sup> However, if it is assumed that the fronted adjunct is base-generated at the edge of the verbal phrase, contrary to Pesetsky (1995), then the grammaticality of (49) would be explained without appealing to the assumption that the edge of the verbal phrase of a passivized predicate is a target of successive cyclic movement. Further investigation of the base-generated position of adjuncts is needed and hence I must leave this issue for future research.<sup>12</sup>

### 3.3 ATB A-movement

Before concluding this section, I mention ATB A-movement, which behaves differently from ATB A'-movement. First, let us consider (51).

- (51) The boys will [write a book] and [be awarded a prize for it].  
 (Burton and Grimshaw 1992:305)

Example (51) seems to be problematic for the present analysis so far because the edge of  $\bar{y}P$  with a passivized verb is not a target of movement. It would involve the following derivation prior to an application of ATB movement of *the boys*, under the assumption

<sup>11</sup> Legate leaves an open question whether passives and unaccusatives have  $\bar{y}$ . She refers to the verbal phrase with passives and unaccusatives as ‘VP’.

<sup>12</sup> Legate also applies the same test to an unaccusative predicate, exploiting *escape* whose meaning is ‘forget’. The result is more serious for the present analysis.

- (i) a. [Every winner<sub>1</sub>’s name] escaped Mary<sub>2</sub> at the ceremony he<sub>1</sub> invited her<sub>2</sub> to.  
 b. \*[Every winner<sub>1</sub>’s name] escaped her<sub>2</sub> at the ceremony he<sub>1</sub> invited Mary<sub>2</sub> to.  
 c. [At which ceremony he<sub>1</sub> invited Mary<sub>2</sub> to] did every winner<sub>1</sub>’s name escaped her<sub>2</sub>?  
 (Legate 2003:508)

Based on the grammaticality of (ia), Legate argues that every winner binds its bound pronoun *he*, even though the former is embedded within the noun phrase. The ungrammaticality of (ib) illustrates that the original position of the adjunct is c-commanded by *her*. Keeping this in mind, let us consider (ic). The grammaticality of (ic) indicates that the moved *wh*-phrase must be reconstructed into the position lower than *every winner* and higher than *her*, which is underlined in (ii).

- (ii) [At which ceremony he<sub>1</sub> invited Mary<sub>2</sub> to]<sub>3</sub> did every winner<sub>1</sub>’s name[\_\_escaped her<sub>2</sub> t<sub>3</sub>]?

Legate claims that the relevant reconstruction site is the edge of the verbal phrase of *escape*. Unfortunately, I have no good explanation for the grammaticality of (ic) at this point.

that *be* occupies the head of  $\underline{v}P$ .

- (52) T [ $\underline{v}P$  the boys  $\underline{v}$  [ $\underline{v}P$  write a book]] and [ $\underline{v}P$  be [ $\underline{v}P$  awarded the boys a prize for it]]

As shown in (52), *the boys* occupies [Spec,  $\underline{v}P$ ] in the first conjunct while *the boys* stays at the complement position of the passivized verb in the second conjunct. Given (42), *the boys* cannot undergo ATB movement because *the boys* do not occupy syntactically parallel positions between the conjuncts. The present analysis so far wrongly predicts that (52) would be ungrammatical.

I suggest that the edge of  $\underline{v}P$  with a non-transitive predicate provides an intermediate landing site for A-movement, contrary to A'-movement. If so, (51) involves the following derivation, not (52), prior to an application of ATB movement.

- (53) T [ $\underline{v}P$  the boys write a book] and [ $\underline{v}P$  the boys<sub>i</sub> [ $\underline{v}P$  be awarded t<sub>i</sub> a prize for it]]

In the second conjunct, *the boys* moves from the object position to the edge of  $\underline{v}P$  prior to an application of ATB movement. Then, *the boys* undergoes ATB movement and thus (51) ceases to be problematic for the present analysis.

The proposal that A-movement targets the edge of  $\underline{v}P$  with a non-transitive predicate is independently motivated in Sauerland (2003). He argues that the edge of  $\underline{v}P$  of a raising predicate such as *seem* is a target of A-movement. Let us consider (54).

- (54) Every child<sub>i</sub> doesn't seem to his<sub>i</sub> father [t<sub>i</sub> to be smart]. (Sauerland 2003:310)

In (54), wide scope of negation over the subject is available. The subject needs to undergo reconstruction into the position which is lower than negation and higher than the bound pronoun *his*. Sauerland argues that the subject undergoes A-movement through the edge of  $\underline{v}P$  with *seem*, where it is reconstructed at LF, as illustrated in (55).

- (55) Every child<sub>i</sub> doesn't [ $\underline{v}P$  t<sub>i</sub> [ $\underline{v}P$  seem to his<sub>i</sub> father [t<sub>i</sub> to be smart]]].  
 $\hookrightarrow$ Reconstruction $\rightarrow$

In this paper, I have no good explanation for why there is an asymmetry with the edge of  $\underline{v}P$  of a non-transitive predicate between A-movement and A' movement. Further discussion of this issue is needed, and it awaits future research.

## 4. Summary

In this paper, I have discussed two issues on ATB movement. First, I provide evidence showing that distinct elements cannot undergo ATB movement, based on multiple *wh*-fronting. In addition, I have illustrated how improper ATB movement is excluded under Fox's (2000) multidimensional approach to the CSC effects. Specifically improper ATB movement is also reducible to vacuous quantification on a par with the CSC effects. As a related issue, I have presented three cases indicating that ATB lowering is prohibited. Second, I have discussed a parallelism requirement imposed on ATB movement. Particularly, I have proposed (42), according to which ATB movement should take place from syntactically parallel positions. The present analysis resolves an empirical problem facing George's (1980) analysis.

## References

- Aoun, Joseph, and Yen-hui Audrey Li. 1993. *Syntax of Scope*. Cambridge: MIT Press.
- Bošković, Željko, and Steven Franks. 2000. Across-the-board movement and LF. *Syntax* 3.2:107-128.
- Burton, Strang, and Jane Grimshaw. 1992. Coordination and VP-internal subjects. *Linguistic Inquiry* 23:305-313.
- Chomsky, Noam. 1976. Conditions on rules of grammar. *Linguistic Analysis* 2:303-351.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. *Step by Step*, ed. by Roger Martin, David Michaels, and Juan Uriagereka, 89-155. Cambridge: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. *Ken Hale: A Life in Language*, ed. by Michael Kenstowicz, 1-52. Cambridge: MIT Press.
- Fox, Danny. 2000. *Economy and Semantic Interpretation*. Cambridge: MIT Press.
- Franks, Stevens. 1995. *Parameters of Slavic Morphosyntax*. Oxford: Oxford University Press.
- George, Leland. 1980. *Analogical Generalization in Natural Language Syntax*. Cambridge: MIT dissertation.
- Goodall, Grant. 1987. *Parallel Structures in Syntax*. Cambridge: Cambridge University Press.
- Goldsmith, John. 1985. A principled exception to the coordinate structure constraint. *CLS 21, Part 1: Papers from the General Session*, ed. by William H. Elifort, Paul D. Kroeber, and Karen L. Peterson, 133-143. Chicago: Chicago Linguistic Society.
- Haik, Isabelle. 1985. *The Syntax of Operators*. Cambridge: MIT dissertation.
- Hornstein, Norbert. 1995. *Logical Form: From GB to Minimalism*. Cambridge: Blackwell.

- Hornstein, Norbert, and Jairo Nunes. 2002. On asymmetries between parasitic gap and across-the-board constructions. *Syntax* 5.1:26-54.
- Johnson, Kyle, and Satoshi Tomioka. 1997. Lowering and mid-size clauses. *Reconstruction: Proceedings of the 1997 Tübingen Workshop*, ed. by Graham Katz, Shin-Sook Kim, and Heike Winhart, 185-206. Universität Stuttgart and Universität Tübingen.
- Kitahara, Hisatsugu. 1996. Raising quantifiers without quantifier raising. *Minimal Ideas: Syntactic Studies in the Minimalist Framework*, ed. by Werner Abraham, Samuel D. Epstein, Hoskuldur Thrainsson, and Jan-Wouter Zwart, 189-198. Amsterdam and Philadelphia: John Benjamins.
- Lakoff, George. 1986. Frame semantic control of the coordinate structure constraint. *CLS 22, Part 2: Papers from the Parasession on Pragmatics and Grammatical Theory*, 152-167. Chicago: Chicago Linguistic Society.
- Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19:335-391.
- Legate, Julie. 2003. Some interface properties of the phase. *Linguistic Inquiry* 34:506-516.
- Longobardi, Giuseppe. 1991. In defense of the correspondence hypothesis: Island effects and parasitic constructions in logical form. *Logical Structure and Linguistic Structure: Cross-Linguistic Perspectives*, ed. by C.-T. James Huang and Robert May, 149-196. Dordrecht: Kluwer.
- May, Robert. 1985. *Logical Form: Its Structure and Derivation*. Cambridge: MIT Press.
- Moltman, Friederike. 1992. *Coordination and Comparatives*. Cambridge: MIT dissertation.
- Munn, Alan. 1993. *Topics in the Syntax and Semantics of Coordinate Structures*. College Park: University of Maryland dissertation.
- Pesetsky, David. 1995. *Zero Syntax*. Cambridge: MIT Press.
- Postal, Paul. 1998. *Three Investigations of Extraction*. Cambridge: MIT Press.
- Rodman, Robert. 1976. Scope phenomena, "movement transformations," and relative clauses. *Montague Grammar*, ed. by Barbara H. Partee, 165-176. New York: Academic Press.
- Ross, John R. 1967. *Constraints on Variables in Syntax*. Cambridge: MIT dissertation.
- Ross, John R. 1986. *Infinite Syntax!*. Norwood: Ablex Publishing Corporation.
- Rudin, Catherine. 1988. On multiple questions and multiple *wh*-fronting. *Natural Language and Linguistic Theory* 6:445-501.
- Ruys, Eddy. 1992. *The Scope of Indefinites*. Utrecht: Universiteit Utrecht dissertation.
- Sauerland, Uli. 2003. Intermediate adjunction with A-movement. *Linguistic Inquiry* 34: 308-314.
- Woolford, Ellen. 1987. An ECP account of constraints on across-the-board extraction. *Linguistic Inquiry* 18:166-171.
- Williams, Edwin. 1978. Across-the-board rule application. *Linguistic Inquiry* 9:31-43.

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## 關於通盤移位的兩則札記

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本文討論與通盤移位的性質有關的兩個獨立的議題。首先探討異指的成份是否可用通盤移位的方式從並列成份中移出，多重疑問詞前置的實證顯示答案是否定的，我採用 Fox (2000) 並列結構限制可以簡化為「無作用對象的量化」的分析，建議通盤移位的相關病句也可以用「無作用對象的量化」來解釋。其次，本文還討論了通盤移位空缺受到的限制。我主張通盤移位發生於句法上平行的位置，這個主張加上 Chomsky (2000, 2001) 提出的 vP 邊緣位置可為連續移位的移入點的假設，可以解釋通盤移位空缺相關的限制。

關鍵詞：通盤移位，並列，連續移位，平行性