

Wholesale Late Merger: Beyond the A/ \bar{A} Distinction

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In this article, we develop a substantially expanded theory of late merger. Adopting related insights by Fox (2002), we argue that late merger is permitted whenever an output representation can be interpreted in the semantic component. A consequence of our approach is that late merger is available not only for the well-known case of adjuncts, but also for restrictors of determiners (wholesale late merger). We demonstrate that this theory can explain the different reconstruction possibilities of A-movement and \bar{A} -movement, as well as various otherwise puzzling facts about movement and ellipsis, while still maintaining the copy theory of movement.

Keywords: (anti)reconstruction, copy theory of movement, ellipsis, interpretability, late merger

1 Introduction

Reconstruction effects can sometimes be observed in structures involving movement, in which a moved constituent is interpreted as if it has not undergone movement. Some aspects of the movement mechanism and intriguing properties of movement rules have been revealed by investigating reconstruction effects. Most significantly, it has been claimed that the presence of reconstruction effects indicates that movement is a process whereby a single constituent is copied into different positions. This view of movement has been known as the *copy theory of movement* since Chomsky 1993, 1995. On this view of movement, reconstruction effects can be derived by interpreting a lower copy in the semantic component of the grammar. Reconstruction effects can be taken as a direct consequence of the copy theory of movement, but not of the more traditional trace theory of movement. In addition to its theoretical attractiveness, empirical facts supporting the copy

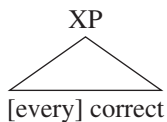
The theory of the merger operation reported in this article was first presented in Takahashi 2006. New arguments for the theory have been added here (see section 4). We are grateful to Rajesh Bhatt, Kai von Stechow, Danny Fox, Irene Heim, Kyle Johnson, Hironobu Kasai, David Pesetsky, Uli Sauerland, and two anonymous reviewers for *Linguistic Inquiry* for helpful comments and discussion. Parts of this article were presented at the Fukuoka Linguistic Circle, Kanda University of International Studies, Keio University, MIT, NELS 38, and the University of Connecticut. We thank the audiences at these talks for their useful questions and comments. The first author is supported by a Research Fellowship of the Japan Society for the Promotion of Science for Young Scientists under grant 9919.

theory of movement have accumulated in the literature (see, e.g., Fox 1999b, 2002, Romero 1998, Sauerland 1998, 2004, Sportiche 2005b, 2006). However, certain facts that challenge the copy theory of movement have also often been pointed out. Those facts seem to suggest that movement *sometimes* leaves a contentless trace, instead of a full-fledged copy of the moved constituent. The most notable fact is that A-movement *always* bleeds Condition C—unlike \bar{A} -movement, which bleeds Condition C only in limited contexts (e.g., Chomsky 1993, Lebeaux 1988, 1998). This is clearly unexpected under the copy theory of movement. On the basis of the A-movement facts, one might deny the simplest version of the copy theory of movement, in which movement *always* leaves a copy (Lasnik 1998, 1999a). However, this considerably complicates the theory of movement, an undesirable result.

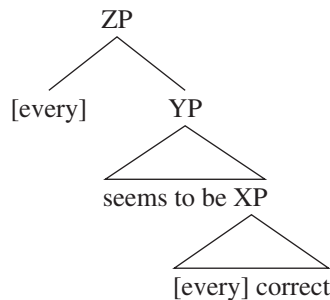
In this article, we argue that it is not necessary to complicate the copy theory of movement. Instead, we develop a new theory of the operation that merges lexical material, which can explain the Condition C bleeding effect in A-movement in a way compatible with the simplest version of the copy theory of movement. As part of our solution to the puzzle, we adopt Lebeaux's (1988) operation of *late merger*, which allows certain constituents to be inserted into a structure countercyclically. Lebeaux claims that the applicability of late merger is regulated by complementation properties of lexical items—namely, only adjuncts can be inserted late. Since Lebeaux's theory of late merger is tailored to account for the limited Condition C bleeding effect in \bar{A} -movement, it is too restrictive to deal with the more radical behavior of A-movement. However, once we adopt an independently motivated method of interpreting movement chains under the copy theory of movement (Fox 2002), we can control the applicability of late merger in a somewhat different way than Lebeaux does. More concretely, following Fox's insight, we argue that late merger is permitted whenever an output representation can be interpreted in the semantic component (henceforth, the *LF interpretability approach*). A consequence of the LF interpretability approach is that, in addition to adjuncts, a restrictor of an operator/determiner can undergo late merger (Bhatt and Pancheva 2004, 2007). This additional late merger option is referred to as *wholesale late merger*. The stages of the derivation sketched in (1) illustrate how DP structures are constructed under our approach.

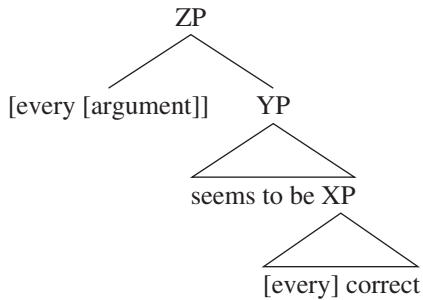
(1) a. Every argument seems to be correct.

b. *Base structure*



c. *Movement of Det*



d. *Merger of a restrictor*

We argue that the lower copy of the determiner in (1) is converted into an interpretable syntactic object by a procedure independently needed for interpreting copies in general. Furthermore, such syntactic objects receive the same interpretation as that assigned to syntactic objects that are traditionally called traces.

We propose that this way of constructing DPs helps to explain three sets of facts that are otherwise puzzling under any existing theory of movement. The first empirical issue concerns the above-mentioned A/\bar{A} contrast in the ability to bleed Condition C (see section 2 for more discussion). In section 3, we demonstrate that this contrast is captured by wholesale late merger under the copy theory of movement, together with other independent properties of the grammar that effectively prohibit wholesale late merger from taking place in most \bar{A} -movement contexts. More specifically, we argue that wholesale late merger is not applicable in most \bar{A} -movement cases as a consequence of the lexical properties of DPs and the nature of the Case assignment mechanism. In section 4, we provide further support for the theory developed in section 3. As the second empirical issue, we discuss two cases which suggest that \bar{A} -movement bleeds Condition C in environments where the Lebeaux-style theory of late merger predicts that it should not. We argue that our theory correctly predicts that wholesale late merger is possible in \bar{A} -movement precisely in such environments; this accounts for the Condition C bleeding effect in \bar{A} -movement. Finally, in section 5, we argue that facts from ellipsis also support our approach. We show that certain ellipsis facts can be taken as support for the copy theory of movement, but that related facts challenge it. However, we claim that our approach offers a solution to this challenge.

If these arguments are successful, our proposal has two theoretical consequences. First, the claim that wholesale late merger is operative in the syntactic computation provides novel support for the LF interpretability approach to the merger operation. Second, the proposed approach can be taken as a step toward understanding what underlies the A/\bar{A} -movement distinction.

2 The Antireconstruction Problem

Movement rules have traditionally been classified into two types, A-movement and \bar{A} -movement, which are claimed to have distinct properties with respect to reconstruction (e.g., Chomsky 1993, 1995, Fox 1999b, Lasnik 1999a, Sauerland 1998). As we will show, one of these properties conflicts with the well-motivated copy theory of movement. To illustrate the properties of move-

ment and make this problem clear, we first consider facts that indicate the presence of reconstruction effects in \bar{A} -movement. A reconstruction effect can be found in cases like (2a–b). Here, a pronoun within a moved *wh*-phrase can be interpreted as a variable bound by a quantifier phrase (QP) whose scope is superficially narrower than the *wh*-phrase containing the pronoun.¹

- (2) a. [Which of his_i students] did [every professor]_i talk to?
 b. [Which student of his_i] did you think [every professor]_i talked to?
 (Fox 1999b:172)

A pronoun is interpreted as a bound variable only when it is within the scope of its binder at LF. Thus, the bound variable construal in (2a–b) can be regarded as indicating that the \bar{A} -moved constituent can undergo reconstruction. Furthermore, reconstruction of this sort is observed only when a constituent that dominates a pronoun is base-generated in a position structurally lower than a potential binder. Compare (2a–b) with the ungrammatical (3a–b).

- (3) a. *[Which of his_i students] talked to [every professor]_i?
 b. *[Which student of his_i] did you think talked to [every professor]_i?
 (Fox 1999b:172)

This observation strongly suggests that the way of deriving reconstruction effects should be tied to the mechanism of movement. As has been discussed elsewhere (e.g., Chomsky 1993, 1995, Fox 1999b), the contrast between (2) and (3) is expected under the copy theory of movement. There is a copy of the *wh*-phrase in the c-command domain of the QP in the derivation in (4a) postulated for (2a). This copy can be used to produce a bound variable interpretation in (4a). (Some part of the higher copy of the *wh*-phrase that contains the pronoun is assumed to be deleted at LF in (4a) to avoid an uninterpretable structure.) In contrast, the derivation of (3a) lacks such a copy, as shown in (4b).²

- (4) a. [[which of his_i students] did [[every professor]_i talk to [which of his_i students]]]
 b. *[[which of his_i students] talked to [every professor]_i]

Given these facts, it is reasonable to assume that \bar{A} -movement can leave a contentful copy.

¹ A QP α takes scope at a position β when a constituent that is sister to β is interpreted as an argument of α in the semantic component.

The facts discussed in this section are mostly taken from Fox 1999b. Relevant data can be found elsewhere as well. See Heycock 1995, Lebeaux 1998, May 1985, Romero 1998, Sauerland 1998, and Sportiche 2005b, 2006, among many others.

² In (3), Quantifier Raising (QR) of the QP over the pronoun does not help establish a variable-binding dependency because it induces a violation of Weak Crossover. Furthermore, such a QR approach does not capture the contrast between (2) and (3).

In fact, we can make the even stronger claim that \bar{A} -movement *obligatorily* leaves a copy on the basis of the fact that \bar{A} -movement does not bleed Condition C if a relevant R-expression is within the complement of a *wh*-phrase (Fox 1999b, Freidin 1986, Lebeaux 1988, 1998, Van Riemsdijk and Williams 1981). This fact is exemplified by (5a–b), in which the pronoun cannot corefer with the R-expression *John*.³

- (5) a. ??/*[Which argument that John_i is a genius] did he_i believe?
(Fox 1999b:164)
b. *[Which corner of John_i's room] was he_i sitting in?
(David Pesetsky, pers. comm.)

The absence of the Condition C bleeding effect in \bar{A} -movement is wholly expected under the copy theory of movement. We can resort to a lower copy of the *wh*-phrase to prohibit the coreferential relation between the pronoun and the R-expression in (5), as illustrated in (6).

- (6) a. *[[which argument that John_i is a genius] did [he_i believe [which argument that John_i is a genius]]]
b. *[[which corner of John_i's room] was [he_i sitting in [which corner of John_i's room]]]

If instead \bar{A} -movement could leave a contentless trace, it would be less clear why the sentences in (5) are ungrammatical, since there would be the option of having no R-expression in the base-generated position and, hence, no Condition C violation. From the fact that such cases obligatorily violate Condition C, we can conclude that \bar{A} -movement obligatorily leaves a copy.

Let us now consider facts about A-movement. As shown by the grammaticality of the bound variable interpretation in (7a–b), A-movement also exhibits reconstruction effects. This suggests that A-movement also leaves a contentful copy.

- (7) a. [Someone from his_i class] seems to [every professor]_i to be a genius.
b. [His_i father] seems to [every boy]_i to be a genius.
(Fox 1999b:161)

Now, the question is whether we can make the stronger claim that A-movement obligatorily leaves a copy, just as \bar{A} -movement does. The answer seems to be that it does not, because A-movement bleeds Condition C when a relevant R-expression is inside the complement of a noun, as shown in (8). This is in striking contrast to \bar{A} -movement (see (5)).

³ Jacobson (2004a), Kuno (2004), Lasnik (1998, 1999a), and McCarthy (2003) cast doubt on facts like (5a–b). However, a relevant argument can also be constructed by employing covert \bar{A} -movement (i.e., QR), as in (i). The judgment on covert movement cases is clearer than that on overt movement cases.

(i) *A different person told him_i about every argument that John_i is a genius.
(Fox 1999b:192)

See also Safir 1999 for relevant facts and related discussion.

- (8) a. [The claim that John_i was asleep] seems to him_i to be correct.
(Chomsky 1993:37)
- b. [Every argument that John_i is a genius] seems to him_i to be flawless.
(Fox 1999b:192)
- c. [John_i's mother] seems to him_i to be wonderful.
(Lebeaux 1998:23)

Given the copy theory of movement, we would postulate the LF representation in (9a) for the sentence in (8a). However, it is clear that this is not the right representation. Since there is a copy of the A-moved constituent in the argument position in (9a), Condition C would be violated if this were the correct representation for (8a), contrary to fact. Instead, the LF representation that we want to derive is something close to (9b), where the (relevant) tail of the A-movement chain is represented by a contentless trace.⁴

- (9) a. *[[the claim that John_i was asleep] seems to him_i to be [[the claim that John_i was asleep] correct]]
- b. [[the claim that John_i was asleep]₁ seems to him_i to be [t₁ correct]]

Putting together all of these facts, we can characterize properties of the two types of movement as follows (Fox 1999b, Sauerland 1998):

- (10) a. A-movement *optionally* leaves a trace.
- b. \bar{A} -movement *obligatorily* leaves a copy.

The characterization in (10) presents a challenge to any existing theory of movement. Why do the two types of movement exhibit such heterogeneous properties? Our answer is that (10a) is actually not the correct characterization of A-movement. In other words, both A-movement and \bar{A} -movement *obligatorily* leave a copy of a moved constituent. However, independent properties of the grammar lead to the impression that A-movement sometimes leaves a contentless trace. One such property is the availability of late merger, which allows some constituents to be introduced into a structure countercyclically (Lebeaux 1988, 1998). As it turns out, the version of late merger proposed by Lebeaux does not correctly capture the facts that motivated (10a). Thus, in the next section, we develop a novel theory of late merger, capitalizing on a consequence of the LF interpretability approach to this operation. This theory allows a restrictor of an operator/determiner to be inserted into a structure countercyclically (wholesale late merger). We argue

⁴ An anonymous reviewer points out an alternative explanation of the Condition C bleeding effect in A-movement. Since the pronoun is in the complement of the preposition in (8), hence does not c-command anything outside the PP, Condition C is not violated even though A-movement leaves a copy. However, it is well known that prepositions are often transparent in the computation of c-command. The construction under discussion is one such case, as evidenced by (i).

(i) *It seems to him_i that the claim that John_i was asleep is correct.

Thus, we argue that A-movement does bleed Condition C.

that wholesale late merger accounts for the facts that have been taken as evidence for (10) under the copy theory of movement, with the aid of some consequences of independent properties of the grammar that we will discuss below.

3 The Proposal

3.1 An Outline

In this section, we propose a solution to the asymmetry between the two types of movement discussed above. The proposed account makes crucial use of several properties of the grammar, each of which is independently motivated. After introducing these properties in sections 3.2 and 3.3, we argue in section 3.4 for a novel theory of the merger operation.

3.2 The First Step: Late Merger

We have discussed evidence suggesting that \bar{A} -movement obligatorily leaves a copy, and much evidence in favor of this claim has accumulated in the literature. However, a phenomenon that could be regarded as a counterexample to this claim has also been pointed out. As noted earlier, sentences like (11a) and (12a) suggest that *wh*-movement is not capable of bleeding Condition C, and the absence of the Condition C bleeding effect is entirely expected under the copy theory of movement. Notice that in (11a) and (12a) the R-expression is included in the complement of the moved *wh*-phrase. From the perspective of the copy theory of movement, a puzzling fact is that if a relevant R-expression is instead dominated by an adjunct that modifies a *wh*-phrase (e.g., by a relative clause), *wh*-movement appears to circumvent a violation of Condition C (e.g., Fox 1999b, Freidin 1986, Lebeaux 1988, Van Riemsdijk and Williams 1981). This is illustrated in (11b) and (12b).⁵

- (11) a. ??/*Which argument [that John_i is a genius] did he_i believe?
 b. Which argument [that John_i made] did he_i believe?
 (Fox 1999b:164)

⁵ We might expect the same asymmetry to be found with covert \bar{A} -movement, or QR. However, the contrast is less clear in this case. It has been suggested that judgments vary for cases where a relevant R-expression occurs inside an adjunct, as in (ib) (Fox 1995, 2002, Kennedy 1997).

- (i) a. *A different person told him_i about every argument that John_i's sister is a genius.
 b. ??A different person told him_i about every argument that John_i's sister made.

However, Fiengo and May (1994) and Fox (1995, 2000, 2002) observe that QR does bleed Condition C in antecedent-contained deletion (ACD).

- (ii) a. You sent him_i the letter that John_i expected you would ⟨send him_i⟩.
 b. You introduced him_i to everyone John_i wanted you to ⟨introduce him_i to⟩.
 c. I reported him_i to every cop John_i was afraid I would ⟨report him_i to⟩.
 (Fox 2002:84)

See Fox 1995, 2000 for one possible analysis that explains that contrast between (ib) and (ii). We will discuss Fox's (2002) account of the facts in (ii) in section 5.2.

- (12) a. *Which report [that John_i was incompetent] did he_i submit?
 b. Which report [that John_i revised] did he_i submit?
 (Freidin 1986:179)

Lebeaux (1988) offers a key idea for explaining this complement-adjunct asymmetry in the Condition C bleeding effect in \bar{A} -movement in a way that is compatible with the copy theory of movement. Lebeaux's proposal will constitute the first step toward characterizing the movement properties in (10).

To account for the contrast in (11) and (12), Lebeaux (1988) proposes that adjuncts can be introduced into a structure countercyclically. Given this, the relative clause can be merged with the *wh*-phrase in (11b) and (12b) after it undergoes *wh*-movement. Chomsky (1993, 1995) couches Lebeaux's idea of late merger within the copy theory of movement and argues that the sentences in (11b) and (12b) involve the LF representations in (13a–b). Since there is no copy of the R-expression in the c-command domain of its coreferential pronoun in (13a–b), no Condition C violation is induced here.

- (13) a. [[which argument [that John_i made]] did [he_i believe [which argument]]]
 b. [[which report [that John_i revised]] did [he_i submit [which report]]]

Now the desideratum is to understand why late merger of a complement constituent is impossible, as indicated by the ungrammaticality of (11a) and (12a). Lebeaux rules out this possibility by invoking the Projection Principle (Chomsky 1981).

(14) *The Projection Principle*

The subcategorization property of lexical items must be satisfied throughout the derivation.

Given the Projection Principle, if a constituent—such as the sentential complement clause in (11a) and (12a)—is regarded as a complement of a lexical item, it must be merged with the lexical item that selects it *prior to* an application of movement. Otherwise, the subcategorization property of the lexical item cannot be satisfied at the beginning of the derivation. Therefore, a violation of Condition C is inevitable in (11a) and (12a), as shown in the LF representations in (15).

- (15) a. *[[which argument that John_i is a genius] did [he_i believe [which argument that John_i is a genius]]]
 b. *[[which report that John_i was incompetent] did [he_i submit [which report that John_i was incompetent]]]

On the other hand, adjuncts are not constituents that are required by the selectional properties of a lexical item and, hence, they can be introduced at any stage of the derivation. From these facts, we can draw the generalization that movement is able to obviate a violation of Condition C only when a relevant R-expression is included in an adjunct that modifies a moved constituent (Lebeaux's Generalization).

Lebeaux's late merger analysis is insightful in that the phenomenon, which could be taken as an exception to the claim that \bar{A} -movement obligatorily leaves a copy, can be dealt with in a way that is completely compatible with the copy theory of movement, as Chomsky (1993, 1995) discusses. However, the Condition C bleeding effect in A-movement is problematic for Lebeaux's version of late merger because it does not fall under Lebeaux's Generalization. As mentioned above, A-movement bleeds Condition C even if a relevant R-expression is within a complement of a moved element, as in (16).

- (16) a. The claim [that John_i was asleep] seems to him_i to be correct.
 b. Every argument [that John_i is a genius] seems to him_i to be flawless.

Given Lebeaux's theory, it is clear that late merger of a sentential complement is not an option in (16) because it would end up violating the Projection Principle. Therefore, the theory of late merger needs to be revised if late merger is to help solve the puzzle of why A-movement always bleeds Condition C. In the next section, we suggest that the key lies in exploring a different approach to the driving force for merging complement constituents with their heads prior to an application of movement.

3.3 *The Second Step: Controlling the Applicability of Late Merger*

As noted above, Lebeaux proposes that late merger of complements is syntactically ill formed because it violates the Projection Principle. However, Fox (2002) provides an alternative reason: namely, that late merger of complements ends up producing an uninterpretable syntactic structure. To set the stage for discussing Fox's approach, we first need to introduce a mechanism for interpreting movement chains under the copy theory of movement.

A general issue that arises within the copy theory of movement is how movement chains are embodied in LF representations so that the semantic component can interpret them compositionally. To appreciate this issue, consider a case like (17a) in which a QP occupies the object position. Since QPs are second-order predicates of type $\langle\langle e,t \rangle, t \rangle$, they are not suitable for the first argument of a transitive predicate, which wants to take an element of type e . Thus, QPs are not interpretable in situ. Under the trace theory of movement, a common solution to this problem is to move an object QP and leave behind a trace, which is interpreted as a bound variable of type e in the semantic component. The resulting representation is straightforwardly interpreted by Functional Application, together with λ -abstraction induced by movement (e.g., Heim and Kratzer 1998). However, once we assume the copy theory of movement, it is not obvious how the QR approach solves the type mismatch because exactly the same material is left behind in the original position, as in (17b).

- (17) a. John read every book.
 b. [[every book] [John read [every book]]]

Fox (1999b, 2002) proposes a procedure, which he calls Trace Conversion (18), to make uninterpretable movement chains compositionally interpretable in the semantic component (see also Elbourne 2005 and Sauerland 1998, 2001, 2004 for related proposals).

(18) *Trace Conversion*Variable Insertion: (Det) Pred \rightarrow (Det) [Pred $\lambda y(y=x)$]Determiner Replacement: (Det) [Pred $\lambda y(y=x)$] \rightarrow the [Pred $\lambda y(y=x)$]

(Fox 2002:67)

Trace Conversion has two components. First, Variable Insertion introduces a predicate of type $\langle e,t \rangle$ ($\lambda y. [y=x]$) into a lower copy. The inserted predicate and the restrictor of a determiner, which is also of type $\langle e,t \rangle$ (e.g., *book* in (19)), are combined by the composition rule Predicate Modification, which conjoins two predicates of type $\langle e,t \rangle$ (see Heim and Kratzer 1998:126 for the formulation of this rule). This part of Trace Conversion establishes a variable-binding dependency between the lower copy and the λ -operator introduced by movement of the QP, as illustrated in (19c). Second, Determiner Replacement converts the lower copy into a definite description of type e , which resolves the type mismatch. In this particular case, the determiner *every* is replaced with the definite determiner *the*. The output representation in (19d) is now compositionally interpreted in the semantic component.⁶

(19) a. [John read every book]

 \rightarrow QRb. [[every book] λx . [John read [every book]]] \rightarrow Variable Insertionc. [[every book] λx . [John read [every book x]]] \rightarrow Determiner Replacementd. [[every book] λx . [John read [the book x]]]

We are now ready to discuss an alternative way to control the applicability of late merger, proposed by Fox (2002). Fox's basic idea can be stated as follows: late merger is allowed if an output LF representation can be interpreted in the semantic component (the LF interpretability approach). As Fox points out, if constituents that are considered complements of a head are merged with the head countercyclically, the output LF representation is always uninterpretable. To see how the LF interpretability approach captures the complement-adjunct asymmetry, consider (11a–b) again, repeated here in (20).

(20) a. ??/*Which argument [that John_i is a genius] did he_i believe?b. Which argument [that John_i made] did he_i believe?

For the sake of the discussion, let us assume that an NP that takes a sentential complement (e.g., *argument* in (20a)) is of type $\langle t, \langle e, t \rangle \rangle$. Suppose that this sentential complement undergoes late merger with the DP *which argument*. This yields the representation in (21a), in which the lower copy of the NP *argument* is of type $\langle t, \langle e, t \rangle \rangle$ because its first argument is not yet saturated. For

⁶ As Fox (2002) points out, Trace Conversion produces a correct result as long as determiners are conservative, as defined in (i).

(i) A determiner D is conservative iff for any P, Q , $D(P)(Q) = D(P)(P \cap Q)$.

Since all determiners in natural language are considered to be conservative, Trace Conversion does not make any incorrect predictions (but see Bhatt and Pancheva 2004, 2007 for an interesting consequence of this claim).

this reason, Predicate Modification cannot combine the lower copy of the NP *argument* and the predicate $\lambda y. [y=x]$. Consequently, the LF representation in (21b) is uninterpretable.

- (21) a. $[_{CP}[\text{which argument [that John}_i \text{ is a genius]}] \lambda x. \text{ did } [_{TP} \text{ he}_i \text{ believe [which argument}_{\langle t, \langle e, t \rangle \rangle}]]]]$
 \rightarrow Variable Insertion
 b. $*[_{CP}[\text{which argument [that John}_i \text{ is a genius]}] \lambda x. \text{ did } [_{TP} \text{ he}_i \text{ believe [which argument}_{\langle t, \langle e, t \rangle \rangle}][\lambda y. [y=x]_{\langle e, t \rangle}]]]]]$

In contrast, adjuncts are allowed to be introduced countercyclically under the LF interpretability approach. The derivation of (20b), which involves late merger of the adjunct, is interpreted through exactly the same steps as those in (19) (together with additional application of Predicate Modification, which combines the copy of the NP *argument* in Spec,CP and the relative clause inserted via late merger, which is also of type $\langle e, t \rangle$).

Does the LF interpretability approach allow late merger to apply to exactly the same range of constituents as Lebeaux's approach? No. There is one environment in which late merger can in principle apply only under the LF interpretability approach: a restrictor of an operator/determiner should be able to be merged with the operator/determiner countercyclically (wholesale late merger) unless other properties of the grammar prohibit this option. In the next section, we will make essential use of this additional possibility of late merger to capture the facts that have been taken as evidence for the properties of movement characterized in (10). Before presenting our proposal, we illustrate in detail how wholesale late merger produces an interpretable representation, by discussing Bhatt and Pancheva's (2004, 2007) analysis of extraposition of a constituent introduced with *than* in comparatives (henceforth, *comparative complement*). As we will show, Bhatt and Pancheva's analysis also crucially employs this consequence of the LF interpretability approach.

Since Bhatt and Pancheva adopt Fox and Nissenbaum's (1999) analysis of adjunct extraposition, we first describe Fox and Nissenbaum's idea. (Fox and Nissenbaum's analysis is also relevant for the discussion in sections 4 and 5.) As shown in (22b) and (23b), adjunct extraposition bleeds Condition C.

- (22) a. $??/*I$ gave him_i a picture [from John_i's collection] yesterday.
 b. I gave him_i a picture yesterday [from John_i's collection].
 (Fox and Nissenbaum 1999:139)
- (23) a. $??/*I$ gave him_i an argument [that supports John_i's theory] yesterday.
 b. I gave him_i an argument yesterday [that supports John_i's theory].
 (Fox and Nissenbaum 1999:139)

For this and other reasons, Fox and Nissenbaum (1999) develop an analysis of adjunct extraposition that makes crucial use of late merger of adjuncts.⁷ Fox and Nissenbaum claim that a DP first

⁷ Fox and Nissenbaum (1999) observe that complement extraposition does not bleed Condition C, as in (i).

- (i) a. $??/*I$ gave him_i a picture yesterday [of John_i's mother].
 b. $??/*I$ gave him_i an argument yesterday [that this sentence supports John_i's theory].
 (Fox and Nissenbaum 1999:139)

undergoes rightward QR, moving across an adverbial, as in (24b), and that this movement is followed by late merger of an adjunct. The fact that the DP and the adjunct are superficially discontinuous in extraposition is captured by assuming that the DP can be pronounced in the tail of the QR chain, as shown in (24c) (Bobaljik 1995, 2002, Groat and O'Neil 1996, Pesetsky 1998).

- (24) a. [I gave him_i [an argument] yesterday]
 →_{QR}
 b. [[I gave him_i [an argument] yesterday] [an argument]]
 →_{Late merger & pronunciation of the tail of the chain}
 c. [[I gave him_i [an argument] yesterday] [~~an argument~~ [that supports John_i's theory]]]

Notice that a violation of Condition C is also circumvented by extraposition of the comparative complement, as Bhatt and Pancheva (2004) observe.

- (25) a. ??I will tell him_i a sillier rumor (about Ann) [than Mary told John_i].
 b. I will tell him_i a sillier rumor (about Ann) tomorrow [than Mary told John_i].
 (Bhatt and Pancheva 2004:19)

Bhatt and Pancheva explain the obviation of a Condition C violation in comparatives by postulating QR of the comparative operator *-er* and late merger of the comparative complement with the comparative operator, as illustrated in (26a) and (26b) (but see Grosu and Horvath 2006 for interesting criticisms of this analysis). In our terms, this is an instance of wholesale late merger. Let us now see whether this application of late merger results in an interpretable LF representation. As shown in (26c), Variable Insertion adds the predicate $\lambda d_2. [d_2=d_1]$ to the lower copy of the comparative operator, just as in the cases above. Exploiting the idea that the comparative operator is semantically identical to quantificational determiners in relevant aspects (e.g., Heim 2001), Bhatt and Pancheva argue that the lower copy of the comparative operator is replaced with the definite determiner by Determiner Replacement. Consequently, the final representation in (26d) can be interpreted compositionally in the semantic component.⁸

If complement extraposition were derived in the same way as adjunct extraposition, it would also bleed Condition C, contrary to fact. On the basis of this fact, among others, Fox and Nissenbaum suggest that complement extraposition is produced by movement of a complement constituent. They derive some key differences in complement and adjunct extraposition (which are not relevant for us) from this difference in their analyses.

⁸ For Bhatt and Pancheva's purpose (and ours, as well, which we will discuss shortly), Trace Conversion needs to be revised to accommodate the situation in which restrictor constituents of determiners are absent.

(i) *Trace Conversion*

Variable Insertion: (Det) (Pred) → (Det) [(Pred) $\lambda y(y=x)$]

Determiner Replacement: (Det) [(Pred) $\lambda y(y=x)$] → the [(Pred) $\lambda y(y=x)$]

- (26) a. [I will tell him_i a silli[-er] rumor tomorrow]
 → Movement of the comparative operator & wholesale late merger
 b. [[λd₁. [I will tell him_i a silli[-er] rumor tomorrow]] [-er [than Mary told John_i]]]
 → Variable Insertion
 c. [[λd₁. [I will tell him_i a silli[-er][λd₂. [d₂=d₁]]] rumor tomorrow]] [-er [than Mary told John_i]]]
 → Determiner Replacement
 d. [[λd₁. [I will tell him_i a silli[the d₁] rumor tomorrow]] [-er [than Mary told John_i]]]

Notice that the syntactic object *the d_i* in (26d) receives the same interpretation as that assigned to a contentless trace. In the next section, we will resort to this consequence of wholesale late merger in order to account for the apparent fact that A-movement sometimes leaves a contentless trace.

The bottom line of the current discussion is that since a predicate that serves as the first argument (the restrictor) of an operator/determiner is supplied to lower copies of the operator/determiner by Variable Insertion, the first argument does not have to be saturated in order to yield an interpretable LF representation. In other words, a restrictor of an operator/determiner can be merged with the operator/determiner countercyclically under the LF interpretability approach. Is wholesale late merger also permitted within Lebeaux's framework, which relies on the Projection Principle to control the applicability of late merger? No, because there is good reason to believe that a restrictor is a complement of an operator/determiner (see Bresnan 1973, 1975, among others, for relevant discussion of comparatives). Thus, the option of wholesale late merger can be considered a direct consequence of the LF interpretability approach.

3.4 Wholesale Late Merger

Extending Bhatt and Pancheva's (2004, 2007) analysis of comparatives to our main empirical concern, we argue that wholesale late merger is an essential component of an account of the fact that A-movement is always capable of bleeding Condition C. Specifically, we claim that wholesale late merger is involved in the derivation of (27a). First, a determiner is base-generated in Spec,AP without its restrictor, and it undergoes successive-cyclic movement alone, as shown in (27b) and (27c), respectively.⁹ The restrictor, which dominates the R-expression, is merged with the determiner after the determiner moves out of the c-command domain of the coreferential pronoun, as in (27d) (see Pesetsky and Torrego 2005 for a related proposal). (We will specify shortly the syntactic position where the restrictor is introduced.) Determiner Replacement and

⁹ In a series of papers, Sportiche (1997, 1999, 2005b) develops a theory where the order in which DPs are constructed is the reverse of the order proposed here. Sportiche claims that only NPs are introduced in argument position and that determiners are base-generated in a position higher than that. See Sportiche 2005a for his account of the Condition C bleeding fact in A-movement, which is independent of his method for constructing DPs.

Variable Insertion convert all lower copies of *every* into syntactic objects that receive the same interpretation as that assigned to traces (i.e., *the x* and *the y* in (27e)). It is clear that Condition C is not violated in the final outcome in (27e) because no copy of the R-expression is c-commanded by the coreferential pronoun.¹⁰

- (27) a. Every argument that John_i is a genius seems to him_i to be flawless.
 b. [[every] flawless]
 → Successive-cyclic movement of a determiner
 c. [[every] seems to him_i [[every] to be [[every] flawless]]]
 → Wholesale late merger
 d. [[every [argument that John_i is a genius]] seems to him_i [[every] to be [[every] flawless]]]
 → Trace Conversion
 e. [[every [argument that John_i is a genius]] λx. seems to him_i [[the x] λy. to be [[the y] flawless]]]

Notice that all instances of movement leave a copy in the derivation in (27). Consequently, the proposed approach offers a way to handle the fact that a Condition C violation is circumvented in A-movement under the simplest version of the copy theory of movement. However, so far we have discussed only half of the facts motivating the characterization of the properties of movement, namely, (10a), repeated as (28a).

- (28) a. A-movement *optionally* leaves a trace.
 b. \bar{A} -movement *obligatorily* leaves a copy.

The current version of our analysis cannot capture the facts cited as evidence for the property of \bar{A} -movement in (28b) because nothing so far prohibits the processes illustrated in (27) from taking place in \bar{A} -movement cases like (29a). Consequently, the current analysis would predict that \bar{A} -movement should also be capable of obviating a violation of Condition C, contrary to fact.

- (29) a. ??/*Which argument that John_i is a genius did he_i believe?
 b. [believe [which]]
 → Movement of a determiner, wholesale late merger, & Trace Conversion
 c. [[which [argument that John_i is a genius]] λx. [he_i believe [the x]]]

¹⁰ Some exposition is in order for cases like (i), which indicate that A-movement bleeds Condition C even if A-moved constituents apparently do not involve a determiner.

- (i) a. John_i's mother seems to him_i to be wonderful.
 b. John_i seems to himself_i to be smart.

We assume that expressions that denote an individual are overt/covert definite descriptions (Elbourne 2001, 2005), and we analyze the subjects in (i) as DPs headed by a covert definite determiner, which is represented as THE in (ii).

- (ii) a. [_{DP} THE [_{NP} mother of John's]]
 b. [_{DP} THE [_{NP} John]]

Given this assumption, our analysis is straightforwardly applicable to (i). See sections 4.3 and 5.4 for additional cases in which the covert definite determiner plays a role.

We argue that independent properties of the grammar block the derivation in (29). More specifically, it is ruled out as a consequence of lexical properties of DPs and the nature of the Case assignment mechanism. It has been claimed that DPs as a whole need to receive Case (see, e.g., Chomsky 1981). Where does this requirement come from? To explain the ungrammaticality of (29a) and other facts discussed in the following sections, we want to advocate one possible approach, in which DPs as a whole demand Case because both determiners and nouns, which constitute DPs, must receive Case.¹¹ We also assume that Case-assigning heads can enter into an agreement relation with elements in their c-command domain and can assign Case to them.

Let us now discuss how these assumptions help to prohibit the derivation in (29). Since object DPs receive Case from the functional head immediately above the predicate (i.e., *v* within Chomsky's (1995) framework), the restrictor NP, which undergoes wholesale late merger with the determiner in Spec,CP, cannot receive Case in (29) because it is introduced to the structure outside the c-command domain of its Case-assigning head. To avoid this problem having to do with Case, the whole DP must be base-generated within the complement of the predicate, as illustrated in (30a). As a result, sentence (29a) is ruled out by a violation of Condition C, as desired.¹²

- (30) a. [_{VP} *v* believe [which argument that John_i is a genius]]
 → *wh*-movement
 b. *[_{CP}[which argument that John_i is a genius] [_{TP} he_i believe [which argument that John_i is a genius]]]

The proposed approach now correctly predicts that a Condition C violation cannot be obviated by \bar{A} -movement. More generally, it explains the facts that motivate the characterization of the property of \bar{A} -movement in (28b).

Let us now go back to the instance of A-movement in (27a) and see whether the Case requirements of the relevant determiner and noun are satisfied in the derivation that we postulated for it. We argue that the restrictor NP is merged with the determiner at the matrix VP-adjoined position, as shown in (31b). This position is structurally higher than the pronoun, avoiding a

¹¹ While we are suggesting here that determiners *must* receive Case, the alternative idea that determiners *may* receive Case would also account for the facts. In other words, a determiner would discharge the Case-assigning property of a relevant head only when its restrictor could not. See section 4 for relevant discussion.

¹² In (i), the preposition, which assigns Case to its complement DP, is pied-piped with the *wh*-phrase. Thus, one might think that even if the restrictor NP were countercyclically merged with the *wh*-determiner in Spec,CP, it could get Case from the preposition because it is within the c-command domain of the preposition. If this derivation is available for (i), we incorrectly predict that it is grammatical.

(i) *[In which corner of John_i's room] was he_i sitting?

One possible way to block this derivation would be to assume that any Case assignment is done immediately upon merger of a Case-assigning head and an element needing Case (i.e., the preposition and the *wh*-determiner in (i)). Given this assumption, the countercyclically merged restrictor NP cannot receive Case from the pied-piped preposition (which has already assigned Case to the *wh*-determiner); hence, the above-mentioned derivation is ruled out.

Condition C violation, but still lower than the relevant Case assigner, namely, the tense head T. Consequently, the derivation in (31) meets all the relevant requirements.¹³

- (31) a. [_{VP}[every]_i] [_{VP} seems to him_i] [_{TP}[every]_i to be [[every]_i flawless]]]
 → Wholesale late merger
 b. [_{VP}[every [argument that John_i is a genius]]] [_{VP} seems to him_i] [[every]_i to be [[every]_i flawless]]]
 → Movement of the DP to Spec,TP
 c. [_{TP}[every [argument that John_i is a genius]]] T [_{VP}[every [argument that John_i is a genius]]] [_{VP} seems to him_i] [[every]_i to be [[every]_i flawless]]]

The availability of the matrix VP-adjoined position as an intermediate landing site in A-movement receives support from a scope fact observed by Sauerland (2003a): in (32), the universal QP in subject position can take narrow scope relative to negation; at the same time, the pronoun in the experiencer position of the matrix predicate *seem* can be bound by the QP.

- (32) a. [Every child]_i doesn't seem to his_i father to be smart.
 (∀ > not) (not > ∀)
 b. [Every participant]_i didn't seem to his_i coach to be in bad shape.
 (∀ > not) (not > ∀)
 c. [All linguists]_i didn't seem to their_i employer to work hard.
 (∀ > not) (not > ∀)
 (Sauerland 2003a:310–311)

This scope fact is explained straightforwardly if there is a copy of the subject QP between negation and the bound variable. As shown in (33), following Sauerland (2003a) we take this position to be the matrix VP-adjoined position (see also Legate 2003 for relevant observations and discussion).

- (33) [_{TP}[every child]_i] doesn't [_{VP}[every child]_i] [_{VP} seem to his_i father . . .]]

¹³ Several ideas closely related to our proposal have previously been suggested. First, Sauerland (1998) argues that the restrictor of a determiner in an A-movement chain behaves like an adjunct in an \bar{A} -movement chain with respect to where in a chain its lexical content is represented. To capture the property of \bar{A} -movement in (28b), he postulates a condition that forces the lexical content of the restrictor of a determiner to be represented in the relevant argument position in an \bar{A} -movement chain. As an anonymous reviewer points out, this could be taken as a predecessor of our approach.

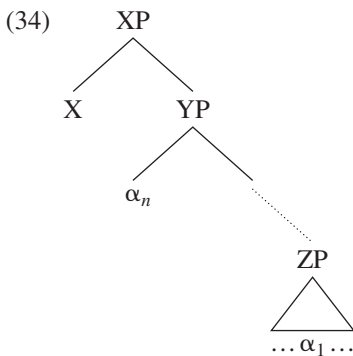
Second, Fox (2002:fn. 11) also points out (attributing the observation to Uli Sauerland) that the LF interpretability approach predicts that the restrictor of a determiner should be able to be countercyclically merged. However, to explain a violation of Condition C in cases like (29a), Fox suggests that countercyclic merger of this sort should not be invoked, because it would necessarily involve movement of a determiner, which should be ruled out by a locality constraint.

Third, Bhatt and Pancheva (2004:fn. 33) relate the impossibility of the countercyclic merger under discussion in \bar{A} -movement of DPs to the Case requirement property of NPs, which is compatible with their late merger analysis of comparatives (see section 4.1). However, Bhatt and Pancheva do not explore the consequences of this idea (e.g., the possibility that wholesale late merger could be allowed in A-movement, as in (31)).

Finally, to account for the A/ \bar{A} contrast in the ability to bleed Condition C, Lebeaux (1998) argues that a pronominal element can be base-generated in an argument position, which is replaced with full-fledged lexical material at a later stage of the derivation. Lebeaux suggests that a pronominal element of this sort can undergo A-movement, but not \bar{A} -movement, and that this difference results from certain assumptions having to do with Case. While our approach follows Lebeaux's basic insights, as far as we can tell his approach requires introducing some complexities into the theory of grammar that ours can avoid.

Thus, we can conclude that the A-moved subject in the raising construction stops at the matrix VP-adjoined position on its way to Spec,TP.

To sum up our proposal, a restrictor of an operator/determiner can be added to that operator/determiner counter-cyclically, a possibility that follows directly from the LF interpretability approach. Together with our view of the Case properties of determiners and nouns, as well as the nature of the Case assignment mechanism, our approach succeeds in dealing with the facts that motivate the characterization of the movement properties in (28) in a way that is compatible with the copy theory of movement. If this proposal is correct, the asymmetrical behavior of A-movement and \bar{A} -movement with respect to reconstruction basically emerges from two ideas: that a noun needs to receive Case from a head that c-commands it, and that A-movement is movement from a non-Case position to a Case position (and, hence, there are positions in which wholesale late merger is able to take place), but that \bar{A} -movement is movement from a Case position to a non-Case position (and, hence, positions in which wholesale late merger is able to take place do not exist). Given our proposal, we can characterize circumstances in which movement can leave a contentless copy as follows. Suppose that the chain in (34), $\langle \alpha_1 \dots \alpha_n \rangle$, is created by movement of the DP α , which consists of a determiner and its restrictor NP, and that X is a head that assigns Case to α . Then, only the chain members $\langle \alpha_1 \dots \alpha_{n-1} \rangle$ have the possibility of being interpreted as those syntactic objects that are traditionally called traces.



Notice, crucially, that the proposed characterization does not refer to a distinction between A- and \bar{A} -movement.

Before closing this section, we want to add one qualification to our earlier statement that A-movement *always* bleeds Condition C. As evidenced by (35a) and (36a), scope reconstruction feeds Condition C (Fox 1999b, Romero 1998).¹⁴ Thus, a more accurate statement is that

¹⁴ Fox (2000) argues that this fact is more clearly demonstrated by employing creation verbs, which force scope reconstruction of their argument QPs, because of their meaning.

- (i) a. For these issues to be clarified, [many more/new papers about his_i philosophy] seem to Quine_i to be needed.
 b. #For these issues to be clarified, [many more/new papers about Quine_i's philosophy] seem to him_i to be needed.
 (Fox 2000:170)

Sportiche (2005b, 2006) also discusses facts that make a similar point: scope reconstruction forced by idiom chunks feeds Condition C.

A-movement bleeds Condition C if an A-moved element containing an R-expression takes scope over the pronoun coreferential with it.

- (35) a. [A student of David_i's] seems to him_i to be at the party.
 ($\exists > \text{seem}$) *($\text{seem} > \exists$)
 b. [A student of his_i] seems to David_i to be at the party.
 ($\exists > \text{seem}$) ($\text{seem} > \exists$)
 (Fox 1999b:197)
- (36) a. [Someone from David_i's city] seems to him_i to be likely to win the lottery.
 ($\exists > \text{seem}$) *($\text{seem} > \exists$)
 b. [Someone from his_i city] seems to David_i to be likely to win the lottery.
 ($\exists > \text{seem}$) ($\text{seem} > \exists$)
 (Fox 1999b:197)

This fact is expected under the current approach. Within the copy theory framework, narrow scope of the existential quantifier relative to *seem* can be produced by interpreting a copy of the subject that is below *seem*, as illustrated in (37b). (For concreteness, we are assuming that the higher copies, which are not semantically interpreted, are deleted at LF in (37b). See Sauerland and Elbourne 2002 for an alternative approach.)

- (37) a. Some student seems to be smart.
 ($\exists > \text{seem}$) ($\text{seem} > \exists$)
 b. [_{TP}[some [student]]] [_{VP}[some [student]]] seems [_{TP}[some [student]]] to be smart[]]

Notice that for a QP α to take narrow scope relative to a scope-sensitive element β , it is necessary to merge the restrictor part of α with a determiner of α below β . In the case of (37a), the restrictor *student* must be merged with *some* below *seem* in order to get narrow scope of the subject relative to *seem*. Similarly, the restrictor NP, which dominates the R-expression, must be merged with the determiner below *seem* in (35a) and (36a) to derive narrow scope of the subject QP relative to *seem*. Thus, there is indeed a copy of the R-expression in the c-command domain of the pronoun in this case; hence, this scopal relation is ruled out because of the resulting Condition C violation.

4 Wholesale Late Merger and Case

4.1 An Outline

Our analysis of the A/ \bar{A} contrast in the ability to bleed Condition C hinges on a difference regarding where in the structure the relevant restrictor NPs receive their Case. If this proposal is correct, we should reassess the previously proposed characterization of when movement leaves a contentless copy, since that characterization does refer to the A/ \bar{A} distinction. Given our proposal that the applicability of wholesale late merger is restricted by the Case property of a restrictor, we predict that \bar{A} -movement should also be capable of obviating a Condition C violation under certain circumstances. For instance, if the restrictor of an operator/determiner is a constituent that does not need to receive Case, it should be possible for the restrictor to be inserted at any stage

of the derivation. The earlier observation that QR in (38) does not contribute to the obviation of a Condition C violation, but that QR in (39) does, already suggests that our prediction is on the right track. Assuming that the comparative complement does not need Case, the contrast between (38) and (39) seems to demonstrate that if a restrictor is a constituent that does not require Case, wholesale late merger is feasible even under circumstances in which an operator/determiner undergoes \bar{A} -movement (i.e., QR in (39)).

- (38) a. *A different person told him_i about every argument that John_i is a genius.
 b. *[[every [_{NP} argument that John_i is a genius]] [a different person told him_i about [every [_{NP} argument that John_i is a genius]]]]
- ↑
 QR
- (39) a. I will tell him_i a sillier rumor tomorrow than Mary told John_i.
 b. [[I will tell him_i a silli[-er] rumor tomorrow] [-er [than Mary told John_i]]]
- ↑
 QR

Capitalizing on the widely accepted assumption that CPs do not need Case, we will argue that if a DP has a CP restrictor, \bar{A} -movement of such a DP *does* bleed Condition C. We will demonstrate that this proposal accounts for some otherwise puzzling facts about antireconstruction effects in \bar{A} -movement. If the arguments in the following sections are successful, they will corroborate our claim that the applicability of wholesale late merger is controlled by the Case properties of a restrictor.

4.2 Evidence from Antireconstruction of \bar{A} -Movement in Restrictive Relative Clauses

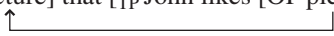
4.2.1 Background: Two Types of Relative Clauses To set the stage for our arguments, we need to introduce a DP structure in which a restrictor of a determiner is a CP. In this respect, Sauerland's (1998, 2003b) proposal for the structures of restrictive relative clauses is relevant. Sauerland claims that it is necessary to postulate an ambiguity between two different structures for restrictive relative clauses in English: namely, English has both a matching structure and a raising structure (see also Bhatt 2002, Carlson 1977, and Hulsey and Sauerland 2006 for relevant discussion and related proposals). The difference between the two types of structures lies in the presence or absence of a head noun external to a relative clause CP. We will show that this factor determines the category of the restrictor of a DP modified with a relative clause; the DP structure relevant for our discussion can be found in the raising structure of relative clauses.

To introduce relevant properties of relative clauses, let us first consider the matching structure. This structure contains a head noun external to the relative clause CP and a relative-clause-internal head noun, which moves to Spec,CP, as illustrated in (40a) (see Fox 2002 and Sauerland 1998, 2004 for arguments in favor of this analysis; see also section 5.3).¹⁵ Both copies of the internal

¹⁵ The relative-clause-internal head noun is accompanied by a null operator, which we assume is a determiner. This null operator provides the driving force for relative-clause-internal movement of the head noun.

head noun are phonologically deleted under identity with the external head noun, as in (40b). We also assume that the copy of the internal head noun in Spec,CP is deleted at LF, but that its movement introduces a λ -operator, creating a predicate that allows the relative clause CP and the external head noun to be combined by Predicate Modification. As shown in (40c), Trace Conversion converts the lower copy into an interpretable syntactic object.

(40) *Matching structure*

- a. $[_{DP} \text{ the [picture] } [_{CP} [_{OP} \text{ picture}] \text{ that } [_{TP} \text{ John likes } [_{OP} \text{ picture}]]]]]$

- b. PF: $[_{DP} \text{ the [picture] } [_{CP} [_{OP} \text{ picture}] \text{ that } [_{TP} \text{ John likes } [_{OP} \text{ picture}]]]]]$
- c. LF: $[_{DP} \text{ the [picture] } [_{CP} [_{OP} \text{ picture}] \lambda x. \text{ that } [_{TP} \text{ John likes } [\text{the picture } x]]]]]$

Hulsey and Sauerland (2006) present an argument in favor of postulating the matching structure (see Sauerland 1998, 2003b, 2004 for other supporting arguments). Hulsey and Sauerland, following Hulsey (2001), argue that restrictive relative clauses must be analyzed as having the matching structure when they are extraposed, as in (41a). This is so because if we adopt Fox and Nissenbaum's (1999) approach to extraposition (summarized in section 3.3), there must be an external head noun with which a relative clause CP is merged countercyclically, as shown in (41b).¹⁶

- (41) a. I will present an argument tomorrow [that supports John's theory].
 b. [[I will present $[_{DP}$ an argument] tomorrow] $[_{DP}$ ~~an argument~~ $[_{CP}$ that supports John's theory]]]

Sauerland argues that it is necessary to posit a different structure for restrictive relative clauses in cases where a head noun must be interpreted only within a relative clause CP. One such case is seen in (42), where the head noun contains a variable bound by the subject within the relative clause. Since a variable is interpreted as bound only when it is within the scope of its binder at LF, the head noun must be interpreted only within the scope of the relative-clause-internal subject in (42).

- (42) a. The book on her_i desk that every professor_i liked best concerned model theory.
 (Sauerland 1998:63)
 b. The portrait of himself_i that John_i painted is extremely flattering.
 (Schachter 1973:32)

Another case of this sort concerns relative clauses in which a head noun and a predicate within a relative clause together constitute an idiomatic expression, as in (43). Under the assumption that items which contribute to an idiomatic meaning must form a constituent at LF (Chomsky 1993), the head noun must be interpreted only inside the relative clause CP in this case, as well.

¹⁶ The present argument does not hinge upon Fox and Nissenbaum's analysis. A structure close to (40a) must be postulated to derive extraposition even under a movement approach to extraposition. See footnote 18 for further discussion.

- (43) a. Mary praised the headway that John made.
 b. I was shocked by the advantage that she took of her mother.
 (Hulsey and Sauerland 2006:114; see also Schachter 1973:31)

For these kinds of relative clauses, Sauerland postulates a raising structure, illustrated in (44a). Like the matching structure, the raising structure involves movement of a head noun within the relative clause CP. However, unlike the matching structure it does not also have an external head noun. Because the two copies of the head noun are linked by movement, the desired interpretation can be produced under our assumptions about how to interpret movement chains, as shown in (44b).¹⁷

- (44) *Raising structure*
 a. [_{DP} the [_{CP}[_{OP} portrait of himself_i] that [John_i painted [_{OP} portrait of himself_i]]]]
 b. LF: [_{DP} the [_{CP}[_{OP} portrait of himself_i] λx. that [John_i painted [the portrait of himself_i x]]]]

The matching structure in (40a) is not suitable for handling cases like (42) and (43) because this structure involves an external head noun, which is interpreted relative-clause-externally. If the matching structure were used, the entire DP would end up being uninterpretable since the external head noun would be uninterpretable, as shown in (45).

- (45) * [_{DP} the [portrait of himself_i] [_{CP}[_{OP} portrait of himself_i] λx. that John_i painted [the portrait of himself_i x]]]

¹⁷ Two observations are in order here.

First, we assume here a particular version of the raising structure defended by Hulsey and Sauerland (2006). A raising structure has been pursued in various forms in the literature (see, e.g., Áfarli 1994, Bhatt 2002, Bianchi 2000, Kayne 1994, Schachter 1973, Vergnaud 1974).

Second, some exposition of Case assignment in relative clauses is called for. An internal head noun and an operator associated with it receive Case from a relevant head within the relative clause (i.e., Y in (i)) in both the matching and the raising structures. In the matching structure, both the external head noun and a determiner associated with it are Case-marked by a relevant head in the clause that dominates the relative clause (i.e., X in (i)). In the raising structure, the Case-assigning property of X is discharged by the determiner that is sister to the relative clause CP.

- (i) a. *Matching structure*

$$[_{TP} \dots X \dots [_{DP} \text{the} [_{NP} \text{picture} [_{CP} [_{OP} [\text{picture}]] [_{TP} \dots Y \dots [_{OP} [\text{picture}]]]]]]]$$
 b. *Raising structure*

$$[_{TP} \dots X \dots [_{DP} \text{the} [_{CP} [_{OP} [\text{picture}]] [_{TP} \dots Y \dots [_{OP} [\text{picture}]]]]]]]$$

Given these assumptions, we correctly predict that DPs modified with the raising structure of relative clauses can only appear in Case positions. Note that in DPs modified with a raising relative, this would mean that distinct Cases would be assigned to a determiner and to a head noun, which could be of different types (e.g., one could be nominative and the other could be accusative). However, as far as we know, in languages that mark Case morphologically, the head noun in a raising relative does not bear the morphological case that one might expect if Case were assigned by Y and not by X. We leave to future research exploration of issues having to do with the morphological realization of Case.

As might be expected from the discussion of the matching structure, when a relative clause must be parsed as involving the raising structure, it cannot be extraposed, as observed by Hulsey (2001) and Hulsey and Sauerland (2006).

- (46) a. *I saw the picture of himself_i yesterday [that John_i liked].
 b. *Mary discovered the book about himself_i yesterday [that Bob_i wrote].
 (Hulsey and Sauerland 2006:115)
- (47) a. *Mary praised the headway last year [that John made].
 b. *I was shocked by the advantage yesterday [that she took of her mother].
 (Hulsey and Sauerland 2006:114)

Since there is no external head noun in the raising structure, the impossibility of extraposition in (46) and (47) is predicted within Fox and Nissenbaum's framework.¹⁸

4.2.2 *Two Antireconstruction Puzzles in Raising Relative Clauses* We are now ready to present an argument for the claim that the applicability of wholesale late merger is controlled by the Case property of restrictors. Evidence comes from the contrast in (48).

- (48) a. *[Which corner of John_i's room] was he_i sitting in?
 b. [Which corner of John_i's room that Mary repainted] was he_i sitting in?

The explanation for the ungrammaticality of (48a) is familiar by now: since the complement PP, which contains the R-expression, cannot undergo late merger, a violation of Condition C is inevitable. However, a Condition C violation is circumvented in (48b), in which the *wh*-phrase is modified with a relative clause, even though the R-expression and the relevant pronoun are

¹⁸ Two observations are in order here.

First, as mentioned in footnote 16, the argument from extraposition is independent of Fox and Nissenbaum's analysis. The movement approach also predicts that extraposition of the raising structure of relative clauses is impossible. To derive extraposition by movement, an intermediate projection *C'* would have to undergo movement, as in (i), an operation that is widely assumed to be disallowed.

- (i) *[[I saw [_{DP} the [_{CP} picture of himself_i t₁]] yesterday] [_{C'} that John_i liked]₁]

On the other hand, if relative clauses are parsed so as to have the matching structure, movement will apply instead to a (movable) maximal projection, as shown in (ii).

- (ii) [[I will present [_{DP} an argument t₁] tomorrow] [_{CP} ~~an argument~~ [_{C'} that supports John's theory]]₁]

Second, in the raising structure, there is a determiner external to a relative clause CP, as illustrated in (44a). Suppose that it were to undergo QR and its restrictor were to be merged with it via wholesale late merger. The heavy NP shift word order in (iiia) would be derived if the head of the QR chain were to be pronounced. However, if the tail of the QR chain were phonologically realized, the ungrammatical word order in (iiib) would result.

- (iii) a. I saw yesterday [the picture of himself_i that John_i liked].
 b. *I saw the yesterday [picture of himself_i that John_i liked].

The ungrammaticality of (iiib) has been noticed as a potential problem for the LF interpretability approach (Bhatt and Pancheva 2004:fn. 33). We do not have a principled solution to this problem. However, we speculate that the ungrammaticality of (iiib) might indicate that movement of determiners should always be overt, just like most cases of movement. If this is the right way to approach this issue, we would need to explore what properties of the grammar sometimes make movements such as QR covert.

situated in the same configuration as their counterparts in (48a). This contrast is puzzling under the Lebeaux-style theory of late merger because the R-expression is inside a complement in both cases, and, hence, late merger should not be available.

We claim that the Condition C bleeding effect in (48b) is explained by our approach, together with the assumption that both the matching and the raising structures are always available for restrictive relative clauses (though one of them may sometimes be ruled out by other properties of the grammar). Given this, the restrictor of a *wh*-determiner can always be parsed as a CP (i.e., the raising structure). Since a CP does not need Case, a restrictor that has this form can be merged with the *wh*-determiner countercyclically, as shown in (49). Thus, *wh*-movement bleeds Condition C in (48b).¹⁹

- (49) a. [TP he_i was sitting in [which]]
 → *Wh*-movement & wholesale late merger
 b. [CP[which [CP corner of John_i's room that Mary repainted]] was [TP he_i sitting in [which]]]

It is crucial to note that there is no way to analyze the restrictor of the *wh*-determiner as a CP in (48a). Consequently, (48b) can be taken as supporting evidence for our claim that the applicability of wholesale late merger is regulated by the Case property of restrictors.²⁰

Our analysis of (48b) also offers a way to handle certain facts that have so far been regarded as puzzling. The puzzle concerns the fact that *wh*-movement bleeds Condition C in cases where a relevant R-expression is within a relative clause that must be analyzed as having the raising structure, as shown in (50). As discussed above, late merger of a constituent that contains a relevant R-expression (i.e., the relative clause in (50a–e)) is indispensable for circumventing a Condition C violation. However, the raising structure of restrictive relative clauses cannot undergo late merger, as evidenced by such clauses' inability to extrapose (see (46) and (47)). Thus, we would expect that a violation of Condition C is not obviated in these cases, contrary to fact.

¹⁹ There appears to be some variation in the availability of the Condition C obviation effect in cases like (48b). Sauerland (1998) claims that a sentence analogous to (48b) is ungrammatical. It may be the case that for some speakers, a relative clause can be parsed as the raising structure only when the semantic interpretation derived from its raising structure cannot be derived from its matching structure. For those speakers, the relative clause in (48b) could not be analyzed as having the raising structure and, hence, the derivation in (49) would not be an option.

²⁰ This analysis predicts that if a relative clause that modifies a moved *wh*-phrase must be analyzed as having the matching structure, *wh*-movement will not be able to bleed Condition C because the restrictor is an NP in this case. One case in which relative clauses are forced to have the matching structure is the case where a relative clause contains a pronoun that is coreferential with an R-expression in the head noun, as in (i) (Sauerland 1998). The raising structure of (i) is ruled out by a Condition C violation, as shown in (ia). Sauerland (1998) argues that Condition C is not violated in the matching structure because the internal head noun can contain a pronominal correlate of the R-expression, as in (ib).

- (i) the picture of John_i that he_i likes
 a. Raising structure: *[_DP the [_CP[OP picture of John_i] [_TP he_i likes [OP picture of John_i]]]]
 b. Matching structure: [_DP the [_NP[picture of John_i] [_CP[OP picture of him_i] [_TP he_i likes [OP picture of him_i]]]]]

Given this assumption, the ungrammaticality of (ii) appears to suggest that our prediction is borne out.

- (ii) *[Which corner of John_i's room that he_i repainted] was he_i sitting in?

- (50) a. [Which picture of himself_i that John_i gave to Mary_j] did she_j take home?
 b. [What headway that John_i made] did he_i later regret?
 (Henderson 2007:214)
 c. [Which picture of his_i that nobody_i wanted to show to Alice_j] did she_j like best?
 d. [Which picture of each other_i that [Alice_j and Bill]_i wanted to sell] did she_j refuse to let go?
 (Lechner 2007:16)
 e. [Which pictures of each other_i which Jane_j showed [the boys_i]] does she_j think you like?
 (Sportiche 2006:65)

Now, however, we have another form of countercyclic merger, namely, wholesale late merger. Since the restrictor of the *wh*-determiner is a CP in all of these cases, we can postulate the same type of derivation for (50a–e) that we did for (48b).

- (51) a. [_{CP}[which] did [_{TP} she_j take home [which]]]
 → *Wh*-movement & wholesale late merger
 b. [_{CP}[which [_{CP} picture of himself_i that John_i gave to Mary_j]] did [_{TP} she_j take home [which]]]

Consequently, our approach accounts for the otherwise puzzling Condition C bleeding effect in (50a–e) in a way that also correctly predicts that extraposition of the raising structure of restrictive relative clauses is impossible (see footnote 18 for relevant discussion).

In this section, we have provided arguments from *wh*-movement in favor of the claim that the applicability of wholesale late merger is determined by the Case property of the restrictor. We have demonstrated that if the restrictor is a CP, wholesale late merger is possible even in the context of *wh*-movement. In the next section, we will present another argument of the same sort, from topicalization of free relatives.

4.3 Evidence from Antireconstruction of \bar{A} -Movement in Free Relatives

In this section, we discuss another case where \bar{A} -movement circumvents a Condition C violation: the fact that topicalization of free relatives bleeds Condition C. As we will show, this fact is unexpected under the Lebeaux-style theory of late merger. However, together with a particular analysis of free relatives, our approach can account for this fact in the same way it accounts for the antireconstruction effect exhibited by *wh*-movement of DPs modified with a raising relative. Thus, we will argue that facts from topicalization further corroborate the relevance of a restrictor's Case property to the applicability of wholesale late merger.

To introduce the puzzle, we first consider (52), which indicates that topicalization does not obviate a Condition C violation if the relevant R-expression is within the complement of a topicalized phrase. This fact is clearly expected. Since late merger of noun complements produces an uninterpretable structure and wholesale late merger leads to a structure in which the restrictor NP does not receive Case, a violation of Condition C is inevitable.

(52) *[The argument that John_i's theory is correct], I want him_i to present.

Unlike what happens in (52), topicalization *does* bleed Condition C if the topicalized phrase is a free relative containing the relevant R-expression.

- (53) a. *I want him_i to take home whichever picture John_i likes.
 b. [Whichever picture John_i likes], I want him_i to take home.

We might be tempted to deal with the obviation of the Condition C violation in (53b) the same way we deal with a sentence in which the topicalized phrase contains the relevant R-expression in an adjunct: there, too, topicalization bleeds Condition C. That is, we might be tempted to say that a Condition C violation is circumvented both in (53b) and in (54) because the constituent *John likes* undergoes late merger.

(54) [The picture John_i likes], I want him_i to take home.

We cannot adopt such a solution for (53b), however. A Condition C violation can be obviated only if a relevant R-expression is within a constituent that can be inserted late. While the restrictive relative clause in (54) can be inserted late, as evidenced by its ability to extrapose in (55a), the constituent that dominates the R-expression in (53b) (i.e., [(that) John likes]) cannot undergo extraposition, as in (55b). This suggests that in the latter case, [(that) John likes] cannot be inserted late.

- (55) a. I will buy the books tomorrow [that John likes].
 b. *I will buy whichever books tomorrow [(that) John likes].

If a Condition C violation is to be obviated in (53b) by virtue of countercyclic merger of a constituent containing the R-expression, we need to find an alternative constituent (other than [(that) John likes]) that can be inserted late.

A key to finding such a constituent lies in the observation that both free relatives and raising restrictive relatives resist extraposition. The relevant examples with raising relatives are repeated here:

- (56) a. *I saw the picture of himself_i yesterday [that John_i liked].
 b. *Mary praised the headway last year [that John made].

We suggest that, together with Jacobson's (1995) claim that the *wh*-phrase in free relatives bears a distributional similarity to a moved *wh*-phrase in questions, the resemblance between the two types of relative clauses with respect to the impossibility of extraposition should be taken to indicate that the *wh*-phrase in free relatives occupies Spec,CP. That is, it occupies the same position as the head noun in the raising structure of restrictive relatives. Furthermore, the fact that the distribution of free relatives is the same as that of DPs that are not free relatives, rather than being the same as that of CPs (e.g., interrogative clauses), suggests that free relatives do not involve a bare CP structure. Capitalizing on Jacobson's idea that free relatives should be considered definite descriptions (see also Dayal 1997, von Stechow 2000, and Rullmann 1995 for related proposals), we assume that in free relatives a CP structure is selected by a covert definite determiner

(see footnotes 10 and 30 for discussion of a covert definite determiner).²¹ The analysis of free relatives that we put forth is illustrated in (57) (see Caponigro 2002 for an analysis of free relatives along this line and Van Riemsdijk 2006 for discussion of various properties of free relatives that we cannot go into here).

(57) [_{DP} THE [_{CP}[whichever picture]_i] [_{TP} John likes t_i]]

Notice that the structure of free relatives in (57) shares properties with the raising structure of restrictive relative clauses in (44).²² As a consequence, we can argue that extraposition is not possible for free relatives for the same reason that it is not possible for the raising structure of relative clauses. (Case assignment is carried out in free relatives in the same way as in the raising structure. See footnote 17 for details.)

Furthermore, given the proposed structure, we can extend our analysis of the antireconstruction of \bar{A} -movement in restrictive relative clauses to the Condition C bleeding effect in (53b). We argue that since the restrictor of the covert definite determiner is a CP, it can be merged with the determiner after it has moved to a position above the pronoun, as shown in (58).

- (58) a. [I want him_i to take home [THE]]
 → Movement of a covert definite determiner
 b. [[THE] λx. [I want him_i to take home [THE]]]
 → Wholesale late merger
 c. [[THE [whichever picture John_i likes]]] λx. [I want him_i to take home [THE]]]
 → Trace Conversion
 d. [[THE [whichever picture John_i likes]]] λx. [I want him_i to take home [the x]]]

This analysis is further supported by the fact that a Condition C violation is obviated in topicalization even when the relevant R-expression is within the complement of a head noun of a free relative, as in (59b).

²¹ To derive a definite meaning for free relatives, Jacobson (1995) adopts a type-shifting rule. See Jacobson 1995 and the references cited in the text for detailed semantic analyses of free relatives.

²² As exemplified in (i), the head noun in a free relative shows a reconstruction effect, just as in a restrictive relative clause.

- (i) Mary likes whichever pictures of himself_i John_i likes.

This effect is captured by the structure in (57) because it is the same as the raising structure.

There is, however, one (apparent) dissimilarity between free relatives and raising relatives. Sauerland (1998) argues that Condition C is violated in raising relatives if a head noun dominates a relevant R-expression, as in (ii).

- (ii) a. *[The letters by John_j to her_i that he_j told every girl_i to burn] were published.
 b. *[The headway on Mary_i's project she_i had made] pleased the boss.
 (Sauerland 1998:71)

Given this, we might expect that Condition C would be violated if a free relative involves a pronoun that is coreferential with an R-expression in a head noun. In the past literature, judgments of relevant sentences, such as (iii), have been conflicting. Citko (2002) claims that such a sentence is grammatical, but Gračanin-Yuksek (2008) reports the opposite judgment, which accords with ours.

- (iii) (??)We will comment on whichever pictures of Hansel_i he_i displays prominently.

We leave this issue for future research.

- (59) a. *I want him_i to take home whichever picture of John_i's mother Mary likes best.
 b. [Whichever picture of John_i's mother Mary likes best], I want him_i to take home.

This fact is accounted for straightforwardly because the entire complement of the covert definite determiner can be inserted countercyclically, as shown in (58).

In this section, we have shown that \bar{A} -movement bleeds Condition C in two contexts in which our approach predicts that it should. The facts in this section lead us to the following conclusions. First, the A/\bar{A} distinction does not properly characterize the conditions under which movement bleeds Condition C. Second, the presence or absence of the Condition C bleeding effect in movement is captured by our theory, in which the applicability of wholesale late merger is regulated by the Case property of the restrictor. Therefore, our approach fares better with the data than any analysis that is designed to capture simply the A/\bar{A} distinction.

5 Further Evidence from Ellipsis

5.1 An Outline

In this section, we present additional arguments in favor of our approach. The main empirical concerns are facts about ellipsis discussed by Kennedy (1994, 2004) and Sauerland (1998, 2004), among others. Those facts suggest that if a DP moves out of an elided constituent and the corresponding DP moves out of the antecedent constituent, copies left behind by these movements have an effect on the licensing of ellipsis in certain contexts (henceforth, *lexical content effect*). Sauerland (1998, 2004) takes the presence of the lexical content effect as evidence for the copy theory of movement, but also provides a fact challenging this theory. We argue that the proposed approach is capable of handling this challenging fact. We also extend our analysis to some otherwise puzzling related facts.

Since the following discussion pertains to the analysis of antecedent-contained deletion (ACD) under the copy theory of movement, we first discuss Fox's (2002) late merger approach, which explains ACD within this theory.

5.2 A Late Merger Analysis of Antecedent-Contained Deletion

It has been claimed that in order for ellipsis of an elided constituent (EC) to be licensed, there must be a constituent that reflexively dominates the EC and satisfies the Parallelism Condition (Fiengo and May 1994, Rooth 1992).²³ Here, we state the Parallelism Condition as (60) (see Fox 1999a and Merchant 2001, 2007 for related proposals).

(60) *The Parallelism Condition*

A constituent satisfies the Parallelism Condition if it is semantically identical to another constituent, modulo focus-marked constituents.

²³ XP reflexively dominates YP if XP dominates YP or $XP = YP$.

From the perspective of the theory of ellipsis, ACD, exemplified in (61a), poses a problem, especially because the antecedent VP contains an elided VP in this construction (Bouton 1970). Therefore, this construction seems to violate the Parallelism Condition, yet it is grammatical. One common solution to this antecedent containment problem is to apply QR to a QP that dominates the EC. As a result of QR, the EC ends up outside the antecedent VP (e.g., Fox 1995, Kennedy 1997, Larson and May 1990, May 1985, Sag 1976; cf. Baltin 1987). Under the copy theory of movement, QR can resolve the antecedent containment relation only if properties of the grammar allow us to not represent a relative clause in the original position of the QP, as illustrated in the two possible LF representations in (61b) and (61c), the second of which does not satisfy the Parallelism Condition.²⁴ (A constituent within angle brackets is elided material.)

- (61) a. Polly visited every city Uli did \langle visit \rangle .
 b. [[every city $[\lambda x$. Uli did \langle visit the city x \rangle]]
 λy . [Polly visited [the city y]]]
 c. *[[every city $[\lambda x$. Uli did \langle visit the city x \rangle]]
 λy . [Polly visited [the city y $[\lambda x$. Uli did \langle visit the city x \rangle]]]]

Pointing out this conflict between the copy theory of movement and the parallelism requirement for licensing ellipsis in ACD, Fox (2002) claims that Lebeaux's late merger is at work in deriving the representation in (61b). Extending Fox and Nissenbaum's (1999) analysis of adjunct extraposition, Fox argues that the object QP first undergoes QR, and that the relative clause is inserted late with the QRed object in its derived position, as shown in (62a) and (62b) (see Abe and Hoshi 1999, Baltin 1987, and Lasnik 1999b for other forms of extraposition approaches to ACD). The two underlined λ -predicates are semantically identical, modulo the focus-marked subject *Uli* in (62c), and this licenses ellipsis in ACD.

- (62) a. [Polly visited [every city]]
 \rightarrow QR
 b. [[λx . [Polly visited [the city x]]] [every city]]
 \rightarrow Late merger
 c. [λx . [Polly visited [the city x]]] [every city [λy . Uli did \langle visit [the city y]]]]

We will now discuss one argument for Fox's approach, which indicates that late merger of relative clauses is an essential component for producing a structure that satisfies the Parallelism Condition in ACD (see sections 5.3 and 5.4 for other arguments). The argument comes from Fiengo and May's (1994) observation that QR bleeds Condition C in ACD (see also Fox 1995, 2000, 2002).

²⁴ Since Fox's (2002) analysis of ACD makes crucial use of Fox and Nissenbaum's (1999) approach to adjunct extraposition, relative clauses that host an EC in ACD must have the matching structure, as in (62) (see section 4.2 for relevant discussion). In the next section, we will show that if relevant relative clauses are analyzed as involving the raising structure in ACD, the Parallelism Condition is never met.

- (63) a. You sent him_i the letter that John_i expected you would ⟨send him_i⟩.
 b. You introduced him_i to everyone John_i wanted you to ⟨introduce him_i to⟩.
 c. I reported him_i to every cop John_i was afraid I would ⟨report him_i to⟩.
 (Fox 2002:84)

In Fox's approach, the Condition C bleeding fact in ACD can be handled on a par with the same effect in *wh*-movement in (64a) and in adjunct extraposition in (64b) because all of these cases involve late merger of relative clauses.

- (64) a. Which argument [that John_i made] did he_i believe?
 b. I gave him_i an argument yesterday [that supports John_i's theory].

Late merger allows us to postulate the derivation in (65), in which the relative clause is not represented in the c-command domain of the pronoun.

- (65) a. [you sent him_i [the letter]]
 →_{QR}
 b. [[you sent him_i [the letter]] [the letter]]
 →_{Late merger}
 c. [[you sent him_i [the letter]] [the letter [that John_i expected you would ⟨send him_i⟩]]]

In the following sections, we will discuss further facts that support Fox's approach. However, we will also show that variants of those facts could be taken as a challenge to the copy theory of movement. We will argue that the proposed approach accounts for them in a way compatible with the copy theory of movement.

5.3 *The Lexical Content Effect in Ellipsis*

As shown above, Fox's analysis generates a structure that satisfies the Parallelism Condition within the copy theory of movement. To accomplish this, Fox adopts late merger, which makes it possible not to represent relative clauses in the tail position of a QR chain. It is crucial, however, to notice that QR *does* leave a copy of the head noun of a relative clause, and its lexical content is represented within the antecedent VP. This part of Fox's analysis has a consequence for explaining Kennedy's (1994, 2004) and Sauerland's (1998, 2004) facts, namely, the lexical content effect in ellipsis.

To illustrate this point, let us first consider the ungrammatical ACD case in (66), which is extensively discussed in Kennedy 1994, and further explored in Fox 1995, 2000, 2002, Heim 1997, Jacobson 2004b, Kennedy 2004, Sauerland 1998, 2004, and Williams 1995.

- (66) *John visited a town that's near the lake Mary did ⟨visit⟩.
 (Sauerland 1998:104)
 (cf. John visited a town that's near the lake Mary visited.)

Sauerland (1998, 2004) claims that what makes the ACD in (66) ungrammatical is the fact that the head noun of the object of the matrix verb (i.e., *town*) is semantically distinct from the head

noun of the object of the elided verb (i.e., *lake*), and he argues that this property has a consequence for licensing ellipsis in (66). Sauerland's claim is corroborated by a fact that he observes: when head nouns of two relevant objects are semantically identical, ACD of this sort is grammatical, as illustrated in (67). (In (67b), the head noun *one* is anaphoric to *town*; hence, the two head nouns are semantically identical.)

- (67) a. John visited a town that's near the town Mary did ⟨visit⟩.
 b. John visited a town that's near the one Mary did ⟨visit⟩.
 (Sauerland 1998:104)

These facts lead us to draw the following generalization:²⁵

(68) *Sauerland's Generalization*

When an elided VP (VP_E) is dominated by an argument DP of an antecedent VP (DP_A), ellipsis of VP_E is licensed only if the head noun of DP_A is semantically identical to the head noun of the corresponding argument DP of VP_E .

Sauerland (1998, 2004) argues that (68) is accounted for under the copy theory of movement. In (66), QR leaves a copy of *town* in the complement of the matrix predicate, and movement of the head noun within the relative clause leaves a copy of *lake* in the complement of the relative-clause-internal predicate. Sauerland suggests that the LF representation postulated for (66) is one close to (69), which does not satisfy the Parallelism Condition.

- (69) *[[a town that's near the lake [~~OP lake~~] [Mary did ⟨visit lake⟩]]]
 [John visited town]]

Unlike in (66), in (67) the two relevant movements each leave a copy of semantically identical NPs, as shown in (70). Therefore, the Parallelism Condition is satisfied and ellipsis is licensed in this case.²⁶

²⁵ Two observations are in order here.

First, Jacobson (2004b) and Kennedy (2004) present some factors that have an influence on the grammaticality of cases like (67) and facts that are potentially problematic to Sauerland's Generalization. We hope to investigate these issues on another occasion.

Second, the lexical content effect is not observed in ellipsis cases other than the configuration described in (68) (which is often called *argument-contained ellipsis*, ACE) (e.g., Evans 1988, Jacobson 1992, 2004b, Sauerland 1998, 2004).

- (i) a. Bagels, I like. Donuts, I don't ⟨like⟩.
 (Evans 1988:125)
 b. I know which cities Mary visited, but I have no idea which lakes she did ⟨visit⟩.
 c. The cities Mary visited are near the lakes Bill did ⟨visit⟩.
 (Sauerland 1998:138)

See Sauerland 1998, 2004 for possible reasons why the lexical content effect does not appear in these cases.

²⁶ Heim (1997) and Kennedy (1994, 2004) propose different solutions to cases like (66), which do not utilize the consequence of the copy theory of movement discussed above. The facts in (67) are not expected in their approaches, as Sauerland (1998, 2004) notes.

- (70) [[a town that's near the town [~~{OP-town}~~] [Mary did ⟨visit town⟩]]]
 [John visited town]]

One issue that arises here is how to derive structures like (69) and (70). Fox (2002) claims that structures of this sort are a direct consequence of his late merger approach, in which only a DP external to the relative clause undergoes QR, and the relative clause is countercyclically merged with the QRed DP, as illustrated in (71) and (72).²⁷ (For expository purposes, QRed material is shown to the left of its original position in the following representations.)

- (71) a. [John visited [a town]]
 → QR
 b. [[a town] λx . [John visited [the town x]]]
 → Late merger & Trace Conversion
 c. *[[a town [that's near the lake [~~{OP-lake}~~] λy . [Mary did ⟨visit [the lake y]⟩]]]]
 λx . [John visited [the town x]]]
- (72) a. [John visited [a town]]
 → QR
 b. [[a town] λx . [John visited [the town x]]]
 → Late merger & Trace Conversion
 c. [[a town [that's near the town [~~{OP-town}~~] λy . [Mary did ⟨visit [the town y]⟩]]]]
 λx . [John visited [the town x]]]

As shown above, Sauerland's Generalization follows straightforwardly from the copy theory of movement under Fox's approach. However, Sauerland himself also provides an exception to the generalization. In (73), ellipsis is licensed even though the head noun of the matrix subject (i.e., *town*) is not semantically identical to the head noun of the relative clause (i.e., *lake*), just like in (66).

- (73) [The town near the lake that was visited by vandals] seems to have been ⟨visited by vandals⟩, as well.
 (Sauerland 1998:112)

This is a challenging fact for the above-mentioned account of Sauerland's Generalization. Given the assumptions so far, the LF representation posited for (73) would be one close to (74), which, like (71c), does not include any constituent that satisfies the Parallelism Condition.

- (74) *[[the town near the lake [~~{OP-lake}~~] λx . that was visited [the lake x] by vandals]]
 λy . seems to have been ⟨visited [the town y]
 by vandals⟩]

Notice that (73) is a passive version of (66). Thus, it involves A-movement of the matrix subject DP out of the EC and corresponding A-movement of the head noun out of the antecedent VP.

²⁷ To produce the LF representations given in (71) and in (72), Sauerland (1998) adopts Fox's (1995) earlier analysis of ACD.

Sauerland capitalizes on this aspect of (73), arguing that this exception to his generalization is an incarnation of the general property of A-movement that it optionally leaves a contentless trace, as has independently been suggested by the fact that A-movement always bleeds Condition C. Because of this property, the lexical contents of the two DPs are not represented inside either the antecedent VP or the elided VP, and the Parallelism Condition is met in (73).

We now have a more principled account of this apparent property of A-movement, and, in fact, our approach can explain the contrast between (66) and (73). We argue that the derivation in (75) can be postulated for the sentence in (73), a proposal that shows why the lexical contents of the relevant DPs do not have any effect on ellipsis licensing in (73). In (75), only determiners (i.e., the definite determiner *the* in the matrix clause and the null operator in the relative clause) undergo movement as the first step of A-movement, and their restrictor NPs are introduced after they move out of the VPs that are relevant for satisfying the Parallelism Condition (see Legate 2003 for arguments in favor of the claim that a VP-adjoined position is an intermediate landing site in A-movement in passives). Consequently, the underlined λ -predicates in (75a) and (75b) are identical, and this identity licenses ellipsis in (73).

(75) a. *Partial derivation of the matrix clause*

[_{VP} visited [the] by vandals]

→ Movement of a determiner & Trace Conversion

[_{VP}[the] λx . [_{VP} visited [the x] by vandals]]

→ Wholesale late merger

[_{VP}[the town] λx . [_{VP} visited [the x] by vandals]]

b. *Partial derivation of the relative clause*

[_{VP} visited [OP] by vandals]

→ Movement of a determiner & Trace Conversion

[_{VP}[OP] λy . [_{VP} visited [the y] by vandals]]

→ Wholesale late merger

[_{VP}[OP lake] λy . [_{VP} visited [the y] by vandals]]

Let us now return to (66), repeated here as (76), and consider whether our approach captures the presence of the lexical content effect in this case.

(76) *John visited a town that's near the lake Mary did \langle visit \rangle .

Two potential derivations can be posited for (76), and we will demonstrate that our approach correctly rules out both. The derivations differ in whether the larger relative clause (whose head noun is *town*) is analyzed as having the matching structure or the raising structure. (As we will show, the structure of the smaller relative clause does not affect the following discussion.) Suppose first that the relevant relative clause involves the matching structure. In that case, we can maintain Fox's analysis of (76). Since the restrictor of the matrix object DP is an NP in this case and must be introduced in the complement of the matrix verb for Case reasons, wholesale late merger is not an option. As a result, the lexical content effect inevitably emerges.

In the other potential derivation, the larger relative clause in (76) is assumed to have the raising structure. Since in this case the restrictor of the matrix object DP is a CP, wholesale late merger can apply to the restrictor, as shown in (77). However, there is no constituent in the final representation in (77c) that satisfies the Parallelism Condition. Since the restrictor of the matrix object DP undergoes wholesale late merger, the lexical content of the restrictor is not represented in the complement of the matrix verb, as shown in (77b). However, there is no way to avoid representing the lexical content of the restrictor of the smaller relative clause in the complement of the verb (i.e., *lake* in (77c)), regardless of whether that relative clause is analyzed as having the matching structure or the raising structure. (For the sake of concreteness, we are postulating the raising structure in (77c).)

- (77) a. [John visited [a]]
 → Movement of a determiner & Trace Conversion
 b. [[a] λx . [John visited [the x]]]
 → Wholesale late merger
 c. *[[a [_{CP} town that's near the λy . [Mary did ⟨visit the lake y⟩]]]
 λx . [John visited [the x]]]

Consequently, our approach captures the ungrammaticality of (76) and, more generally, Sauerland's Generalization. In addition, we have argued that it accounts for the otherwise puzzling exception to Sauerland's Generalization, while maintaining the copy theory of movement.²⁸

5.4 The Complement-Adjunct Asymmetry in Ellipsis

Given our account of the exception to Sauerland's Generalization, repeated here as (78), we predict that whenever the two relevant DPs undergo A-movement out of an elided VP and an antecedent VP, the lexical contents of their restrictor NPs will not have any effect on licensing ellipsis of the elided VP.

²⁸ The lexical content effect has been taken as suggesting that only relative clauses can be inserted countercyclically. There is another fact that points to the same conclusion. Merchant (2000) and Sauerland (1998) observe that a violation of Condition C is not circumvented by QR in ACD if the relevant R-expression is not within a relative clause, as shown in (i).

- (i) *I will give him_i a report on Bob_i's division that is similar to the one that you did ⟨give him_i⟩.
 (adapted from Merchant 2000:569)

If the larger relative clause is analyzed as having the matching structure, Condition C is violated because the pronoun *c*-commands the copy of *a report on Bob_i's division* left behind by QR. If it is analyzed as having the raising structure, Condition C is not violated because the restrictor CP can undergo wholesale late merger, as illustrated in (ii). However, since the Parallelism Condition is not satisfied in (iic) for the same reason as in (77c), this alternative derivation is also ruled out. As a result, our approach captures the ungrammaticality of (i).

- (ii) a. [I will him_i [a]]
 → Movement of a determiner & Trace Conversion
 b. [[a] λx . [I will him_i [the x]]]
 → Wholesale late merger
 c. *[[a [_{CP} report on Bob_i's division that is similar to the λy . [_{CP} that you did ⟨give him_i [the one y⟩]]]
 λx . [I will give him_i [the x]]]

(78) *Sauerland's Generalization*

When an elided VP (VP_E) is dominated by an argument DP of an antecedent VP (DP_A), ellipsis of VP_E is licensed only if the head noun of DP_A is semantically identical to the head noun of the corresponding argument DP of VP_E .

In this section, we discuss another case that supports our explanation of the exception to Sauerland's Generalization.

To set the stage, we first consider the sentences in (79). In (79a) and (79b), the elided VP is dominated by a relative clause that modifies the matrix object DP. In (79c), in contrast, the elided VP is included in the sentential complement of the matrix object DP.

- (79) a. I made an argument that was very similar to the argument you did <make>.
 b. I made an argument that was very similar to the one you did <make>.
 c. *I made an argument that we should adopt the argument you did <make>.
 (cf. I made an argument that we should adopt the argument you made.)
 (Fox 2002:82; see also Sauerland 2004)

Since the two instances of *argument* in (79c) have different complementation properties, unlike the ones in (79a) and (79b), these facts are subsumed under Sauerland's Generalization. Furthermore, they can be explained by Fox's analysis of ACD. In (79c), the matrix object DP needs to undergo QR along with its sentential complement, as shown in (80), because complements of NPs are not allowed to be inserted late. Consequently, the Parallelism Condition is not satisfied, leading to failure in licensing ellipsis in (79c).

- (80) a. *Partial derivation of the matrix clause*
 [[DP an argument that we should adopt the argument you did] λx . [I made [DP the argument that we should adopt the argument you did x]]]
 b. *Partial derivation of the matrix object DP*
 [DP an argument [CP that we should adopt [DP the argument [CP [OP argument] λy . [TP you did <make [the argument y]]]]]]]

With this background, let us look at the facts in (81), which could be regarded as an additional exception to Sauerland's Generalization (see Hardt and Asher 1997, Heim 1997, Kennedy 2004, Sauerland 2004, and Wasow 1972 for discussion of subject ACE cases).²⁹ In these cases, two relevant nouns are lexically distinct, just as in (79c) (i.e., two occurrences of *proof* with different complementation properties in (81a), and *proof* and *God* in (81b)), yet ellipsis is licensed here.

- (81) a. ?[Your proof that my proof is valid] is <valid>, as well.
 b. ?History suggests that [a proof that God exists] never will <exist>.
 (Kennedy 2004:4, 5)

²⁹ Kennedy (1994) and Wasow (1972) claim that subject ACE cases like (81a–b) are ungrammatical. In Kennedy 2004, however, they are regarded as grammatical, though marginal. The proposed account treats them as grammatical and does not capture their marginal status. We must leave this issue to future research.

Moreover, note that the noun of the matrix subject has a sentential complement. Thus, if we extended the analysis of (79c) to these cases, we would incorrectly predict that the Parallelism Condition is not met here because the lexical contents of the subject DPs are represented within the relevant predicate phrase, as shown in (82).

- (82) *[[your proof that [my proof λx . is [the proof x] valid]]
 λy . is <[[your proof that [my proof λx . is
 [my proof x] valid] y] valid]]

The difference between (79c) and (81a–b) lies in the types of movement of the relevant DPs. Crucially, the relevant DPs undergo A-movement in (81a–b). Thus, (81a–b) can be taken as another challenge to the copy theory view of A-movement.

Our approach can handle this exception to Sauerland's Generalization on a par with the exception discussed in section 5.3. Since the relevant DPs in (81a–b) undergo A-movement out of the predicate phrases that are relevant for evaluating the Parallelism Condition, we can generate a derivation in which the restrictors of the determiners are not represented within the predicate phrases, as illustrated in (83). In a derivation of this sort, there are two semantically identical λ -predicates (the underlined ones in (83a) and in (83b)), and ellipsis in (81a–b) is correctly licensed because of this fact.³⁰

- (83) a. *Partial derivation of the matrix clause*
 [AP[THE] valid]
 → Movement of a determiner & Trace Conversion
 [AP[THE] λx . [AP[the x] valid]]
 → Wholesale late merger
 [AP[THE [your proof that my proof is valid]] λx . [AP[the x] valid]]
- b. *Partial derivation of the sentential complement clause*
 [AP[THE] valid]
 → Movement of a determiner & Trace Conversion
 [AP[THE] λy . [AP[the y] valid]]
 → Wholesale late merger
 [AP[THE [my proof]] λy . [AP[the y] valid]]

Note that, on the other hand, wholesale late merger is not applicable to the restrictor of the matrix object DP in (79c) because it is an NP and there is no position in which the restrictor can be inserted that is both outside the constituent relevant for evaluating the Parallelism Condition and below the relevant Case assigner. Consequently, the A/\bar{A} contrast in the lexical content effect can be taken as further support for our approach.

³⁰ As we did in footnote 10, here we analyze possessive expressions as definite descriptions that involve a covert definite determiner THE. Extending Legate's (2003) proposal, we also assume that an AP-adjoined position is a possible landing site for A-movement.

6 Conclusion

The A/ \bar{A} distinction has played an important role in characterizing facts in various domains of language. However, what underlies this distinction within a particular empirical domain has sometimes remained unclear. In this article, we investigated one set of facts of this sort: the Condition C bleeding effects in A-movement and \bar{A} -movement. What has remained puzzling up to now is that A-movement always bleeds Condition C, but \bar{A} -movement bleeds Condition C only in certain cases. Furthermore, this property of A-movement has been taken as a challenge to the copy theory of movement. The crucial component of our solution to this A/ \bar{A} contrast concerns the operation wholesale late merger, which merges the restrictor of a determiner with the determiner countercyclically. This operation helps to explain the Condition C bleeding effect in A-movement within the framework of the copy theory of movement. We related the unavailability of wholesale late merger in most \bar{A} -movement contexts to Case properties of determiners and nouns and to the nature of the Case assignment mechanism. We argued that given this analysis, the A/ \bar{A} contrast emerges from the widely accepted assumption that A-movement is movement from a non-Case position to a Case position, but \bar{A} -movement is movement from a Case position to a non-Case position. Our claim that the applicability of wholesale late merger is controlled by a Case property of the restrictor was supported by the fact that \bar{A} -movement does bleed Condition C if the restrictor is a constituent that does not need Case. From this fact, we concluded that the A/ \bar{A} distinction is indeed not the right characterization of when movement bleeds Condition C. Finally, we argued that certain ellipsis facts, which could on the face of things be taken as another challenge to the copy theory of movement, in fact lend further support to the proposed approach.

As mentioned above, the A/ \bar{A} distinction has been adopted as a convenient way to describe facts in many domains. However, various attempts have also been made to explain the facts that motivate parts of the A/ \bar{A} contrast (see Chomsky 1995 for locality, Nissenbaum 2000 for parasitic gap licensing, Fukui 1999 and Kitahara 1997 for the Proper Binding Condition effect, and Ruys 2000 and Sauerland 1998, 2004 for weak crossover phenomena). We leave to future research an exploration of whether wholesale late merger sheds new light on the analyses of these phenomena. However, we suggest that the wholesale late merger approach represents a possible step toward understanding properties of the grammar that underlie the A/ \bar{A} distinction.

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