

Cycle, linearization of chains, and multiple case checking

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The copy theory of movement requires an operation that deletes all the copies/links of a chain except the top one. This paper proposes that the deletion operation (called Chain Reduction) applies cyclically, more specifically phase by phase. The major argument comes from the so-called copy raising construction in English (e.g. *Mary seems like she is intelligent*). It is shown that the construction involves long A-movement and multiple Case checking. The cyclic theory of Chain Reduction proposed here gives an answer to the question as to why the copy in the embedded subject position, as opposed to ordinary ‘traces’, must be pronounced.

1. Outline of the proposal

Chomsky (1993) introduces a copy theory of movement and notes that ‘the trace left behind is a copy of the moved element, deleted by a principle of the PF component in the case of overt movement’ (Chomsky 1993/1995:202). Since then several proposals have been made about what the ‘principle of the PF component’ is. It seems to be standard under this approach to think that copies left by movement must be deleted by some deletion operation. Following Nunes (2004), I call the copy deletion operation ‘Chain Reduction (CR)’. All the previous proposals agree that any adequate theory of copy deletion must capture the fact that in unmarked cases, the following generalization holds (Nunes 2004; Bošković 2002a; Bobaljik 1995, 2002; Pesetsky 1998).

- (1) Delete all copies of chain CH but the highest one.¹

Here I use the term ‘chain’ to refer to sets of copies of a syntactic object that is selected from the numeration and constructed by application(s) of merge. Though any theory of linearization of chains has to explain this generalization, I am not committed to this issue here (see Nunes 2004, among others). Rather, I will use this generalization to argue for a cyclic model of grammar, in which CR applies cycle by cycle. ‘Cycle’ is taken here to mean that the computational system identifies a certain portion of the structure that is constructed in the

¹ For various instances of pronunciation of a non-top copy, see Nunes (2004), Pesetsky (1998, 2000), Bošković (2002b), Grohmann (2003), Bobaljik (1995, 2002), among others.

course of the derivation as a unit at which a certain set of operations is performed. A certain XP in a larger structure constitutes a domain within which movement operations and CR apply in this order. To put it in Bach's (1974) words, the entire sequence of (applicable) operations is traversed for the most deeply embedded cycle, and then the computational system returns to the first (applicable) operation for the next most deeply embedded cycle, and so on. In this section, I would like to sketch a rough outline of my proposal, which appeals to the notion of phase and the operation Spell-out (Chomsky 2000, 2001a,b; see also Uriagereka 1999). The empirical focus of the paper is on the so-called copy raising or *seems like* construction in English. I will argue that the construction exhibits an instance of 'lower copy pronunciation' as a result of applying (1) phase by phase.

To see how a 'last-cyclic' model of CR and its cyclic counterpart would differ, let us consider successive cyclic wh-movement such as *what do you think Mary ate?*.

(2) [_{CP} what₁ do you think [_{CP} what₂ Mary ate what₃]]

Suppose the sentence involves successive cyclic movement of the sort that we see in (2). If CR applies after all the movement operations are done, then **what₂** and **what₃** should be deleted, according to (1), which yields the correct output *what do you think ~~what~~ Mary ate ~~what~~?*. Now let us think about what happens if (1) applies cycle by cycle. To simplify, assume that only CPs are cycles. Since we have two domains in (2), the operation applies twice – at the lower CP and at the higher CP. When (1) applies to the lower CP, **what₂** should be treated as the 'head' of chain CH (**what₂**, **what₃**). This is so because **what₁**, which is not contained in the lower CP, is invisible to the operation. Now consider how (1) applies at the higher cycle. If the specifier of the lower CP, which obviously belongs to the lower CP, is not visible to the operation performed at the higher cycle, we would make a wrong prediction: **What do you think what Mary ate?* is predicted to be grammatical.

This apparent problem is readily resolved if we adopt Chomsky's proposal that the edge position of each cycle ('phase edge') is an 'exception' in the sense that the specifier position of phase XP is visible to operations applied at the next higher phase. Once we assume this particular cyclic model, the copy in the intermediate Spec-CP that survives copy deletion at the lowest phase is still visible to CR performed at the next higher phase. The derivation is summarized in (3) below. As in step (a) of (3), the wh-phrase moves successive cyclically to the matrix CP, leaving two copies behind. I assume that once the formal requirements of the head of a phase are satisfied, CR applies to the lower phase.² Step (b) represents the application of CR to the embedded CP, where **what₂** and **what₃** are visible copies to the deletion operation. Then the latter is deleted since the former is the highest one. In step (c), Spell-out applies to the lower CP and the TP undergoes Spell-out. **What₂** gets deleted by the application of CR at the higher CP, as shown in Step (d), where **what₁** and **what₂** are visible copies. Deletion of the highest visible copy yields the desired effect: **what₁** is retained while **what₂** is deleted.

² Saying that application of CR precedes that of Spell-out sounds like we are claiming that this deletion operation is one applying in narrow syntax. It is not necessarily so, however. It is perfectly coherent to say that 'interface' operations such as CR have access to structures built by syntax and manipulate/evaluate those structures. A similar approach to binding can be found in Epstein et al. (1998).

- (3) Step (a) $[_{CP} \text{what}_1 \text{ do you think } [_{CP} \text{what}_2 [_{TP} \text{Mary ate what}_3]]]$
 Step (b) $[_{CP} \text{what}_1 \text{ do you think } [_{CP} \mathbf{\text{what}_2} [_{TP} \text{Mary ate } \mathbf{\text{what}_3}]]]$
 Step (c) $[_{CP} \text{what}_1 \text{ do you think } [_{CP} \mathbf{\text{what}_2} [_{TP} \text{Mary ate } \mathbf{\text{what}_3}]]]$
 Step (d) $[_{CP} \mathbf{\text{what}_1} \text{ do you think } [_{CP} \text{what}_2 \dots]]$

Thus, cyclic CR, put together with Chomsky's conception of cycle (i.e. phase), successfully predicts the non-existence of cases like *what do you think what Mary ate?*. The generalization is that the highest copy in phase PH that has not undergone deletion can be deleted later only if it is in the edge of PH.

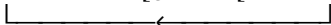
Now I would like to point out that this mode of application of CR makes a specific prediction especially for cases where something moves long-distance, without passing through the edge of a phase. The prediction in question is that in such cases, the relevant chain will have two positions that have to be phonetically realized if the moved item has phonological content at all. To see why, let us consider (4).

- (4) $[_{CP} \dots \alpha_1^i \dots [_{CP} [_{TP} \dots \alpha_2^i \dots \alpha_3^i \dots]]]$

In (4), element α_1^i moves out of the embedded TP to the matrix TP directly. When CR applies to the lower CP phase, it only deletes the lowest copy of α , α_3^i (5a). Recall the system applies the generalization in (1) cyclically. Then the highest copy at that cycle, i.e. α_2^i , is left undeleted. Going onto the next cycle, CR leaves α_1^i undeleted since that copy is the head of the visible portion of the chain at this cycle (5b). The two applications of CR would end up with (5c), where α_2^i is not in the edge of the phase and therefore cannot be deleted at the next higher phase. In other words, when CR applies to the root CP, the domain containing α_2^i has already undergone Spell-out.

- (5) a. $[_{CP} \dots \alpha_1^i \dots [_{CP} [_{TP} \dots \alpha_2^i \dots \mathbf{-\alpha_3^i} \dots]]]$
 b. $[_{CP} \dots \alpha_1^i \dots [_{CP} \dots]]$
 c. $[_{CP} \dots \alpha_1^i \dots [_{CP} [_{TP} \dots \alpha_2^i \dots \mathbf{-\alpha_3^i} \dots]]]$

If this prediction is empirically correct, it will be a strong argument for the cyclic theory of CR, because if the operation applies to the whole chain in a 'last-cyclic' manner, (1) would not allow any non-top copy to be pronounced. In what follows, I will argue that there exists a construction in English in which we can test this prediction and that properties of this construction are expected under the cyclic theory but not the last-cyclic theory. The construction we will discuss is the so-called copy-raising construction, for example, *this book seems like it is popular among young kids*. I will claim that a sentence like this is derived by a derivation that involves A movement from the lower SpecTP to the higher SpecTP, as in (6), and that the 'trace' left by this movement has to be pronounced since it is the highest copy among the copies contained by the embedded CP.

- (6) $[_{TP} \text{This book seems } [_{CP} \text{like } [_{TP} \langle \text{this book} \rangle \text{ is popular among kids }]]]$


To maintain that this construction is one that provides us with a testing ground for cyclic CR, we have to show at least two things: (i) that the construction under consideration may allow for a derivation in which the subject of the embedded *like* clause moves overtly to the matrix

clause; and (ii) that the movement in question does not pass through the intermediate SpecCP. The second step is crucial because if the moving element stops in the SpecCP on the way to the final landing site, it would be expected that the embedded subject should be deleted.

Before closing the introduction, I would like to consider the ungrammaticality of examples of the sort given in (7).

(7) *The man seems as if __ was the mayor of the city

I will argue that having a null category in the embedded subject position is not permitted because the construction involves overt movement and that the copy left behind in the embedded SpecTP must be pronounced, as required by cyclic CR. But one could argue that this kind of example might be illegitimate for the same reason as the following (8) is illegitimate. (The examples given in (8) below are from Pesetsky & Torrego 2001.)

(8) a. *Sue met the man who Mary is claiming that __ was the mayor of the city
b. Sue met the man who Mary is claiming that [for all intents and purposes] __ was the mayor of the city

(8)a) shows an instance of Comp-trace effect. If *as if/like* is a complementizer, then the *as if*-gap sequence that (7) has might be causing a Comp-trace effect. But this analysis of (7), though perfectly coherent, does not seem to be empirically correct. As already pointed by Bresnan (1977), adverbs like *for all intents and purposes*, when following *that*, make the Comp-trace effect disappear, as in (8b). This kind of improvement, however, is not observed with the *as if*-trace sequence, as in (9).

(9) The man seems as if [for all intents and purposes] *(he) was the mayor of the city

The empty subject position of the *as if* clause does not seem to be one that causes a Comp-trace effect.

The organization of the paper is as follows: Section 2 attempts to argue that the *seems like* construction may involve overt A movement from the subject position of a finite clause. In section 3, first we present an argument that the embedded subject, when it is A-moved long distance, does not pass through the SpecCP, i.e. the edge of the CP phase. After doing so, I show that the analysis proposed in this paper for the copy raising construction can be accommodated by the theory of movement locality proposed by Chomsky (2001a) and a theory of multiple Case checking of the type advocated by Bejar & Massam (1999). In the discussion of Case theory in the latter part of that section, I propose a generalization about the correlation between the pronominal copy phenomenon under consideration and multiple Case checking ('pronominal copy/multiple Case checking' generalization). In section 4, I examine other cases of multiple Case checking (Norwegian topicalization and Italian/French pseudo-relatives) and provide further empirical support for this generalization. It is shown that cyclic CR makes correct predictions concerning whether the lower case position is pronounced or not in these constructions. Section 5 discusses a conceivable alternative analysis and two facts that appear to argue for that alternative. Section 6 concludes the paper.

2. Long A-movement in *seems like* constructions

2.1. Long A-chains

This section is devoted to presenting an argument that the *seems like* construction involves overt long distance A movement from a Case position (see the derivation given in 6). ‘Long distance’ means here that the movement in question is out of a finite CP, which has been considered to be illicit in the literature (see Aoun 1981, for instance). I follow Potsdam & Runner (2001) –P&R hereafter– in characterizing the English *seems like* construction as follows: if the matrix predicate of a sentence takes a finite complement clause headed by *like*, *as if*, or *as though*, the sentence is classified as a *seems like* construction.³ Examples like those given in (10) fall under this category.

- (10) a. Mary_i seems [as if she_i is intelligent]
 b. This car_i looks [like it_i is difficult to drive]
 c. [Naomi and Bill]_i seem to me [as if they_i are in trouble]
 d. This building_i appears [as though it_i is under construction]

When a *seems like* construction involves such movement, I refer to the movement operation or the construction involving such movement as copy raising and also, following the literature, I refer to the pronoun in the embedded clause co-indexed with the matrix subject as ‘pronominal copy’.

As already noticed in the early 1970’s, this construction shares some properties with regular raising.⁴ For instance, copy raising passes *there*-insertion test or idiom test, as we can see below. In (11), non-referential subjects occur in the matrix subject position.

- (11) a. There looks like there’s gonna be a riot (Rogers 1974a: 551)
 b. There seems as if there are problems (P&R: 455)
 c. The cat looks like it’s been let out of the bag (Rogers 1971:217)
 d.% The shoe looks like it’s on the other foot (P&R: 455)⁵
 e.% The shit appears as though it’s going to hit the fan very soon (P&R: 455)

This suggests that the matrix subject position of the construction appears to be non-thematic just like that of the regular raising construction. As Rogers (1971) and Postal (1974) correctly pointed out, however, *seems like* constructions appear to disobey the MLC. As can be seen in examples like those in (12), the pronominal copy does not have to be the subject of the clausal complement of copy raising verbs.

- (12) a. Ted looks like Jane has been hassling him again (Postal 1974:268)
 b. This violin sounds like Max has been hammering nails with it (Postal 1974:268)
 c. Bill sounds like Martha hit him over the head with the record
 d. The roach looks to me like Abbie gave it to Myrna (Rogers 1974b:94-98)
 e. Ermintrude looks like the cat got her tongue (Heycock 1994:290)

³ Asudeh & Toivonen (2004) recently argue that there is a semantic difference between constructions involving verbs like *seem/appear* and those involving *look/sound* and that the former do not have a thematic subject.

⁴ Earliest discussions of the *seems like* construction can be found in Rogers (1971, 1972, 1974a,b) and Postal (1971, 1974). This construction was also discussed in the GB era (Lappin 1983, Heycock 1994).

⁵ P&R use the symbol % to indicate that there is some dialectal variation in the acceptability of the relevant example.

- f. Mary appears as if her job is going well (Lappin 1983:122)
 g. That book sounds like everyone thinks it should be banned (Heycock 1994:290)

Postal (1974: 268) notes that '[a]n attempt to combine Raising with [Copy Raising] would make it hard to state that Raising in all other cases is restricted to subjects'. Given this situation, it is no longer entirely clear what the examples given in (11) tell us.

In their extensive investigation of *seems like* constructions, P&R observe that, descriptively speaking, the Minimal Link Condition is respected in *seems like* constructions only when the matrix subject is non-thematic, as in (13a') and (13b') below.⁶

- (13) a. The *shit*_i appears as if *it*_i is likely to hit the fan very soon.
 a'. * The *shit*_i appears as if John expects *it*_i to hit the fan very soon.
 b. *There*_i seems like *there*_i is likely to be a unicorn in the garden.
 b'. * *There*_i seems like John expects *there*_i to be a unicorn in the garden.

The idiomatic interpretation of *the shit hits the fan* cannot be retained in (13a') since *John* intervenes between part of the idiom and the pronominal copy. For *there* constructions, the higher instance of *there* is in an expletive-associate relation with *a problem* by having an A-chain link with the lower instance of *there*, just as *there* is licensed by having an A-chain link with the trace in the lower subject position in *there seems [t to be a problem]*. Again, if a DP intervenes, then no legitimate A-chain obtains.

Potsdam & Runner are led by this novel observation to propose a way to handle examples like (12a-g) that Postal worried about. They conclude that it is possible that a *seems like* sentence, when the subject is thematic, does not involve A-chains. Namely, a predicate occurring in this construction is lexically ambiguous between discharging and not discharging subject theta role (cf. Lasnik & Saito 1992; see note 3). According to Potsdam & Runner's claim, which I essentially adopt, predicates like those found in (12a-g), unlike those found in (11), take their matrix subject as their external argument. Details aside, (12a-g) are grammatical in the same way as examples like *Bill*_i *thinks Jane loves him*_i are grammatical.⁷ Since the dependency between the matrix subject and the pronominal copy is not an A-chain in these cases, the fact that no MLC effect is observed is totally expected. Returning to the intervention effect found in (13), P&R propose that the matrix subject 'Agrees' with the embedded subject to form an A-chain (cf. Chomsky 2000). Details aside, they claim that no overt movement takes place but an A-chain is formed between the two subjects. (See Rezac 2004 for a similar conclusion; see also Manzini & Roussou 2000, Lebeaux 1998 for A-chain formation without movement.) Their argument is based on the assumption that A-movement

⁶ See P&R for other arguments in favor of the involvement of A-chain formation in this construction.

⁷ This is not entirely accurate, because in the case of *think*, there is no need of a 'binding relation' of the sort that is required in the *seems like* construction. Observe the unacceptability of **John seems like Mary is a good linguist*. The matrix subject must bind a pronoun in the embedded clause, whether the sentence involves A-chain or not. Also, it is required that the matrix subject and the pronoun occurring in the embedded clause have to agree with respect to grammatical features such as number, even in a context where it is semantically not required. Ivano Caponigro (p.c.) brought to my attention a pair such as: *my thesis committee thinks that they like my dissertation* vs. **my thesis committee seems like they like my dissertation*. The latter example is bad. Even the speaker who accepts the former does not accept it. The subject-pronoun matching does not seem to be a matter of semantics per se, since semantically speaking, *my thesis committee* can be resumed by the plural pronoun *they* as in the unacceptable example of the pair we are looking at (see Landau 2000 for relevant discussion in the context of control). Given the conclusion we adopt from P&R that a predicate like *seem* assigns external theta role, why agreement of this sort is required remains unexplained. See Asudeh & Toivonen (2004) for discussion on this matter.

out of a finite clause is barred, which was a well-established claim in GB theory. In the next subsection, I propose, contra P&R, that it is possible for copy raising to involve overt A-movement out of a finite CP, whereas I adopt P&R's analysis of examples whose matrix subject is thematic.

2.2. Evidence for long overt A-movement

We have seen so far that the matrix subject and the pronominal copy may form an A-chain if the relevant dependency obeys the MLC. Now we hope to decide, empirically, whether or not A-chains in the *seems like* construction are those that result from overt movement. In this subsection I use reconstruction effects found in psych predicate constructions to argue that it is possible for the matrix subject to move out of a finite CP to the matrix TP. To do so, I would like to start with the paradigm that Lebeaux (1998: 5) observes.

- (14) a. Each other's mothers seem [t to please the two boys]
 a.' Each other's mothers pleased the two boys
 b. ?* John seemed to each other's mothers [t to please the two boys]

A psych verb like *please* allows for 'backward binding', as in (14a'). (14b) shows that it is impossible for the object of the infinitival complement to be the antecedent for the reciprocal inside the object experiencer argument of *seem*, which is a matrix element. The acceptability of (14a) can be accounted for if we assume there is an A movement trace/copy of *each other's mothers* in the embedded infinitival clause. In this account, the reciprocal in (14a) is licensed in exactly the same way as the reciprocal in (14a') is. The same state of affairs holds for bound variable interpretation of pronouns (Lebeaux 1998:6).

- (15) a. His first performance seems [t' to be expected [t to please every composer]]
 b.* The president seems to his first wife [t' to be expected [t to please every man]]

For our purposes, the following generalization suffices.

- (16) If the anaphor/bound pronoun appearing in the constituent α within the clause Cl_1 at surface structure is licensed with respect to the antecedent appearing in the embedded clause Cl_2 , where [Cl_1 ... [α ... anaphor/bound variable_i ...] ... [Cl_2 ... antecedent_i ...]], then α has moved out of Cl_2 and left a copy in that clause.

One way to explain this generalization is to appeal to a version of the well-known Belletti/Rizzi-style analysis of psych constructions, which, combined with their proposal concerning Condition A, accounts for anaphor licensing of the sort found in (14). That is, Condition A is an 'anywhere' condition in the sense that it can be fulfilled at any stage of the derivation (Belletti & Rizzi 1988, Uriagereka 1988, among others), and the causer argument starts out lower than the experiencer argument. The surface subject moves up to the SpecTP, perhaps through another thematic position (i.e. some causer argument position) inside a verb phrase (Hornstein & Motomora 2002). Prior to the point where the surface subject moves from the base position, the anaphor inside the moving argument is licensed through being A-bound by the experiencer.

- (17) [_{TP} [α stories about each other_i] T [_{VP} (t' α) frighten [_{VP} John and Mary_i t_{frighten} t α]]]

Also, we can think of pronoun binding in essentially the same way, following Sabel (2002: 276). Bound pronouns are licensed if they are A-bound by their quantificational antecedent in any stage of the derivation.

Keeping this in mind, let us return to the *seems like* construction. The *seems like* construction, just like the regular raising construction, displays a binding reconstruction effect (for scope reconstruction, see section 5). The direct object of the embedded clause can ‘bind’ an anaphor/bound variable contained by the surface matrix subject.

- (18) a. [Stories about each other_i]_j seem like [they_j have frightened John and Mary_i]
 b. [Pictures of his_i mother]_j seem as if [they_j will make every boy_i aggravated]

Given the generalization stated in (16) and the analysis given in (17), the acceptability of the examples in (18) implies that there must be a copy of the matrix subject inside the *like* or *as if* clause. Continuing to assume the Belletti-Rizzi type analysis of backward binding, these sentences should have a representation of the following kind at some point of the derivation.

- (19) ... seem like [_{TP} [_α stories about each other_i] T [_{VP} (*t'*_α) frighten [_{VP} John and Mary_i *t*_{frighten t_α}]]]

If the matrix subject were base-generated in the matrix clause, the binding condition would never be licensed. This thus suggests that in examples like those involving binding reconstruction, the matrix subject is originated in the embedded clause and moves to the matrix clause. Now observe that (18a,b) contrasts with (20a,b), where the coindexed pronoun is not the subject of the complement clause.

- (20) a.* [Stories about each other_i]_j seem like **John and Mary_i** like them_j
 b.* [Rumors about his_i mother]_j seem as if **Bill** expects them_j to make every boy_i aggravated

There are two potential derivations for these examples. Consider first the derivation in which movement is not involved, namely the surface subject is base-generated in the matrix clause (Recall that it is possible in principle to base generate the subject upstairs, as we saw in section 2). Then the anaphor/pronoun binding in question must fail due to the condition stated in (16). The anaphor and the bound pronoun in (20) never have a chance to appear inside the *like/as if* clause under this derivation. Consider next the derivation involving movement of the subject. One expects that if the matrix subject and the pronominal copy are linked in such a way that the MLC is violated, the binding relation under consideration should not be licensed. That is, an MLC violation prevents the relevant kind of movement from taking place, hence the reconstruction effect should not obtain. In those examples, the elements in boldface are closer to the matrix Spec-TP position than the ‘raised’ elements are. Thus, the existence of the intervening DP blocks A-movement of the phrases containing an anaphor or a bound pronoun. Thus we predict that (20a,b) are ungrammatical, correctly. If this construction cannot have the derivation involving overt movement as an option, it would be unclear how it is possible for the antecedent to bind into the complex subject in (18) and why it is not possible in (20). This is so because in the ‘A-chain formation without movement’ analysis, the antecedent never binds the anaphor or bound pronoun at any point of the derivation. Thus the reconstruction data we have presented above suggest that A-chains observed in this construction *need to* be formed by movement. Now that overt copy raising has been shown to be necessary to account for those binding facts, it should be clear that Potsdam & Runner’s

facts, which are accounted for in terms of A-chain formation of the P&R style without movement, must be reanalyzed in terms of long distance A-movement. For all other things being equal, we do not want both A-chain formation and long A-movement in one system, and now we know that everything captured by their A-chain formation is captured by long distance A-movement, though not vice versa.

Furthermore, a certain fairly well established assumption about licensing of expletive *there* strengthens the same conclusion. Let us consider *there*-doubling again.

(21) **There**₁ seems like **there**₂ is a unicorn in the garden

In the movement analysis, (21) is derived in the following way: an instance of *there* is generated somewhere in the embedded clause and moved to the higher subject position, leaving a copy of *there* behind. Notice that this analysis is perfectly compatible with the traditional observation that expletive *there* has the requirement that it select certain class of verb phrases containing weak quantifier NPs (Postal 1974). For instance, *there* selects *be*, unaccusative verbs or passive verbs. The movement analysis of copy raising captures the selectional property of an expletive straightforwardly. The selectional property is satisfied when the expletive is merged in the embedded clause before copy raising takes place. Also, the proposed derivation is well-suited with the assumption that many current analyses of existential constructions make, that is, *there* and its associate must be in some local relation (Williams 1994, Moro 2000, Hornstein & Witkoś 2004, Hazout 2004). If *there*₁ was base-generated in the matrix clause as in P&R's analysis, we would have to say that the expletive can establish an ultra long distance relation with its dependent.

To conclude this section, when a *seems like* construction displays a property of A-chain, the sentence involves overt A-movement out of a finite CP.

3. The derivation of copy raising and chain reduction

3.1. Subject passing through Spec-CP?

Having argued that the subject of copy raising moves overtly, this section attempts to show that the movement in question is from a SpecTP to the next higher SpecTP without passing through the intermediate SpecCP. First, let us consider the categorial status of *as if*, *like*, and *as though*. We claim that those particles are complementizers. The claim has been made that the instance of *like* occurring in the construction is a preposition (Maling 1983; Heycock 1994; Potsdam & Runner 2001). It is true that *like* has a clear prepositional usage when it follows verbs like *seem*, as in *This book seems like it*, but neither *as if* nor *as though* allows such a usage. Moreover, there is evidence that those particles are complementizers in the *it*-analogue of *seems like* construction.

- (22) a. It seems/appears [like/as if/as though Richard is in trouble]
 b. It seems [that Richard is in trouble]

Chomsky & Lasnik (1977) claim that expletive *it* needs a CP-associate. In (22b), the *that* clause is the associate of *it*. In (22a), the most likely possibility would be that the associate of *it* is the *like/as if/ as though* clause. Also, the head of the clause we are looking at displays something very similar to the *that*-trace effect.

- (23) a. * Who does it seem [{like/as if/ as though} *t* wants this laptop]?
 a'. What does it seem [{like/ as if/ as though} John wants *t*]?
 b. * Who does it seem [that *t* wants this laptop]?
 b'. What does it seem [that John wants *t*]?

The contrast in (23a/a') is parallel to that in (23b/b'). This parallelism can be accounted for if we assume that *like*, *as if* and *as though* are Comp, no matter what the explanation for the complementizer-trace effect turns out to be. The null hypothesis seems to be that the particles in the *seems like* construction and those in the *it*-analogue are the same lexical items. If so, *like* in *John seems like he is intelligent* is also a complementizer. Thus, these observations, put together with the reconstruction effect that we discussed, imply that copy raising involves overt raising out of finite CPs.

Now we are in a position to investigate the derivation of long A-movement more closely. In particular we can ask whether or not the raised subject passes through SpecCP on its way to the matrix SpecTP. The conclusion that we will draw is that the subject does not move up to the intermediate SpecCP on the way to the matrix clause. Note first that if the subject moves through the SpecCP to the matrix Spec-TP, the movement would be improper movement if the intermediate step is A-bar movement. If the complementizer only discharges an A-bar specifier, then the raised subject cannot move through that position. A second, stronger argument has to do with *there* doubling sentences, which we have already seen above. The argument proceeds as follows: let us assume that English does not allow C to have overt multiple specifiers. This assumption is empirically reasonable to the extent that the standard Subjacency account of wh-islands is empirically successful. If the copy raising subject must pass through the specifier of the relevant complementizer, then the *seems like* construction involving overt subject raising should yield a Subjacency effect with long wh-movement out of the *like/as if/as though* clause. If, on the other hand, the raised subject does not move through the specifier of the complementizer, that site should be available as an escape hatch for wh-movement. Now observe.

- (24) How many problems do there seem like there are ___ in this paper?

According to my informants, (24) is clearly better than a violation of the wh-island constraint such as *how many problems do you wonder whether there are ___ in this paper?*. This means that the complementizer *like* discharges a specifier but the long distance subject raising under consideration does not use that position.

This kind of long distance A-movement has been considered as illegitimate in many theories but is actually predicted to be possible by Chomsky's (2001a,b) Phase Impenetrability Condition. The condition does allow the movement from the Spec-TP to the matrix clause without an intermediate step. The PIC can be stated as follows (adapted from Chomsky 2001a: 14).⁸

- (25) PHASE IMPENETRABILITY CONDITION: The domain of a phase is only accessible to syntactic operations until the head of the next phase is introduced.

⁸ We cannot adopt the version of PIC proposed in Chomsky (2000), which predicts that the subject of the complement clause cannot be extracted in general. If our analysis of copy raising is right, it provides an argument in favor of Chomsky's (2001a) formulation of the constraint.

First, this condition disallows the matrix v to attract any element inside the sister of C, because C and v both are the heads of phases, as in (26), where the domain of the CP phase is highlighted.⁹

$$(26) \dots [{}_{VP} \dots v \quad V \quad [{}_{CP} \alpha C [{}_{TP} \beta T [{}_{VP} \dots]]]]$$

On the other hand, when the structure lacks v , attraction of the embedded SpecTP position is expected to be possible.¹⁰ The PIC allows the proposed derivation of copy raising, assuming that the *as if*-CP involves a strong phase and the VP headed by *seem* does not.¹¹ As should be clear, the PIC allows the higher T to attract/agree with (a feature of) the subject DP of the embedded clause since the domain of the phase, is accessible until the higher C is introduced. The higher T is introduced earlier than the C and therefore it is able to affect the DP in the lower Spec-TP.¹² This way, Chomsky's (2001a) PIC accommodates the derivation of copy raising that we are proposing.

To summarize, I proposed in section 1 that CR applies phase by phase. Cyclic CR predicts that, in the structure give in (27a) below, α_2^i is regarded as the head of the relevant chain at the lower CP phase. So only the lowest copy, α_3^i , undergoes copy deletion. Then the deletion operation applies at the next higher phase, but crucially the copy in the embedded Spec-TP cannot be deleted by this application of the operation at that phase, since α_2^i , which is not the edge of the phase, is invisible for the operation.

$$(27) \begin{array}{ll} \text{a. } [{}_{CP} \alpha_1^i \text{ seems } [{}_{CP} \text{ as if } [{}_{TP} \dots \alpha_2^i \dots \cancel{\alpha_3^i} \dots]]] & \text{[CR applied to the embedded CP]} \\ \text{b. } [{}_{CP} \alpha_1^i \text{ seems } [{}_{CP} \text{ as if } [{}_{TP} \dots \alpha_2^i \dots \cancel{\alpha_3^i} \dots]]] & \text{[S-O applied to the embedded CP]} \\ \text{c. } [{}_{CP} \alpha_1^i \text{ seems } [{}_{CP} \text{ as if } \dots]] & \text{[CR applied to the root]} \end{array}$$

This should be understood as a consequence of Spell-out. Chomsky states that in PH = [α [H β]], '[a] natural condition, ..., is that β must be spelled out at PH, but not the edge: that allows

⁹ I predict that *copy raising to object position* does not exist. This is because in (26), v cannot attract β unless the category moves to the edge of the finite CP. See Massam (1985), Polinsky & Potsdam (2001), Branigan & MacKenzie (2001), Bruening (2001), Rezac (2004), and references cited therein for relevant discussions.

¹⁰ Under standard GB assumptions, this movement does not result in a well-formed representation. For instance, Aoun (1981:93ff.) analyzes the relevant sort of configuration to be a violation of the ECP. See Moore (1998) for relevant discussion.

¹¹ See Legate (2003) for a different view.

¹² One immediate question arises as to why hyper-raising of the following kind is disallowed. For us, the unacceptability of examples like **John_i seems (that) t_i is intelligent* is accounted for in terms of CR (cf. 7). Chomsky (2001a: 45, fn. 29) claims that an example of this sort does not have anything to do with the PIC, which does not prevent the matrix T from probing the embedded subject. He attributes its unacceptability to the Activity Condition, according to which the embedded subject DP, whose Case feature is checked within the embedded clause, is not accessible to (A-type) operations. Chomsky's account makes a wrong prediction that copy raising is not possible either. Hence, Chomsky's 'Activity' account is hard to maintain to the extent that our analysis of copy raising is valid. But note that cyclic CR might predict that **John_i seems (that) he_i is intelligent*, which we assume is ungrammatical, following Lappin (1983), is grammatical (see Nevins, to appear for discussion). Here I suggest that *that* and null C of the relevant kind have interpretable ϕ -features, which block A-movement, whereas like, *as if* and *as though* do not (Groat 1999). Note that *that* clauses (though not those headed by null C for independent reasons, as argued by Bošković & Lasnik 2003) are able to stand in argument (or Case) positions to check ϕ -features of T or v whereas *like/as if* clauses never appear in such positions. Cf. *That Mary is smart is obvious* (cf. Bošković 1995; Pesetsky & Torrego 2001). This is expected under the proposal made here.

for head-raising, raising of the predicate-internal subject SPEC-T, and an ‘escape hatch’ for successive-cyclic movement through the edge’ (Chomsky 2001b:5). Chomsky (2001a:14) argues that PH1 is interpreted/evaluated at next relevant phase PH2, which requires that the domain of phase PH1 be spelled-out *after* the next phase PH2 is built. If the domain of the lower phase was spelled-out after CR applied to the matrix phase, the effect that we want would not ensue, because the Spec-TP would be still visible for the application of CR and would be deleted.

3.2 Case

In previous sections, we have discussed two peculiar properties of copy raising. The first one has to do with pronunciation of the embedded subject position. The issue was why the position from which long A-movement takes place has to be pronounced (as a pronoun). This issue was partially resolved by appealing to cyclic CR.¹³ The second property has to do with locality in the derivation of copy raising. We showed that the PIC is a theory of locality that nicely accommodates the proposed derivation. Here is a third peculiar property. The construction involves multiple Case checking.¹⁴ The subject DP of copy raising appears to have to get more than one Case, since the movement is from Case position to another Case position. Again, this is something that most theories of Case do not allow (e.g. Chomsky 1981, 1986; Rizzi 1986; Lasnik 1995b; Bošković 1997; Chomsky 2000; 2001a,b). In Chomsky’s (2000) terms, such a derivation is said to violate the Activity Condition, which says that having an uninterpretable feature is a necessary condition for an item to undergo A-movement or Case checking (cf. Ura 1994, 1998; Nevins to appear). However, whether or not the ban on multiple Case checking is a correct generalization is not as clear as we thought. Recent investigations suggest that multiple Case checking constructions are quite pervasive. It has been reported that long A movement of the sort that we are interested in is possible in languages such as Greek (Soam & Perlmutter 1979, based on Brian Joseph’s work, which I have not been able to look at), Igbo (Ura 1994, 1998), Turkish (Moore 1998), etc. Given this possibility, as implicitly or explicitly suggested by these authors, Universal Grammar should not bar derivations involving multiple Case checking. We thus conclude that the Activity Condition must be abandoned (the same conclusion is drawn by Nevins to appear).

Let us first consider how multiple Case checking takes place in the derivation of copy raising. We essentially adopt the theory of multiple Case checking proposed by Bejar & Massam (1999). They argue that the following option is allowed at least in some languages: a DP enters the derivation with an unspecified case slot, which is eventually assigned a value by the functional head that the DP is associated with.¹⁵ When the DP enters into a checking relation with head G that will assign Case (call it ‘Case_G’), the slot of the DP is assigned the value ‘Case_G’. Suppose next that another Case assigning head F (which assigns ‘Case_F’) attracts that DP (whose case slot has the value Case_G). Bejar & Massam propose that at this point of the derivation, the value of the Case feature that has been valued in the first Case

¹³ By ‘partially’ I mean that we do not know yet why the pronounced copy should be a pronoun, rather than a copy identical to the moved element. See section 5.

¹⁴ One terminological note. Our ‘multiple Case checking’ should not be confused with the same terminology that refers to the situation where one Case assigner is associated with more than one nominal. For instances of multiple Case checking in this sense, see Ura 1994, Hiraiwa 2005, among others.

¹⁵ To be fair, Bejar & Massam (1999:68, note 3) reject the possibility of assimilating the English *seems like* construction to the multiple Case assignment construction involving movement.

position (Case_G), is left behind. As a result, the moving DP, which now has its case slot unspecified again, can get the new value ‘Case_F’ from the higher functional head F. This is illustrated as in (28).

$$(28) \quad [_{FP} \alpha_{1[Case-F]}^i \quad F \dots [_{GP} \alpha_{2[Case-G]}^i \quad G \dots [\dots \alpha_3^i \dots]]]$$

Bejar & Massam’s original claim is that leaving a Case value behind is not an option for English (see note 15). But it is worth considering in the present context whether we can extend this ‘Case stranding’ theory to English copy raising, because our analysis of copy raising is making this very claim. In fact, it is possible to make an independent argument that the Case value of the moving subject is stranded in the lower subject position when it undergoes long A-movement. Consider (29) and (30).

- (29) a. * the belief [John to seem to be intelligent]
 b. * I conjectured [John to seem to have kissed Mary]
- (30) a. * the belief [John to seem like he is intelligent]
 b. * I conjectured [John to seem like he is intelligent]

(29a) and (29b) are instances of Case Filter violation because neither the nominal *belief* nor the verb *conjecture* is a Case assigner (see Bošković 1997, 2002b). If this is right, the ungrammaticality of (30a) and (30b) should be taken to be showing that the subject of the infinitival clause in these examples needs Case even though the moved element has got Case inside the *like* clause. Furthermore, if a Case assigning head is available in the higher clause, the Case Filter violation disappears for both regular raising and copy raising, as in (31) and (32).

(31) I believe/expect [John to seem [to be intelligent]]

(32) I believe/expect [John to seem [like he is intelligent]]

The observation made in (29)-(32) strongly suggests that the raised subject of copy raising leaves the Case behind when it undergoes raising from Case position, and the Case-less copy in the infinitival clause induces a violation of the Case Filter. Bejar & Massam’s ‘Case stranding’ theory of multiple Case checking accounts for this property of copy raising, as in (33) below. The highest copy lacks Case, which yields a Case Filter violation.

$$(33) \quad [_{XP} X_{[-Case]} \dots [_{TP} \alpha_{1[]}^i \text{ to}_{[-Case]} [_{VP} \text{ seem } [_{CP} \text{ as if } [_{TP} \alpha_{2[NOM]}^i \text{ T } [_{VP} \dots]]]]]]]$$

It is worth mentioning that this account of (29)-(32) presupposes the following: the derivation/representation of the relevant sentence is evaluated with respect to the Case Filter twice. Given that the Case Filter dictates that the uninterpretable or unspecified Case feature of an argument DP be checked or valued via checking, it would be unclear under the standard interpretation of the Case Filter why the subject of copy raising displays Case Filter effects at all in (30), because the Case of the subject DP has been already checked within the complement clause. So this reasoning suggests that the Case Filter must be satisfied more than one time in the derivation for multiple case checking constructions. This idea can be implemented naturally by taking the Case Filter to be a cyclic filter. Just as we did for CR, we

can define relevant cycles to be phases in this case as well. Assuming that the v associated with the verb *conjecture* does not have the ability to check Case, the matrix vP for (30b) has a structure like the following.

- (34) [_{VP} I $v_{[-Case]}$ [_{VP} *conjecture* [_{TP} $\alpha^i_{I[_]}$ $t_{[-Case]}$ [_{VP} *seem* [_{CP} *as if* [_{TP} $\alpha^i_{2[NOM]}$...]]]]]]]]

When the matrix v is introduced, the *as if*-CP phase is evaluated with respect to the Case Filter. The filter is satisfied since the embedded subject gets Case properly from the embedded T. But the Case Filter is violated when the vP phase is evaluated: the head of the chain, $\alpha^i_{I[_]}$, lacks a Case value, as in (35), where the embedded TP (i.e. the domain of the lowest phase) has already been spelled-out/transferred, as indicated by a highlight.

- (35) [_{CP} C [_{TP} I T [_{VP} t_I $v_{[-Case]}$ [_{VP} *conjecture* [_{TP} $\alpha^i_{I[_]}$ $t_{[-Case]}$ [_{VP} *seem as if* ...]]]]]]]]

If the matrix verb is an ECM verb such as *believe*, then α^i_1 gets Case from the v associated with that verb and no Case Filter violation ensues.

Finally, note that the present proposal implies that copy raising constructions be closely tied with multiple Case checking constructions. In our terms, whenever the lower copy in the embedded subject position survives copy deletion, the sentence involves multiple Case checking. If the lower copy or the higher copy does not get Case inside the relevant CP, it would lead the derivation to crash because either of the Case-less copies induces a Case Filter violation. Thus, we expect that copy raising always takes place from a Case position to another Case position. It is important to note that the correlation between copy raising and multiple Case checking is not bidirectional. The present theory expects that even when a chain involves more than one Case position, it does not necessarily result in pronunciation of the lower copy. When the moving element moves to a phase edge position, the copy in the Case position in the embedded clause must not be pronounced. Thus we end up with the following generalization.

- (36) ‘PRONOMINAL COPY/MULTIPLE CASE CHECKING’ GENERALIZATION: Pronunciation of the embedded subject position requires multiple Case checking, but not vice versa.

I will return to this generalization in section 4.¹⁶

¹⁶ Although I will not discuss *seems like* sentences involving *there* in detail for space reasons, many important issues are involved. If, as reported in Potsdam & Runner (2001), Groat (1999) and Chomsky (2001), *there seem like there are problems* is grammatical, it implies that the matrix T and *problems* downstairs enter into an agreement relation. One consequence of (37) is that *there* in the embedded spec-TP is assigned Case, which is compatible with a Belletti-Lasnik style analysis of existential constructions (Belletti 1988; Lasnik 1993, 1995a), but not an analysis of the Chomsky (1995, 2000, 2001) style. In addition, many of the speakers I have consulted accept (i), where the matrix verb shows ‘default’ agreement (cf. Groat 1999 for a different judgment of a sentence like (i). See Chomsky 2001; Rezac 2004:159 for relevant discussions).

(i) There seems like there are serious problems remaining to be solved.

Also, we can construct examples like (ii) and (iii), where the ‘associate’ moves to the embedded Spec-TP, although the status of these examples is far from clear (cf. Rezac 2004).

(ii) There seems like a serious problem is remaining to be solved.

(iii) There seem like serious problems are remaining to be solved.

More investigations are needed to determine what these examples tell us about the *seems like* construction and *there* existential constructions.

4. Other instances of multiple case checking

Having examined the Case-theoretic property and copy deletion property of copy raising, I would like to examine in more detail the correlation between pronunciation of Case marked traces and multiple Case checking, which is introduced in (36) above. The present theory predicts that if the subject of the embedded clause moves to the Spec-CP, then the subject position will not be left undeleted regardless of whether the relevant construction involves multiple Case checking or not. The generalization is repeated below.

- (37) ‘PRONOMINAL COPY/MULTIPLE CASE CHECKING’ GENERALIZATION: Pronunciation of the embedded subject position requires multiple Case checking, but not vice versa.

We already have seen in section 1 that cyclic CR successfully handles successive cyclic wh-movement. Now we will test this hypothesis with multiple Case checking constructions where movement to the intermediate SpecCP takes place. There are two potential places where we can test the validity of our proposal: Norwegian topicalization and French/Italian pseudo-relative clauses.

Taraldsen (1981) argues that topicalization in standard Norwegian involves multiple Case checking/assignment. When the subject of the embedded clause is fronted to the matrix clause, the fronted element is assigned nominative Case by the embedded Tense and accusative case by the matrix verb. Assuming that the auxiliary verb *hadde* ‘had’ moves to C and that topicalization is the operation that moves something to the matrix Spec-CP, Taraldsen proposes a derivation of the kind illustrated in (38b) for the example given in (38a).

- (38) a. Per hadde de trodd __ ville komme forsent
 Peter had they thought would arrive too late
 ‘Peter, they thought __ would come too late.’
 b. [_{CP} Per_i hadde_j [_{TP} de t_j trodd [_{CP} t_i [_{TP} t_i ville komme forsent]]]]
 ⏟ →] ACC ⏟ ← [NOM

In (38b), the moved element *Per* ‘Peter’ is assigned Case by the embedded T and by the matrix verb *trodd* ‘thought’ (or *v/AgrO*) ‘exceptionally’. Evidence that long distance subject topicalization involves multiple Case checking comes from what is called ‘case conflict’. Let us consider the examples in (39) below ((39)a)=(38)a).

- (39) a. Per_i hadde de trodd [_{CP} t_i [_{TP} t_i ville komme forsent]]
 Peter had they thought would arrive too late
 ‘Peter, they thought __ would come too late.’
 b. dere_i hadde de trodd [_{CP} t_i [_{TP} t_i ville komme forsent]]
 you.PL.NOM/ACC had they thought would arrive too late
 ‘you, they thought __ would arrive too late.’
 c. * {jeg, du, vi}_i hadde de trodd [_{CP} t_i [_{TP} t_i ville komme forsent]]
 {I, you.SG.NOM, we} had they thought would arrive too late
 ‘{I, you.SG.NOM, we}, they thought __ would arrive too late.’
 d. * {meg, deg, oss}_i hadde de trodd [_{CP} t_i [_{TP} t_i ville komme forsent]]
 {me, you.SG.NOM, us} had they thought would arrive too late
 ‘{me, you, us}, they thought __ would arrive too late.’

The difference between (39a/b) and (39c/d) is attributed to the fact the topicalized elements in the former are morphologically neutralized or underspecified for nominative and accusative cases while those in the latter are not. The name *Per* and the second person plural pronoun *dere* do not have a morphological distinction between their nominative and their accusative forms. On the other hand, the first person singular, second person singular, and first person plural pronouns in Norwegian have different morphological forms for nominative and accusative cases, as we can see in the (c) and (d) examples. Taraldsen takes this type of contrast to be indicating that the topicalized element is doubly Case-marked and that such movement yields a grammatical output only if the morphological condition on case realization is met. To put it another way, an element can carry two different values of Case (e.g. nominative and accusative) only if the actual forms of these two Cases are non-distinct.¹⁷

Assuming that Taraldsen's analysis of this construction is correct, let us now see how the proposed cyclic theory of CR works. Consider (40), where we assume that the topicalized DP passes through the matrix Spec-*vP* as well, though this assumption does not affect our argument.

- (40) $[_{CP1} DP^i_1 \text{ hadde } [_{TP} \text{ de } [_{vP} DP^i_2 t_{de} v \text{ trodd } [_{CP2} DP^i_3 [_{TP} DP^i_4 \text{ ville } DP^i_5 \text{ komme forsent}]]]]]$

Once the matrix *v* attracts the DP, the CR process starts from the lowest phase, CP₂ (see 41a below). At this level, CR deletes DP₄ⁱ and DP₅ⁱ. Only DP₃ⁱ, being the 'head' of the chain, survives this deletion process. And then TP₂ undergoes Spell-out. Next, when the matrix C is introduced, CR applies to *vP*₁ (see 41b). At this point, the visible copies to the operation are DP₂ⁱ and DP₃ⁱ. The latter, which is in the edge of CP₂, undergoes deletion. Finally, CR applies to the highest phase, where the edge of the phase *vP*₁ is visible for the deletion operation. Eventually, the chain ends up having all but the highest one deleted, as desired (see (41)c)).

- (41) a. $[_{vP1} DP^i_2 \text{ de trodd } [_{CP2} DP^i_3 [_{TP2} \cancel{DP^i_4} \text{ ville } \cancel{DP^i_5} \text{ komme forsent}]]]$
 b. $[_{CP1} DP^i_1 \text{ hadde } [_{TP1} \text{ de } [_{vP1} DP^i_2 t_{de} \text{ trodd } [_{CP2} \cancel{DP^i_3} [_{TP2} \cancel{DP^i_4} \dots]]]]]$
 c. $[_{CP1} DP^i_1 \text{ hadde } [_{TP1} \text{ de } [_{vP1} \cancel{DP^i_2} t_{de} \text{ trodd } [_{CP2} \cancel{DP^i_3} [_{TP2} \cancel{DP^i_4} \dots]]]]]$

We thus predict that in this Norwegian construction, the embedded subject is not allowed to avoid undergoing deletion. This seems to be correct, as Knut T. Taraldsen (p.c.) points out.¹⁸ Thus, the facts about Norwegian topicalization support our 'pronominal copy/multiple Case

¹⁷ *Tro* 'think' does not seem to always assign accusative Case, as (i) suggests. As far as this option is available, it becomes puzzling why case conflict arises at all.

(i) De hadde trodd Per ville komme forsent
 they had thought Per would arrive late
 'They thought Peter would arrive late.'

One generalization compatible with the fact would be that *tro* assigns accusative Case only if the potential case assignee undergoes A'-movement. In fact, there are quite a few cases subject to this generalization reported from English, French, or Italian 'ECM' constructions (e.g. Postal 1974). Observe: **John alleged Bill to have kissed Mary* vs. *Who did John allege to have kissed Mary?/Bill, John alleged to have kissed Mary*. Existing proposals about *allege* class verbs might extend to this Norwegian case. See Ura 1993, Bošković 1997, and references cited therein. I thank the reviewer for drawing the Norwegian fact to my attention. See also note 19.

¹⁸ For some speakers, resumption is allowed if the complementizer is overt. Those speakers find the so-called *that*-trace configuration unacceptable. For speakers whose grammar does not have *that*-trace effects (see Taraldsen 1981 for this variation), resumption is always disallowed. I am indebted to Kjartan Ottosson, who attributes this observation to Jan Terje Faarlund, and Knut T. Taraldsen for this information.

checking' generalization, namely multiple Case checking does not presuppose pronunciation of the copy in the embedded subject position.¹⁹

One might wonder if the difference between the chain-pronunciation properties of copy raising and of Norwegian topicalization can be attributed to A/A' distinction. One possible scenario would be that Case-marked A-traces must be pronounced while Case-marked A-bar traces must not. But this approach does not seem to be right, as will be shown. One possible testing ground for the validity of this alternative would be a case involving multiple Case checking and A movement into a phase edge. The situation minimally differs from English copy raising in that the intermediate SpecCP is used as a landing site and minimally differs from Norwegian topicalization in that the SpecCP is an A position. Given this hypothetical situation, the alternative generalization under discussion predicts that the embedded SpecTP is not deleted since under that approach, A traces in Case positions do not undergo deletion. In contrast, our alternative makes an opposite prediction. The DP in the embedded SpecTP should be deleted since that DP is not the highest copy among those visible to CR.

Now we hope to find a phenomenon that provides the relevant configuration. I claim that Romance pseudo-relatives after perception verbs provide such a case.²⁰ Consider the following French example (from Guasti 1993:155).

- (42) J' ai vu Marie_i qui *ec*_i mangeait la pomme.
 I have seen Mary that ate the apple
 'I have seen Mary that ate the apple.'

We will assume with Guasti (1993: 145) that in (42), the verb 'see' takes a clausal complement and that *Marie* is in the Spec-CP whose head is *qui* (see note 26). The post-verbal DP is exceptionally Case-marked by the matrix verb.

¹⁹ The explanation of the case conflict phenomenon itself remains to be unclear in this paper (see note 17 as well). It appears that the highest copy of the chain created by topicalization carries two Case values here, which is unexpected from the Case stranding theory of multiple Case checking. Bejar & Massam (1999) propose that there is a parameter and that Norwegian, unlike English, chooses the value according to which a single DP can bear multiple case slots. However, the issue does not seem to be a matter of parameterization. Howard Lasnik (p.c.) informs me that the case conflict effect may be observed even in English, pointing out that *Mary/you, John doubts __ solved the problem* sounds better than *her/she, John doubts __ solved the problem*. If this is the case, the parameterization seems to be dubious. Rather, Lasnik's observation suggests that when A-bar movement takes place, the information concerning Case that the moving element has must be copied onto the copy merged into that A-bar position, as in (i) (assuming that the matrix Spec-vP and the Spec-CP are A-bar positions).

(i) [CP wh_[Nom/Acc] ... [vP <wh_[Nom/Acc]> ... [CP <wh_[Nom]> ... [TP <wh_[Nom]> ...]]

This tentative solution of the problem concerning multiple Case has to involve the stipulation that this copying process is restricted to A-bar movement. But some facts suggest that this is empirically plausible. First, to the best of my knowledge, clear cases of Case conflict phenomena are limited to A-bar constructions (e.g. free relatives) (McCreight 1988). Second, recall that we saw that the Case Filter applies cycle by cycle. One question that arises with this is why long distance wh-movement does not yield a Case Filter violation if the copies in A-bar positions do not have Case. As can be seen in (ii), we seem to have to say that the A-bar copies are able to access the nominative Case that <who>₄ is assigned by the embedded T, for the purposes of satisfaction of the Case Filter.

(ii) who₁ do you [vP <who>₂ think [CP <who>₃ [<who>₄ is intelligent]]]

If the Case information is copied onto the next higher A-bar copy, the cyclic Case Filter is satisfied at the highest phase and at the second highest phase without difficulty.

²⁰ See Kayne (1975), Cinque (1996), Guasti (1993) and Taraldsen (1984) for pseudo-relatives in French and/or Italian. I thank Maria Teresa Guasti for bringing this construction to my attention.

- (43) [TP Je ai [_{VP} t_{Je} vu [_{CP} DP_i qui [_{TP} ec_i T [_{VP} ...]]]]]
 ↳ ACC

Guasti argues, under the assumption that improper movement is not licit, that the SpecCP is an A position because from that position passivization and cliticization can take place (Kayne 1975:126ff.).

- (44) a. Je l' ai vu qui courait à toute vitesse
 I him have seen that ran at full speed
 'I saw him running at full speed.'
 b. **Ton frère** a été vu qui volait son voisin
 Your brother has been seen that stole his brother
 'Your brother was seen robbing his neighbour.'

Note that the following makes the empty subject of the pseudo-relative construction hard to analyze to be an A-bar trace, as Kayne (1975) already observed.

- (45) *Je l_i' ai vu que Jean frappait ec_i
 I him have seen that John hit
 'I saw him Jean hitting.'

Only the subject position of the embedded clause can be a gap in this construction. What kind of empty category could this gap be then?²¹ Since the empty subject is not likely to be a null pronoun in French, the simplest possibility compatible with the basic facts presented so far is to analyze the empty category as a trace of A movement.²² This option is perfectly available under the theory I am proposing, which does not prevent a DP from moving from a Case position. Then the sentence given in (42) is assigned a derivation of the following sort.

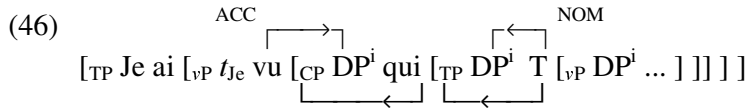
²¹ Cinque (1996) posits PRO, and Guasti (1993) *pro*, which is licensed by AgrC in her theory.

²² See Cinque (1996) for a different analysis of the construction under consideration and related constructions. He claims that, when passivization or cliticization is possible, the antecedent for the empty subject is base-generated as the direct object of the matrix verb. His argument for this claim bears on the observation that a verb like 'meet', which does not select a clausal complement, also can be followed by the DP-CP sequence, as shown by an Italian example like (i) (from Cinque 1996: 249).

(i) Hanno colto Mario che rubava negli spogliatoi 'They caught M. that was stealing in the dressing-room.'
 Though I cannot offer a detailed analysis of a construction of this type here, the availability of (i) does not necessarily exclude the movement analysis given in (46). *Tokoro* clauses in Japanese are very similar to pseudo-relative clauses in their distribution. Like pseudo-relatives, *tokoro* clauses occur with perception verbs, verbs like 'meet/catch', and verbs like 'stand'. Importantly, these *tokoro* constructions allow for backward control, as in (ii) (see Harada 1973, Kuroda 1978 and references cited therein for the *tokoro* clause construction).

(ii) karera-ga [Mario-ga kooisitu-de nusumi-o hataraiteru tokoro]-o tukamaeta
 they-NOM M.-NOM in.dressing-room was.stealing TOKORO-ACC caught
 'They caught M. that was stealing in the dressing-room.'

This construction can be analyzed as involving some kind of movement into theta position (Hornstein 2001) and pronunciation of a lower copy (Bošković 2002b). In fact, this is a minimalist version of the Counter Equi NP deletion analysis advocated by Harada (1973) and Kuroda (1978). If this analysis is viable, it is not unlikely for pseudo-relatives to be analyzed in terms of movement. The movement into the matrix theta position is followed by PF deletion of lower copies. Thus even if Cinque is right that (44)a) and 0b) must be assimilated to (i), our main claim is defensible.



This proposal explains why the object of the embedded clause cannot be a gap: the MLC prevents the object from moving to the SpecCP by skipping over the embedded subject, which is closer to the target.

As Kayne (1975:129) noted, the ‘deletion of the identical subject’ is obligatory. The embedded subject cannot be an overt pronoun. The same situation holds for Italian (Ivano Caponigro, p.c.). If our analysis of the construction in question is correct, then cyclic CR gives the desired result concerning the phonetic realization of the subject of pseudo-relatives. At the lower cycle, the SpecCP survives copy deletion and other copies are marked for deletion. Given that the SpecCP is an A position, it cannot be maintained that only copies left by A-bar movement realize as phonologically empty. What matters is then not whether the relevant movement is A or A-bar movement, but whether the embedded subject position is c-commanded by a coindexed copy in the edge position or not. Once the edge position is occupied by a member of the relevant chain, just as is the case with English *wh*-movement and Norwegian topicalization, the SpecTP position cannot avoid being marked for PF deletion. In this section, I provided independent support for the ‘pronominal copy/multiple Case checking’ generalization given in (37), which follows from our Case theory and cyclic CR.

5. Pronominal copy and scope

In previous sections, we discussed the ‘pronominal copy’ puzzle, namely why the embedded subject position of the copy raising construction must surface as a pronoun. We offered a partial answer to the question. Given the derivation of copy raising we argued for, the mechanisms of cyclic CR require that the SpecTP not undergo copy deletion. But the remaining half of the question has not been answered yet: why we do not have a PF output of the kind given below.

(47) *Sue seems as if Sue is intelligent

The embedded SpecTP position not just must be pronounced but also must be a pronoun. An approach that captures this property is suggested by Boeckx (2001: 165-166). Though he does not pursue this idea in detail, it seems to be worth examining what this approach would tell us about the relevant property of copy raising. Boeckx’s suggestion is that copy raising involves some kind of resumptive pronoun. See also Fujii 2003, Nevins to appear for variants of this claim. Cf. Ura 1994, 1998, who proposes insertion of a pronoun into the trace position. In this type of analysis, the moved element α and a resumptive pronoun are merged in the derivation of the embedded clause and only α moves to the matrix clause (call it the ‘sub-movement’ analysis). The derivation is something along the lines illustrated in (48), where I assume that D surfaces as a resumptive pronoun.^{23 24}

²³ The most natural way to implement the sub-movement analysis is something along the following lines. If T generally assigns Case to DPs (not NPs), the moving element α , which is an NP, has to be merged with a newly introduced D to form a DP, which goes into the SpecTP. (A somewhat similar idea has already been proposed by Dominique Sportiche; e.g. Sportiche 1999) This kind of derivation needs to be considered especially because of

(48) $[_{TP} \text{---} T \text{ seems as if } [_{TP} [_{DP} D(=> \text{pronoun})] [_{NP} \alpha]] \text{ is intelligent}]]$

The fact that ‘pronominalization’ is obligatory must be encoded into the system in this analysis in such a way that resumption is required in this configuration for some reason and therefore a pronoun always arises in the embedded subject position. The best argument in favor of the sub-movement analysis is, it seems to me, a fact concerning scope.²⁵ As Lappin (1983) observes, copy raising, unlike regular raising, does not allow scope reconstruction with indefinite subject QPs. Consider the pair in (49).

- (49) a. Two people seem [*t* to have won the lottery] (2>seem); (seem>2)
 b. Two people seem [like they have won the lottery] (2>seem); (*seem>2)

(49a) can be paraphrased as ‘it seems that two people have won the lottery’ (‘lowered’ reading), whereas (49b) cannot be paraphrased in the same way, i.e. the *seems like* counterpart lacks the lowered reading of *two people*. The lack of ambiguity in (49b) may constitute an argument against the ‘full movement’ analysis that we are proposing. In contrast, the sub-movement approach can handle this scope fact in tandem with particular assumptions about movement from Case position. Recall that part of the DP moves to the matrix clause in this analysis. Let us assume for the purposes of discussion that the moving element is an NP and that the numeral quantifier *two* in (49b) cannot be merged within the embedded clause because of the presence of the resumptive pronoun. If so, the only way to merge the quantifier is to merge it with the raised NP *before* the specifier of the matrix T is created, as in (50). Then, since the quantifier *two* never has a chance to occur within the embedded clause (within the scope of *seem*), we can exclude the possibility of the lowered reading of the quantifier, which is an empirically desired result.

(50) $[_{TP} DP \text{ seem } [_{CP} \text{ like } [_{TP} [_{DP} D \langle NP_i \rangle] \dots]]]$

$\swarrow \quad \searrow$
two NP_i ←—————|

In addition, the sub-movement analysis may account for why regular raising displays scope reconstruction, assuming that resumption is not allowed in the latter construction. Because there is not resumption in regular raising, it is possible to generate *two people* inside the embedded clause, namely within the scope of the matrix predicate. In this way, the analysis captures the two differences between copy raising and regular raising, namely the presence (or absence) of the pronominal copy and the (im)possibility of the lowered reading.

The remaining question is why resumption is required where it is required and prohibited where it is prohibited. Consider again the contrast between (51a) and (51b) (cf. the discussion surrounding 9).

the way that the analysis would deal with the scope fact that we will discuss below. Note that as Masaya Yoshida (p.c.) points out, in order to make this sub-movement account work, sideward movement out of *subject position* needs to be allowed. The sideward movement that the sub-movement analysis requires is not possible under Nunes’s (2004) theory of sideward movement (cf. also Hornstein 2001).

²⁴ As the reviewer correctly observes, the sub-movement analysis may predict that a DP like *his NP*, when it is an long distance A-moving element, should not exhibit the binding reconstruction effect if *his* is in the DP-domain. I will not commit myself to this issue partly because it is controversial whether *his NP* reconstructs even with regular A movement (Sportiche 1999) Cf. **his mother seems to every boy to be sick* is already bad (vs. *friends of his mother seems to every boy to be sick*).

²⁵ I wish to thank Kyle Johnson for his insightful comments on the material presented here.

- (51) a. Sue_i seems as if she_i is intelligent
 b. * Sue_i seems as if (for all the intents and purposes) ___i is intelligent

In this case, resumption is required. But there are cases where no resumption is allowed in the gap position as in *who do you think __ is intelligent?* or *John seems __ to be intelligent*. To account for this state of affairs, the sub-movement analysis seems to have to say that resumption is required *only when* a movement appears to be associated with multiple Case positions, given that copy raising is a multiple Case checking construction. If this is right, the analysis under discussion faces an empirical problem. It cannot handle the ‘pronominal copy/multiple Case checking’ generalization (37), which says that multiple Case checking does not necessarily come with pronunciation of the lower Case position. Let us take one more look at the French example and the Norwegian example that we discussed in section 4 (repeated as 52a and 52b respectively).

- (52) a. J’ ai vu Marie_i qui (*elle_i) mangeait la pomme
 I have seen Marie that she ate the apple
 ‘I have seen Mary eating the apple.’
 b. Per_i hadde de trodd (*han_i) ville komme forsent
 ‘Peter, they thought __ would come too late.’
 c. John_i seems like *(he_i) is intelligent
 d. Who_i do you think (*he_i) is intelligent?

As noted in the previous section, neither the subject of the embedded clause in (52a) nor that in (52b) can be a pronoun. Under the sub-movement analysis, we would expect that these positions would allow and require resumption, because these Spec-TP positions are assigned nominative Case; and without resumption, the moving DP would be doubly Case-marked.²⁶ But this expectation is not borne out. Thus, although the sub-movement analysis appears to capture straightforwardly the morphological and scopal aspects that the pronominal copy of copy raising has, it is unclear how the analysis is able to handle (52a) through (52d) in a coherent manner.

Having seen merits and demerits of the sub-movement analysis, let us discuss how the scope fact bears on our full movement analysis. The argument in favor of the sub-movement analysis might not be as strong as it looks. Boeckx (2001) argues that low scope of indefinites in raising constructions results from literal lowering of indefinites and insertion of a covert expletive, as illustrated below.

- (53) a. [someone from NY] is likely __ to win the lottery - QL+LF THERE INSERTION ->
 b. THERE_{LF} is likely [someone from NY] to win the lottery

²⁶ Boeckx (2000) and Taraldsen (2002) independently make the proposal that *qui* is *que* + expletive *i(l)*. It is worth asking whether this proposal saves the sub-movement analysis. Suppose the subject moves from a Case position (i.e. its base position in VP under this approach) to the intermediate CP, with the SpecTP filled with the expletive. If this is a correct extension of their proposal to pseudo-relatives, the problem mentioned in the text arises under this analysis of *qui* as well. Namely, the VP-internal nominative Case position would require resumption. I thank Cedric Boeckx for drawing this analysis of *qui* to my attention.

Boeckx notes, ‘ “lowerable” Quantifiers, that is, those subject to radical reconstruction, are precisely those that can appear in *there*-sentences’ (p.527) ²⁷ Boeckx also notes that the Quantifier Movement obeys the MLC, as in (54a) and (54b) (=Boeckx’s 67 and 68). The idea is that a QP cannot be lowered over another QP that intervenes between the QP to be lowered and its landing site.

- (54) a. A red car seems to me to be parked at the corner
 (= It seems to me that there is a red car ...)
 b. A red car seems to every driver to be parked at the corner
 (≠ It seems to every driver that there is a red car...)

The experiencer phrase *to me* in (54a) is not quantificational and therefore it does not block QL, whereas the QP *to every driver* in (54b) blocks it. This intervention effect suggests that it is not the case that the lowered reading is available whenever a full copy of the moving element is available downstairs. Then it becomes less clear whether we can take the unavailability of the lowered reading in the copy raising construction as strong evidence that the full QP never occupies in the embedded subject position in the derivation. Given this, the sub-movement analysis is no better than the full movement analysis with respect to the contrast in question between regular raising and copy raising.

Finally, consider the pronoun puzzle. While I will not offer a full answer to why the copy in question must be phonologically realized as a pronominal, I suggest a possible approach to the problem and point out theoretical issues raised by that approach. It has been sometimes proposed in the context of the copy theory of movement that a certain instance of pronoun is actually a realization of a trace/copy left by movement (Pesetsky 1998; Grohmann 2003; cf. Ross 1967; Perlmutter 1972; Boeckx 2003). In Pesetsky’s (1998) theory, whose focus is on resumptive pronouns occurring inside islands, when some constraint of grammar (e.g. an island constraint) prevents a copy from being phonologically silent, pronominalization of the trace is chosen over pronouncing the full copy for some economy reason. Pesetsky suggests that the pronominalization strategy is the most economical way of realizing the feature of the relevant copy (pp. 363-66). The same kind of story can be told about copy raising. In the construction we have been looking at, cyclic CR prevents the relevant copy from being silent. Thus Pesetsky’s economy condition provides an account of obligatory pronominalization found in the copy raising construction.

Several issues arise with this approach, however. Pesetsky’s theory of pronunciation of copies presupposes that movement does not leave a full copy. All other things being equal, if movement leaves a full copy, the most economical way of realizing the relevant copy should be just pronouncing that copy. So the analysis of the pronominal copy that we saw just above amounts to saying that movement leaves a trace, which of course does not fit well into the copy theory of movement of the kind that Nunes (2004) explores.

Another issue that arises here has to do with the LF status of pronominal copies.²⁸ Pesetsky’s theory does not say anything about this issue because pronominalization in his sense is a PF matter. (See Fox 2002 for a proposal that targets the same issue that arises in

²⁷ This idea captures the fact that quantified NPs like *every* NP do not allow reconstruction readings in regular raising construction (see also Lasnik 1999; Bobaljik & Wurmbrand 1999). Regarding negative QPs like *no one*, which do not display reconstruction, see Lasnik (1998a,b, 1999) and Boeckx (2001).

²⁸ If movement leaves a full copy, and if copies of a single item are subject to Binding Conditions, *John seems <John> to be intelligent* would be excluded by Condition C, for example. An earliest discussion about this issue can be found in Barss (1986: 346-347).

other empirical domains). Moore (1998) examines the Turkish copy raising construction and observes that the pronominal copy, which is phonologically null, behaves like a pronoun in terms of obviation effects (cf. Rezac 2004). In other words, this can be taken to suggest that the pronominal copy is a pronoun at LF, if the condition responsible for obviation effects arguably applies to LF representations. Moore stipulates, under a Binding theoretic approach to A movement locality, that A-chains of the copy raising construction are different from normal A-chains in that the former can terminate in a pronoun while the latter terminates in an anaphor. It is not a trivial matter how we can reinterpret Moore's idea in minimalist terms. This is partly because we do not want Binding Theory to regulate A movement locality, on top of the Minimal Link Condition. Also, the dichotomy of regular A-chains vs. copy raising chains is a stipulation that we must eliminate, all things being equal. As for the pronominal copy found in the English copy raising construction, it is not clear yet how pronominal copies are actually interpreted at LF. The reconstruction facts that we saw in section 2 suggest different directions, depending on at which level the relevant expression is licensed. If it is done (solely) at LF, the pronominal copy may not have to be a pronoun at that level. If licensing of those expressions is done at any point of the derivation, these facts may not tell us much about the LF status of the pronominal copy.²⁹

To sum up, the full movement approach is compatible with the scope data, which appears to be problematic at first site. It also manages to answer the question as to why the pronominal copy must be a pronoun along the lines of Pesetsky (1998), but this account raises several non-trivial theoretical issues related to the copy theory of movement both on the PF and LF sides.

6. Conclusion

This paper has offered one argument for the claim that which copy must be pronounced is determined cyclically. CR marks for deletion all the non-highest copies *that are visible to the operation when it applies*. The domain that the operation affects is determined by the notion of cycle, more specifically, by Spell-out, which is characterized by the notion of phase. When the highest copy among those visible to the operation is present in the edge of a phase, that copy is not marked for deletion at that phase, but it can be deleted at the next higher cycle. When the highest copy is not in the edge but somewhere inside the domain of the phase, it cannot be deleted even if further movement takes place, because the domain of the phase will have been spelled out before CR applies. If CR affects the whole chain last-cyclically, i.e. without reference to cycles/phases, the embedded subject position of the copy raising construction would be treated in the same way as other non-highest copies are. Since, as we have shown, it is not the case, this property of copy raising constitutes an argument for a cyclic model of grammar.

Finally, it is worth mentioning that copy raising is a novel case of pronunciation of a lower copy. Several instances of pronunciation of a lower copy have been reported in the literature. Bošković (2002a), along the lines proposed by Franks (1998), and Bobaljik (1995, 2002) independently argue that a lower copy is subject to phonetic realization when the pronunciation of the top copy leads to violation of some phonological constraint in a given language. In terms of CR, these are instances where the unmarked mode of application of the operation is overridden by an independent, language-particular PF constraint. Also, Nunes

²⁹ For licensing of idioms, see Lasnik & Saito's (1992) discussion of the Proper Binding Condition (cf. Kroch & Joshi's 1985).

(2004) discusses cases where a lower copy is pronounced when the copy in question is invisible to the copy deletion operation. In Nunes's cases, the non-top copy and some other element are fused into a phonological word, so that pronunciation of that copy does not cause a problem for the principle that would force copy deletion, namely the Linear Correspondence Axiom. The pronominal copy in copy raising is clearly different from these instances of lower copy pronunciation (cf. Grohmann 2003 for somewhat similar but different type of lower copy pronunciation). Rather, the case we have been discussing is a result of the interaction between the orthodox way of application of CR and cyclic Spell-out. It is natural to think that the answer to the question as to why the pronominal copy must be a pronoun, not a full copy, may lie in this difference between these two classes of lower copy pronunciation. Further investigations are required.

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