

Two Sources for Restrictive Relative Clauses : A Hybrid View

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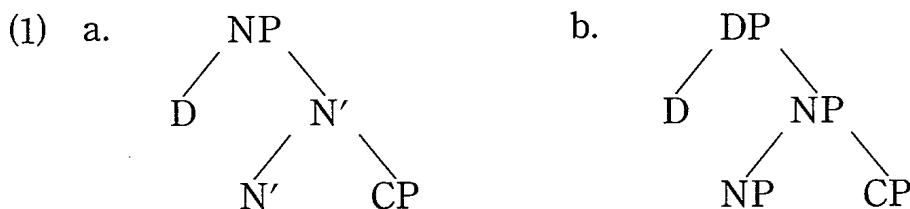
ABSTRACT

All traditional analyses (I am aware of) assume that English restrictive relative clauses are base-generated adjoined to N' or NP, as in either $[_{NP} D [_{N'} N' CP]]$ or $[_{DP} D [_{NP} NP CP]]$. In a paper published in 1994, Kayne has presented an alternative approach to restrictive relative clauses. He proposes that they involve a D with a CP complement, as in $[_{DP} D CP]$. A central element of these analyses is the idea that the restrictive relative clause is base-generated inside NP or DP. The purpose of this paper is to argue that English has two sources for restrictive relative clauses: relative clauses generated internal to DP and relative clauses generated external to DP. In the former instances, the restrictive relative clause is a complement of D, as is assumed by Kayne (1994), and in the latter instances it is base-generated outside DP as a XP adjunct, as will become clear in the text.

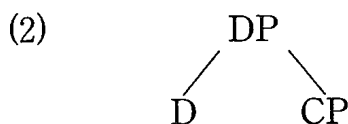
1. Introduction

Since the earliest days of generative grammar, substantive work has been done on relativization structures in English. All traditional analyses

(I am aware of) (e. g., Vergnaud (1974), Jakendoff (1977)) assume that English restrictive relative (henceforth ERR) clauses are base-generated adjoined to N' or NP, as in either (1a) or (1b).



In a paper published in 1994, Kayne has presented an alternative approach to ERR clauses. He proposes that ERR clauses involve a D with a CP complement, as in (2).



A central element of these analyses is the idea that the ERR clause is base-generated inside NP or DP.

I will argue here that English allows two sources for restrictive relative clauses: relative clauses generated internal to DP (henceforth, DP-internal ERR clauses) and relative clauses generated external to DP (henceforth, DP-external ERR clauses). In the former instances, the ERR clause is a complement of D, as is assumed by Kayne (1994), and in the latter instances it is base-generated outside DP as a XP adjunct, as will become clear shortly.¹

This paper is organized as follows. Section 1 provides evidence that a number of ERR clauses must be base-generated outside DP. In section 2, I develop an analysis of these DP-external ERR clauses. I argue that the DP-external ERR clause is base-generated as a XP adjunct. Section 3 discusses DP-internal ERR clauses. I argue that they are CP complements,

as is assumed by the model adopted in Kayne (1994). On the basis of the arguments in these sections, it is shown in section 4 that we can no longer assume a unified analysis for ERR clauses as adopted by many linguists. Instead, we are required to take a weaker position and assume a hybrid analysis for ERR clauses. Section 5 contains concluding remarks.

2. DP-External ERR Clauses

In this section, I will discuss DP-external ERR clauses, justifying their existence as an independent source for ERR clauses.

2.1 Antireconstruction Effects

As a starting point, let us consider an observation made by Lebeaux (1991) concerning Condition C effects in ERR clauses. Lebeaux notes that NPs in fronted ERR clauses are not subject to Condition C. Thus, the examples in (3) contrast with those in (4), where the clauses are nominal complements.

- (3) a . [Which pictures that John_i took]_j does he_i like t_j?
 b . [Which claim that John_i made]_j did he_i later deny t_j?
- (4) a . ??/ * [Which argument that John_i is a genius]_j did he_i believe t_j?
 b . ? * [Whose claim that John_i was asleep]_j did he_i deny t_j?

Lebeaux claims that the anti-Reconstruction effects in (3) can be explained by an analysis of the derivation in which ERR clauses are combined in the course of the derivation.

Consider example (3a). This example begins with the following structure :

- (5) he does like which pictures

Move- α applies to (5), moving *which pictures* to the Spec of CP, forming (6) (disregarding auxiliary movement).²

(6) *which pictures*_i does he like *t*_i

Merge attaches the ERR clause *that John took* to the fronted *wh*-phrase, yielding (7).

(7) [*which pictures*_i *that John took*] does he like *t*_i

In this derivation, the ERR clause is added after the *wh*-phrase has moved to the Spec of CP. Consequently, the name *John* can escape the c-command domain of the pronoun *he*. Thus, Lebeaux's analysis gives a good account of the fact that *John* can be coreferential with *he* in the example (3a). This analysis can easily be extended to (3b).

In Lebeaux's analysis, the ERR clause need not be inserted prior to movement, but can be inserted after the movement of the *wh*-phrase (see also Chomsky (1993), Safir (1999) and Fox (1999)). If the correct account is along these lines, it must be the case that the ERR clause in both (3a) and (3b) is not base-generated inside NP/DP; in other words, the ERR clause in question must be DP-external.

Alternatively, we might appeal to the analysis of the adjunct-complement asymmetry, discussed in Brody (1995), based on the copy theory of movement. In the copy theory of Move, Move leaves a copy of the moved element behind. According to this theory, then, *wh*-movement leaves exactly the same element as the preposed element, and this copy, although deleted if it is an adjunct, remains at LF if it is an argument, and the adjunct-complement asymmetry occurs when grammatical principles such as Principle C make reference to the copy at LF.

Under these assumptions, Brody (1995) argues that the effect of antir-econstruction is achieved without employing Lebeaux's system. Thus, the

structure of examples (3a) and (3b) look like (8a) and (8b), respectively, under the copy theory.

- (8) a . [which pictures that John took] does he like [which pictures]
 b . [which claim that John made] did he later deny [which claim]

In structure (8a), movement of the *wh*-phrase does not leave a copy of the adjunct behind since it is not forced by selectional requirements. From the point of view of economy, it must not be present in the *wh*-movement extraction site. There is, then, no legitimate LF-structure where the name *John* is c-commanded by its antecedent, explaining the grammaticality of (3a). Similarly, in structure (8b), movement of the *wh*-phrase does not leave a copy of the adjunct behind, since it is not an argument. There is, then, no legitimate LF-structure where the name *John* is c-commanded by the pronoun *he*. Consequently, the name can be coreferential with the pronoun—hence the grammaticality of (3b) is correctly predicted.

Brody's approach (introduced above) is consistent with the idea that ERR clauses are base-generated inside DP. Recall that according to this approach, ERR clauses are added before Move has applied. Thus, the introduction of ERR clauses does not fail to be DP-internal.

However, there is an empirical problem with the above account of antireconstruction. Consider the following examples (from Takano (1995: 332)):

- (9) a . *Criticize a student that John_i taught, he_i said Mary did.
 b . *How proud of a student that John_i taught did he_i say Mary is?

Under the copy theory of movement, movement of the phrase leaves a copy behind in each case, but the ERR clause, being an adjunct, need not be present in the copy of the preposed phrase. There is, then, a legitimate LF

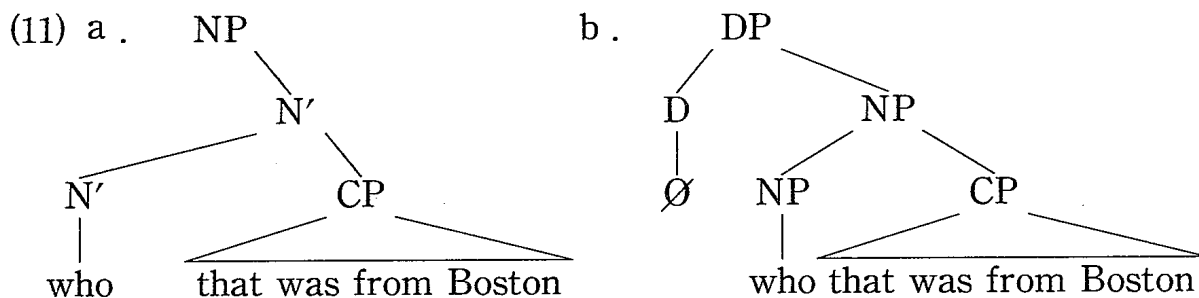
-structure where Principle C is not violated. Hence, the ungrammaticality of the examples in (9) is not correctly predicted.³

2.2 Stranding

A second argument for the DP-external character of ERR clauses comes from the following examples (example (10a) is from Baltin (1978)):

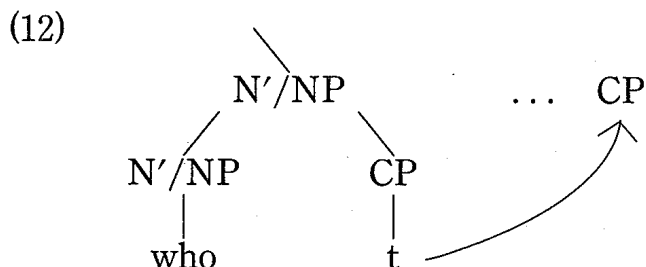
- (10) a . Who_i did John pretend that it was [t_i that was from Boston] that everybody liked ?
 b . How many girls_i does he seem to have known [t_i who were eager to date him] in his schooldays ?
 c . Who_i did you criticize [t_i who's hostile to Bill] ?

Neither the traditional analyses (as in (1) and (2)) nor Kayne's analysis (as in (3)) covers these cases. Under the traditional analyses as in (1) and (2), the ERR clause forms a single constituent with its head in (10a), as in either (11a) or (11b).



According to the bare theory of Chomsky (1995), the lower N' in (11a) and the lower NP in (11b) are not maximal projections. Assuming with Chomsky (1995) that intermediate projections are invisible to the computational system in human language, the option of the lower N'/NP being moved into the Spec of CP is excluded. But then this incorrectly predicts that example (10a) is ungrammatical.

Following traditional wisdom, according to which languages like English allow extraposition, one might claim that example (10a) involves rightward movement of the ERR clause, as illustrated in (12).



As a result of this operation, the head of the ERR clause in (12) can move up to the Spec of CP, stranding the CP. Hence, the grammaticality of (10a) is correctly predicted. This kind of rightward movement operation seems to have a number of problems, however. Notice first that movement to the right is at odds with Kayne's (1994) theory of phrase structure. Kayne (1994) has advanced an interesting theory of phrase structure. He proposes that word order reflects structural hierarchy in all natural languages. To put it differently, he proposes the Linear Correspondence Axiom (LCA). This states that asymmetric c-command imposes a linear ordering of terminal elements. If this condition is violated, any phrase marker is barred. This restrictive definition of phrase marker has various consequences. A well-known consequence of Kayne's theory is that right adjunction is generally prohibited.

Notice secondly that, from the perspective of the Minimalist Program, rightward movement without any feature checking is unmotivated. In the minimalist analysis, all movements must be triggered by the need to check morphological features. As some linguists (cf. Hornstein (1994)) have pointed out, however, it is hard to find a functional category to the right whose specifier position is a landing site for checking features of CP.

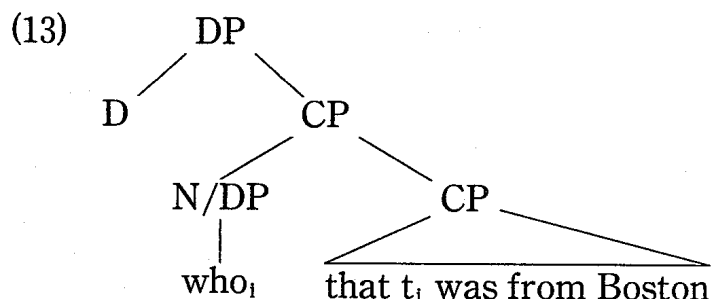
Thirdly, the extraposition analysis requires adopting a “string vacuous” movement, for the extraposition operation in question leaves the apparent surface form perfectly intact. On the assumption that overt movement is forced by PF considerations, it is not entirely obvious why such a string vacuous movement should exist at all.

Finally, the analysis of (10a) in terms of extraposition must involve rightward movement of the ERR clause out of the DP and subsequent raising of the DP containing a trace of the ERR clause. Hence, example (10a) is ruled out by the Proper Binding Condition, which requires a trace to have an antecedent that strictly c-commands it. Given this, example (10a) should be ill formed, contrary to fact.

A possibly less preferable solution would be to assume that the higher N'/NP in (11) acts as if it were absent for the purposes of movement. That is, in the adjunction structures in (11), the higher N'/NP does not block movement of the lower N'/NP out of it. The hypothesis that the higher N'/NP in (11) is not accessible to movement has the virtue of being compatible with one view on the elements formed by adjunction; that is, the postadjunction elements to which an item is adjoined is not a category in its right (cf. Chomsky (1995: 43-44)). However, as argued by Browning (1991), Lasnik and Saito (1992), and Tanaka (1994), such a view fails to explain numerous facts that make sense under the assumption that adjunction creates an additional category.

Let us now consider Kayne's (1994) analysis of ERR clauses. Facts like (10) can not be analyzed straightforwardly if ERR clauses are assigned the syntactic structure shown in (2), where the ERR clause is a complement of D. Under the further assumption that they involve movement of an N/DP to the Spec of C, which for Kayne (1994) is a position adjoined to CP, the

ERR clause in example (10a) has the structure in (13).



As I pointed out, under his theory, right adjunction is prohibited. In view of this, *who* moves to the Spec of the matrix C, stranding the ERR clause, obtaining the right surface order. This is an unattractive avenue, for two reasons. First, an analysis involving the stranding of an ERR clause is open to objection, in view of the well-known observation that A'-movement cannot strand an ERR clause in an intermediate position, as illustrated in (14).

(14) * Who_i did you think [t_i that you know]_j John talked to t_j?

Given that the *wh*-word *who* is raised to the Spec of the matrix C through the embedded CP, the ungrammaticality of (14) is not expected on the stranding view, since movement of the whole phrase *who that you know* can take place, as shown in (15).

(15) Who that you know does Sandy also know?

Someone might claim that example (14) can be ruled out by whatever rules out examples such as (16).

(16) a . * Who_i did you think [to t_i]_j John talked t_j?

b . * Who_i did you think [about t_i]_j John talked t_j?

But the judgment is unsound. Given cases like (16), some mechanism is necessary to prevent preposition stranding in the Spec of C. I suggest that an explanation of example (16a) follows if we assume that *to* can be

analyzed as a Case marker on a DP (cf. Larson (1987), Belletti and Rizzi (1988), Hornstein (1994)). In (16a), the *wh*-phrase has passed through the Spec of the embedded C. In spite of this, *to* cannot be stranded in this intermediate position by extraction of *who* alone, for (like all other Case-markers) *to*, being a Case marker on a DP, cannot be stranded; hence the example is ill-formed.⁴ The same story carries over to example (16b), if we assume that *about* is taken as a thematic-relation marker. Reinhart (1981) proposes a treatment of PPs whose head is *about* on which *about* is taken as a thematic-relation marker. On this view, the phrase *about who* in (16b) is not a PP, but a DP, so that it is not surprising that example (16b) behaves like example (16a) with respect to stranding. Assuming this analysis of preposition stranding to be reasonable, it must not be the case that whatever rules out preposition stranding will also rule out the stranding of an ERR clause in the intermediate position of a chain; since an ERR clause is a CP complement within Kayne's (1994) analysis, the Case analysis of the unavailability of preposition stranding cannot be extended to capture the stranding fact in (14).⁵

Bianchi (2000) suggests that the reason why the relative clause cannot be stranded in the intermediate position of a chain in examples such as (14) is that it is ruled out by whatever rules out DP stranding in the Spec of the participle Agr, as in (17c).

- (17) a . Combien_i a-t-il consulté [_{DP} t_i de livres] ?
 How much has he consulted of books
 'How many books did he consulted?'
- b . [_{DP} Combien de livres] a-t-il consultés
 how much of books has he consulted-AGR
- c . * Combien_i a-t-il [_{DP} t_i de livres] consultés ?

How much has he of books consulted-AGR

Example (17a) illustrates a standard case of a “splitting” construction of French. As Bianchi (2000) notes, this construction is analyzed as involving movement of a DP subconstituent. Example (17b) shows that Move can raise the whole DP to the Spec of C. In this case, the DP has to move to the Spec of C through the Spec of the participle Agr, since the past participle agrees with the fronted DP (cf. Kayne (1989)). However, as example (17c) indicates, the stranding of a phrase cannot be found in the intermediate position. Thus, ERR stranding patterns like stranding by extraction of *combien* alone. It seems, then, that the stranding of an ERR clause is explained in whatever way we explain the unavailability of stranding in the Spec of the participle Agr in (17c).

This approach is not without problems, however. As is well known, in French passives, the object has to move to the subject position through the Spec of the participle Agr due to the fact that it triggers participle agreement. If participle agreement reflects the presence of a specifier in the Spec of the participle Agr in passive cases, we are led then to assume that the Spec of the participle Agr is an A-position. That the Spec of the participle Agr is an A-position is also supported by quantifier floating. Consider the following example:

(18) Il les_j a [tous t_j]_i consultés t_i

he them has all consulted-AGR

‘He consulted all of them.’

Floating quantifiers, although incompatible with standard cases of A'-movement, are possible in standard cases of A-movement (cf. Sportiche (1988)). Hence, the presence of a floated quantifier in (18) strongly suggests that the Spec of the participle Agr is an A-position. If the Spec of the

participle Agr were an A'-position, then example (18) is expected to be ungrammatical. Example (17c) then differs from example (14) in that it has a floating quantifier in an A-position. Thus, it is not obvious that whatever rules out (17c) will also rule out example (14), where the ERR cause is stranded in an A'-position (i. e., in the Spec of CP).⁶

Relatedly, ruling example (14) out on the same basis as an account that excludes example (17c) seems to be rejected on empirical grounds. We noted a little earlier that floating quantifiers, although compatible with standard cases of A-movement, are not possible in standard cases of A'-movement. Note, however, that in West Ulster English, which is a local variety of English spoken in Ireland, *wh*-movement can strand a quantifier in an intermediate position (i. e., in the Spec of C), as example (19), adopted from McClosky (2000, 61) illustrates.

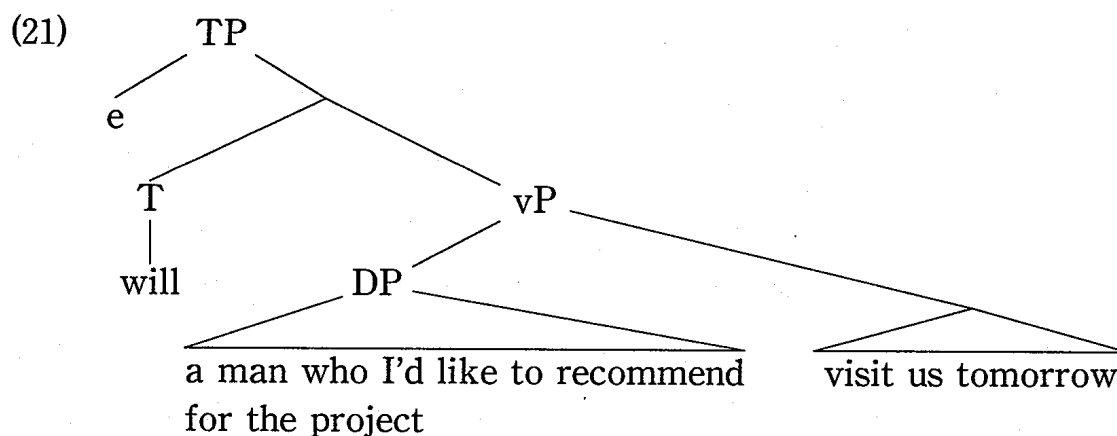
- (19) a . What all did he say (that) he wanted t ?
 b . What did he say (that) he wanted all ?
 c . What did he say all (that) he wanted t ?

If we treat example (14) and (17c) as one and the same phenomenon, as Bianchi (2000) proposes, example (19c) should be no better than (14); both involve A'-movement of a DP subconstituent, leaving the stranded DP in the Spec of CP. That the stranding of a quantifier in examples such as (19c) is possible argues that Bianchi's proposal is not correct.

A related serious problem for the stranding analysis of example (14) is provided by the following ungrammatical example:

- (20) * A man will [who I'd like to recommend for the project] visit us tomorrow.

A partial structure of (20) consistent with the VP-internal subject hypothesis is given below :



In (21) the subject of the verb must raise to the Spec of TP. Note now that the ERR clause cannot be stranded in the base position by extraction of *a man* alone, as example (20) above shows. If the stranding analysis of (14) is adopted, then the ETR clause in (21) can be stranded in its base position by extraction of *a man* alone, just as in (14), and thus it follows that example (20) is grammatical. In fact, this is not the case.

A way out of this dilemma would be to assume that A-movement cannot strand an ERR clause in a base position. Given this, the difference between (14) and (20) with respect to the availability of stranding follows from the fact that the former involves A'-movement, whereas the latter involves A-movement. This analysis is problematic, however, given that as extensively discussed in Sportiche (1988), stranding, although compatible with standard cases of A-movement, is not possible in standard cases of A'-movement.

A possible more preferable solution would be to assume (contrary to Kayne (1994)) that the ERR clause can be stranded by A-movement only in a Case-marked position. This excludes example (20) due to the fact that the stranded ERR clause in (20) is not in a Case-marked position.

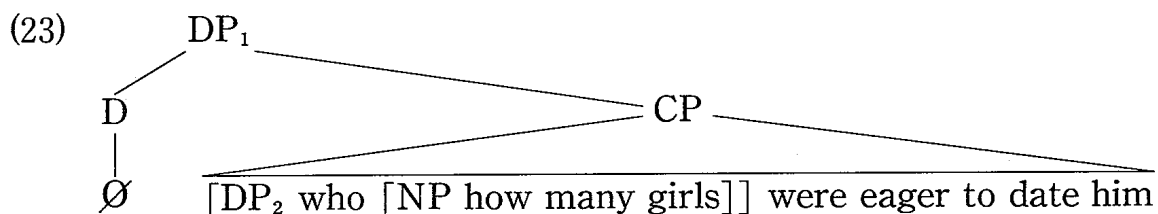
One apparent problem for this analysis is provided by the following

example :

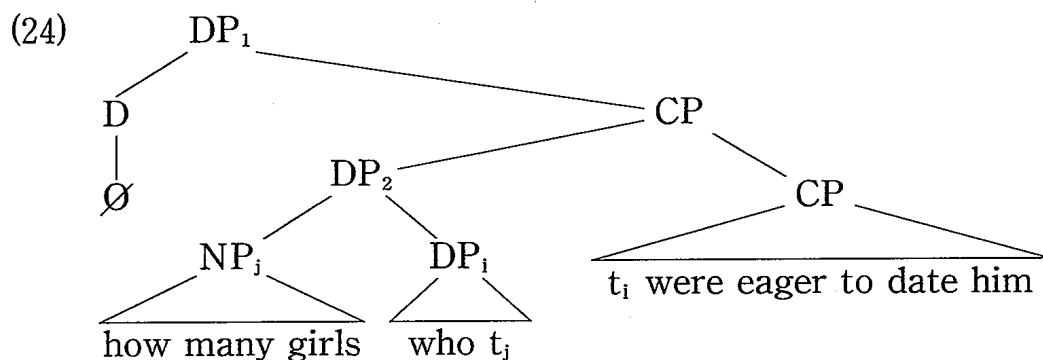
(22) John met a man yesterday who is from London.

Under Kayne's system, the direct object DP in (22) undergoes overt object shift over the adverb within VP. Let us now suppose, following Takano (1998), Tanaka (1998), and Kayne (1994), that the moved DP and its trace form an A-chain. On this view, then, it is not clear why example (20) and example (22) show different properties with respect to stranding, since both involve A-movement from a non-Case-marked position. Thus, it is not a correct empirical generalization that a relative clause can be stranded by A-movement only in a Case-marked position.

A third problem with the stranding analysis of examples such as (10a) is that it cannot accommodate examples such as (10b) and (10c). For illustration, let us look at (10b), where the ERR clause is introduced by a relative pronoun. In Kayne's theory, the ERR clause in example (10b) begins with the following structure :



The whole DP2 moves to the Spec of CP, and then the NP phrase raises to the Spec of the moved DP. Then we get the following structure:



The crucial difference between (24) and the structure of *that*-relatives in (13) is that the raised nominal constituent is the leftmost constituent of DP₂ in the former case. In structure (24), movement of the NP raised to the Spec of DP₂ out of DP₁ must take place in overt syntax in order to explain the grammaticality of (10b). But, such movement is impossible, given that no N/DP which is the leftmost constituent of a larger N/DP can be moved out of this N/DP (cf. Ross (1967)).

To sum up: I have argued that neither the traditional analyses of examples like (10) nor Kayne's analysis is plausible. These analyses face a variety of problems. Clearly, all the problems arise from allowing the ERR clause to be base-generated inside N/DP. This seems to motivate the DP-external source for the ERR clause in cases like (10).

2.3 Extraposed ERR Clauses

Consider the following example taken from Kayne (1994):

- (25) John is going to talk to someone tomorrow who he has a lot of faith in.

Kayne (1994) points out that the adverbial in (25) can have matrix scope. This means that a matrix adverbial may optionally appear between an ERR clause and its head. In GB-style theories, sentences like (25) have been analyzed in terms of rightward movement of the ERR clause. The Extraposition analysis, however, contradicts standard Minimalist assumptions (see Kayne (1994)). In view of this, Kayne (1994) reanalyzes such cases in terms of raising. In Kayne's theory, example (25) begins with the following structure:

- (26) John is going to talk tomorrow [_{PP} to [_{NP} someone who he has a lot of faith in]]

Move- α moves *to someone* to the left of *tomorrow*, stranding the ERR clause, obtaining the right surface order. A bad consequence of this analysis, as Kayne (1994) puts it, is that it requires movement of *to someone*, which is not a constituent.⁷

In sum, examples like (25) do not receive an explanatory account if the N/DP-internal theory of ERR clauses is assumed. It would therefore be good to be able to deal with these examples without relying on the view that the ERR clause is base-generated inside N/DP. Thus, I take an extraposed ERR clause to be an instance of DP-external relativization.⁸

2.4 ERR Clauses Precede Argument Clauses

It has been noted (Haider (1997)) that extraposed relative clauses precede argument clauses:⁹

(27) a . It struck a grammarian last month [who analyzed it] that this clause is grammatical.

b . ??It struck a grammarian last month that this clause is grammatical [who analyzed it]

Under the N/DP-internal analyses, the grammaticality contrast in (27) is unexpected. In the practice of GB-style theories, it is commonplace to assume that example (27a) is a simple consequence of rightward movement of the ERR clause. However, such an analysis fails to explain the fact that the extraposed ERR clause precedes an argument clause, as illustrated in (27b). It is generally thought that an extraposed phrase related to an object NP is attached to VP (cf. Baltin (1983)). It must be, then, that the ERR clause in (27b) follows an argument clause, contrary to fact.

Alternative analyses are imaginable, including vacuous extraposition and leftward movement of the head of the ERR clause. However, as

argued at length above, such analyses seem to be quite unsatisfactory.

This strongly suggests that the ERR clause in examples such as (27) is not base-generated inside N/DP, but that it must be base-generated outside N/DP.

2.5 Distribution of *That*

There is further evidence against N/DP-internal analyses based on structures like (1) and (2). These analyses cannot capture the contrast between the following sentences (the examples are taken from Sag (1997)).

(28) a . Who that you like does Sandy also like ?

b . * Who you like does Sandy also like ?

The problem here is that the N/DP-internal analyses require that the relevant clause structure for the examples in (28) be (29).

(29) [_{N/DP} who (that) you like]

This now entails that the complementizer of example (28a) can be deleted, because it is generally assumed that the complementizer can be deleted in structures like (29), as suggested by the grammaticality of (30) below.

(30) Fay saw [_{N/DP} a guy I admire]

This incorrectly predicts that example (28b) is grammatical. Thus, I take example (28) to constitute rather transparent evidence that the ERR clause must be base-generated outside N/DP, contrary to the N/DP-internal analyses in (1) and (2).¹⁰

2.6 Antecedent-Contained Deletion

The example in (31) illustrates a standard case of Antecedent-Contained Deletion (ACD):

(31) Dulles [_{VP} suspected everyone that Angleton did [_{VP} e]]

Example (31) involves the VP gap, which must be interpreted at LF representation. An important question arises: What is the antecedent of the null VP? If we assume that the null VP is filled in by copying the matrix VP at LF, an infinite regress results, as shown in (32).

- (32) Dulles suspected everyone Angleton did [_{VP} suspected everyone Angleton did [_{VP} e]]

In (32), the VP that was copied to replace the null VP also contains another null VP. The existence of this null VP causes the sentence as a whole to be without a determinate content. This is called the “regress problem.”

Many authors, among them May (1985), Baltin (1987), Lasnik (1993), and Hornstein (1994), have suggested syntactic extraction analyses of ACD. Under these analyses, the direct object of *suspected* in (31) is removed from a position within the antecedent VP to permit interpretation of the null VP without an infinite regress, as illustrated in (33).

- (33) ... [_{DP_i} everyone that Angleton did [_{VP} e]] [_{VP} suspected t_i]...

Assuming the extraction approach to be reasonable, consider the following example:

- (34) Who that you did [_{VP} e] did Harry predict has been a liar?

Lasnik (1993) observes that example (34) can have the interpretation in which the antecedent of the null VP is the matrix VP. This fact cannot be explained by the extraction approach if ERR clauses are base-generated inside N/DP. Under the copy theory of movement, movement of the *wh*-phrase *who that you did* [_{VP} e] leaves exactly the same element as the preposed element (that is, reconstruction), as in (35).

- (35) [_{wh} who that you did [_{VP} e]]_i did Harry predict [_{wh} who that you did [_{VP} e]]_i has been a liar

At LF, the matrix VP is copied to replace the null VP of the moved *wh*

-phrase to have a reading like (36).

(36) Who that you predicted has been a liar did Harry predict has been a liar.

The post-VP copying structure would be as in (37).

(37) who that you did VP did Harry predict [who that you did [VP e]]
 predict [who that you did [VP e]] has been a liar
 has been a liar

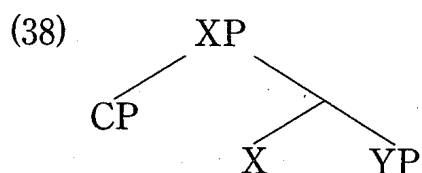
In (37), the VP that is copied to replace the null VP also contains a null VP, resulting in an infinite regress. The consequence is that example (34) cannot have a reading like that of (36), contrary to fact. The ACD fact considered here can be taken as additional evidence for the view that the ERR clause is DP-external.

3. An Analysis of the DP-External ERR Clause

In this section I propose an analysis of the DP-external ERR clause which is consistent with standard assumptions of current syntactic theory and is justified empirically.

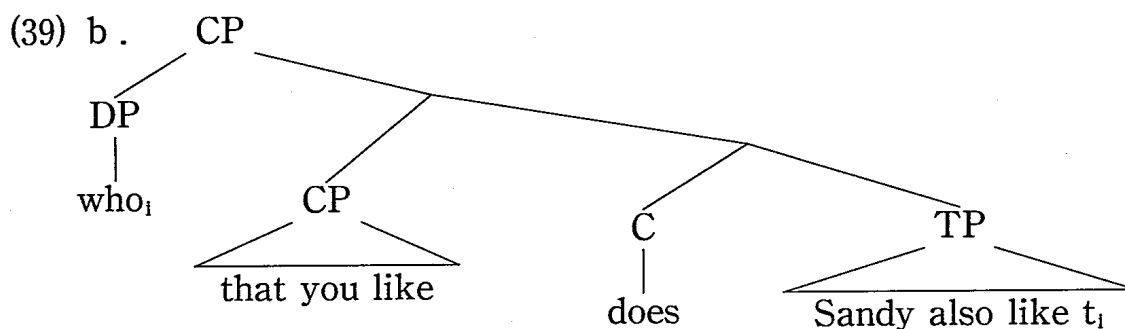
3.1 DP-External ERR Clause Formation

In contrast to previous analyses, I propose that a DP-external ERR clause is a CP that is base-generated left-adjoined to a projection of a head outside N/DP, as in (38).



The X in (38) can be any head: C, T, or V. Thus, the DP-external ERR clause in (39a) (= (28a)) may have the representation in (39b).

(38) a. Who that you like does Sandy also like?



In (39b), the ERR clause is inserted in the structure by adjunction instead of substitution, just as in the case of adverbs within VP. In Chomsky's (1995) system of phrase structure, substitution always is driven by the necessity of feature checking, whereas adjunction needs no such driving force. Given this, the ERR clause in (39b) can be inserted by Merge without any driving force. Since this is a *wh*-question, the *wh*-word is moved to the Spec of C, as shown in (39b) above, as in the object shift case in Icelandic.

A welcome consequence of this analysis is that it does not contradict the Bare Phrase Structure program outlined in Chomsky (1995). Under his theory, structures like (39b) are not prohibited.

A further welcome consequence of our analysis is that it is consistent with the Extension Requirement (henceforth ER). In Chomsky (1993, 1995), the ER is formulated as a requirement that the operation Merge and Move (in the framework of Chomsky (1993) Generalized Transformation) must extend the entire phrase marker (containing the target of them). The intuitive formulation of this principle simply requires that every formal operation makes the entire phrase structure larger. Informally, the ER ensures that Move and Merge are strictly-cyclic operations.¹¹

As an illustration, consider example (39a). Suppose that Merge has constructed the following structure :

(40) [_{CP} does he like who]

The ERR clause then is adjoined to CP by Merge, as shown in (41).

(41) [_{CP} that John knows [_{CP} does he like who]]

Notice that in mapping (40) to (41), Merge extends the entire phrase structure, namely CP, so that the derivation does not violate the ER. Finally, Move, targeting the CP, moves the *wh*-word *who* to the Spec of CP in accordance with the ER. The resulting structure is (42).

(42) [_{CP} who_i [_{CP} that John knows [_{CP} does he like t_i]]]

This way, under the analysis of DP-external ERR clauses in (38), cyclic introduction of the ERR clause is ensured.

This, in a nutshell, is the analysis I will propose for the DP-external ERR clause. In my analysis, the ERR clause and its head do not make up a single constituent. Let us call this type of analysis the “Non-One Unit Analysis” just for expository purposes here.¹²

In what follows, I shall develop an analysis of the whole set of constructions discussed in section 2 in terms of the Non-One Unit (henceforth NOU) analysis of the DP-external ERR clause.

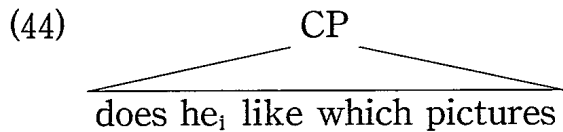
3.2 Analysis of Examples in Section 2

3.2.1 Antireconstruction Effects

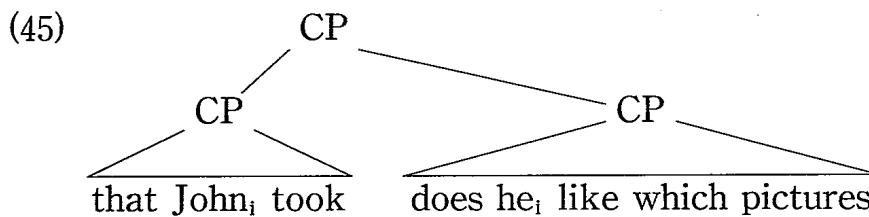
Consider example (3a), repeated here as (43).

(43) [Which pictures that John_i took]_j does he_i like t_j?

Suppose that Merge has constructed the following structure :



Recall that the ERR clause, being an adjunct, need not be present at D-structure (i. e., configurations of lexical insertion) but may be added at any point in the derivation up to Spell-Out. Subsequently, Merge, targeting CP, left-adjoins the ERR clause to the CP, yielding structure (45).

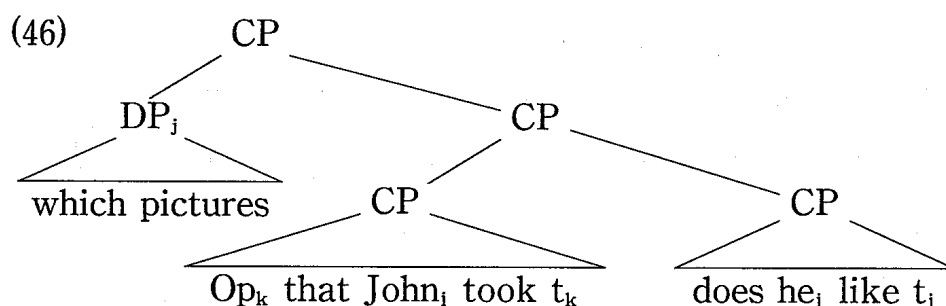


Notice that in mapping (44) to (45), Merge extends the entire phrase structure, namely CP, so that the derivation does not violate the ER. In this respect, our analysis is superior to that of Lebeaux (1991). In Lebeaux's (1991) analysis of example (43), the ERR clause is added to the moved *wh*-phrase. That is, the introduction of the ERR clause fails to enlarge the entire phrase containing the target of Merge, namely the matrix CP. So this introduction of the ERR clause violates the ER.

The adjunction in (45) is also in accordance with Kayne's (1994) theory of phrase structure. Under his theory, left adjunction is not prohibited. A further welcome consequence of this account is that it does not contradict Chomsky's (1995) theory of adjunction. As is well known, Chomsky (1995) claims that there should be no adjunction to theta-related phrases such as an argument and a predicate. Since the relevant CP is neither an argument nor a predicate, adjunction of the ERR clause to it is permitted. Similarly, it is compatible with a Multiple Spell-Out account of phases and left branches, as assumed in Uriagereka (1999), and most of the Minimalist literature

since. Under such an analysis, the left branches are literally gone from the structure, because they have been sent to PF. Adding structure to them is therefore impossible. On our analysis, the ERR clause does not attach to the moved *wh*-phrase, which is a left branch.

Finally, Move, targeting the higher CP, moves the *wh*-phrase *which pictures* to the Spec of CP. The resulting structure is something like (46).



Here the name *John* is contained in the ERR clause that was adjoined to CP, and thus there is no stage in the derivation where the name is c-commanded by the pronoun *he*. Hence, the name *John* can be coreferent with the pronoun *he*, as expected.

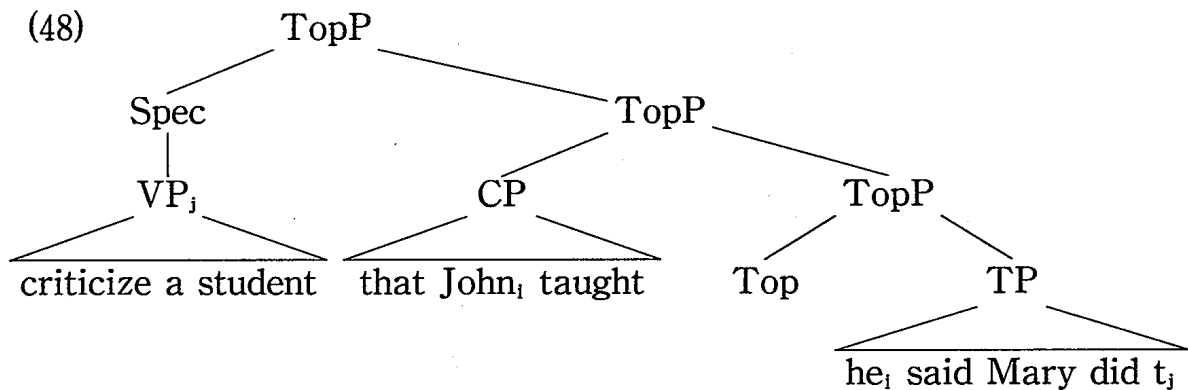
As demonstrated above, under the NOU account, the anti-Reconstruction effect in (43) can be accounted for without violating standard assumptions of current syntactic theory.

The ungrammaticality of the examples in (9), repeated in (47), is also accounted for.

(47) a . * Criticize a student that John_i taught, he_i said Mary did.

b . * How proud of a student that John_i taught did he_i say Mary is?

Suppose that the ERR clause is required to move to its antecedent at LF in case it is not base-generated inside DP (see section 4 for more discussion of this issue). With this in mind, consider the structure of example (47a) in (48), in which the ERR clause is adjoined to TopP outside DP.



In this representation the DP *a student* does not c-command the ERR clause. Hence, it would seem that the ERR clause cannot be related to its antecedent *a student* by LF-movement, explaining the ungrammaticality of (47a). Notice that under the NOU analysis, there is nothing wrong with the LF-structure (48) with respect to Principle C. Rather, what we see in (48) is that the preposed VP does not allow the ERR clause to be related to its head.

Suppose now we take a derivation in which the ERR clause is base-generated within DP (we will return to this in section 5). In this derivation, the ERR clause is part of DP, as in (2). Assume, with Takano (1995), that fronted predicates are interpreted in their base positions at LF. Then, in (47a), the ERR clause base-generated within DP must be present in its base position at LF, as in (49).

(49) [criticize a student that John taught] he said Mary did [criticize a student that John taught]

Now notice that the ERR clause is within the c-command domain of the pronoun *he* at LF. Thus, the structure violates Principle C. Hence, the example itself is predicted to be bad, as it is.

The crucial question that we must now answer is why the ERR clause in (48) moves to its head. Consider the following solution. Wittenburg

(1987) provides an analysis of ERR clauses suggesting that they are anaphors. Under this analysis, the ERR clause must move to its head at LF on the assumption that anaphors move to their antecedents at LF (cf. Chomsky (1986)).

There are other solutions, too. It has been a widely adopted assumption in the literature since Williams (1980) that the ERR clause must be coindexed with its head via the syntactic rule of predication. According to Williams' (1980) predication theory, the ERR clause and its head must meet a locality constraint to the effect that there must be a mutual c-command relation between them. In (48), the ERR clause is not in a local relation with its head. Consequently, it must move to its head at LF to meet the constraint.

Safir (1986) distinguishes two kinds of binding in relative clauses on the basis of the position of the antecedent: A'-binding and R-binding. The former holds when the binder is in Comp and the latter when the binder is a relative head. In (46), for example, *Op* A'-binds its trace, and the head *the boy* R-binds *Op*. If Safir's analysis is correct, there is a binding requirement holding between the ERR clause and its head, but this requirement is not satisfied in the structure in (48), due to the fact that the head does not c-command the ERR clause, hence there is a syntactic motivation for movement of the ERR clause to its head.

Consider now the final alternative. Egashira (1997) assumes that a relative pronoun has an interpretable Topic feature. Following Bobaljik (1995) we also assume that all local relations to a head are potentially checking relations with the head. Taking the two assumptions together, in (48), the Topic feature of *who* must be checked against that of the head *a student*. However, the two are not in a checking relationship. Movement

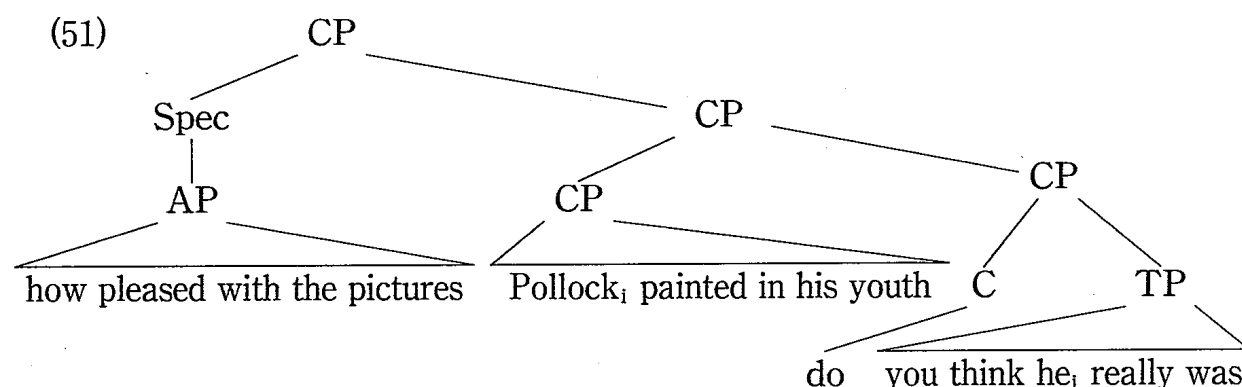
of the ERR clause is therefore motivated by the need to establish a feature-checking relation between the head and the relative pronoun, which we designate [+topic].

Each of these solutions seems to suffice to provide a syntactic motivation for movement of the ERR clause to its head in (48). We adopt the final analysis just for expository purposes here.

The NOU analysis is also compatible with the examples in (50), which are taken from Heycock (1995).

- (50) a . How pleased with the pictures Pollock_i painted in his youth do you think he_i really was?
 b . How afraid of the people Gore_i insulted years ago do you think he_i is now?

Heycock (1995), drawing on observations due to Clark (1992) and Neale (1992), points out that there is evidence that definite NPs are moved out of the preposed *wh*-phrase in covert syntax. Given this, consider the following representation of (50a), in which the ERR clause is base-generated adjoined to CP.



Recall from the discussion of (47) that the ERR clause cannot be related to its antecedent in structures such as (51). But in structure (51), unlike structure (48), the head of the ERR clause *the pictures* is a definite NP.

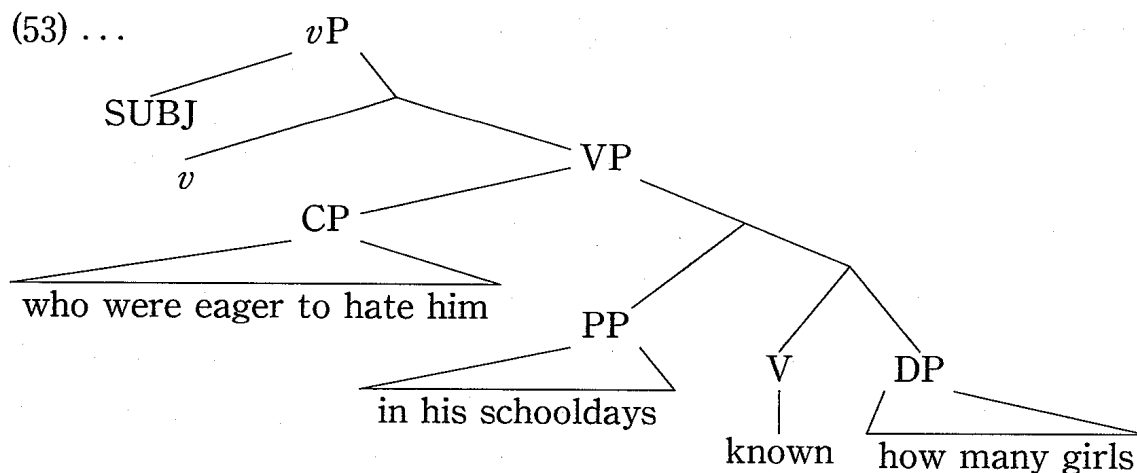
Thus, it appears that the head *the pictures* is raised out of the *wh*-phrase to a position at which it c-commands the ERR clause, as is assumed by Heycock (1995).¹³ The resulting LF-structure allows the ERR clause to be moved to its antecedent, explaining the grammaticality of (50a).^{14, 15}

3.2.2 Stranding

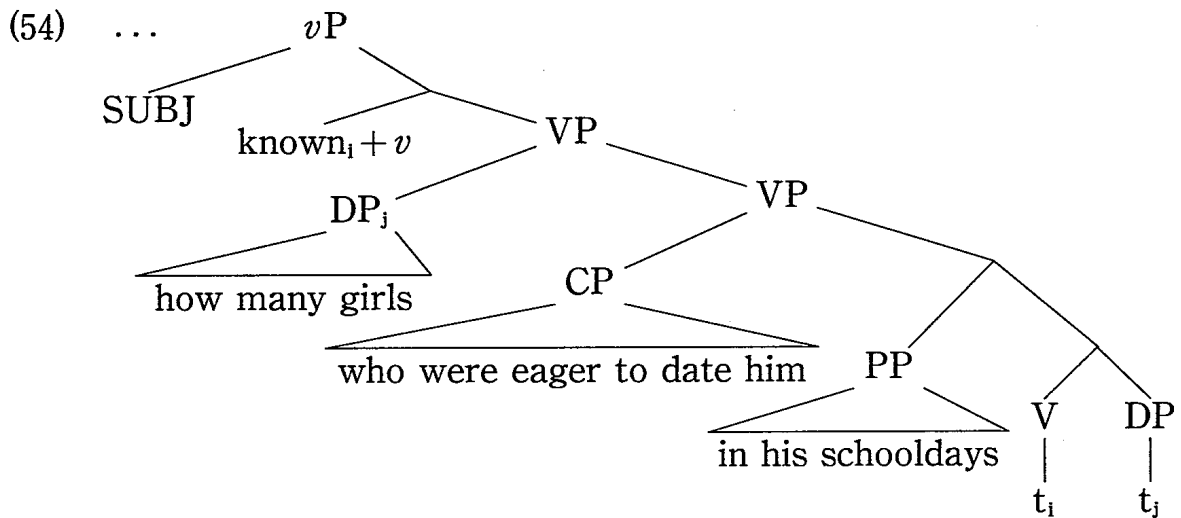
Consider example (10b), repeated here for ease of reference as (52):

(52) How many girls_i does he seem to have known [_{t_i} who were eager to date him] in his schooldays?

The grammaticality of this example is correctly predicted by the NOU analysis. Let us assume a kind of Larsonian VP-shell for the underlying structure of a transitive verb. Example (52) then has the following structure:



As shown in the tree, the ERR clause is base-generated adjoined to VP, as in the case of adverbial elements. In order to obtain the right surface order, the verb *known* and its direct object *how many girls* must be moved to the higher *v* and to the Spec of the lower VP, respectively, as illustrated in (54).¹⁶



In (54), the ERR clause and its head do not form a single constituent. In view of this, the head *how many girls* is a maximal projection. Since maximal projections are visible to movement, the *wh*-phrase is raised to the Spec of CP for feature-checking. This way the grammaticality of (52) is explained. This analysis can easily be extended to capture the other examples in (10).

Consider next example (14), repeated here for ease of reference as (55).

(55) * Who_i did you think [t_i that you know]_j John talked to t_j?

This example clearly shows that the stranded ERR clause cannot be formed between the verb *think* and its complement. One very important question about the NOU analysis is: What ensures that the ERR clause occurs in the right place?

Two potential derivations underlie example (55). In one derivation, the ERR clause is base-generated inside DP. In the other derivation, it is left-adjoined to CP outside DP. Note that in the first derivation of (55), the ERR clause cannot be stranded between the verb and the embedded clause, for, on our analysis, it is possible to assume that an ERR clause cannot be stranded by extraction.

Now consider the second derivation, in which the ERR clause is base-generated adjoined to CP, as in (56).

(56) did you think [_{CP} that you know [_{CP} John talked to who]]

The *wh*-word *who* is raised to the Spec of the matrix CP through the Spec of the embedded CP, as illustrated in (57).

(57) Who_i did you think t_i [_{CP} that you know [_{CP} John talked to t_i]]

But if this is so, why cannot the ERR clause appear between the verb and its complement? For the purpose of ruling out derivations such as (57), let us follow Doherty (1997) in assuming that adjunction to complement CP is excluded. Specifically, Doherty assumes the following condition:

(58) Adjunction Prohibition

Adjunction to a phrase which is s(emantically)-selected by a lexical head is ungrammatical.

This principle explains the failure of adverbial adjunction to CP complement (on an embedded construal), as in (59).

(59) a . * John claims [_{CP} during the party that John threw a punch at Fred]

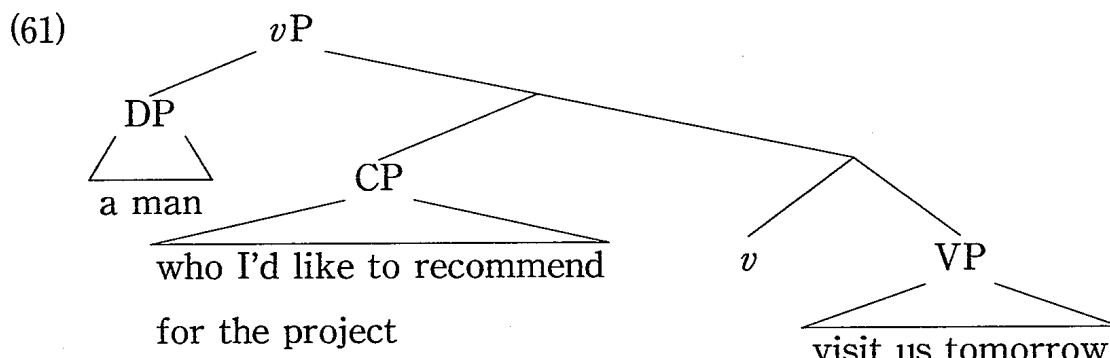
b . * I don't believe [_{CP} next near (that) she'll be fired]

Notice that ungrammatical examples such as (55) can be handled equally well in terms of the condition. As shown in (56), the ERR clause is adjoined to CP complement in the case of (55). Provided (58) also applies to ERR clause adjunction, such representations are excluded, explaining the ill-formedness of example (55).

The NOU analysis also accounts for the ungrammaticality of example (20), repeated here as (60).

(60) * A man will [who I'd like to recommend for the project] visit us tomorrow.

On the theory I have outlined above, example (60) would have to have the following *v*P structure:



Following Takano's (1998) proposal about adjuncts, let us assume that adverbial adjuncts like *easily* can be adjoined to *v*P, whereas nonadverbial adjuncts like *with ease* cannot be adjoined to *v*P.¹⁷ This condition on adjunction explains the following contrast:

- (62) a . John easily solved the problem.
 b . * John with ease solved the problem.

Given this restriction on the placement of nonadverbial adjuncts, adjunction of the ERR clause to *v*P is blocked, since the ERR clause is not an adverbial adjunct, but a nonadverbial adjunct. On this view, then, example (60) is treated in the same way as example (14)/(55).

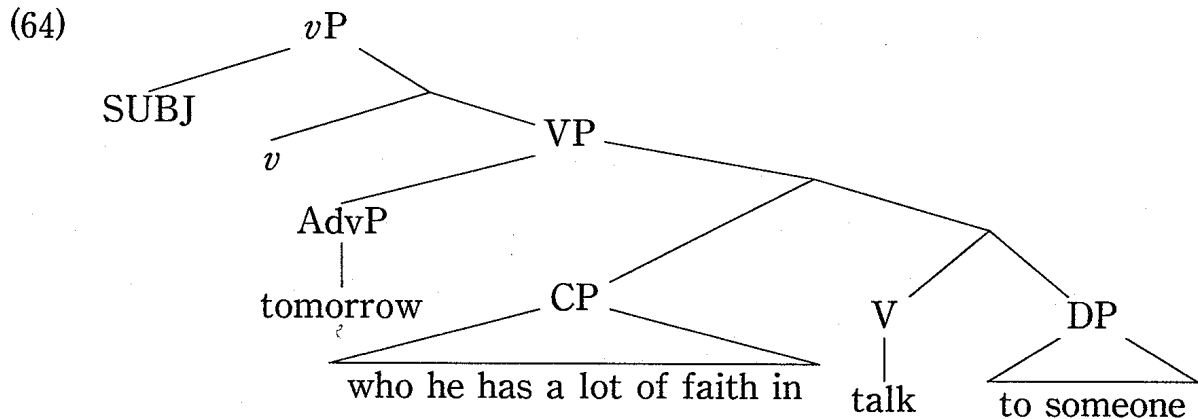
3.2.3 Extraposed ERR Clauses

Now consider again Kayne's example:

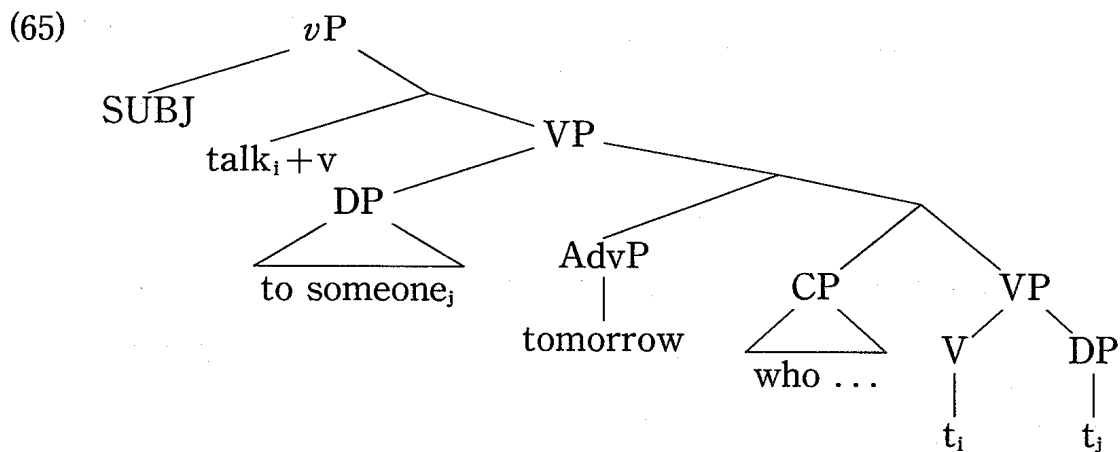
- (63) John is going to talk to someone tomorrow who he has a lot of faith in.

Let us assume along with Bowers (1993), Travis (1988) and Chomsky (1995) that an adverb can be generated as an adjunct of XP. In the current theory, XP must be a phrase which is not theta-related (recall Chomsky's (1995)

theory of adjunction). Given this restriction on the placement of adverbs, VP adverbs are left-adjoined to the lower VP of the VP shell. Let us also assume along with Kayne (1994) that right adjunction is generally prohibited. Accordingly, example (63) has the structure in (64), given the assumption that *to* is a Case marker on a DP.



In order to ensure the right surface order, the verb *talk* and its object must be moved to the higher *v* and to the outer Spec of the lower VP, respectively, as in (65).



This way the right surface order in (63) is obtained. Crucially, this explanation does not involve movement of non-constituent elements.

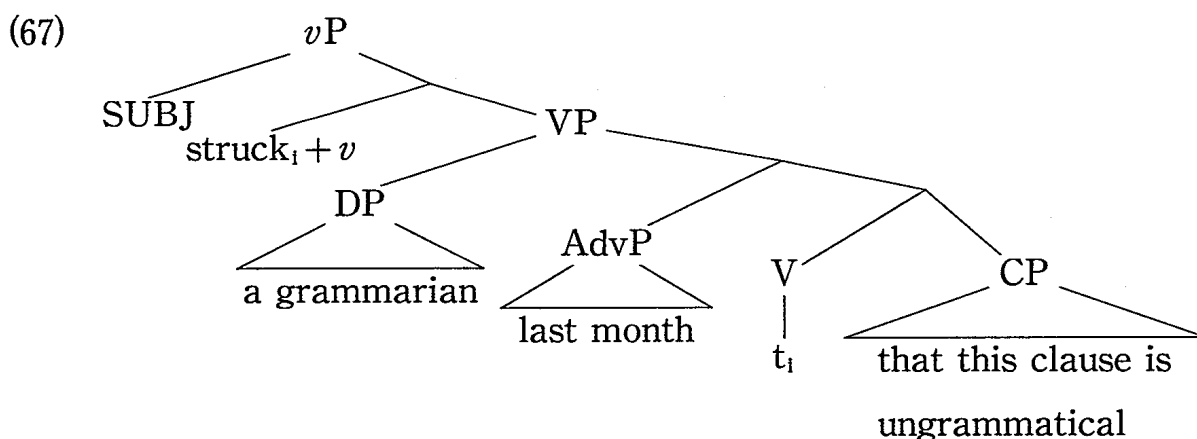
3.2.4 ERR Clauses Precede Argument Clauses

Now consider example (27a), repeated here as (66) for convenience :

(66) It struck a grammarian last month [who analyzed it] that this clause is grammatical.

Recall from section 2.4 that ERR clauses precede argument clauses, as (66) illustrates. This fact receives a straightforward explanation in the NOU analysis.

Bowers (1993) argues that direct objects are base-generated in the Spec of VP and other complements originate in V' . Given this analysis of theta role assignment, the structure of (66) must be as in (67) under the Larsonian VP-shell, putting aside the ERR clause.¹⁸



As demonstrated above, under the NOU analysis, the ERR clause is left-adjoined to VP. Accordingly, the ERR clause in (66) is left-adjoined to a projection of V in (67). Then in (67) it must be the case that the ERR clause appears to the left of the CP complement. This way the relevant order in (66) is explained.

3.2.5 Distribution of That

Consider now the following example :

(68) Who * (that) you like does Sandy also like?

This example shows that bare ERR clauses cannot modify nominal phrases whose head is *who*.

Putting aside many details, the NOU analysis ensures that the absence of the complementizer in these cases leads to ungrammaticality. Tanaka (1988, 1990, 1995) argues that *who* is licensed by Agr-s by Spec-head agreement, as in (69).

(69) [_{Agr-sP} *who* Agr-s]

Suppose that the ERR clause in (68) is base-generated inside DP. In this case, the larger DP containing *who* rather than the *wh*-word alone moves through the Spec of Agr-sP to its surface position (see Bšković (1997) and Tanaka (1995) for this position). Consequently, *who* cannot be licensed by Agr-s due to the presence of the larger DP (cf. Tanaka (1994)).¹⁹ Thus, it is wrongly predicted that *who* is not possible in (68). To derive the fact that *who* is possible in (68), it must be the case that the ERR clause is left-adjoined to CP, as in (70).

(70)

In (70) licensing of *who* can be carried out because *who* is not embedded in a larger phrase when it passes through the Spec of Agr-sP. It is generally argued that *that*-less clauses are permitted only as subcategorized complements and are excluded from various non-subcategorized positions. The ERR clause in (70) is not in a position where null complementizers are

allowed since it is an adjunct. Therefore, the obligatory presence of *that* in (68) is straightforwardly predicted.

3.2.6 ACD

Consider example (34), repeated here as (71).

(71) Who that you did [_{VP} e] did Harry predict has been a liar?

As mentioned in subsection 2.6, example (71) can have the interpretation in which the antecedent of the null VP is the matrix VP. This fact can be properly explained by the NOU analysis.

Suppose that Merge has constructed (72).

(72) [_{CP} did Harry predict who has been a liar]

The ERR clause containing the null VP then is adjoined to CP by Merge, as shown in (73).

(73) [_{CP} that you did [_{VP} e][_{CP} did Harry predict who has been a liar]]

Subsequently, the *wh*-word *who* is raised (through the Spec of Agr-o) to the Spec of CP. The resulting structure is (74).

(74) [_{CP} who_i [_{CP} that you did [_{VP} e] [_{CP} did Harry predict t_i has been a liar]]]

Notice that in this derivation, movement of *who* does not leave a copy of the ERR clause behind, since the clause is not base-generated inside N/DP. Consequently, at LF the matrix VP is copied to replace the null VP of the ERR clause without the regress problem. Thus, the fact that the antecedent of the null VP in (71) can be the matrix VP is not surprising.²⁰

4. Extensions

In the previous section we have examined a range of DP-external ERR

clauses that appear to fit nicely into the NOU analysis. In this section, I will introduce some data bearing on the syntax of DP-external ERR clauses. This broadening of empirical coverage reinforces the NOU analysis of DP-external ERR clauses.

4.1 Condition C

Consider the following example, taken from Reinhart (1983: 49):

- (75) Nobody would ever call her_i before noon who knows anything about Rosa_i's weird sleeping habits.

In this example, the name contained within the ERR clause can be coreferential with the object pronoun *her*. This raises the question of why example (75) is not a Condition C violation. The object pronoun obviously c-commands the name contained within the ERR clause (given the unavailability of right-adjunction). This is an important example because Bianchi (2000) argues that Kayne's analysis of ERR clauses in which they are inside DP cannot account for the coreference possibility in examples like (75).

There is a way of accommodating the fact in (75) within the NOU analysis. Consider the structure of example (75) (to which Spell-Out applies) in (76).

- (76) Nobody_i would ever [_{VP} t_i call_k + v [_{VP} her_i before noon who knows anything about Rosa's weird sleeping habits [_{VP} t_k t_j]]]

Recall that we adopted the view that the ERR clause moves to its head at LF for feature checking. Given this, the ERR clause obligatorily moves to its head *nobody* at LF. Such movement enables the ERR clause to escape the c-command domain of the pronoun. The LF representation for (75), then, will look something like (77) (given that the adjunct need not leave a

trace).²¹

(77) Nobody_i [_{CP} who knows anything about Rosa's weird sleeping habits]
would ever [_{VP} t_i call_k + v [_{VP} her_j before noon [_{VP} t_k t_j]]]

Since Condition C applies only at LF, example (75) is not a Condition C violation. This way the NOU analysis provides a principled account of the coreference possibility in example (75).

Consider now the following examples:²²

- (78) a . * I sent her_i many gifts that Mary_i didn't like last year.
b . * I sent her_i many gifts last year that Mary_i didn't like.

As Reinhart (1983) notes, these examples show that coreference possibilities in an ERR clause do not shift with extraposition. This fact can be accounted for under the NOU analysis. In example (78a) raising of the ERR clause to its antecedent *many gifts* is not needed in order to check its feature. The reason is that the relation established at Merge is enough to satisfy the anaphoric requirements of the ERR clause. Hence, there is no level at which the ERR clause c-commands the name *Mary*. Given this, the coreference possibility in (78a) is not problematic.

In (78b), the ERR clause moves to establish a checking relation with its head (see discussion above). This does not induce no changes concerning the c-command relationship between *her* and *Mary*, for the landing site of the ERR clause is not high enough to c-command *her*. Hence, the pronoun c-commands *John* at LF, where Condition C applies, and *John* cannot therefore be coreferential with the pronoun *her*.

Let us now attempt to extend the range of observation into the following example taken from Culicover and Rochemont (1990):

- (79) How many girls did he_i invite to the party that John_i dated in high school?

In example (79), the name *John* contained within the relative clause can be coreferential with the subject pronoun *he*. This raises the question of why example (79) is not a Condition C violation. The subject pronoun, obviously, c-commands the name contained within the relative clause (given the unavailability of right adjunction).

This fact is not surprising within the NOU analysis. In example (79), the relative clause is not in a local relation with its head. Consequently, it must move to its head at LF to meet the locality constraint. Such movement enables the relative clause to escape the c-command domain of the pronoun. Since Condition C applies only at LF, example (79) is not a Condition C violation (on the plausible assumption that an extraposed relative clause does not leave a copy behind).²³

4.2 Subjacency Condition

The NOU analysis is also compatible with cases of the boundedness of ERR clause-extrapolation. Consider, for example, the examples in (80):

- (80) a . that [a man who I want to meet is coming to dinner] is unusual
 b . that [a man is coming to dinner who I want to meet] is unusual
 c . * that [a man is coming to dinner] is unusual who I want to meet

The ERR clause modifies the head of the embedded subject *a man*. (80a) shows that the ERR clause can be adjacent to its head. (80b) shows that the ERR clause can be extraposed to the end of the subject clause. Example (80c) shows that the ERR clause cannot be extraposed to the end of the matrix clause.

This shows that the relative clause out of subject NP is bounded just as leftward movement of a *wh*-phrase is bounded. The question is how to account for these cases of the boundedness of extrapolation within the NOU

analysis. It is generally assumed that Subjacency (regardless of which of the current approaches to it is adopted) accounts for the boundedness of extraposition. Within the NOU account an ERR clause moves to its antecedent at LF. The Subjacency principle, however, has been argued to be relevant only for overt movement. To extend the Subjacency analysis to account for the boundedness of extraposition, the Subjacency principle is required to constrain LF movement. If Subjacency is a property of LF, it is always possible to claim that, under the NOU account, examples like (80c) are excluded by the Subjacency condition due to the fact that the ERR clause moves to its antecedent at LF. Notice, crucially, that Brody (1995) argues that LF movement is constrained by the Subjacency condition (see also Longobardi (1991)). I need not elaborate on this point; it is treated much more adequately in Brody (1995) and Longobardi (1991). On the assumption that Longobardi's (1991) and Brody's (1995) analyses are correct, the NOU account provides a technically or conceptually satisfactory account of the boundedness of extraposition illustrated in (80).

The NOU analysis is also consistent with the following examples:

- (81) a . ??Which book_i did John meet a child who read t_i
 b . * How_i did John meet a man who fixed the car t_i

In the literature of generative grammar, these cases are often called complex NP cases. A complex NP is any NP that contains an embedded clause. In (81a), the *wh*-phrase *which book* is moved out of the complex NP. The intermediate status of this example comes from the fact that it involves object extraction. In (81b), the adjunct *how* is extracted out of the complex NP. It has often been noted that an adjunct yields an unacceptable sentence when we attempt to extract it from the complex NP. Thus example (81b) is clearly unacceptable.

A contrast between complements and adjuncts, which is similar to the complex NP case in (81), can also be obtained in adjunct clauses. (82) demonstrates this point:

- (82) a . ??What_i did you leave [before buying t_i] ?
 b . * Why_i did you leave [before buying it t_i] ?

Thus, the fact in (81) can be attributed to the fact that adjuncts are islands (the Condition on Extraction Domains proposed by Huang (1982)) under a derivation in which the ERR clause is base-generated outside N/DP rather than inside N/DP.

4.3 VP Ellipsis and VP Topicalization

As has often been noted (see Culicover and Rochemont (1990), and others), an ERR clause extraposed from an object must be included in the application of VP ellipsis. This is shown by examples (83a, b).

- (83) a . John met a man last week who was from Philadelphia, and George did.
 b . * John met a man last week who was from Philadelphia, and George did who was from New York.

However, unlike ERR clauses extraposed from objects, subject extraposed ERR clauses may not be included in the application of VP ellipsis, as shown in (84).

- (84) a . Although none of the men did, several of the women went to the concert who were visiting from Boston.
 b . Although none of the men did who were visiting from New York, several of the women went to the concert who were visiting from Boston.

These data seem problematic for my analysis, since I assume that the

ERR clause is base-generated within VP in the examples of (83)–(84). How, then, can I explain the contrast between (83) and (84), since VP ellipsis applies to VP. Under the NOU analysis, the contrast can be explained as follows.

Recall from the previous subsections that an ERR clause is moved to its antecedent at LF. The ERR clause in (83) moves to its antecedent *a man* in object position at LF. Consequently, the ERR clause must be within VP through the derivation. Thus, it must be included in the application of VP ellipsis. Then, example (83b) is correctly predicted to be ungrammatical. In contrast, the ERR clause in (84) moves to subject position because of the fact that it is related to a subject NP. As a result, the ERR clause is not present within VP at LF. If VP ellipsis is a property of LF (see Fiengo and May (1994)), it is only natural to assume that the ERR clause does not delete as a function of VP ellipsis, as be shown in (84b).

This raises the question of what to do with example (84a) where VP ellipsis takes the subject extraposed ERR clause. We need not be led to the conclusion that example (84a) is inconsistent with our analysis. Example (84a) simply illustrates the possibility of the subject extraposed ERR clause being moved to the trace of the subject NP. If the subject extraposed ERR clause is moved to the trace of the subject NP, the possibility for it to be included in the ellipsis of VP is not surprising, since the ERR clause stays within VP at LF.

Let us leave VP ellipsis and turn to VP topicalization. It has been widely recognized that VP topicalization cannot include the subject extraposed ERR clause, as shown in (85).

- (85) a . They said that a man would come in, and come in a man did who had lived in Boston.

- b. * They said that a man would come in who had lived in Boston, and come in who had lived in Boston a man did.

Let us investigate why VP preposing does not include the subject extraposed ERR clause in the example of (85b). On the NOU approach, the ERR clause in (85b) can be base-generated within VP, and it may be included in the application of VP preposing. However, in our account of ERR clauses that appeals to LF-movement of the ERR clause, the ungrammaticality of (85b) is explained by assuming that the ERR clause cannot move to its antecedent *a man* at LF. A reasonable assumption is that there is no downward movement at LF. It cannot be then that the ERR clause in (85b) moves out of the preposed VP to the subject NP, since if it were, then there would be lowering operations.²⁴

An objection may be levelled against this line of argument. Consider the following example:

- (86) Criticize himself, Mary doesn't think John would.

Example (86) is grammatical in spite of the fact that the reflexive *himself* is not c-commanded by *John*. Huang (1993) argues that *himself* in the fronted VP is bound by the trace of *John*, which is also in the fronted predicate. Thus, the example (86) allows the coreference reading. Given this, one might argue that the ERR clause in the example of (85b) moves to the trace of the subject NP *a man*, which is in the fronted VP. The assumption that a trace of the subject NP is present within the fronted VP, however, has been challenged by Heycock (1995).

Another objection which may be raised is this: if *himself* is related to its antecedent *John* by LF-movement in the example in (86), example (85b) should be grammatical because of the fact that the ERR clause, like *himself*, is related to its head by LF-movement, contrary to what my

analysis predicts.

An obvious solution would be the following. Let us adopt the standard assumption that movement leaves a copy behind. In example (86), movement of the VP leaves a copy behind. The anaphor *himself* is required to be present in the copy of the preposed VP since it is an argument. There is, then, a legitimate LF-structure where the anaphor is c-commanded by its antecedent and then *himself* is able to raise to the antecedent at LF, explaining the grammaticality of (86). By contrast, in example (85b) the ERR clause, being an adjunct, need not be present in the copy of the preposed VP. From the point of view of economy, it must not be present in the copy.²⁵ Thus the relevant LF-structure for example (85b) is as in (87).

(87) ..._[VP came in who had lived in Boston] [_{TP a man did} [_{VP came in}]]
 In (87), the ERR clause is not c-commanded by its antecedent. Consequently, it cannot move to the antecedent; hence, the ungrammaticality of the example is correctly predicted.

5. DP-Internal ERR Clauses

As discussed in previous sections, according to our analysis, ERR clauses can be base-generated either external to the DP they modify, or internal to it. In this section, I discuss DP-internal ERR clauses in terms of Kayne's (1994) theory in which an ERR clause is a complement of D, a view that is consistent with standard assumptions of current syntactic theory, rather than in terms of structures like (1) where an ERR clause is a noun modifier. In addition to what will be mentioned in the following subsections, Kayne (1994) and Bianchi (1999) seem to include a number of

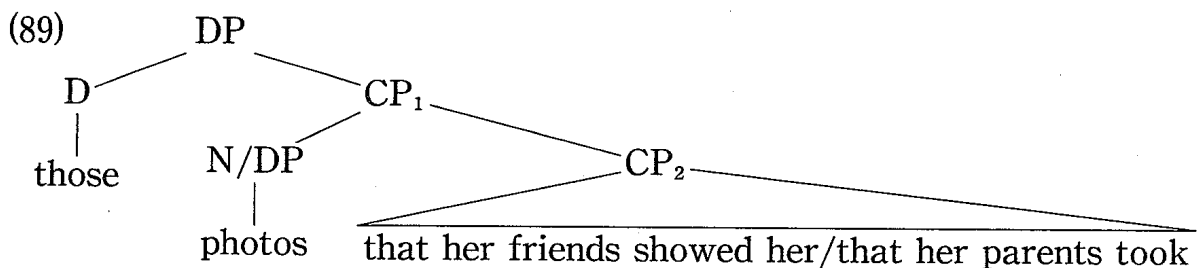
DP-internal ERR clauses. Because it is not our intent to go into details about these clauses and for our purposes the cases presented below are sufficient, we shall not reproduce those other cases of DP-internal ERR clauses here.

5.1 Ellipsis in DP

As Lobeck (1987) points out, ERR clauses in DP can be optionally included in the ellipsed constituent in DP, as illustrated in (88).

- (88) Mary liked these photos that her parents took, but
- a . she liked [_{DP} those [e] that her friends showed her] even better.
 - b . she liked [_{DP} those [e]] even better

Facts like this can be analyzed straightforwardly if the ERR clause is a complement of D, as in (2). Given (2) as a basic structure for ERR clauses inside DP, the relevant DP structure for (88) is (89).



That the ERR clause in (88) can be included in the ellipsis is not problematic, as ellipsis in DP operates on CP_1 , which is a maximal projection. The ellipsed constituent in DP may not include the ERR clause, as in (88a). In this case, ellipsis in DP operates on N/DP , which is also a maximal projection.

5.2 Selectional Restrictions

An analysis based on structures like (2)/(89) allows us to capture the contrast between the following sentences:

(90) a . *?I found the *two pictures of John's/his*.

b . I found the (*two*) *pictures of John's/his that you lent me*.

The contrast observed in (90) has been analyzed by Kayne (1994) in the following way. Kayne (1994) argues that the underlined part of (90a) is a DP. On the assumption that *the* cannot take the DP as its complement, the ungrammaticality of (90a) is explained. On the other hand, the underlined part of (90b) is a CP. Since *the* can take the CP as its complement, it follows that example (90b) is grammatical, as expected.

5.3 Distribution of That

A theory adopting the idea that an ERR clause is a complement of D, as in (2), is able to account for the grammaticality of (91).

(91) Fay saw [a guy (that) I admire]

It is generally assumed that only subcategorized complements allow *that*-deletion. Under an analysis based on (2), the ERR clause in (91) is a complement of D. Consequently, example (91) is acceptable without *that*.

5.4 Scope Reconstruction and Condition C

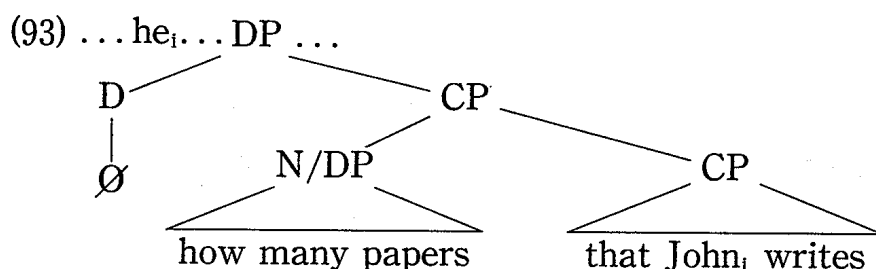
Consider the following example, taken from Fox (1999:173):

(92) * [How many papers that John_i writes] does he_i think t will be published?

As Fox (1999) notes, example (92) can have only the interpretation in which *many papers* has narrow scope relative to *think*. There is, then, a legitimate LF-structure where the name *John* is c-commanded by the pronoun

he. Consequently, the name cannot be coreferential with the pronoun—hence, the ungrammaticality of (92) is correctly predicted.

Cases like (92) in which scope reconstruction feeds Condition C are easily accounted for if the ERR clause is a complement of D. Given (2) as a basic structure for ERR clauses inside DP, the relevant structure for (92) is (93).



In (93), movement of the *wh*-phrase does leave a copy of the ERR clause behind since it is formed by selectional requirements. Now notice that the ERR clause is within the c-command domain of the pronoun *he* at LF. Thus, the structure violates Principle C. Hence, the example itself is predicted to be bad, as it is.

6. Toward a Hybrid Theory of ERR Clauses

I have shown above that English has two sources for relativization. DP-external ERR clauses cannot be analyzed as originating inside DP. Instead they must be recognized as left-adjoined to XP outside DP. A DP-internal ERR clause is not a noun modifier. Instead it is a complement of D. The two relativization structures instantiated by (94a) and (94b) are given schematically in (95).

(94) a. Who that you like does Sandy also like? (= (28a))

b . Fay saw a guy (that) I admire. (= (91))

(95) a . [_{CP} who [_{CP} that you like [_{CP} ...]]

b . [_{TP} ... [_{DP} D [_{CP} a guy [_{CP} (that) I admire]]]]

(95a) is an instance of DP-external ERR clauses. In cases such as (95a), the ERR clause is required to move near its antecedent at LF in case the relation established at Merge is not enough to satisfy the anaphoric requirements of the ERR.

The conclusion, then, is that DP-internal ERR clauses and DP-external ERR clauses represent distinct syntactic phrases involving different syntactic relations.²⁶

A unified analysis that reduces ERR clauses to a single configuration, as NP adjuncts or complements to D, is not justified both empirically and conceptually. In some instances a good case can be made that an ERR clause is an adjunct outside DP, and in others it seems to behave like a complement of D.

Before concluding the article, I would like to briefly explore so called stacked restrictive relatives in light of the hybrid theory of ERR clauses. I also look at the hybrid approach to ERR clauses in terms of the Minimalist Program.

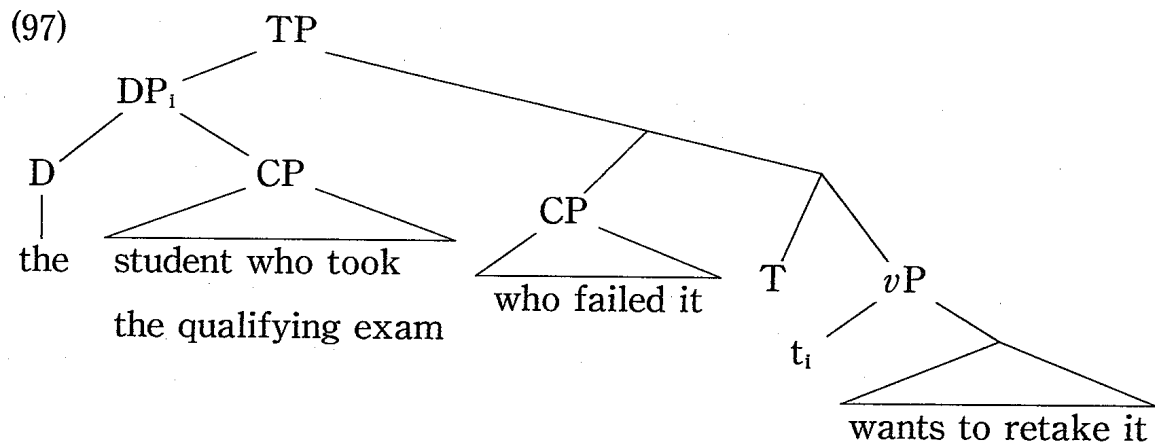
6.1 Stacked ERR Clauses

Consider the following example of stacking :

(96) The student who took the qualifying exam who failed it wants to retake it.

A question arises as to whether we can account for so-called stacked restrictive relatives, as in (96), under the proposal made here. On the hybrid theory I have outlined above, example (96) would have to have the

following structure:



(97) is an instance of mixed ERR clauses in the sense that it involves both a DP-internal ERR clause and a DP-external ERR clause. This is supported, I think, by the contrast in (98), noted by Kayne (1994).

(98) a. I just read the book about your ancestors ? (that) your son published last year.

b. I just read the book that's about your ancestors * (that) your son gave me last year.

Example (98a) is not thoroughly unacceptable without *that*. However, there is a clear degradation with *that*-deletion in (98b). The problem is why there is a contrast.

Under the current proposal, the contrast is explained as follows: In the representation of (98b), as in (97), the second ERR clause is a TP adjunct outside DP. Hence, the relevant complementizer is not in a position where it can be deleted. On the other hand, in the representation of (98a), the ERR clause can be a complement of D, since the PP phrase *about your ancestors* is a complement of N. Therefore, whatever the ultimate analysis of the distribution of *that*, it seems to me that the complementizer is in a position where it can be deleted.

6.2 The Hybrid Theory and Minimalism

In this article I have proposed a new analysis of the ERR clause. As far as the facts discussed so far are concerned, the proposed analysis seems to be superior, to a large extent, to the alternative analyses of ERR clauses on empirical and theoretical grounds.

I state in (99) the basic claims that I have been defending.

(99) a . ERR clauses are base-generated as XP adjuncts or CP complements.

b . ERR clauses analyzed as XP adjuncts are required to move to their antecedents at LF for feature checking in some contexts.

Needless to say, whether this account is plausible depends on the soundness and naturalness of the two claims in the context of the Minimalist Program. The first claim is not controversial in the Minimalist Program, as discussed in the previous sections. However, the other claim is quite controversial.

(99b) presupposes that an entire constituent moves at LF. For example, in (75), the whole category (CP) moves to its antecedent in covert syntax. This is inconsistent with Chomsky's (1995) theory of movement. On that theory, LF movement is required to take the form of feature movement. On the basis of this inconsistency, someone might claim that we have to give up (99b) in favor of an analysis employing no LF category movement. There is an alternative, however, to Chomsky's theory of LF movement. Fox (1995) argues that Economy allows whole categories to undergo LF movement when there are LF considerations which would require pied piping. I assume that a consideration of this kind is active in cases of LF CP movement. We may hence safely conclude that (99b) seems to be a viable option in the version of the Minimalist Program set out in Chomsky (1995).

Chomsky (1998) presents a different version of the Minimalist Program, in which there is no need to distinguish between overt and covert movement. Eliminating the distinction between overt and covert movement simplifies the derivation, since there will be no need to start the derivation again in a second cycle, in the distinct covert syntax. In this version of the Minimalist Program, LF movement is replaced by the operation Agree. Agree itself does not refer to any displacement. It would seem, then, that we are left without any room for LF CP movement, which is assumed by the model adopted here.

A way out of this dilemma would be to assume that CP movement as assumed in the present paper is an operation of the LF interface, along with Binding Theory and other interpretive systems. On this account, (99a) falls within narrow syntax, but (99b) belongs to the LF interface. If this suggestion is on the right track, the (b) part of our analysis fits well with the Minimalist Program outlined in Chomsky (1998).

7. Concluding Remarks

In this article I have proposed the hybrid theory of the ERR clause. The proposed hybrid analysis seems to be superior, to a large extent, to a unified analysis of ERR clauses that reduce ERR clauses to a single configuration, as NP adjuncts as in (1) or complements of D as in (2), on empirical and theoretical grounds.

I restate in (100) the basic claims that I have been defending.

(100) a . ERR clauses are XP-adjuncts or CP complements.

b . Adjunct ERR clauses move to their antecedents in the LF component when necessary.

Over the past few decades a considerable number of studies have been made on ERR clauses. The full study of them is beyond the scope of this paper. But if research along the lines suggested in this article is on the right track, it sets a well-constrained frame for the ERR clause.

Notes

I would like to thank two anonymous LR reviewers for reading the manuscript and for making a number of helpful suggestions. Any errors or inconsistencies that remain are my responsibility.

1. A remark is in order concerning the scope of this paper. It is argued in Carlson (1977) and Grosu and Landman (1998) that English has a distinct class of relative clauses called amount relatives, but they are not our present concern. I also stress that other kinds of relative clauses, like correlatives (see, for example, Dayal (1996) and Hale (1976)) do not come within the scope of this paper.
2. One remark is in order here. I basically assume the copy theory of movement, according to which Move leaves a copy of the moved element behind. At most points, however, I use the symbol *t* for presentational purposes.
3. Brody's account of antireconstruction will obviously not be available if one assumes with Kayne (1994) that ERR clauses are complements of D.
4. Note that the Case analysis of *to* amounts to saying that movement of *who* to the Spec of CP cannot strand the case marker *to* in (i) below:

(i) Who will you write to?

Examples like (i) can be explained if original *wh*-traces, unlike intermediate *wh*-traces, are visible to computation in the PF component (cf. Jaeggli (1980)) and therefore can show overt Case marking.

This analysis can be generalized to cover the cases below:

(ii) a . the man [Op_i I spoke to t_i]

b . *the man [to Op_i I spoke t_i]

5. An anonymous referee has suggested to me that to explain the ungrammaticality of (14), we can refer to the fact that intermediate *wh*-traces, unlike original *wh*-traces, are invisible to computation in the PF component (see note 4). But this claim is not correct. The reason for this is that ERR clauses, unlike Case-marking affixes such as *to/for*, do not make any reference to intermediate traces in the PF component.
6. A reviewer has suggested to me that it would be nice if whatever rules out (17c) also ruled out (14). Notice, however, that example (17c) involves A-movement, whereas example (14) involves A'-movement. A-movement can strand a quantifier in an intermediate position, as example (18) illustrates.
7. Presumably, assuming *to* to be a Case marker does not affect the argument because *to* does not form a constituent with *someone* due to the fact that *to* is a Case marker on the entire N/DP.
8. Wittenburg (1987) first raises this possibility. See also Culicover and Rochemont (1990) for a proposal along similar lines.
9. Haider (1997) notes that if the DP that the ERR clause modifies is focused, the ERR clause may follow the argument position.
10. A reviewer asks why we cannot say that stranding or extraposition bleeds *that*-deletion. I don't know how the reviewer's claim that stranding or extraposition bleeds *that*-deletion is relevant here. Note that examples such as (28) do not involve stranding/extraposition.
11. This position differs from that of Nicholas (1999), Richards (1999) and Chomsky (1998) where it is suggested that cyclicity is derived differently. Answering the question of what exactly is responsible for cyclicity is beyond the scope of this article. See Freidin (1999) for proposals. Here I assume the ER for the sake of concreteness. The choice does not affect the argument.

12. Notice that the present system does not say anything about why the ERR clause cannot be base-generated left-adjoined to a projection of a head inside N/DP. Thus, as noted by a reviewer, if nothing more is said, a derivation in which the ERR clause is base-generated left-adjoined to some position inside N/DP is also permitted.

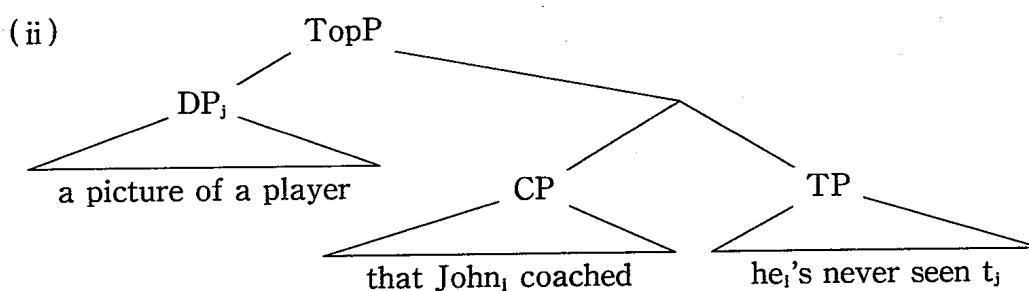
I cannot offer here a principled reason for why the ERR clause cannot be base-generated left-adjoined to a projection of N/DP. I presume that ERR clauses cannot be CPs that are base-generated left-adjoined to some projections inside N/DP, since they, unlike Japanese restrictive relative clauses, are N-initial relatives (cf. Murasugi (2000)).

13. In (50), *the pictures* has to extract out of a left branch. This seems to be problematic under a Multiple Spell-Out account of phases and left branches, as is assumed in Uriagereka (1999), and most of the Minimalist literature since. Under such an analysis, the left branches are literally gone from the structure, because they have been sent to the PF component. Extraction out of them is therefore impossible. This problem can be avoided if we assume that extraction of definite DPs out of left branches is an operation of the LF component, which is what virtual conceptual necessity ensures anyway in a system that relates 'sound' and 'meaning'

14. A question arises about why the following example is grammatical:

(i) A picture of a player that John_i coached, he_i's never seen.


It is possible for *John* and *he* to be coindexed in (i). This means that under the NOU account, the ERR clause in (i) attaches to TopP outside DP. The resulting structure is something like (ii) after topicalization.



Then example (i) ought to be ungrammatical, because the DP *a player* does not c-command the ERR clause. The problem is not insurmountable, however, if the transitivity effect observed in bound variable licensing (as in (iii)) obtains with ERR clause licensing (see Ruys (2000) for this effect).

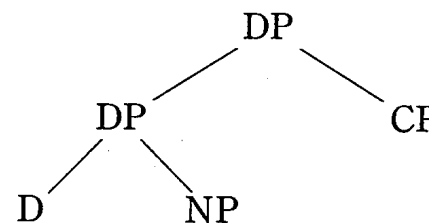
(iii) [DP_j which picture of which man_i] t_j pleased him_i

15. A reviewer notes that the alternative analysis of antireconstruction effects advocated in the text is not conceptually superior to Lebeaux's analysis, since, in the covert syntax, the ERR clause must be lowered into the DP that I modifies, which is what we have to avoid. I take it that the reviewer assumes that interpretation must proceed compositionally, as argued in Partee (1975). Clearly, if this assumption is along the right lines, then under the alternative approach to antireconstruction effects, the ERR clause must be lowered into the DP that it modifies, as in (i).

(i) [DP D NP] ... CP


But the availability of the semantic system for ERR clauses sketched in Back and Cooper (1978) has led to the view, now current, that ERR clauses are attached higher than NP, as in (ii).

(ii)



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graph TD
  DP1[DP] --- DP2[DP]
  DP1 --- CP[CP]
  DP2 --- D[D]
  DP2 --- NP[NP]
  
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Now it appears that LF lowering of the ERR clause is not necessary under the theory advocated in the text.

16. English has overt object shift that takes place within VP (cf. Takano (1998), Tanaka (1998)).

17. In order to account for this fact, Takano (1988: 855) postulates that "adjunction to

a projection of the functional category F is impossible if F enters into feature checking." What is relevant here is that *v* enters into a checking relation with verbs, hence (in contrast to adverbial adjuncts that are inserted into the structure by substitution) nonadverbial adjuncts fail to be adjoined to *v*P. See Takano (1988) for more discussion.

18. Note also that the structure in (67) is compatible with the thematic hierarchy given in (i).

(i) Goal > Theme

19. Tanaka (1994) argues that *who* cannot be licensed by Agr-s when it is embedded in a larger phrase. Thus, cases like (ia) contrast with cases like (ib).

(i) a. Who will you meet at the party?

b. *Behind who did you find a ghost?

20. As pointed out by a reviewer, the fact in (71) can be easily explained if we adopt Lebeaux's system. Unfortunately, however, it is not compatible with some standard assumptions of current theory, as we have seen.

21. As noted by an anonymous reviewer, something should be said about the landing site of this movement. Since I do not want to commit myself here on this issue, I want to point out that ERR clauses move to the position that enables them to be interpreted inside DP without syntactically there.

22. The degree of acceptability of cases like (78) seems to vary among speakers. Culicover and Rochemont (1990) observe that coreference options in an ERR clause shift with extraposition, whereas Reinhart (1983: 49) observes that coreference possibilities in an ERR clause do not shift with extraposition, as in (78).

23. The question is how to derive the fact that the ERR clause is associated with the moved *wh*-phrase, not with its trace, which also seems to be visible at LF (i.e., A'-movement is subject to reconstruction). Presumably, the reason has to do with the fact that *wh*-traces, being variables at LF, are not eligible for the ERR clause.

24. With regard to an ERR clause in examples such as (85a), I assume that such an ERR clause is base-generated adjoined to a functional category higher than VP.
25. It has been assumed in section 3.2 that fronted predicates are interpreted in their base positions at LF (Takano's (1995) generalization). Then, in (87), the ERR clause must be present in its base position at LF, contrary to our expectation. One might simply think that Takano's (1995) generalization that fronted predicates are interpreted in their base positions can be overridden whenever the ERR clause alone is base-generated within VPs. It remains an unsettled question why this should be so.
26. As noted by a reviewer, under the hybrid theory here, a unified semantic analysis for ERR clauses may not be maintained. However, if the principles-and-parameters approach in generative grammar is really on the right track, it is not necessarily the case that there is a single interpretation principle for ERR clauses, since there is no single and uniform construction called "relative clauses" in natural language.

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