Division of Labor between Merge and Move: Strict Locality of Selection and Apparent Reconstruction Paradoxes*

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The properties of syntactic structures arise from the combination of the properties of the atomic elements that syntax combines, and the rules governing these combinations. It has been

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hypothesized that there are only two such rules: Merge and Move (or Remerge). While Move (and its related suboperation Agree) has been the subject of intense scrutiny, Merge has not to the same extent. This article is concerned with probing the properties of Merge more deeply and formulating a general proposal regarding how Merge functions. This proposal justifies and formalizes the standard idea thought to be governing merging essentially since Chomsky (1965) but its consequences lead to unfamiliar consequences regarding the form of syntactic structures. Concomitantly, since Merge and Move complement each other to contribute to such form, the conception of Move will also be somewhat modified.

This question will not be addressed directly but rather through an examination of the interaction between movement dependencies (more specifically A-movement dependencies) and interpretation with respect to (i) Predicate Argument Structure, (ii) the computation of Binding Dependencies and (iii) the computation of relative scope.

Regarding predicate saturation, trace theory essentially codes the observation that Predicate Argument Structure seems (almost) systematically blind to movement. Defining Reconstruction for some Principle P as meaning that interpretation with respect P proceeds as if P was blind to movement effects, this observation can be described as suggesting that reconstruction is mandatory for predicate argument structure computation, i.e. as signaling that the input to interpretative rules is treated as if movement had not taken place.
In contrast, in some cases, Binding Dependencies (Condition A) seem to be able to access either premovement or postmovement structures: reconstruction is optional. In other cases (e.g. Condition C), interpretation must access premovement structures for some movement type (A-bar movement), but does not have to for others (A-movement) and sometimes cannot. That is reconstruction is sometimes obligatory sometimes optional, sometimes impossible. Finally scope computation can sometimes be done on premovement structures (reconstruction is possible) while in some other cases, it must be done on postmovement structure (reconstruction is impossible). We are thus faced to all sorts of apparent reconstruction paradoxes.

In this article, the discussion will mostly center around one such paradox having to do with the impossibility of scope reconstruction in some cases and propose enrichments and modifications of standard views of both syntactic representations and of the structure of the model of grammar,

mainly that DPs are split (they are derived constituents) and VPs are split (each layer in a VP shells is “clause like”) with concomitant views on movement types and triggers and the principles driving constituent formation.

1 Introduction

1.1 Theory of movement

Movement theory is the theory of certain types of systematic redundancies. Two prominent examples of such redundancies are exemplified below:

(1) a. Who must John see
    b. John must see someone
    c. Who must John see t

(2) a. John seems to be sick
    b. It seems that John is sick
    c. John seems t to be sick

In each triplet, the first sentence is well formed in part because the second is well formed too. Standard movement theory codes this relation by postulating that the first sentence ought to be analyzed as having a structure that includes a structure like the third in each case. This structure resembles the structure of the second sentence in having an element t similar to the moved element (underlined) – the trace of the moved element - which has the same grammatical function as the corresponding unmoved element in the second sentence.
In particular, the position of this element t gives information about how the moved element ought to be interpreted. For example, this element t codes what thematic role the moved element assumes in the first sentences. In effect, this means that aspects of the interpretation of the first sentence are calculated as if the moved element had not moved.
There are several ways in which this basic interpretative property can be derived.
For example, under a “representational” approach of movement dependencies, if the meaning of the first sentence is calculated by looking at its structure as given in the third sentence, the

interpretive procedure must somehow assume that the make up of t codes the relevant interpretative properties of the moved element.

Alternatively, under a "derivational" approach to movement, we could conceive of the interpretative procedure as cyclic, computing the relevant interpretive aspects progressively, and in particular, as calculating aspects of the interpretative import of the moved element on a structure in which this element has not yet moved (to use the usual temporal metaphor for movement derivations).

These two approaches are different, making different claims about the architecture of grammar. Here, I will ignore the differences between them: in both cases, I will call the fact that items are not necessarily interpreted in the position in which they surface a reconstruction effect and I will say that the moved element reconstructs to describe the observation that aspects of the interpretation of sentences containing moved elements are calculated as if movement had not taken place.

In the case of A-bar movement, prominently illustrated by wh-constructions, reconstruction effects are found with respect to at least three different interpretative aspects: Predicate-argument relations, binding relations and scope relations.[1]

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[1] For each of these interpretive properties, we provide a rough approximation of its formulation below, sufficient for our purposes.

a. Binding Principles

Condition A: anaphors must have a local antecedent (i.e. a c-commanding antecedent in the same clause no further than the first c-commanding subject)

Condition B: pronouns cannot have a local antecedent (i.e. a c-commanding antecedent in the same clause)

Condition C: pronouns cannot corefer with non pronouns they c-command.

b. Scope Principles

Principles of Scope :

i. If X superficially c-commands Y, Y can be interpreted in the scope of X

ii. X and Y can outscope each other only if X and Y are clause mates

Principle of Pronominal Binding - a principle of both Binding and Scope:

a pronoun can behave as a variable bound by X only if it can be interpreted in the scope of X

1.2 Background: Theta Roles, Traces and Copies in A-bar Movement

Talking representationally, the question of which aspects of interpretation proceed as if movement had not taken place can be construed as the question of what traces are: traces should be internally structured so that they contain exactly the information needed for calculating the relevant aspects of interpretation as if movement had not taken place. Here, I outline a reasoning to corroborate some specific conclusions justified in recent work (see in particular Fox, 2002) on the subject, namely Chomsky's 1995 copy theory of traces, at least for A-bar movement.

From the point of view of Predicate-argument relations, meaning looks like it is calculated exactly as if A-bar movement did not exist. In the a sentence, *John* is thematically interpreted as in the (b) sentence, i.e. as internal argument of *invite*:

(3) a. John, Mary will invite
b. Mary will invite John

This is one of the properties that the trace theory of movement rules encodes.[2]
However, this underdetermines how traces should be structured: two possible ways of construing the content of traces are compatible with their role as theta role "transmitters". One is to take traces to be interpreted (roughly speaking) as bound pronouns (the binder would be the moved

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c. Predicate-argument relations (Theta Roles)
A predicate Q can take an XP as saturating one of its XP argument slots only if XP or one of its trace is in a structurally local relationship with Q.

For the moment we can take this local relationship to be satisfied when XP is a daughter of a projection of Q (i.e. a complement of Q or a specifier of Q). We will return to a more detailed discussion of this structural characterization in section 7.4.

[2] Note that there is nothing necessary about it: it is easy to imagine systems which would not work this way: in such systems movement would for example be upward from a non thematic position to a thematic position.

element). The other is to take traces as being the same syntactic objects, and thus as having exactly the same interpretative import, as their antecedent. If the former were the case, we would have the appearance of reconstruction but only the appearance of "full" reconstruction since a bound pronoun shares some interpretative property with its antecedent but presumably does not have exactly the same interpretative import as its antecedent. If the latter case is right, we would be dealing with (obligatory) Reconstruction at Logical Form[3] (defined as the syntactic input to interpretation).

The difference between the two is whether the trace should have (close to) the same internal structure as its antecedent. Thus the following sentence in (a) with the extraction site marked with the trace t would behave either like (b) if the trace is like a pronoun, or (in an informal sense) like c if the trace duplicates the information contained in the antecedent.

(4) a. Which picture of Mary will she will look at t
    b. Which picture of Mary is such that she will look at it
    c. She will look at a picture of Mary, which one?

the fact that *she* cannot be coreferential with *Mary* shows that the internal structure of the antecedent does matter (triggering a Condition C violation) and thus favors interpreting the trace like a (close) duplicate of its antecedent as in (c): when Condition C is checked, a copy of the moved material must be present. In effect this means that reconstruction with respect to Condition C is mandatory. This is essentially Chomsky's 1995 theory of traces as copies (reminiscent of Burzio's 1986 theory of layered traces). Assuming the initial constituent has moved in the (a) sentences below, its LF must at least include the underlined material as in (b):

(5) a. John Mary likes
    b. John, <u>Mary likes John</u>

[3] The difference between these two options may considerably shrink if pronouns are hidden definite descriptions as in Elbourne, 2001. The discussion in the text however suggests that such an assumption would lead to problems.

Note that copies cannot be exact copies at the point of interpretation, otherwise, the sentence *Which picture of Mary will she will look at t*, should behave like *Which picture of Mary will she will look at which picture of Mary* . It must somehow be guaranteed that the second *which* is not interpreted (see, Chomsky 1995 or Fox, 2002 on trace conversion, and briefly later in 8.1).

This binding argument given for A-bar traces can be duplicated with scope considerations. Consider for example the case of how many questions exemplified below:

(6) How many books must John read t?

Such a question is ambiguous. It can get either of the two roughly paraphrased readings:

(7) a. what number is such that John must read that number of books
b. how many books are there that John must read

This ambiguity arises from the fact that the expression *how many* introduces two quantifiers: i. a wh-quantifier over quantities (=What is the number/quantity n) and ii. an existential quantifier over the set of objects being counted (= here: there are n books).

Although the former, as a wh-question takes its surface scope, the second can either take its surface scope (yielding the (b) reading above) or the scope superficially determined by the wh-trace (yielding the a reading above).
Some examples can be constructed to make this ambiguity quite clear.
Consider the following example with its two possible French translations below (the first an almost word by word translation, the second with just the wh-quantifier moved):

(8) a. How many pictures had the children all wanted to buy (exactly)
b. Combien de photos est ce que les enfants avaient tous voulu acheter (exactement)
c. Combien est ce que les enfants avaient tous voulu acheter de photos (exactement)

This English sentence contains the following relevant scope inducing items:
i. the wh-quantifier: *What is the number n* which takes maximal scope

ii. the existential quantifier: *There are n pictures*, which has variable scope
iii. the intensional verb *Want* which, like all verbs, takes its surface scope
iv. the floated quantifier *All* which like all floated Qs take its surface scope
Given that the existential quantifier can be outside of the scope of *all*, inside the scope of *all* but outside the scope of *want* or inside the scope of *want*, we should a priori get the three different readings:

1. What is the number n such that there are n pictures such that the children had all wanted to buy them
2. What is the number n such that for each child, there are n pictures he wanted to buy
3. What is the number n such that the children had all wanted there to be n pictures to buy

Imagine the following situation: There is a total of two relevant children. There are exactly 3 particular pictures that both want to buy. Each child wants to buy a total of 6 pictures.
In such a situation, the answer to question 1 is 3 and to questions 2 or 3 is 6.

What does this say about traces? The relevant reading is the third one: it would arise if the trace is what supports the existential quantification, that is if the input to interpretation has the structure:

(9) How had the children all wanted to buy ~~how~~ many pictures

with *how* the wh-quantifier (the lower copy of which is not interpreted) and *many pictures* the existential quantifier. Again this supports the idea that a trace is a nearly exact copy of the moved element.
Such a conclusion is made very plausible by the French facts. The first French translation in (8b) has the same readings as its English counterpart while the second in (8c), which is overtly like the postulated input to interpretation (9) only corresponds to the reading #3. Indeed, to the question:

(10) Combien est ce que les enfants ont tous voulu acheter de photos
how many have the children all wanted to buy (of) pictures

asked in the discourse context outlined above, only the answer 6 is possible. The answer 3 is not. We conclude that (i) traces are copies;[4] (ii) copies must be interpreted

The question arises of how readings 1 and 2 arise. Because of Principle C, the lowest trace must be interpreted. How then can the existential quantifier take wider scope than this lowest trace? We are lead to the conclusion that in such cases, two copies are interpreted, the lowest one and a higher one whose position determines the scope of the existential quantifier. Thus, the interpretation 1 arises from interpreting the structure in (a) yielding the (b) reading:

(11) a. How *many pictures* had the children all wanted to buy ~~how~~ *many pictures*
b. What is the number n such that there n pictures such that the children had all wanted to buy these pictures

I refer the reader to Fox, 2002, for a more precise proposal on how the bottom trace should be interpreted, and Sportiche, 2003, for relevant remarks and references.
Correlated with this conclusion is the fact that *how many* questions trigger principle C effects regardless of the scope of the existential quantifier:

(12) a. How many pictures of [the children]$_j$ had they$_j$ all wanted to buy (exactly)
b. Combien de photos des enfants$_j$ est ce qu'ils$_j$ avaient tous voulu acheter (exactement)
c. Combien est ce qu'ils$_j$ avaient tous voulu acheter de photos [des enfants]$_j$ (exactement)

Talking representationally, we see that there are good grounds for assuming that traces are A-bar movement are copies. Talking derivationally, this could show that interpretation is done cyclically, that is that interpretation is done before movement has taken place.
Such a conclusion is corroborated by Chomsky's 1995 remarks about the interpretation of idiom chunks. For example, in:

[4] Strictly speaking, neither of the reasons we present require that traces be exact copies. Rather, it shows that more information about the content of the antecedent is required than what a pronoun or a bound variable would provide. This conclusion is sufficient for what we will discuss in this article. In the remainder of this article, putting this caveat aside, I will use the term copy.

(13) How much headway did they make t on this problem?

the meaning of [make headway] can only be derived by interpretative rules from accessing both *make* and *headway*. In terms of our current discussion, this means that t must code the fact that it stands for the word *headway*, i.e. that t contain a copy of *headway*.[5]

2 A-movement and Reconstruction Paradoxes

2.1 A-movement Scope and Binding Reconstruction

Do these conclusions extend to A-movement? Since we will ultimately discuss cases of impossible reconstruction in A-movement, which will create apparent paradoxes, we need to establish that reconstruction is at least possible in such constructions sometimes. This is what this section will quickly establish (but readers are referred to the wealth of evidence on the topic: Lebeaux, 1991, 1998, Sportiche, 1997, 1999, Fox, 2000, Romero, 1998, von Fintel and Iatridou 2003).

The assumption that there is mandatory reconstruction in A-movement is actually the norm:

(14) a. John seems to be sick,
b. I consider [John sick]

From the point of view of Predicate-argument relations, meaning looks like it is calculated exactly[6] as if A-movement did not exist. In the a sentence, *John* is thematically interpreted as in the (b) sentence, i.e. as argument of *sick*: reconstruction is necessary to recover the thematic role

[5] Such cases also cast independent doubt on the idea that traces could be pronominal as such idiom chunks seem not to be "pronominalizable", not even by predicate like pronouns (in languages like French that have them).

[6] Unless Hornstein's 1999 analysis of control as movement is right, since PRO is interpreted *de se* in obligatory control constructions.

born by the A-moved element.[7] Rather what is at stake is the question of which of the following theses is true:

(i) the Interpretative Bifurcation Thesis (IBT) according to which there is reconstruction for some interpretative principles (thematic roles) but not for others (binding or scope).
(ii) the Interpretative Uniformity Thesis (IUT) according to which there is reconstruction for all interpretative principles (thematic roles, binding or scope).

In a theoretical context in which A-movement dependencies and A-bar movement dependencies are uniformly treated as "movement" leaving traces etc.. the null hypothesis is certainly that the IBT is false (and that the IUT is true): strong arguments should be presented to accept it. I believe that such arguments are lacking and that evidence suggesting it is false abounds.[8]

Now it is conceivable that in the case of A-movement, as distinct from A-bar movement, traces are treated like pronouns instead of full copies. But this cannot be always true. First A-moved elements sometimes cannot be pronominalized, as e.g. in the case of idiom chunks. Thus, the Logical Form (i.e. the syntactic input to interpretation) of the a sentence below cannot be the (b) sentence, but instead must contain the substructure in (c):

(15) a. Much care seems to have been taken t of the victims
b. Much care seems to have been taken it of the victims
(Much care is such that it seems to have been taken of the victims)
c. … to have been taken much care of the victims

[7] This conclusion could be avoided if theta roles are treated like features: an argument having occupied a theta position is assigned a feature. Such a feature would have to exactly code the syntactic configuration in which this theta role is assigned (we need to know not only that a theta role has been assigned but what assigned it). This means the same information is coded twice: once in the original syntactic configuration and once in the theta feature. I conclude this is not the way to go.

[8] Note that conversely, evidence supporting the IUT supports a unified theoretical treatment of A and A-bar dependencies.

The illicit paraphrase in (b) above would have the idiom chunk in effect interpreted with widest scope (like a pronoun). That this is impossible is a consequence of Chomsky' 1995 observation mentioned above according to which idiom chunks must reconstruct, as true idiom chunks cannot be interpreted independently of the rest of the idiom: idioms must form LF constituents. Sometimes then, traces of A-movement must be copies (that is, reconstruction takes place in A-movement constructions[9]). By Occam's razor, we should assume they always are unless we see evidence to the contrary.[10] Thus the Logical Form of the a sentence below should contain the structure in b:

(16) a. John seems to be sick
b. … seems to be John sick

A correct prediction is made by this observation. Since traces in such cases must be copies, Condition C effects are expected, in a way similar to what was earlier observed for A-bar cases. Condition C effects are observed in such cases of mandatory reconstruction with idiom chunks, viz.:

(17) a. #?Grand soin de Marie me semble avoir été pris t
b. #?Grand soin d'elle$_j$ lui$_j$ semble avoir été pris t
c. #?Grand soin de Marie$_j$ lui$_k$ semble avoir été pris t
d.. *Grand soin de Marie$_j$ lui$_j$ semble avoir été pris t
Good care of Mary/her seemed to me/her to have been taken
"Good care seemed to me/her to have been taken of Mary/her"

(18) a. ?le parti de Marie me semble avoir été pris t trois fois
b. ?son$_j$ parti lui$_j$ semble avoir été pris t trois fois
c. ? le parti de Marie$_j$ lui$_k$ semble avoir été pris t trois fois

[9] Surprisingly, Chomsky explicitly denies that this extends to cases of A-movement.

[10] One paradox which is not discussed in detail here is of course going to be that if the lowest trace is a copy and must be interpreted, systematic Condition C effects are wrongly predicted in sentence such as:
i. The picture of John seems to him [to be t fuzzy]
cf. also fn13 and section 3.2.

d.. * le parti de Marie$_j$ lui$_j$ semble avoir été pris t trois fois
Mary's /her side seemed to me/her to have been taken
three times

In the first set, pied piping of "of Mary" leads to serious deviance in English and, as indicated by the # diacritic, for some speakers of French in French, but only decreased acceptability for others (such as myself). In the second set, simple passivization leads to decreased acceptability. However in both sets, the contrast between the c examples (without coreference) and the d examples (with coreference) is significant, supporting the idea that traces are copies.

Furthermore, treating A-movement traces as pronouns bound by an unreconstructed antecedent from the point of view of interpretation is also incompatible with standard observations involving "Q-lowering". Such observations can be illustrated by such examples as:

(19) A southerner seems to have won the race

This sentence can have the following two paraphrases[11]:

(20) a. It seems that there is a southerner who won the race
b. There is a southerner who seems to have won the race

In the first one, existential quantification takes place inside the scope of the verb *seem.* In the second, existential quantification outscopes the verb *seem.* One standard account (essentially, although not in detail - see fn 12 - May's 1977) takes the following form:

1. The target sentence involves raising to subject, that is, it is associated with a pair of syntactic representations roughly:

(21) a. seems [a southerner to have won the race]
b. a southerner [seems to have won the race]

[11] Note that assertion of existence is at stake, not specificity in the sense of whether the speaker has a particular individual in mind, or whether presupposition is involved.

2. The scopal ambiguity arises from taking either of these representations as input to compute scope relations, the first one giving rise to (20a), the second to (20b).

3. Since the first interpretation is computed on the basis of the representation of the target sentence which does not surface, it looks like this interpretation is reached by exactly undoing movement: this is a reconstruction effect. Many authors have argued that there is scopal reconstruction under A-movement in this sense (e.g. Barss, 1986, Lebeaux, 1998, Fox, 2000a, Romero, 1998, or Sportiche, 1997, 1999, and recently Von Fintel and Iatridou, 2003).

There are many other cases that Barss (1986), Fox (2000), Lebeaux (1998), Romero (1998) or Sportiche (1997, 1999) etc… provide suggesting reconstruction does take place. I will limit myself to one illustration of some cases of scope reconstruction here. Consider the following examples:

(22) a. A southerner is predicted to win every senate race
b. It is predicted that for every senate race, there is a (possibly different) southerner who will win it
c. For every senate race, there is a (different) southerner who is predicted to win it
d. For every senate race, it is predicted that there is a (different) southerner who will win it

Three relevant scope inducing elements are involved: the existential quantifier linked to the singular indefinite subject *a southerner*, the universal quantifier *every* and the verb *predict.* A priori this should yield six scopal readings but the three in which *a southerner* outscope *every senate race* are pragmatically odd (since they require the same southerner to win every senate race). The remaining three are listed in (22b, c, d). The readings paraphrased in (22c,d) correspond to readings in which the sentence expresses a summary of individual predictions, one for each senate race. Such readings seem more difficult, perhaps unavailable for this sentence (although pragmatically quite plausible) but whether they are indeed available is irrelevant for our purposes. (22b) is the most relevant for our present purposes. Certainly, the sentence in (22a) can most naturally report a unique global prediction corresponding to the reading in (22b). This

means that *every senate race* can outscope *a southerner* with both of them in the scope of the verb *predict.* These two observations indicate that one input for scope computation is (23a):

(23) a. is predicted [a southerner to win every senate race]
b. a southerner will win every senate race

As the prominent reading of (23b) shows, within a single clause, *every senate race* can then outscope *a southerner*. [12] There thus seems to be solid grounds for concluding that reconstruction under A-movement takes place for scope computation.[13]

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[12] Historically (May, 1977, 1985) these cases were first treated by invoking a different mechanism than exact undoing of the movement: Q-lowering (similar to quantifier raising) that adjoins the raised subject to the embedded clause instead of reconstructing it into one of its trace positions, yielding the structure (i) which is such that *a southerner* is now in a position to be outscoped by *every senate race* within its own clause:

(i) is predicted [a southerner [t to win every senate race]

Since we have already seen that reconstruction does take place in case of A-movement of idiom chunks, there is no need for any other mechanism. Further examples (e.g. *a senator seems to be needed*) could show that Q-lowering would need to be able to lower a raised phrase so that it takes exactly the scope it would have if it were in any one of its traces.

[13] Before proceeding, note that reconstruction for scope as in the preceding cases arises when only the lowest trace/copy of a moved phrase is interpreted. We also concluded that the lowest trace/copy of a moved phrase always had to be interpreted. How then can wide scope readings ever arise? There are (at least) two ways to achieve wide scope. First, in a copy theory of traces, a possible answer is that both copies are interpreted as we concluded in the case of A-bar movement. Thus, for the a sentence which can be read either as in (b) or d.

a. A southerner is predicted to win the race
b. It is predicted that there is a southerner who will win the race
c. is predicted [a southerner to win the race]
d. There is southerner who is predicted to win the race
e. a southerner is predicted [a southerner to win the race]

The subject narrow scope reading in (b) is gotten from interpreting the structure in c with just the lower copy interpreted. The subject wide scope reading in d is gotten from interpreting the structure in e with both copies interpreted, the higher one naturally determining the scope properties (see Fox, 2002, for a proposal on how the bottom trace should be interpreted, and Sportiche, 2003, for relevant remarks).

Furthermore, if an A-moved element containing a potentially offending name is interpreted with narrow scope, Condition C reappears (see for example Fox, 2000a). This is illustrated below in French:

(24) a. *Un nouveau procès pour innocenter Jean lui semble devoir se tenir
A new trial to clear John seem to him to have to be held
c. seem to him to have to be held a new trial to clear John
d. it seems to him that it is necessary that there be a new trial to clear John

The choice of lexical material strongly favors a reading in which the raised subject has scope narrower than the verb *hold*, i.e. the Logical Form in c, with a very rough paraphrase in d.[14]

Note finally that Reconstruction for scope under A-movement is not limited to multisentential cases. Modulo the Predicate Internal Subject hypothesis, we observe reconstruction effects in

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Alternatively, the wide scope reading could be achieved by introducing a choice function with appropriate scope (as suggested in the linguistic literature in Rebuschi, 1994, Reinhart, 1997 and later work). Given a function f mapping all (and each of) the members of the set of southerners to the same southerner s, we can mimic the wide scope reading :

f. There is a function f such that it is predicted that f(a southerner) will win the race,

since f (a southerner) = s, this is equivalent to the wide scope reading:

g. There is a southerner s, such that it is predicted that s will win the race

Both wrongly predict (see footnote 10) that we should observe Principle C effects with wide scope readings.

It is a challenge to reconcile the choice function approach with this observation. As for the first approach, it seems - in the case of A-movement - to require interpreting the lowest copy for thematic role computation and the highest interpreted copy for binding theoretic purposes (this may mean that an A-movement trace can indeed be treated like a pronoun, but does not have to. Alternatively it may be that the binding conditions are evaluated at phase boundaries only.

[14] As control, note that coreference between John and him per se is not problematic. The following sentence with the pronoun and the name swapped is fine: (i) A new trial to clear him seems to John to have to be held. This minimal pair cannot be constructed for French for, although raising to subject across a clitic experiencer is well formed, raising across a non clitic is substantially degraded.

simple clauses (as further documented by reconstruction cases discussed in von Fintel and Iatridou 2003, which they call scope diminishment). As discussed in McCloskey (1997), this can be illustrated by Ladusaw's 1988 observation that the relative scope of negation, modals and sentence-adverbs is straightforwardly determined by the surface position of those elements. The following examples (from Ladusaw 1977), for instance, are unambiguous:

(25) a. Shelly usually doesn't do her homework.
b. Shelly doesn't usually do her homework.

(26) a. This Fiat isn't necessarily reliable.
b. This Fiat necessarily isn't reliable.

This suggests that the kind of scope determining mechanisms available for nominal phrases (e.g. Quantifier Raising), which allow a DP to have wider scope than one would expect on the basis of its overt position, should not be available to modals, adverbials or to negation (Ladusaw 1988: 487). There are, however, well-known scopal interactions between these elements (modals, negation, sentence adverbs) and the subject. The following examples are ambiguous:

(27) a. At least one player always looses
b. Most guests might be late
c. Every player didn't score.

What is required to account for these ambiguities is a property that would allow the subject to have narrower scope than one would expect on the basis of its overt position. The property in question is derived from the fact that in all these instances, the subject has raised from some lower, VP internal, position: what we are observing is a reconstruction effect for scope under A-movement.

2.2 What mechanism is reconstruction

Still talking representationally, that is looking at a surface syntactic structure including traces, how can we describe the reconstruction mechanism. Chomsky's 1995 appealing answer (justifying his copy theory of traces) is that there is no mechanism:

Given two copies linked by a movement dependency:

Reconstruction for principle P simply is the evaluation of the lower copy for P

Radical reconstruction for Principle P is the evaluation of only the lower copy for P

Lack of reconstruction is the failure to evaluate the lower copy for P

For example, in:

(28) a. At least one man seems t to have been invited t

b. At least one man seems to have been invited ~~at least one man~~

c. ~~At least one man~~ seems to have been invited ~~at least one man~~

There are at least two copies of the moved item (and perhaps more). The scopal ambiguity arises because the interpretative algorithm can simply ignore one copy without any reference to anything else in the structure. This is what is expected under Chomsky's principle of Full interpretation (obviously necessary in some form) requiring that any contentful material contribute to meaning. In case several copies of a particular item are present in a structure, this principle requires that some copy of this item be interpreted. In the general case, other copies may well fail to contribute to meaning – as we have seen in several cases.

As we have seen that there is independent merit for the idea that traces are copies, we adopt Chomsky's proposal.

Talking derivationally with the usual temporal metaphor, reconstruction for principle P simply means that principle P is evaluated before movement takes place. If it is also evaluated after movement takes place, this is equivalent to interpreting both the original copy and some other copy. If it is not, this is equivalent of only evaluating the original copy, that is it is a case of so-called radical reconstruction.

3 A-movement Reconstruction Paradoxes

3.1 Scope

Some authors have, over the years, expressed general doubts that there is reconstruction in A-movement cases, for example Zubizarreta (1982) or Lasnik (1998). Their skepticism is based on an apparent paradox arising under the assumption that scope reconstruction is available. The form of the argumentation is as follows: if there is reconstruction, we expect it to be fully general. Whenever we have a raising-to-subject structure, we should expect all interpretations to be available that are computed on the basis of premovement structures. If some of these interpretations are not available, this suggest that reconstruction is not available at all in A-movement cases.
One such paradoxical case is attributed to Chomsky by Zubizarreta. It is based on the pair:

(29) Every boy is not listening
(30) Every boy seems not to be listening

The first sentence allows a reading in which negation outscopes the universally quantified subject yielding the meaning:

(31) It is not the case that every boy is listening

Assuming reconstruction is available in the second sentence, it should, from the relevant interpretative point of view be treated like:

(32) It seems every boy is not listening

And thus yield the following interpretation which is not an available interpretation:

(33) It seems that it is not the case that every boy is listening

Because as we have seen, assuming that there is never reconstruction is not an option, this observation creates a serious puzzle, call it Chomsky's reconstruction puzzle.

This observation finds a very strong correlation in French (cf. Moritz and Valois, 1994) in which judgments about meaning can be replaced by judgments about form. With certain (superficially) negative expressions, such as *pas (not), aucun (no), personne (nobody), rien (nothing*) etc.., the verbal complex can be preceded by a particle *ne* (or *n'* in front of a vowel) marking the clause over which this negative expression takes scope.

(34) Aucun enfant n' est venu
no child ne is come
No child has come

If such a negative DP is raised to subject, we expect two possible sites for the particle *ne*, the top or the bottom clause depending on the relative scope of this expression. However, this is not what we find:

(35) a. Aucun enfant ne semble être venu / Aucun enfant n'est supposé venir
No child ne seems to have come/ No child ne is supposed to come
b. *Aucun enfant semble n'être venu / *Aucun enfant est supposé ne venir
No child seems ne to have come / No child is supposed ne to come

The *ne* particle is not allowed to mark the scope of a negative raised subject in the embedded clause. Such infinitive clauses do allow the presence of *ne* as long as it licenses a negative expression that has not raised:

(36) a. il ne semble être venu aucun enfant / n'est supposé venir aucun enfant
there (ne) seems to have come no child / there (ne) is supposed to come no child
'there doesn't seem to have come any child/ there doesn't seem to have come any child'
b. il semble n'être venu aucun enfant / il est supposé ne venir aucun enfant
there seems (ne) to have come no child / there is supposed (ne) to have come no child
'there seems not to have come any child/ there seems not to have come any child'

This configuration finds an immediate explanation if the raised subject is not allowed to reconstruct (because e.g. there is no reconstruction with A-movement). Sentence (35b) is ill formed because the particle *ne* marks an impossible scope for the raised negative expression.

Chomsky's problem is made apparent in (30) by the fact that the universal quantifier cannot scope under the negation. Can it scope under the raising verb but above negation? The deviance of the French example (35b) suggests such intermediate scope is unavailable with *aucun,* since this reconstruction would be sufficient to make it fine. This is an indication that reconstruction to such an intermediate position is unavailable with *every* in (30) as well. This conclusion can be corroborated by looking at cases of Ellipsis if we adopt Fox's (2000) proposal regarding VP ellipsis. Fox's (2000) only point that matters here is the parallelism property he documents: in conjoined structures with VP ellipsis, this property requires that either both subjects reconstruct or neither does. In *(i) Every boy seems not to be here and a girl does too*, the fact that *a girl* must be understood as outscoping *seem* suggest that every boy cannot reconstruct below *seem.*[15]

Lasnik (1998) similarly argues for the idea that reconstruction of a-movement is never available based on the available readings for the following (and other comparable examples):

(37) Every building is 10% likely to collapse

If reconstruction were available in such a case, it should behave like the first sentence and allow a reading paraphrased in the second:

(38) a. It is 10% likely that every building will collapse
b. That every building will collapse is 10% likely

But such a reading seems unavailable. What (37) says is that each building has 10% probability of behaving a certain way. If there are 2 buildings in total, the probability that both collapse is $(10\%)^2$, that is 1%, not 10% as (38) would state in such a situation. In other words, *every* cannot scope under *10% likely*: reconstruction seems impossible. This is not a problem of non sensical or

[15] See also discussion in section 4.2

pragmatically unavailable interpretation. There seems not to be anything semantically wrong with the reconstructed reading. Call this Lasnik's reconstruction puzzle

Finally, a similar behavior occurs in my French in the following pairs:

(39) a. Tous les invités semblent être arrivés
'All the guests seem to have arrived'
= Each guest is such that he seems to have arrived
= it seems that all the guests have arrived
b. Tous les invités lui semblent être arrivés
'All the guests seem to him to have arrived'
= Each guest is such that he seems to have arrived
≠ it seems that all the guests have arrived

Thus, while the verb *seem* can outscope its universal quantifier subject, the verb *seem to* cannot (we discuss this in more detail in section 4.2.).

In conclusion we have the following apparent scope reconstruction paradox:

1. Reconstruction is sometimes possible for scope
2. Reconstruction is sometimes impossible for scope

Scope Reconstruction is possible in:

(40) ambiguous At least one player always t looses
(41) ambiguous A southerner seems to have won the race
(42) ambiguous Tous les invités semblent être arrivés
'All the guests seem to have arrived'

But it is not in:

(43) Chomsky's Problem (negation in the embedded clause)
Everyone seems not to be t listening
(44) Lasnik's problem: (choice of main clause predicate)

Every building is 10% likely to t collapse

(45) the Experiencer Problem

Tous les invités lui semblent être arrivés

'All the guests seem to him to have arrived'

There does not seem to be any known or plausible independent factors to which we could attribute this lack of scope reconstruction.[16] In particular, Fox's (2000a) Scope Economy principle which prevents scope shifting operations from applying in case it makes no meaning difference clearly does not apply here (a priori, it may conceivably although not obviously be involved in the following binding cases).

3.2 Binding Reconstruction Paradoxes

For A-bar movement, we have reached the following conclusions:

1. Traces are (or can be – cf. fn 13) copies
2. Reconstruction is required for theta assignment
3. Reconstruction is mandatory for Condition C

These conclusions lead to several apparent binding paradoxes:

One which we will not address here is the following:
A-movement should systematically show Condition C effects comparable to those found with A-bar movement (e.g. with arguments but not with adjuncts…). This is false. In examples such as the one below discussed previously:

(46) a. *Un nouveau procès pour innocenter Jean lui semble devoir se tenir

A new trial to clear John seem to him to have to be held

c. seem to him to have to be held a new trial to clear John

[16] Such failure of scope reconstruction can also be observed with respect to the de re / de dicto distinction. We will return to such cases below in section 6.2.

d. it seems to him that it is necessary that there be a new trial to clear John

Slightly changing the example (e.g. the bottom predicate thus making wide scope for the raised subject plausible as indicated in b) removes the Condition C effects:

(47) a. Le procès pour innocenter Jean lui semble s'être déja tenu
A new trial to clear John seem to him to have already been held
b. there is a trial to clear John which seems to him to have already been held

Others concern other aspects of reconstruction. In A-movement, there is scope reconstruction. From the point of view developed here, this means that it is possible to only interpret the lowest copy of a moved element at LF, which we called radical reconstruction.[17] One may wonder first when radical reconstruction for scope is possible, for A-movement (only sometimes, so it appears, cf. Sauerland and Elbourne, 2002) or for the various varieties of A-bar movement (unclear, but not always for wh-movement: a wh-phrase seems to have to be interpreted in its moved position) and why. Furthermore, since reconstruction can in principle be radical, the question arises whether reconstruction can (always) be radical, e.g. for Condition B or Condition C. The answer is negative:

If radical reconstruction was possible for Condition C, the following sentence in (a) should behave like its structure in (b) and thus should be fine, contrary to fact (as noted in Lebeaux 1998):

(48) a. * He_j seems to $John_j$'s mother [t to be sick]
b. seems to $John_j$'s mother [he_j to be sick]

If radical reconstruction was possible for Condition A, the following sentences in (a) should behave like their structure in (b) and thus should be fine, contrary to fact (as noted in Lebeaux 1998):

(49) a. * $Himself_j$ seems to John [t to be sick]

[17] See Elbourne and Sauerland, 2002 and Sauerland, 2004 for discussion, which makes section 6.2 relevant.

b. seems to John$_j$ [himself to be sick]

(50) a. * Each other$_j$ seem to them$_j$ [t to be sick]
b. seems to them [each other$_j$ to be sick]

If radical reconstruction was possible for Condition B, the following sentence in (a) should behave like its structure in (b) and thus should be fine, contrary to fact as noted in Chomsky 1995);

(51) a. * He$_j$ expected him$_j$ to seem to me [t to be intelligent]
b. He$_j$ expected to seem to me [him$_j$ be intelligent]

These additional complications were taken by Chomsky 1995 to be a further indication that (radical) reconstruction is not available for A-movement. We return to them in section 6.2

4 Somewhat More Systematic Data about Scope Reconstruction

Before trying to construct an account of the scope reconstruction paradoxes, it is useful to try to get a sense of a fuller range of data. The basic problem is under what circumstances we get scope (and binding) reconstruction in situations in which a DP has raised by A-movement over some intervening context containing some scope sensitive element:

DP ….context…. t

To get a sense of the complexity of this problem, we can vary its two parameters:

1. The first parameter is the DP and its content.
Varying it means varying the type of D or any other scope sensitive element within DP (NumberP or Number, N, NP or parts thereof).

2. The second parameter is the intervening (i.e. c-commanding) syntactic/lexical context. Varying it means choosing one or a sequence of scope sensitive elements such as adverbials, negation, intensional verbs, etc..

Needless to say, an exhaustive study of these factors would be extremely useful: we would need to systematically investigate the type of scopal data Beghelli and Stowell (1997) discuss and relate them with the distributional data (including modals) famously leading Cinque (1999) to motivate his articulated clausal structure, which in recent work (Cinque, 2004) he claims encompasses also restructuring predicates.

Here we will limit ourselves here to some broad considerations pertaining to what happens when the context contains one adverb, one verb or a sequence of two such elements

4.1 The "monoclausal" case

This is the case of raising to subject within what is usually analyzed as a simple clause. The simplest situation is a case in which this raising crosses over a scope inducing adverbial element such as negation *not*, a modal verb or a quantificational or modal adverbs.[18]
For our purposes, it is enough to note the following:

(52) a. A man always t wins (= it always the case that there is a man who wins)
b. Children did not solve this (= it is not the case that there are children who solved this)
c. At most three men must be there (= it must be the case that at most three men are there)
d. All the girls did not arrive on time (= it is not the case that all the girls arrived on time)
e. All the girls but one may have won (= it is possible that all the girls but one have won)[19]

Singular indefinites, bare plural indefinites, Counting DPs (in Beghelli and Stowell's 1997 terminology), and strong quantifiers such as proportional DPs, distributive and non distributive universals can be interpreted lower than their surface position (assuming that negation, modal

[18] A more complicated is one which would require the subject to reconstruct to some lower position to scopally interact with something lower as Johnson and Tomioka (1998) or Hornstein (1999a) argue must be the case for subject /object inverse scope.

[19] Crucially here, *one* can be read as a narrow scope existential.

verbs or quantificational or modal adverbs are not subject to any scope shifting operation, as we discussed earlier in section 2.1).

But it is clear is that there is no simple characterization of what can or cannot reconstruct and where it can reconstruct. As illustration of the complexity involved note that for example, *at least 3 men* can be interpreted in the scope of the epistemic modal *must* as in (52c) but not in the scope of (non metalinguistic) negation or an adverbial like *always* (this is of course a puzzle in need of a solution[20]):

(53) a. Au moins trois hommes ne sont pas venus
At least 3 men did not come
(≠ it is not the case that at least 3 men came (= fewer than 3 men came)).

b. Au moins trois hommes mangent toujours ici
At least 3 men always eat here
(≠ it is always the case that there are at least 3 men who eat here)

It has sometimes been claimed that some DPs, such as negative DPs do not reconstruct at all. I think this is incorrect (although it seems true that their reconstruction possibilities are limited. Thus, consider the following examples:

(54) a. No boy is always there
(≠ it is always the case that no boy is there)

b. Aucune flèche ne doit $_{\text{epistemic}}$ atteindre la cible
No arrow must$_{\text{epistemic}}$ be reaching the target

The judgment on the first example seems straightforward. For the second and the third, let us imagine a situation in which every time an arrow hits the target a bell is supposed to ring. Upon not hearing anything, if the question is raised as to what is going on, a perfectly fine answer is (b) meaning: it must be the case that no arrow is reaching the target[21]. This suggest that a negative DP can reconstruct below an epistemic modal of necessity.

[20] In terms of the proposal we will make later, one descriptive option is to suppose that such expressions as *at least three* are structurally introduced lower than the epistemic modal, but higher than negation.

[21] The other reading with negation outscoping *devoir* seems to me unavailable.

It may even have to: von Fintel and Iatridou (2003) claim there is a general[22] observation which they call the Epistemic Containment Principle (EpisCont), according to which the subject of an epistemic modal is (apparently) not allowed to outscope this modal.

Reconstruction is not limited to operating only across one element as shown below:

(55) a. Un homme n'a pas gagné depuis 15 ans
A man has not won in fifteeen year
(it is not the case that any man won in 15 years)

b. Un homme n'a pas toujours gagné
A man has not always won
(it is not the case that it was always true that there was a man who won)

c. Un homme n'a peut-être pas gagné récemment
A man has perhaps not won recently
(it may be that it is not the case that there was a man who won recently)

For some DPs - definites, demonstratives etc.. - it is difficult to construct relevant cases. We conclude that, apart from these, quantified DPs, strong or weak can in principle reconstruct.

4.2 The classical raising case

Whether or not it is generally correct, the type of cases EpisCont indirectly claims are possible – namely reconstructability below an epistemic modal - immediately shows that DPs which can reconstruct in the simple clause case can also do so into an embedded clause when raised from an embedded clause. The reason is simply that epistemic modal verbs in French behave like main verbs taking non finite complements as exemplified with the epistemic modal of necessity *devoir*, which can combine with aspectual auxiliaries and negation independently of the infinitive verb embedded under it.

[22]This claim seems too strong as Benjamin Spector (p.c.) remarks as the following French discourse is fine: Knowing that only two out of five students were invited at the party, but not knowing which two, I can, when presented with a list of the five names to determine which, non contradictorily utter: "pour autant que je sache, chacun d'eux peut avoir été invité" (for all I know, each one of them may have been invited). This only is non contradictory if the epistemic modal is outscoped by the universal quantifier.

(56) a. Jean <ne> doit <pas> (ne pas) (avoir) manger/mangé des pommes
John must <not> (not) (have) eat/eaten some apples
(= it must be that it is <not> the case that John (did not /has not) eat/eaten some apples)
b. Jean n'a pas du ne pas être arrivé à l'heure
John has not had not to have arrived on time

The following French facts illustrates this point (with an epistemic reading of *devoir*):

(57) a. Un homme doit gagner (= it must be the case that there is a man winning)
b. Des enfants doivent être ici (= it must be the case that there are children here)
c. Trois hommes au plus doivent être ici (= it must be that there are at most 3 men here)
d. La plupart des gens doivent être ici (= it must be the case that most people are here)
e. Toutes les filles sauf une doivent arriver à l'heure (= it must be that all the girls but one arrive on time)

The presence of two aspectual auxiliaries does not modify the availability of lowered readings:

(58) a. Au moins un homme aurait du avoir fini
at least one man have-conditional must-participle have finished
it should have been the case that at least one man was finished
b. Toutes les filles sauf une aurait du avoir fini
All the girls but one have-conditional must-participle have finished
it should have been the case that there was a girl s.t. all the girls but her were finished

What this shows is that (some) weak or strong quantifiers can in principle reconstruct in the biclausal case. We should thus not treat mono and bi (or multi) clausal cases differently, clearly the null hypothesis but one that seems to disqualify approaches such as Boeckx's (2001) which do assume differential treatments (and which we briefly discuss below in section 5.2.2.).

That universal quantifiers can in principle reconstruct below non modal raising verbs can be illustrated by the following examples:

(59) Tous les invités semblent être arrivés
All the guests seem to have arrived
(=it seems that all the guests have arrived)

Imagine a situation in which there are exactly as many guests as there are seats in an auditorium and the speaker know this. The speaker, seeing with one quick look that all seats are taken can utter this sentence to mean "there is evidence that all the guests have arrived" without saying anything about actual guests (it may be that many seats are taken by uninvited people). It would be wrong to construe this sentence as meaning that for each guest, there is evidence that he/she has arrived. This suggests that the full DP subject has reconstructed under the scope of *seem.*[23]

The same conclusion can be reached on the basis of the following examples:[24]

(60) a. Un futur président risque d'être présent
a future president risks being present
(= there is a risk that a future president will be present)
b. Toutes les photos d'un futur président risquent d'avoir été volées.
All the pictures of a future president risquent having been stolen
(= there is a risk that all the pictures of a future president have been stolen)

Knowing that Sue has a chance of being elected president and that she will be present, I can utter sentence (a) so that *future* is in the scope of *risquer*. If Sue's pictures have been stolen, I can utter (b): this shows that the indefinite *un futur président* can be interpreted in the scope of *risquer*, and this can only happen if the whole subject DP is, suggesting again that the subject can reconstruct.

What the paradoxes show is that the choice of material over which raising takes place influences reconstruction possibilities. Lasnik's problem is of course one example, minimally contrasting *likely* and *10% likely*. Thus, we have contrasts such as the following:

[23] Note also that interpreting *all* with widest scope but its nominal restriction with scope narrower than seem both incorrect and undesirable (as it would allow unrestricted quantification).

[24] Not all French speakers agree with the reported judgments here. It is unclear why such a variation is observed (it is most likely that the meaning of *risquer* is construed differently by different speakers).

(61) a. Two building are likely to collapse regularly
(◊ =) it is likely that regularly, there are two buildings which will collapse[25]
b. Two buildings are 10 % likely to collapse regularly
(◊ =) There are two buildings which are 10% likely to regularly collapse
(≠) It is 10% likely that regularly, there are two buildings which will collapse

Chomsky's problem is an illustration of the same kind of interference effect. We can minimally contrast the following example to (59):

(62) Tous les invités semblent ne pas être arrivés
All the guests seem not to have arrived
(≠it seems that not all the guests have arrived)

A universal quantifier like *tous les invités* raising over *seem* can reconstruct below it but not if the infinitive verb is negated: embedded negation somehow interferes with reconstructability.

The same conclusion is suggested by the cases such as (35) repeated below:

(63) a. Aucun enfant ne semble être venu / Aucun enfant n'est supposé venir
No child ne seems to have come/ No child ne is supposed to come
b. *Aucun enfant semble n'être venu / *Aucun enfant est supposé ne venir
No child seems ne to have come / No child is supposed ne to come

As noted in section 3.1, the deviance of the (b) example suggests that reconstruction of *aucun enfant* into the embedded clause is unavailable – here again due to the presence of negation in the infinitive - since this reconstruction would be sufficient to make it fine.
It is worth noting that the mere presence of negation per se is not the source of the problem. The monoclausal case shows that negation does not interfere with the reconstructability of a universal quantifier subject. Similarly, in *toutes les fille ne doivent pas arriver à l heure (all the girls must not be arriving on time)* there is no problem with the scopal relations must > not > all.

[25] I will use the notation "◊ =" to mean "possibly meaning".

4.3 Summary

Here are some of the descriptive conclusions:

Scope sensitive DPs can in principle reconstruct for scope: scope reconstruction can "lower" DPs below one or more elements of the context C it has raised across, e.g. adverbials, negation, intensional verbs. Whether reconstruction is actually possible at all and how far down depends on the particular content of C and may depend on the choice of D.

5 Why is Reconstruction impossible?

5.1 Analytical options

Consider again an example of impossible scope reconstruction (based on an example of Lasnik's):

(64) a. In 1986, No integer had been proved to falsify Fermat's theorem
b. In 1986, had been proved [no integer falsify Fermat's theorem]
c. In 1986, No integer x, it had been proved that x falsifies Fermat's theorem
d. In 1986, it had been proved that no integer falsifies Fermat's theorem

We assume that the underlying structure of the sentence in (a) should be as in b, giving rise either to the reading in c (which is a true proposition: as of 1986, there was no known counterexamples to Fermat's theorem) or to the reading in d (which states a false proposition as Fermat's theorem had not been proved in 1986) in case of radical reconstruction. This last reading is not a possible reading for a.

The paradox arises because of the following two assumptions:

#1 All these constructions involve raising to subject
#2 (radical) reconstruction in A-movement constructions is allowed for scope

A priori, here are some options we may entertain to resolve this problem:

(65) a. There never is reconstruction with A-movement.
b. In constructions disallowing reconstruction, there is no raising at all
c. In raising constructions disallowing reconstruction, reconstruction of moved elements is blocked (decoupling of Reconstruction and Movement)

I will suggest that neither of these solutions is viable. Instead I will propose that the movement involved (raising to subject) is such that it does not move the scope taking element we are trying to reconstruct: reconstruction fails because the element in question did not move from where we are trying to reconstruct it.

In the present stage of syntactic theory, it seems to me impossible to account for the reconstruction facts without invoking some arbitrary property. The account I will propose invokes one, but I will argue, does not invoke a new one. Rather, it invokes one which is independently necessary (but still unexplained), namely the existence of verbs obligatorily or optionally restructuring their infinitival complements. Thus I will consider alternative solutions to be unacceptable either because they are empirically inadequate, or theoretically too weak, i.e. because they appeal to a greater number of arbitrary properties than is necessary.

5.2 Non Solutions

As we discussed, (65a) is a not a serious option. I will examine in turn (65b) and one proposal along the lines of (65c) (Boeckx's 2001), showing them to be inadequate.

5.2.1 No movement

Solution (65b) is to deny that such constructions which disallow reconstruction involve movement: the expectation that there should be a reconstructed reading presupposes that the

subject has raised from inside the infinitive. One strategy we could pursue to deny that (64b) is the underlying structure of (64a) is to deny that movement is involved.

Clearly this cannot be the general solution to the problem. First, movement must by definition be invoked when we witness an argument in a non thematic position, which is an argument of a predicate in a different clause. Thus, in (64a), the DP *no integer* seems to display all the relevant characteristics of such an argument. In particular, the type of argument that it must be is solely determined by the choice of the predicate in the infinitival clause *falsify Fermat's theorem.* Furthermore, a control analysis is particularly implausible given that the verb *prove* imposes no relevant restriction to its superficial subject and it is here in a passive form. Reconstruction at LF is thus mandatory for the purpose of predicate saturation, which is a reflex of movement.

Secondly, lack of reconstruction is found in cases such as:

(66) Everyone seems not to be listening * not > every

in which the main predicate *seem* clearly is a raising predicate (even when the infinitive is negated): it shows every other diagnostic property of movement.

(67) a. It seems that it is not raining
b. It seems not to be raining
c. Advantage seems not to have been taken of the victims
d. There seems not to be anyone listening
e. Every boy seems not to be listening

As shown above, the verb *seem* has no external theta role (a) and its superficial subject is licensed by a property in the complement clause: weather *it* (b), idiom chunk (c), Existential *there* (d) and theta role (e).

Such a non movement approach has been invoked for such cases as the sentence below:

(68) a. Every building is 10% likely to collapse

by claiming that, unlike the predicate *likely*, the modified predicate *x% likely* is not a raising predicate but a control predicate. This might seem to be corroborated by the deviance or degraded character of such examples as in (a):

(69) a. * There will be 50% likely to be a colony on the moon by 2137
b. ? Advantage is 50% likely to be taken of internet surfers
c. ? Substantial headway is only 50% likely to be made in such circumstances

A serious difficulty is of course that, under a control analysis, it is unclear what theta role the predicate *3%likely* is able to attribute its superficial subject. It is in principle imaginable that *x% likely* imposes some semantics on its subject but of a very weak sort, which would make the nature of its subject theta role hard to detect. However, *3% likely* essentially means to have a probability of 0.03 and very much looks like a one place predicate taking a unique propositional argument, as suggested by the well formedness of *it is 50% likely that P*, or *it is 30% likely to rain*.

In addition, such constructions do not syntactically behave like subject control structures (see Rizzi, 1978): unlike them they do not allow splitting under (clefting or) pseudoclefting:

(70) a. John proposed to leave → What John proposed was to leave
b. John attempted to leave → What John attempted was to leave
c. John seemed to have left → *What John seemed was to have left
d. John is likely to leave → *What John is likely is to leave
e. John is 3% likely to leave → *What John is 3%likely is to leave

nor do they allow nominalizations, which all subject control constructions seem to do. Contrast the subject control cases in (a) and (b), with the deviance of (d) (and of (c):[26]

(71) a. John proposed to leave → John's proposal to leave
b. John attempted to leave → John's attempt to leave
c. John is likely to leave → * John's likelihood to leave

[26] I do not mean to imply that there is generally no raising to subject in nominals.

e. John is 50% likely to leave → *John's 50% likelihood to leave
(viz. there is a 50% likelihood that John will leave)

Clearly Lasnik's problem raises questions (why is existential *there* blocked), to which we will return in section 6.6.3, but denying that movement is involved poses more problems than it solves.

5.2.2 Movement but No reconstruction

Solution (65c) would consist in one way or another to decouple movement and reconstruction and to allow moved elements to sometimes disallow reconstruction for scope. This can sometimes be done in a principled way: if what motivates movement in the first place is scope attribution (as e.g. in the case of wh-movement), failure of scope reconstruction is reasonably derived.[27] However, this is not the case for A-movement: A-movement seems to be triggered by some formal requirement (e.g. the EPP), which imposes no LF requirement. The difficulties arise first because reconstruction must in principle be available for theta role computation in all cases; secondly because reconstruction of moved material does not require any special mechanism: as discussed, since movement is copying, it is simply a failure to interpret a high copy, apparently a purely local decision.
The challenge then is to explain why intervening context (when reconstruction for scope is impossible) should matter at all? I do not think any non stipulatory (except for Lebeaux's 1991 and 1998) or empirically adequate approach to this problem has been proposed.

We face two questions:
(i) what is the mechanism by which scope reconstruction takes place, when it does.
(ii) what explains cases that should be consistent with this mechanism but fail to allow scope reconstruction.

[27] In particular, this could help explain why, in the case of wh-movement, a lower copy of a wh-quantifier is not interpreted in situ.

We have already discussed the first question. We now briefly discuss a different proposal made in Boeckx (2001) . Boeckx's 2001 proposes a decoupling approach:

> A-moving quantifiers do not usually exhibit reconstruction effects because arguments are interpreted in the position where their uninterpretable Case feature is erased. It shows how the Case checking condition on scope taking can be obviated in the case of indefinites by means of covert insertion of an expletive,…

According to this proposal, arguments are interpreted in the position in which their Case property is checked. For Boeckx, this normally means their surface (A-) position.[28] However, if they can enter into an expletive associate construction, this position can be that of the associate. This idea is illustrated below:

(72) a. A unicorn is likely to be found there
b. There is likely to be a unicorn found there

(73) a. Four prime numbers seem to be located between four and twelve
(◊ = it seems that there are four prime numbers located between four and twelve)
b. There seem to be four prime numbers between four and twelve

(74) a. Every building is 10% likely to be collapsing
b. *There is 10% likely to be every building collapsing

Here, reconstruction is possible or impossible because *there* insertion is also possible or impossible, respectively. However, the fundamental assumption is incorrect: it predicts that reconstruction should be available only with weak quantifiers (those that can appear in *there* constructions) as I also once suggested (Sportiche, 1997), wrongly, I now believe. Indeed, we have already discussed cases of reconstruction of strong quantifiers in section 4. It may well be that only weak quantifiers can reconstruct in certain contexts, but this is not the general case.

[28] Note this is not the standard minimalist position which assumes that Case is always checked under Agree, i.e. in a theta position.

Also problematic for this proposal are the cases of A-movement in which reconstruction is possible in which overt expletive insertion is disallowed:

(75) a. A building seems to collapse regularly
(◊: it seems that regularly, there is a building which collapses)
b. *There seems to collapse a building regularly

(76) a. A soldier usually guards the entrance
(◊: it is usually the case that there is a soldier who guards the entrance)
b. *There usually a soldier guards the entrance
/ guards a soldier the entrance/
/guards the entrance a soldier

In particular, quantifiers seem to be able to reconstruct which can never enter in an expletive associate construction (e.g. strong quantifiers) in a simple clause:

(77) a. Everyone is not t here
(◊: Not everyone is here)
b. *there is not everyone here

Or in more complex cases (illustrated here in French):

(78) a. Tous les candidats peuvent avoir réussi
All the candidates may have succeeded
◊ = it may be that all the candidates succeeded
b. there may (* all the candidates) have (* all the candidates) succeeded

With the modal read epistemically, (78) can be read with the modal outscoping the universal quantifier: *all the candidates* seems able to reconstruct lower than *may* in this case, but no expletive construction is possible.[29]

On the second question – cases in which reconstruction should be allowed but is not available - we are dealing with examples such as:

(79) a. At most one man seems not to be there
(= at most one man is such that he seems not to be here)
(≠ seems that not (at most one man here) (= seems there is more than one..)
b. There seems not to be at most one man here (= there is more than one)

(80) a. No one was proved to be guilty
(≠ it was proved that no one was guilty)
b. There was proved to be no one guilty

(81) a. Four prime numbers seem not to be between four and twelve
(≠ it seems that there aren't four prime numbers between four and twelve)
b. There seem not to be four prime numbers between four and twelve

(82) a. Three prime numbers were proved to be between four and twelve
(≠ it was proved that there are three prime numbers between four and twelve)
b. There were proved to be three prime numbers between four and twelve

These cases[30] can be dealt with by adding a condition imposing restrictions on reconstruction by making it sensitive to elements normally not affecting A-movement (such as the choice of verb – *prove* – negation in the lower clause etc…), a kind of intervention effect. Boeckx suggests a

[29] Boeckx (2001) is aware of monoclausal cases such as (77). To deal with them, a different scoping mechanism than reconstruction (basically raising of the other scoping item) is postulated which seems both ad hoc, and untenable (cf. section 4.2 above). The non mono clausal cases such as (78a) remain a problem.

[30] Such examples show that an approach trying to decouple Move and Agree would also be insufficient since both are OK here, under standard assumptions but reconstruction is still blocked.

catalog (but no theory) of these intervention effects. Note that there is no getting around the fact that there is some kind of intervention effect. The challenge is to characterize the mechanism involved in scope reconstruction which makes these intervention effects natural. His proposal establishes no intrinsic or independently justified connection between reconstruction and the contexts over which it fails.[31]

Furthermore, once we accept the idea that there are intervention effects – as surely we must in some form - it becomes unclear why we need expletive insertion at all. Surely, a better proposal is one in which intervention effects account for all cases: when there is intervention (intervention would have to be sensitive to what we are trying to reconstruct – a standard feature of intervention effects – cf. Rizzi, 1990), there is no scope reconstruction, when there is no intervention effect, reconstruction is possible.

5.3 A General Idea of the Proposal

Recall the two questions we face:
(i) what is the mechanism by which scope reconstruction takes place, when it does.
(ii) what explains cases that should be consistent with this mechanism but fail to allow scope reconstruction.

[31] For such an account to work, we must suppose that scope reconstruction is not just deciding to fail to interpret the higher trace (otherwise, the existence of intervention effects are mysterious). Accordingly Boeckx suggests that scope reconstruction is actual lowering, i.e. actual moving a higher copy down to its trace. The nature of this proposed mechanism itself is unclear. First, what is most unclear is what lowering is: if movement is copying, for this approach to make sense and differ from what we have called radical reconstruction – failure to interpret a high copy - we must assume that A-movement traces are not copies but rather some other object (what?) which is actually replaced by a lowered moved element. Surely, the null assumption is that if movement is copying sometimes, movement is copying, period. Any departure from this assumption requires strong justification (This also poses a serious challenge however because of the lack of condition C effects mentioned in fn 13). Secondly, what is this lowering operation: surely it cannot be movement as normally conceived (since movement leaves a trace) and it is also unclear why this process should be subject to intervention effect.

On the first question, I took it, following Chomsky (1995) that reconstruction is just interpretation of copies: no other mechanism is involved. On the second question, I suggest that cases in which there is no (relevant) reconstruction are cases in which there is no (relevant) movement. In particular in a case such as:

(83) a. In 1986, No integer had been proven to falsify Fermat's theorem
b. In 1986, had been proven to no integer falsify Fermat's theorem

The (b) sentence "is" not the underlying structure of the (a) sentence.
To understand this proposal, we need to reexamine the logic behind postulating movement relations in the first place.

Movement codes violations of the locality of selectional dependencies. A-movement – which typically but perhaps not exclusively is movement away from a theta position - codes violations of the locality of thematic selectional dependencies. If we examine exactly what selectional dependencies are in a typical case of an A-movement construction such as (83a), we see that such selectional dependencies hold between the N *integer* and the embedded V *falsify* (or verb phrase). In particular, there is no selectional relation between this V and other properties of the DP: the choice of D or the number property of this DP (singular/plural). In other words, these observations typically bear on the distribution of N's, not D's (nor Number). It may well be that the D or the Number property has also raised (and we will see this to sometimes be the case) but further observations are needed to support this conclusion.

In the case at hand, we have reasons <u>not</u> to want the D to have raised. For if it has not raised, it cannot reconstruct and thus cannot be outscoped by the verb *prove*, that is we have the following chain of reasoning:

V (*falsify*) selects N (*integer*) but not D (*no*)
→ N has raised but D may or may not have and in fact (in this case) did not
→ D cannot reconstruct

The derivation of (83) now roughly looks like:

(84) a. Underlying Structure: No ……prove …[$_{\text{embedded clause}}$ integer falsify…]
b. Surface: [No integer] had been proved [to ~~integer~~ falsify] …

The following questions now arise to which we will provide the answers indicated below. In subsequent sections, I will examine these questions in turn, to justify the answers given.

1. What is the underlying structure of (a) and why is it consistent with the facts?

We have outlined the answer above: the underlying structure is one in which the Nominal Part of the subject is in the embedded clause but the determiner part is not. As a result, reconstruction of the determiner into the embedded clause is impossible (although reconstruction of the nominal part is).
What is the analytical significance of this conclusion? Considering the verb *falsify*, we see adopting (84a) that sometimes, its inherent properties seem to be satisfiable in its clause, and a fortiori in its VP by taking an NP as external argument. If we now consider a simple clause such as the first one below:

(85) a. Every statement falsifies …
b. Every …[$_{\text{VP}}$ statement [falsify …

we may ask what its underlying structure should be. Clearly, the null hypothesis is that *falsify* also takes the NP *statement* as external argument within its VP, with the D *every* outside of this VP yielding the underlying structure for a roughly given in b. In other words, we should generalize from the proposal that the external argument of *falsify* sometimes can be an NP to the proposal that the external argument of *falsify* must be an NP . Further, it seems that this conclusion could easily be generalized to all verbs and all arguments of verbs, since, in the following frames (in which V-en is the passive participle of V):

(86) a. [D NP] had been proved to V
b. [D NP] had been proved to be V-en

we would find the same impossibility of reconstruction of D under the scope of *prove*.
Of course, in principle this conclusion needs to be supported for each verb and for each D. But again, the null hypothesis seems to be one which takes arguments of such predicates to always be of a unique (semantic type and therefore of a unique) syntactic type as standardly assumed: the modification we introduce is that the relevant syntactic type is NP and not DP. From now on, we assume it to be correct for some cases and draw some immediate consequences from it.

In full generality, this discussion leads to the following conclusions:

(87) a. Arguments of Predicates are NPs (not DPs)
b. DPs are not underlying constituents, they are derived constituents

For example, the sentence in (a) has a structure like (b) as underlying structure. To put it in equivalent terms, the sentence in (a) contains a substructure similar to (b) so that a full representation is c:

(88) a. [the/every/some cat] … will … sleep
b. … the/every/some ... [cat sleep]
c. [the/every/some cat] … will … [cat sleep]

in which the determiner *the/every/some* (as well as other determiners) are part of the functional structure of the clause, in a way to be made more precise later.
Note that since lowest traces must always be interpreted, the interpretation for the c structure will be (say for *every* and ignoring the future):

(89) every cat [cat sleep]: $\forall x$ cat (x), sleep(x) & cat(x)

2. Are there independent empirical justifications supporting this approach to underlying structures?

These will be discussed in sections 6 and 7.

3. What is the reason why the unavailable underlying structure seem to be unavailable?

DPs are derived constituents, with NPs as predicate arguments and the non NP portion part of the functional domain of the clause. For the above account to give the desired result, it must be that, in a raising context, it is possible to raise an NP from an embedded clause but it is not possible for a DP constituent formed in the embedded clause to raise into the main clause. This result can arise in one of two ways: either there is no possibility of forming a DP in the embedded in the embedded clause or there is but such a DP cannot raise. We will discuss this in section 6.6 showing that both option exists

4. What is the theory of underlying structure that makes such underlying structure plausible on general grounds and how is the mapping from such underlying structures to surface structure proceed?

The needed theory of underlying structure is actually the standard one which require syntactic relations to be strictly local. We will discuss it in section 7.4.

6 Detailed Account

6.1 The Basic Analysis

The analysis I suggest is guided by the following ideas:

1. Reconstruction is a defining property of movement. What has moved from a theta position can (in fact must) reconstruct (lowest traces must be interpreted). If an element is copied by movement to a higher position for interpretative reasons, this higher copy must be interpreted. If an element is copied by movement to a higher position for purely formal reasons (EPP), this higher copy does not have to be interpreted (radical reconstruction). Radical reconstruction arises because of a local decision to fail to interpret a high copy.

2. Since A-movement is not interpretively driven, radical reconstruction should always be an option. If it appears not to be, it is because there is a misconception about what has moved.

Because certain DPs fail to reconstruct in raising cases, I have proposed that the D part of the DP was generated in the main clause while the NP part of this DP was generated as an argument of the lower predicate. I have also taken this to mean that, since in such cases the argument of the lower predicate was an NP and not a DP, it was always the case that predicate arguments are NPs and not DPs. In particular in a simple clause, the D is introduced outside of the VP in which an NP argument of the verb is introduced as in (a) below, and the DP is formed by move as in (b) below:

(90) a. ... D …. [NP V …] …
b. … [D NP] …. [~~NP~~ V …] …

I will call this type of structure a Split DP structure.
Given this analysis, consider a structure in which V1 is a raising verb, V2 an embedded infinitive verb and DP its subject. Once raising has taking place, we observe the following structure:

(91) [D NP] .. V1.. [t V2..] ..

A priori, this structure can arise in two different ways. First, this may be a genuine case of DP raising. This means that the D is generated in the infinitive clause. The raising NP moves to it as in (90b). This DP itself raise to subject position of the main clause:

(92) [D NP] .. V1.. [$_{\text{embedded clause}}$ ... ~~[D NP]~~ …. [~~NP~~ V …] …

I will call this a low split derivation, because the DP is formed from its parts in the lower clause.

Secondly, this may be a case of NP raising. This means that the D is generated in the main clause. The raising NP moves to it as in (90b) across a clause boundary:

(93) [D NP] .. V1.. [embedded clause ... [~~NP~~ V …] …

I will call this a high split derivation, because the DP is formed from its parts in the higher clause.

Given the logic of the mechanism for reconstruction, we a priori expect a 3 way ambiguity for such structures as (91):

- either the DP is understood with matrix scope (the high DP copy is interpreted either in a low split or a high split structure)[32] . I will call these cases the wide scope option.
- or the DP is understood with embedded scope (only the low DP copy is interpreted in a low split). I will call these cases the low scope option.
- or the D is understood with matrix scope (the high D copy is interpreted) and the NP with embedded scope (only a low NP copy is interpreted). I will call these cases split scope cases.

We are faced with the following questions:

- Are each of these scope options exercised?
- When and why do we find apparent paradoxes: when are low split derivations disallowed and why?
- How exactly are these syntactic structures constructed

These questions will be addressed in turn after addressing a couple of consequences of this proposal and after giving a somewhat more precise idea of the syntactic structures involved.

[32] Note that there is a redundancy (which I think should be and can be eliminated) that I will not address in detail. There are two sources for DP wide scope: a high split, or a high DP copy of a low split. The way to eliminate it is to pursue the idea that radical reconstruction is always obligatory: wide scope would only arise in high split cases.

6.2 Possible Consequences for Standard Binding Paradoxes

We have already documented that at least for certain D's and certain choices of raising verbs, both the wide scope option and the low scope option are available. As preliminary to the discussion of some binding paradoxes, let us turn to cases of definite descriptions.

A NP introduces a description of an object which can be read *de re or dicto.* In general, it can freely be read *de re*, that is as being a description of the object being talked about that the speaker of the utterance considers true. Such a description can also be read *de dicto*, that is as being a description attributed to an individual other than the speaker, whose thoughts the speaker reports in his utterance and which the speaker may consider true (in which case the description is also *de re*), or not (in which case the description is *de dicto* only). De dicto readings are not freely available. For our purposes, the following generalization suffices: A description can be read *de dicto* only if it is in the scope of an attitude verb (and if it is, it may be read strictly de dicto, that is, as a description solely attributed to the holder of the attitude).[33]

Consider now the following French pair:

(94) a. Il semble à John que le meurtrier est saoul
It seems to John that the murderer is drunk
b. Le meurtrier lui semble être sâoul
The murderer seems to him (John) to be drunk

Sentence (a) may well be uttered by Bill in a situation in which it is known to everyone that there is a unique individual who is the murderer, namely Steve, but in which John's thoughts are about another individual, say Doug, who John mistakenly believes to be the murderer. This utterance by

[33] This fails in contexts in which a description would be written with quotes around it, as e.g. in *the "unicorn" has arrived*, to indicate non endorsement of the description by the speaker. These are contexts in which a portion of the utterance is understood as reporting thoughts of someone other than the speaker as e.g. in the following situation. You and I both knowing that Bill thinks that Sue is a spy and given that Bill told me that Sue will speak on TV, I could truthfully and unmisleadingly answer your question: what did Bill say? by: The spy will speak on TV (Which would normally be written: the "spy" will speak on TV). We ignore such contexts here.

Bill does not commit Bill to the belief that Doug is the murderer: the unique or prominent individual fitting the description "murderer" can be read de dicto (and not de re).
If sentence (b) is uttered by Bill to report John's thoughts, Bill does seem (to me) to commit himself to this description being that of Doug:[34] the NP description must be read de re. This suggests that at least in this case, only wide scope of *le meurtrier* is available: raised definite descriptions do not reconstruct across the raising predicate *seem to*.

A consequence of this is that it may help resolve part of the binding puzzles mentioned in section 3.2 examples (48) to (51). Here is the logic of the reasoning. Consider first the following example:

(95) * The thief$_j$ seems to Bill$_j$'s mother to be tired

Radical reconstruction should be able to undo this superficial binding violation. However, given the discussion above, the subject definite description cannot reconstruct in such contexts. Only high scope for such DPs is available in such contexts (raising over *seem to*); we can and we will attribute this result to the assumption that only high split derivations are allowed with such raising predicates. In such a case its LF's would be:

(96) D+N seem to X to have N escaped D+N=the thief

[34] It may superficially appear that this fact contradict the discussion around examples such as (59). This is not the case. As Cinque 2004, or Haegeman 2004 discuss for Italian, the purely evidential *sembler* (without an overt experiencer) behaves differently from the psych verb *sembler à* with an experiencer. For example, the former allows tous climbing, while the latter does not (as noted in Pollock, 1978): (i) *Elle a tous semblé les avoir lus /?? Elle lui a tous semblé les avoir lus (She has all seemed (to him) to have read them).* Even more significant is the fact that Cinque 2004 reports that Clitic climbing in Italian is allowed with evidential *seem* but not with psychological *seem to*.
Corroborating this distinction between allowed reconstruction with evidential *seem* and lack thereof with psychological *seem* for definite description in English is the contrast in status between *the cat seems to be out of the bag* and *the cat seems to Bill to be out of the bag* on the idiomatic interpretation. The worse status of the latter being due to the conflict between required reconstruction for idiom interpretation of the noun *cat* – hence of the DP *the cat* - and the fact that psychological *seem* does not allow it.

The same reasoning would apply to the following examples:

(97) * Themselves / Each other seem to them to be tired
(98) * He seems to Bill's mother to be tired
(99) * He_j expected him_j to seem to me [t to be tired]

If we assume that pronouns such as *he* or reflexives such as *themselves* (and reciprocals, somehow) conflate a definite article part and a nominal part, say D+N.

Crucial to this account is of course the reason why a low split derivation is unavailable, which is discussed in section 6.6.2.2.
It is worth noting however that another potential account is available in terms in Fox's 2000 Scope Economy. Fox suggests that covert scope shifting (Quantifier Raising, and Quantifier Lowering aka reconstruction) is only allowed if it affects the output, i.e. if it has a effect on interpretation.
It could be suggested that lowering of definite description or pronouns does not affect scope in the relevant way under scope economy to be allowed to take place. What is unclear however is why not. Lowering of pronouns, definite descriptions etc.. has the potential of circumventing binding violations (as seen above), weak crossover violations (as in *?his mother seems to everyone to be pretty*), or allow de dicto readings otherwise excluded as also discussed above.[35] Why shouldn't such output effects be taken into account?

6.3 Binding Paradox with Binary Predicates

Let us turn now to a more complex case, say a binary predicate as in a:

(100) a. No boy kicked every book
b. $[\text{No boy}]_j$ … $[\text{every book}]_k$ [t_j [V t_k]]]

[35] It should be noted however that although the NP of definite descriptions can be read *de dicto* in attitude contexts, it is much harder for the implicit NP restriction of a pronoun to be read *de dicto* in such contexts (thus, it is difficult for me to report Bill's mistaken belief that he is a woman as : He_j believes that she_j is a woman).

A priori, the standard derived structure for such a sentence could look like b, with *no boy* moving to Nominative position and *every book* to accusative position (followed by some additional movement, e.g. of the verb). But this would lead to another reconstruction paradox: pairs of sentences as below in (a) and (b) should, contrary to fact, behave alike from the point of view of the binding theory:

(101) a. Pictures of each other seemed to the boys to be fuzzy]
b. *Friends of each other kicked the boys
c. [Pictures of each other] seemed to [the boys] to be [~~pictures of each other~~ fuzzy]
d. [Friends of each other] kicked [the boys] [~~friends of~~ each other kick ~~boys~~]

Both a and (b) should allow the reciprocal *each other* to be bound by the DP *the boys* because the DP *the boys* c-commands the anaphor (it suffices to radically reconstruct the subject NP or to assume, following Belletti and Rizzi 1988 or Lebeaux 1998, that Condition A can be satisfied in the course of a derivation) as shown respectively in c and d.

These types of fact suggest that the representation of binary predicate should normally prevent the object to have to cross over the subject to reach its highest A-position. In other words, these facts militate in favor analysis analogous to that argued for in Koopman and Sportiche, 1991, or the type of split VP analysis proposed in Sportiche, 1990, Travis 1992, Koizumi, 1993 and others since, according to which the object licenses all of its "A-position" properties (then Case and theta role) lower than the thematic position of the subject as below.
If both subjects and objects raise from their argument position to their "Case" position (nominative and accusative) by A-movement and Accusative is external to the VP containing the subject thematic position, we should have crossing as below, and thus reconstruction paradoxes of the type just discussed:

(102) John likes Mary:

Crossing (standard)

John … Mary … [~~John~~ …~~Mary~~

Case … Case … theta … theta

Instead then , we should adopt a non crossing analysis:

No crossing

John … ~~John~~ .. [Mary … ~~Mary~~ or

Nom Case … theta .. [Acc Case … theta

The latter is what we will adopt from now on.

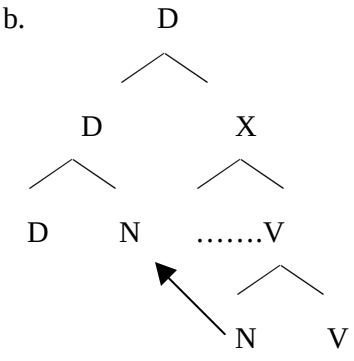
6.4 Sample Phrase Structures and Derivations

Let us now turn to the question of how syntactic structures are built under a DP splitting approach.

We start with the case of a simple clause with an intransitive verb first. Putting the assumptions we have so far together, a sentence such as (a) receives the structure indicated in (b) (which we will refine later, but not in fundamental ways):

(103) a. every cat slept

b.



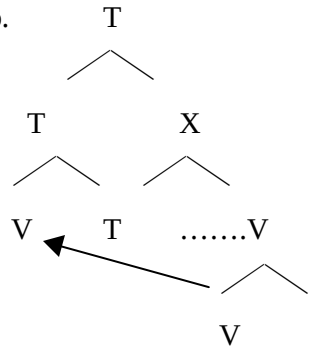
I assume that D's in general are part of the functional structure of the clause.

Typically a D will take as first argument a projection notated here X including a predicate (VP), and as second argument a projection containing an N, thus representing directly the customary semantic analysis given to generalized quantifiers.
Where exactly each D appears in the functional structure of a clause can in principle be determined in a variety of ways. One is by investigating scopal interaction. A particular D will be merged in the lowest position in which it can be reconstructed. I will not explore this topic in detail here but the work of Beghelli and Stowell 1997 is particularly relevant. A second way is by investigating the type of idioms that are found as will be made clear in section 7.4.1.2.

Note also that the movement dependency here is a type of (rather limited) "sideways" movement, i.e. a type of movement to a non c-commanding position. The type of movement needed is movement of an N to become an immediate dependent of the closest attracting head, here D. Although this is not conventional, it is worth noting that this type of movement is routinely assumed to be involved in head movement.

(104) a. John past sleep

b.



Instead of viewing this as troublesome (as many, including myself, have in the past) I will to the contrary assume that this type of movement is and should be available, and is the norm. In standard minimalist terms, the fundamental problem with such an assumption is that it seems to divorce Move from Merge in allowing Move to violate the Extension Condition (which require always moving or merging at the very top of a tree being derivationally built). I will not discuss this shortcoming here but simply note that the Extension Condition is not independently supported for Merge and can, I believe, be profitably gotten rid of, thus allowing Merge to violate the Extension Condition too.

Let us turn now to the case of binary predicates discussed in the previous section. How do the conclusions reached in the previous section translate to a DP splitting analysis? Consider the following example in (a)

(105) a. The boys$_j$ seemed to each other$_j$ to be happy
b. …the seemed to each other to be boys happy

It is well formed. Furthermore, following the discussion around (94) suggesting that definite descriptions do not reconstruct, we are led to conclude that (a) receives a high split analysis as in (b). This in turn suggests that binders and (presumably) bindees for the Binding theory can be DPs (or NPs inside DPs) since the only eligible antecedent for the reciprocal anaphor must be in the main clause. To avoid the paradox discussed in the previous section, it must be that the height of merger of the DP object is lower than the NP subject.
Suppose it was otherwise. The sentence in (a) would receive the analysis in (b), thus creating a configuration similar to that found in (d) and predicting wrongly that (a) is well formed:

(106) a. *Friends of each other hurt the boys
b. [Friends of each other] hurt [the boys] [[~~friends of each other~~] [~~kicked~~ ~~boys~~]]
c. [Pictures of each other] seemed to [the boys] to be fuzzy
d. [Pictures of each other] seemed to [the boys] to be [~~pictures of each other~~ fuzzy]

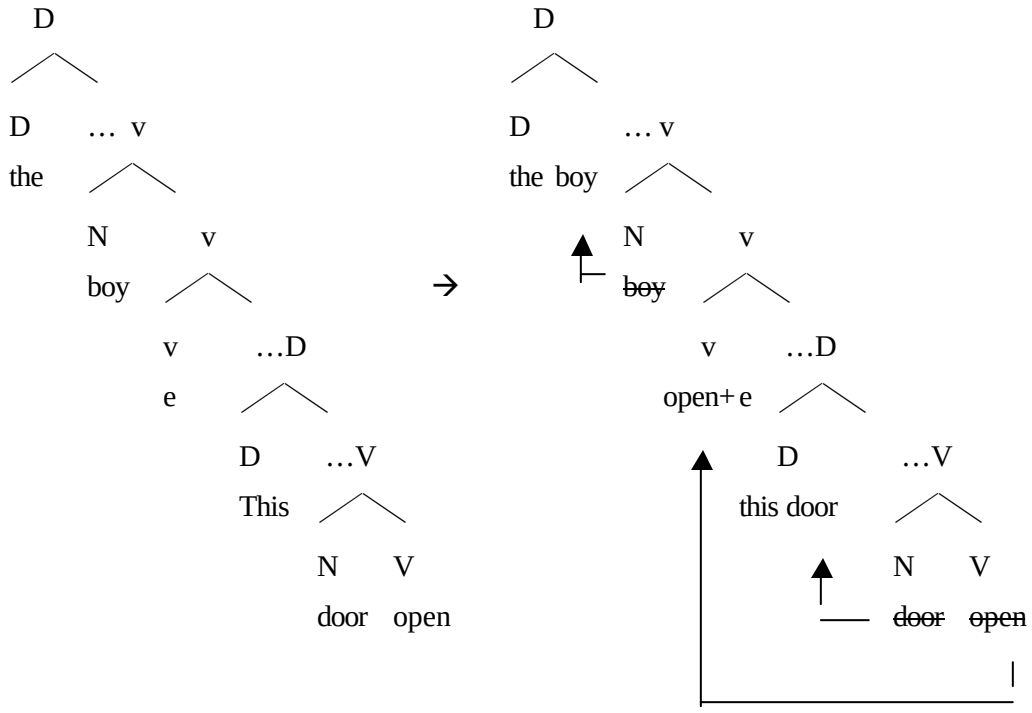
We conclude that the object D must be merged lower than the thematic position of the subject:

For example, for such a sentence as :

(107) The boy opened this door

We should have the following structures with a VP shell (with *open* having - at least - the structure v+V) split by functional structure such as Ds etc..[36]

[36] We should also expect to find adverbials etc.. to occur in the split, especially given the Principle of Locality of Selection we propose later. See sections 7.4.1 and 8.3.



6.5 Scope options

We have already documented that at least for certain D's and certain choices of raising verbs, both the wide scope option and the low scope option are available. I will discuss the question of whether there are there cases of split scope.

Recall the discussion of *the French pair* (94)*:*

(94) a. Il semble à John que le meurtrier est saoul
It seems to John that the murderer is drunk

b. Le meurtrier lui semble être sâoul
The murderer seems to him (John) to be drunk

We observed that the NP description murderer must be read de re in the (b) case. This suggests that at least in this case, neither low scope nor split scope are available. If either was available, either of the following representation would count as a possible LF:

(108) a. seems to John [the murderer to be drunk]

b. The seems to John [murderer to be drunk]

which would both support a de dicto reading for the NP murderer. The unavailability of the first reading can be attributed to the fact (to be explained) that such D's as the cannot enter into low splits in this construction. By hypothesis, the NP *murderer* originates in the embedded infinitive. This suggests that some other principle of interpretation is involved to exclude the second. The approach I adopt (which we will justify in section 7.4) is based on the following principle:

Some semantic relations must be coded syntactically as structurally local relations.

Assume for the sake of argument that a definite determiner and its associated NP enter into such a semantic relation. In principle, rules of semantic interpretation could be written to interpretatively pair them up even if they never form a syntactic constituent. The principle above would bar such rules; it would require that the nominal semantic argument of a determiner form a syntactic constituent with this determiner. In other words, there is a formal requirement that movement of NP to D to form a DP take place (in a way parallel to the case of A-movement: D's like T's have EPP features). This formal requirement is usually built into the form of the rules of semantic interpretation.
As a consequence, the (b) representation above is simply not a well formed LF: the NP *murderer* must be interpreted in the high position as below (as well of course as in the low position):

(109) The murderer seems to John [murderer to be drunk]

Does this mean that there are no cases of split scope? In order to find such cases, we would need a meaningful (non expletive) D formally allowing or requiring an NP as complement, but not requiring it as a semantic argument, to allow split scope to arise, an unlikely occurrence.

6.6 Paradoxical Cases

We now turn the question of when and why paradoxical cases arise. Recall, as we noted in section 5.3 that they can arise in one of two ways: either there is no possibility of forming a DP in the embedded clause or there is but such a DP cannot raise.

6.6.1 Small clauses

The first case is illustrated by small clauses in what I will call William's Problem.: Williams (1983) noted that raised subjects of adjectival small clauses never reconstruct (a fact that extends to other languages – e.g. French – and other small clauses):

(110) Someone seems t sick
= there is someone who seems sick
≠ it seems that there is someone sick

Williams reasoned that if *someone* had raised from the t position, it should be interpretable in this position. Because it is not, he concluded that these constructions did not involve raising. This type of problem is identical to the kind of reconstruction paradoxes we have been discussing.
The non movement option Williams suggest is not an available option: the arguments for movement in such cases are all the standard ones:

- expletive subjects

(111) it seems obvious that..,

- idiom chunks

(112) La hache de guerre semble enterrée pour l'instant
The hatchet seems buried for now
morphological dependence (in French)

(113) Les immeuble**s** (msc.pl) semblent monument**aux** (msc.pl)
the buildings seem huge

- "derived" subject properties (in French)

(114) La porte en semble fermée
the door of it seems closed

(The generalization here is that *en* cliticization from subject is possible only if the subject is not an underlying subject of the main predicate).

A natural account can be provided assuming, as we did, that Ds are part of the functional structural of a clause. It suffices to say that what makes small clauses small is precisely the fact

that they are functionally too small - this much is uncontroversial - to contain relevant parts of the DP subject in their functional domain namely the Ds that do not reconstruct (or to allow existential closure of this subject): the DP subject could not have been formed in the small clause because the functional structure of the small clause does have enough space for such D's (or for existential closure operators).[37]

The correctness of this assumption is corroborated by the fact that, under normal intonation, high adverbs in the Cinque's adverbial hierarchy are disallowed in such clauses, viz. the following examples:

(115) *Cela a rendu Jean probablement / peut-être/ fou
This made John probably/perhaps crazy

6.6.2 Raising from infinitive clauses

The second type of cases arises in infinitival clauses.

6.6.2.1 Basic remarks on Raising Contexts

For a main predicate to take an infinitive complement and to fail to assign a thematic role to an external argument are two necessary but not sufficient conditions to allow raising out of an infinitive (in French or English). In addition, the infinitival complement clause must show a

[37]This proposal makes rather precise predictions: only those D's that could be generated inside the small clause should be allowed to modify an idiom chunk since the idiom chunk must (i) reconstruct, (ii) remain local to its D. These requirements are compatible only in a low split derivation.

Note further that it seems fair to conclude that the definite article is not necessarily part of the idiom given Rieheman's 2001 corpus survey showing that: (i) 76% of the occurrences of the idiom *bury the hatchet* are of the form *bury the hatchet* (no variation other than inflection of *bury*) but that (ii) 24% of the occurrences are different: (no article; different D such as possessive, *any*; *hatchet* modified by an adjunct; *hatchet* in the plural). It would seem then that the degraded character of an idiom such as [cat out of the bag] in (iii) *the cat seems out of the bag* is unexpected. However, it seems to me that the definite article functions differently in the two cases: as a real definite in the second but not in the first. If the contrast between (112) and (iii) is real, it would suggest that a real definite cannot be generated in a small clause.

minimal amount of "cohesiveness" with the main clause: this requirement used to be characterized as S-bar/CP deletion or transparency. A reflex of this cohesiveness is illustrated by the impossibility to separate the infinitive from the main clause by various processes such as preposing or (pseudo) clefting as discussed in (70).
As is suggested by data from Romance for example, this cohesiveness property (which correlates with various transparency effects, e.g. Clitic climbing) can be characterized as a variety of the restructuring phenomenon. Let us call it "minimal restructuring".

Without this kind of minimal restructuring, nothing can raise: this is the case of predicates lacking external theta roles and taking infinitive complements but disallowing raising, e.g. French *falloir* (be necessary) as in *il faut partir* (it is necessary to leave) etc.. Descriptively, this is one property that differentiates raising predicates such as *likely*, from non raising predicates such as *probable*.

As is well known both from Romance and from Germanic studies, that there are various kinds or degrees of restructuring: for example, in Dutch, "verb raising" constructions are distinguished from "the third construction" (cf. e.g. Koopman and Szabolcsi, 2000, and references therein) and similar distinctions can be found in German, Italian, French etc.. (cf. e.g. Wurmbrand 2001/2003 or Cinque 2004 for examples and references and section 6.6.2 below).
What remains undecided is what kind of raising this minimal restructuring licenses.

Anticipating on the conclusions of the next section, I will suggest that with only this kind of minimal restructuring, nothing but NPs can raise (no DPs, not existential *there*). In other words, the situation we would observe is exactly the same as what we do in the case of small clauses. Predicates allowing minimal restructuring but no stronger degree of restructuring give rise to Lasnik's problem, that is the impossibility of reconstructing apparently raised DPs with predicates such as *10% likely* which do not license anything else than minimal restructuring:

(116) Every building is 10% likely to t collapse

As a consequence, NP raising from the embedded infinitive in a high split structure is allowed but DP raising from a low split structure is not. Again, if on the right track, we should see that

appropriately modifying (by e.g. 10%) what is otherwise a restructuring trigger turns it into a predicate that cannot trigger full restructuring.

6.6.2.2 The significance of Chomsky's problem: Restructuring

In this section I will discuss why Chomsky's problem suggests that the licensing of DP raising requires a stronger kind of restructuring than minimal restructuring.

Chomsky's problem case arises in the case of an apparently raised universal quantifier which fails to reconstruct: *everyone seems not to be here*. A priori this problem could arise because the quantifier *everyone* never reconstructs into an embedded clause, or somehow because of the presence of negation. This pattern however is more general and it is possible to choose examples clearly showing that the second reason obtains. Consider the following case of raising of an indefinite DP with the verb *risquer*. In a "normal" case, we have the following standard representations with the three possible interpretations indicated (approximate English translations provided):

(117) PF: un immeuble risque de ~~un immeuble~~ s'écrouler régulièrement
a building is likely to ~~a building~~ collapse regularly

a. LF_1: un immeuble risque [de ~~un immeuble~~ [[~~un immeuble~~ s'écrouler] régulièrement]]
there is a building likely to collapse regularly

b. LF_2: ~~un immeuble~~ risque de [un immeuble [[~~un immeuble~~ s'écrouler] régulièrement]]
it is likely that there is a building collapsing regularly

c. LF_3: ~~un immeuble~~ risque [de ~~un immeuble~~ [[un immeuble s'écrouler] régulièrement]]
it is likely that regularly, there is a building collapsing

The last two interpretations are worth noting: with reconstruction in the embedded clause, either the indefinite outscopes the adverb or the other way around. How could this arise?
Since adverbs are not subject to QR, as discussed earlier in section 2.1, the ambiguity can be attributed to the fact, usually assumed to be correct, that raising from the VP internal position in the embedded clause can proceed through the intermediate position "subject of the infinitive

clause".[38] The ambiguity thus results from deciding which is the highest interpreted copy/trace of the DP, as indicated in the bracketed structures given for LF_2 and LF_3, namely (hierarchically if not linearly):

(118) [$t_{indefinite}$ [Adverb [$t_{indefinite}$ Verb]]

If we add negation, we a priori expect the scope possibilities given below:

(119) PF: un immeuble risque de ne pas ~~un immeuble~~ s'écrouler
a building is-at-risk not to ~~a building~~ collapse

a. LF_1: un immeuble risque de ne pas ~~un immeuble~~ s'écrouler
there is a building at-risk not to collapse

b. LF_2: ~~un immeuble~~ risque de un immeuble ne pas ~~un immeuble~~ s'écrouler
scope: at-risk > a building > negation

c. LF_3: ~~un immeuble~~ risque de ~~un immeuble~~ ne pas un immeuble s'écrouler
scope: at-risk > negation > a building

This sentence certainly supports the reading given in (a) but neither of the two readings in (b) and (c) is available. This means that not only can't the indefinite DP reconstruct below negation as in Chomsky's problem, it cannot reconstruct above it in the embedded clause either, even though such reconstruction would not "cross over" negation.

This last fact is extremely surprising for any kind of direct "intervention" approach to reconstruction failures.

In terms of our proposal, this means that the indefinite DP cannot be formed in the embedded clause and then raise: there is no possible low split derivation. Since there does not seem to be any reason why the DP could not be formed in the infinitive, the problem must have to do with the raising itself. The surprise of course is that such a DP in the embedded clause can raise past the negation in the infinitive. So it must be the further movement from the infinitive into the main

[38] It is independently reasonable to suppose that A-movement must proceed in this stepwise fashion, given that expletives subjects do appear in infinitive clauses, suggesting that Tenseless T must have a subject (an EPP feature).

clause that is ruled out. Given that such DPs can raise in other contexts such as (117), we are left with the following conclusion:

→ If an infinitive clause under a raising verb is negated,
→ the DP subject of this infinitive cannot raise.[39]

Such a correlation is in fact commonplace in the restructuring literature. To give one such example, the pronominal DP argument of an infinitive verb must remain in the same clause as this verb except if the infinitive is embedded under a restructuring verb. In such case this pronominal DP may (or must) be found in the main clause, a phenomenon known as Clitic Climbing. This is exemplified below for Italian with restructuring verbs *volere* (want) or *dovere* (have to) as below in (b) or (c) and impossible otherwise as in (e) which contains the non-restructuring verb *detestare* (detest).

(120) a. Vorrei [dover farlo]
(I) would-want (to) have (to) do.it
'I would want to have to do.it
b. Vorrei [doverlo mai fare]
(I) would-want (to) have.it (to) do
c. Lo vorrei dover fare
(I) it would-want (to) have (to) do
d. Detesterei leggerlo
(I) would-detest (to) read it
e. *Lo detesterei leggere

[39] The same facts obtain in ECM contexts in French (and perhaps in English).
Thus in *Jean a vu un homme ne pas partir (John saw a man not leave)*, the negation in the embedded clause should prevent anything but NP raising from the embedded infinitive (so that the D it is associated with *homme* must be in the main clause). If we force reconstruction of the DP as in *Jean a vu aucun homme ne partir (John has seen any man not leave)* in which *aucun* must reconstruct into the clause containing *ne*, the result is strongly deviant. Similarly, *Jean a vu toutes les filles ne pas partir(John saw all the girls not*

Of relevance to the present discussion is the fact that negation typically[40] prevents Clitic Climbing:

(121) a. Vorrei [non dover mai farlo]
(I) would-want not (to) have ever (to) do.it
'I would want to not to have to ever do.it
b. Vorrei [non doverlo mai fare]
(I) would-want not (to) have.it ever (to) do
c. *[Lo vorrei non dover mai fare]
(I) would-want not (to) have ever (to) do

The same type of restriction is found in French causative constructions which also show clitic climbing under certain circumstances:

(122) a. Marie a laissé Jean (ne pas) la gouter
Mary let John (not)it-taste
b. Marie l'a laissé (*ne pas) gouter à Jean
Mary it-let (*not) taste to John

We can illustrate the correlation between restructuring and reconstruction in other ways too, some involving negation, others involving modifications to the context over which raising takes place. French lacks Clitic climbing but exhibits adverbial climbing (an adverb modifying an embedded verb appears in the main clause) and what Kayne (1975) called L-tous (a stranded Q *tous* appears in the main clauses but relates to a necessarily pronominal object or subject in the embedded clause). Both required some degree of restructuring (but L-tous is less constrained than adverbial climbing).

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leave) does not allow reconstruction of the universal quantifier below negation in the embedded clause. Scopally, it must be all> not.

[40] But apparently not universally. Cardinaletti and Shlonsky (2000) or Rizzi (1978) take negation to always block restructuring, while Cinque sometimes allows clitic climbing past negation. The contention of the text makes predictions for such dialects as Cinque's 2004.

For example, we have seen that two verbs *seem* should be distinguished regarding reconstruction: evidential *sembler*/*seem* which allows reconstruction and psych verb *sembler à/seem to*, that is *seem* plus an experiencer, which does not. Cinque 2004 and Haegeman 2005 argue that the former is a restructuring predicate while the latter is not (at least not to the same degree)).We observe the following contrasts.
The first contrasts are found with L-tous.[41]

(123) a. Jean a tous semblé les connaitre
John has all seemed to know them
b. *Jean a tous semblé ne pas les connaitre[42]
John has all seemed to not know them
c. *Jean lui a tous semblé les connaitre
John has all seemed to him to know them

The second contrasts are found with adverbial climbing (here the verb *se comporter/behave* requires a manner adverbial, here *mal/badly*):

(124) a. Jean a mal semblé se comporter
John has badly seemed to behave
b. *Jean a mal semblé ne pas se comportee
John has badly seemed not to behave
c. Jean leur a mal semblé se comporter
John has badly seemed to them to behave

[41] My judgments are, as noted earlier, more tolerant than others's (e.g. Pollock's 1978). I perceive a potentially significant contrast between the examples in (123) with a "raised" D *tous*, and the examples below with a "raised" DP *tout* (everything) showing worse degradation: *a. Jean a tout semblé connaitre, b. *Jean a tout semblé ne pas connaitre, c. *Jean lui a tout semblé connaitre*.

[42] For reasons I do not understand, this sentence seems to improve if negation is understood as "metalinguistic", i.e. with stress on *pas* uttered to deny the truth of the statement *Jean a tous semblé les connaitre.*

I conclude that, quite generally, DPs cannot move out of their clauses (by the relevant kind of movement, e.g. A-movement) unless these clauses have "restructured" with a higher "restructuring" predicate. This explains why low split derivations are unavailable in the variety of contexts in which they are:

- Because the main predicate is not a restructuring predicate (*10% likely, seem to*) or
- Because some other factor prevents restructuring from taking place (negation).

6.6.3 Graded Restructuring, Graded reconstruction

The hypothesis discussed above establishes a correlation between the amount of reconstruction that can take place and the size of the constituent that is allowed to reconstruct.
If there is no restructuring at all, raising is impossible and reconstruction is impossible. If we are dealing with the type of restructuring that allows DP raising, we expect DP reconstruction to be available, as we saw previously. At least one intermediate case is predicted however. If only minimal restructuring obtains between the main clause and the embedded infinitive, NP raising is allowed but DP raising is not. We thus expect in principle to witness reconstruction of NP but not reconstruction of DP.
In general however, NP raising means that we are dealing with a high split construction in which an NP raises to form a phrase with a matrix D. Since this matrix D requires the presence of this NP as its complement at LF, radical reconstruction of the NP is not possible (as discussed in section 6.2 in connection with *de re* and *de dicto* readings). Except in one type of case: if the NP is raising for purely formal reasons (e.g. if the matrix D is semantically empty) - a pure EPP raising case – reconstruction of the NP should be available. Such a pattern is in fact observable for example in (67c vs. e) repeated below:

(67) c. Advantage seems not to have been taken of the victims
d. There seems not to be anyone listening
e. Every boy seems not to be listening

While in (e), neither *every* (it did not raise) nor *boy* (it must remain a sister to *every*) can reconstruct, the idiom chunk *advantage* can reconstruct (it raised purely for EPP reasons), as it

must, qua idiom chunk. The behavior of *there* is interesting: the fact that *there* can raise as in d indicates that it is not of category DP (DPs cannot raise out of infinitives which, because of the presence of negation have not restructured enough). Raising of *there* is reminiscent of raising of the locative clitic *y* in French (or *ci* in Italian), which is typically more liberal than than that of DP clitics.[43] Thus it is not surprising that *there* can raise in contexts in which DPs cannot.

Another intermediate case may exist illustrated by the paradigm in (68) and (69) repeated below:

(68) a. Every building is 10% likely to collapse

(69) a. * There will be 50% likely to be a colony on the moon by 2137
b. ? Advantage is 50% likely to be taken of internet surfers
c. ? Substantial headway is only 50% likely to be made in such circumstances

The deviance of the second sentence– *there* raising – which does not need to involve reconstruction suggests that the amount of restructuring is insufficient to allow a category such as *there* to raise. In the first sentence, the NP *building* has raised but cannot reconstruct (it must remain a sister to *every*) . The deviance of the last two sentences in turn suggests that they involve raising of a category larger than NP (although it is not obvious which – perhaps NumberP, see section 7.4.3.1), not allowed in this type of reconstructuring context.

7 Independent justifications

7.1 Some Possible evidence for DPs not being underlying constituents

Normally, the various parts that forms a DP must form a surface constituent. However this is not always true.
Some clear cases in which this does not happen are found in French:

(125) a. Ils ont **beaucoup/trop** lu **de livres**
they have a lot/too many read of books
b. **Combien** as tu lu **de livres**

[43] This behavior is most naturally analyzed under such treatments of there as Moro's (1997)

How many have you read of books

c. **Les enfants** ont **tous** mangé
the children have all eaten

d. J'ai **tous** voulu **les** lire
I have all wanted them to read

These could be taken as prima facie evidence for the position advocated here but only one case – the second – survives analysis. For these to count as evidence, we must show that it is not plausible for the discontinuous parts of the DP to be underlying constituents separated by movement.

The first two cases could in principle involve, and in the case of the latter are standardly analyzed as involving, (perhaps remnant) movement of the quantity expression away from the rest of the DP.

The third case is the standard Q-float which I originally analyzed as simple stranding of *all* in VP in Sportiche (1988). An alternative analysis consistent with the stranding spirit of the previous one is suggested in Sportiche (1995) as movement of *the children* from VP internal position through the specifier of an *all* itself base generated outside VP, to the subject position of the clause. Theoretically, this alternative is less desirable as an independent stipulation is necessary regarding the position of the stranded Q, but it may help resolve some distributional problems for prediction made by the pure stranding analysis. In the context of the present proposal, this second analysis is quite natural of course. If the arguments for treating stranded Qs as adverbial – see Bobaljik (2003) for a survey - this would, in the context of this stranded Q analysis, constitute independent support for the split DP proposal we are discussing.

The last case involves L-tous mentioned above in section 6.6.2: a stranded Q *tous* appears in the main clauses but relates to a necessarily pronominal object or subject in the embedded clause and the question is how the stranded Q gets there. Consider the following:

(126) a. Il a tous fallu qu'il les achètent
it is all necessary that he buys them

b. Il a tous fallu qu'ils partent
it is all necessary that they leave

These Q's have matrix scope, not embedded scope. This illustrated by the following pair:

(127) a. Il aurait tous fallu que tu ne les aies pas vu
All are such that it would have been necessary that you not see them
b. Il aurait fallu que tu ne les aies pas tous vu
it would have been necessary that you do not see all of them

As the paraphrases indicate, in the first sentence the Q must have scope wider than the embedded negation. If reconstruction was required, we would expect the Q to be able to take narrower scope than the embedded negation as in the second sentence. This seems unexpected if these Qs are raised from the embedded clause by movement: if they were, reconstruction ought to be available, yielding the option of the Q taking narrower scope than negation. This may be an indication that the Q is directly merged in the main clause although it is difficult to decide. First, a connection must be established between this Q and its restriction here given by the pronoun. If this is not done by overt movement, some other mechanism needs to be invoked. Secondly, an explanation must be constructed as to why this construction is limited to cases in which the restriction is pronominal. If movement is involved, this may be related to the existence of such forms as [*eux tous*], available with pronouns but not with full DPs (see Shlonsky, 1991, Koopman, 1997). Finally it may be that the lack of reconstruction is due to the possible principle we mentioned earlier, preventing reconstruction in case the motivation for movement is scope attribution, a principle I will question later in section 8.1.

7.2 Independent Plausibility for NPs to acquire Ds derivationally: Relative Clauses

The conclusion that an NP always acquires its D (if any) derivationally is perhaps without precedent but the idea that NPs sometimes acquire their Ds derivationally is an assumption dating back at least to Vergnaud (1974) and his development of the so-called raising analysis for relative clauses prominently advocated for more recently in Kayne (1994).
One of Vergnaud's main argument for the raising analysis was based on the distribution of idiom chunks. Its form is familiar: idiom chunks can appear as heads of relative clauses if the relative clause contains the rest of the idiom, even if nothing else does.

Here is a typical example:

(128) a. Il a tiré parti de la situation / Il a pris soin des blessés
He took advantage of the situation/ he took care of the wounded
b. Je déplore le parti qu'il tiré de la situation / Je suis surpris du soin qu'il prend des blessés
I deplore the advantage he is taking of the situation / I am surprised at the care he is taking of the wounded

Since these idiom chunks are uninterpretable qua idiom chunks by themselves, it is easy to identify what selects them, with which they must form an underlying constituent. This shows the head of the relative clause originates inside the relative clause and must be raised out from inside it.[44] Additional arguments for the raising analysis can also be constructed on the basis of the availability inside the nominal head of the relative clause of reciprocal anaphors (e.g. Kayne 1994) or pronouns interpreted as variables bound by quantifiers inside the relative clause.

The determiner heading the relative clause however is hypothesized to be introduced outside of the relative clause. There are a number of reasons supporting this hypothesis.
First such idioms in their unsplit form do not tolerate the determiners that they tolerate when they are relativized:[45]

(129) Le parti qu il a tiré de la situation / * Il a tiré le parti de la situation
The advantage he took of the situation / * he took the advantage of the situation

[44] By the same reasoning, the idiom must form a constituent at LF. Not surprisingly, idiom chunk headed relatives clauses must (in French, at least) be interpreted as amount relatives (or perhaps also as propositional). Thus, the interpretation for (i) is (a) (and perhaps (b)):
(i) Je suis surpris du soin qu il prend des blessés
= (a) I am surprised at how much he is taking care of the wounded.
= (b) I am surprised that he is taking care of the wounded I am surprised at how much he is taking care of the wounded.

[45] However, as remarked by Philippe Schlenker, there may be other ways than relative clauses to license determiners in idioms, as e.g. in: (i) il a tiré le meilleur parti possible de cette situation / he took the best advantage possible from this situation (although these may also involve elided relatives, as Larson, 2000 suggests).

Secondly, a relative pronoun such as *which* – which plausibly is the underlying determiner of the relativized noun (sometimes visibly so: *these books, which books Sue loved, …*) may appear and is otherwise incompatible with another determiner:

(130) a. the care which he took of the victims / * he took the which care of victims
b. More generally : * the which N

Finally, the determiner of the relative clause cannot scope inside the relative clause:

(131) a. Some pictures that neither John nor Bill think Sue sold …
b. (Different) pictures that everyone looked at

In the first sentence, it must be the same pictures that have the property that neither John nor Bill think Sue sold. In the second, the set of pictures being talked about cannot have all the possible extensions that it has in *everyone looked at(different) pictures*.

This observation is reminiscent of the impossible reconstruction cases we are investigating but differing from them in that the prohibition in the present case is general and thus suggest that this determiner is always external to the relative clause.

These facts are taken by the proponents of the head raising analysis for relative clauses as indicating that the noun head of the relative clause acquires its determiner derivationally. Note in particular that such determiners are acquired by the head noun and not just by the relative clause as witnessed for example in French by the fact that the definite article will agree in (number and in particular) gender with the head noun:

(132) a. Le (msc) parti (masc) qu'il a tiré de la situation
b. * La(fem) parti (masc) qu il a tiré de la situation
c. Aucun (*e) lapin qu il a posé a Marie n'était volontaire
No (okMasc, *Fem) rabbit (masc) that he posed to Marie was voluntary
'He never stood Mary up voluntarily'

7.3 Independent Plausibility for predicates to take NPs as arguments

If Predicates take NPs as thematic arguments rather than DPs, we expect to find situations in which a predicate argument slot is saturated by a constituent smaller than a DP (e.g. an NP). Such a situation is quite generally found in compounds, witness for example certain English compounds (synthetic) or French:

(133) a. stone throwing b. *pebble-stone-throwing *stone-throwing of pebbles
c. [[$_D$ e] stone] throwing
d. (un) tire-bouchon e. * un tire-bouchon-capsule f. * (un) tire-tout-bouchon
(a) pull cork a pull cork capsule a pull all cork
'(a) cork screw'

The first example informally speaking refers to throwings of stones (with an implicit external argument) suggesting that the nominal *stone* saturates the internal argument slot of *throw*. Predictably then, there can be no iteration of this internal argument (unlike what happens with modifiers): the examples in (b) cannot refer to throwings of both stones and pebbles (although it may perhaps marginally refer to throwings of pebbles stone-style or vice versa).
The nominal *stone* in (a) is not part of a larger DP in these structures as in c. There is no independent evidence that English has a generic or existential (the only plausible options) silent singular determiner. Furthermore, no overt determiner is allowed as exemplified in (a) and be below:

(134)a. *[the stone] throwing b. *[every stone] throwing c. * it throwing

The deviance of the example in c also follows from this analysis of compounds under the assumption that these pronouns are larger than N or NP (see Dechaine and Wiltschko, 2002 for recent discussion).

The same reasoning extends to the French case.

The significance of such example might be questioned if it were assumed that the Merge operations operate differently in "morphology" and in "syntax". Under such an assumption, Ns

or NPs would be able to saturate internal theta roles in morphology but not in syntax. On general grounds, as for example the literature in Distributed Morphology, see e.g. Marantz 1997, amply demonstrates, such a distinction between morphology and syntax seems unwarranted not only from the point of view of combinatory rules such as Merge (or even Move, cf. Koopman , 2005) but also from the point of view of the units that these combinatory rules manipulate (which seem to be abstract morphemes at the atomic level, and combinations of such atoms).
But even if such a componential distinction were warranted, the very fact that such compounds are formally allowed, semantically interpretable[46] and composed of "words" would lead us to expect that syntax should at least be able to lawfully combine them too.
I conclude that predicate, e.g. Vs, can quite generally take Ns as arguments. In the circumstances in which V-DP combinations surface instead of the underlying V-NP combinations, some mechanism must be postulated forcing NPs to combine with Ds at least prior to spell out, much in the same way that DPs are usually postulated to "combine" with a Case licensing property.

7.4 Theory of Syntactic Structures (that could make this conclusion plausible)

If our reasoning so far is correct, we end up with some unconventional conclusions regarding how syntactic structures are assembled. In particular we postulate unconventional underlying structures. We now turn to the fourth question mentioned in section 5.3: what is the syntactic theory that has these conclusions as consequences. Our conclusion will be: the standard theory, that is the theory that seems to be most often implicitly assumed (there are some exceptions) but which has not been taken to its ultimate consequences.

It is not possible to investigate the nature of underlying structures in isolation: they are defined relationally because the form of syntactic structures has two sources: Merge and Move.[47] Underlying structures is what is left when we factor out the effects of Move, that is when we examine the effects of (so-called first) Merge alone.

[46] How semantic interpretation of such compounds is done needs of course to be specified, a non trivial matter.

[47] This distinction can a priori be formalized in a number of ways, for example Merge as function saturation and Move as a by product of function composition.

There is little controversy regarding what the diagnostic properties of each are.
Merge (First Merge) is meant to structurally satisfy Local Selection: cases of (partial) saturation of a element by something it requires in a local syntactic relation.
Move (Re-Merge) is meant to encode cases of delocalized selection: e.g. Agreement, Case, Thematic Dependencies, Semantic Selection (idiom chunks etc…)[48]

What is crucial in determining the respective contribution of each is the notion of locality of selection and especially how the notion of locality is defined. We know turn to a discussion of this notion.

7.4.1 Locality of Selection as Strict Sisterhood

How should Locality of Selection be characterized? The tighter we make it, the more movement we postulate, the looser we make it, the less movement we will have. Where then is the line drawn between Merge and Remerge (Move).

Let us say that a relation (e.g. selection) between a and b is local iff $\nu(a, b)$.
I am going to motivate the conclusion that the notion of locality we need for selection is simple or strict sisterhood. To do this, I am going to contrast two a priori plausible proposals – strict sisterhood and extended sisterhood - , try to tease apart predictions that each make about structures we should and should not find, and conclude in favor of strict sisterhood.

One proposal in the literature is Chomsky's (1965), which defines ν equivalently as (i) in classic notation or as (ii) in bare phrase structure notation illustrated in (135a and b) respectively:

i. $\nu(x, y)$ iff xP is a daughter of a projection of y

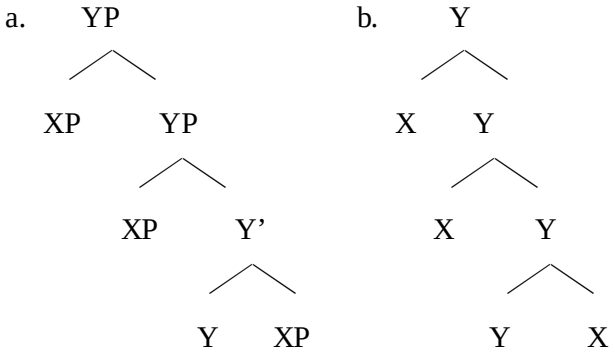
[48] Thus Move overlaps with Merge (the Merge part of Re-Merge). The Re- part is the delocalization part. A representational terminology would be more transparent: it would distinguish

- Merge: satisfy local selection
- Identify: two objects are identical (≡ traces are copies) (or: a single object enters into more than one structural relation with other objects)
- Bind: bind an object by another (non local relations between different objects)

ii. ν(x,y) iff x is a daughter of y

.

(135) Strict Sisterhood

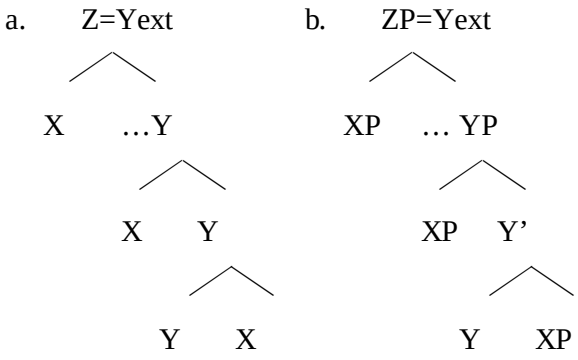


The other proposal is Grimshaw's (1991) notion of Extended Projection given as (iii) in classic notation, as (iv) in bare phrase structure notation and illustrated in (136a and b) respectively:

iii. ν(x, y) iff x is a daughter of an extended projection of y

iv. ν(x, y) iff xP is a daughter of an extended projection of y

(136) Extended Sisterhood



The notion of extended projection assumes a distinction between lexical (at least N, V and A) and functional categories (the others). The extended projection of a lexical head include all the functional projections above this head that come as a "package" with this head. Thus the extended

projection of the Verb or VP includes Tense (and TP). Similarly, that of an N/NP would include DP.

For the theory of how Merge works, let us assume a maximalist interpretation: Merge occurs as it does because it provides the locality relation necessary for the proper LF structures. In effect, it means that a Merge configuration is legal if it locally relates two elements that enter into some a meaningful local function-argument relation. Metaphorically, we can say that Merge is selectional feature checking.[49]

It is worth emphasizing a point that could be misunderstood. There is no need and no intent to suppose that the theory of selectional relations or restrictions is part of the theory of syntax (or even grammar). The only point under discussion is whether there is a grammatical component to such relations; i.e. whether syntactic structure must package information in a particular way so that these structures be interpretable. A predicate and an argument, for example, must be sisters or extended sisters in order for their relation to be interpreted as one of predicate saturation: it is syntax that is telling what the arguments of a predicate are. But whether a particular Merge configuration ends being meaningfully interpretable or not most likely requires access to non grammatical properties (world knowledge, lexical presupposition etc…).

Still, even under this rather weak hypothesis, there are predictions (or expectations). We can illustrate them in a case of a V and DP: If a V imposes selectional restrictions (whatever they may be and whatever their origin – grammatical or not) on the content of a DP, that selected portion of this DP should be a sister or an extended sister of this V. If no V imposes selectional restrictions on a particular subconstituent of a DP (say the NP), then it would be surprising if V and NP were sisters or extended sisters.

[49] It is to be hoped that this maximalist interpretation is the correct one, as it reduces merge relations to the satisfaction of properties of merged elements. It is unclear at this point whether it can be maintained because of the richness of clausal structures with exploded INFL systems, or exploded C systems as in Rizzi (1997) , or Cinque's (1999) hierarchy of projections. Alternatively, we have to admit the existence of some arbitrary configurations which thus must be stipulated as underived templates.

7.4.1.1 Selectional Patterns

Let us examine a concrete case. Consider the following (verb, direct object) pair, with the verb *say*, and list the selectional relations we find. Throughout we limit ourselves to interpretative relations. In particular, we will ignore grammatical cooccurence restrictions such as agreement (in number, gender, case, class, etc…) whose import is harder to pin down.[50] We assume that a DP consists of three projections: D, Number and N hierarchically ordered (there may be finer distinctions), where Number encodes the mass/count distinction, and within count the singular, dual, plural distinction. In such a pair as given in (a) below, we observe the restrictions listed in (b):

(137) a. say D Num N

b. (say, N) not free
(Num, N) not free
(D, Num) not free
(say, Num) not free
(D, N) free
(say,D) free

The pair (say, N) is not free: the verb *say* can only meaningfully combine with a subclass of N's. Thus *say a word* is fine but *say a basket* is not.
The pair (Num, N) is not free, because say, certain nouns are only mass while others are only count, or certain nouns require a plural (pluralia tantum).
The pair (D, Num) is not free because certain Ds can only occur with singular, say *each or* French *tout (any)*.
The pair (D, N) seems to be free: there seems to be no restriction holding that cannot be factored out as a combination of (D,Num) and (Num, N) restrictions.

[50] The reason is that agreement seems to be a formal property of language rather than an interpretative property. As a result, we have more freedom as to how agreement is computed. In a DP with the D, Adjectives and N and all agreeing in Say Gender, it is possible to state that any two sisters must agree in Gender (or that a D of A particular gender always selects a complement of the same gender…)

The pair (say, D) is free: any D is fine with *say* as long as the rest of the structure allows it. In this case, the observation seems much more general: there does not seem to be case of (V,D) restrictions.

Finally, the pair (say, Num) is free but this may not generally be true. There are verbs like *gather* that appear to require plural arguments, a case of (V,Num) selection. This requirement cannot however be of syntactic plurals as such verbs always allow nouns which, even though they are singular in number denote pluralities of objects (such as *crowd*). The question arises how exactly such a behavior could be coded since such verbs would either select a syntactic plural (i.e. Plural Num) or a syntactic singular (sg Num) as long as this Num in turn selects a N with semantic plurality (such as *crowd*).

One option is to consider that the syntactic feature singular/plural is actually a property of nouns and that Num is an agreement category (a +pl Num would select a plural N). Verbs such as *gather* would simply need nouns of the proper kind, i.e. either +pl N or a +sg N denoting a plurality of objects. This means that such case would be cases of (V,N) selection.[51]

Here a summary of the relations we do find, and the relations we do not find.

(138) Interpretative Cooccurrence Restrictions

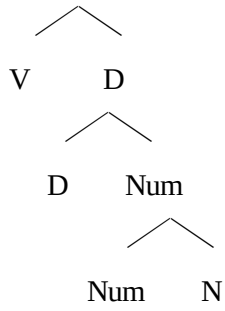
#1 Found	#2 Not Found:	#Not Clear
V-N	V-D	V-Num
D-Num	D-N	
Num-N		

[51] A couple of advantages to this approach:

- Irregular plurals such as *mice/geese* can, unlike regularly –s marked plurals thus of category Num (=N+Num) - enter into compounding in English. This would follow if they were of category N (a simple but general economy rule would explain why such lexically marked plural nouns do not show up with plural affixes).
- It would explain why compounds can regularly be interpreted as having plural objects without plural marking: *tree clustering, rat infestation, stone throwing, etc.*. *Stone throwing* for example means throwing of a stone or throwing of stones…

What kind of syntax can support these findings? Begin with the standard structure which assumes the underlying structure given below and no further derived structure of relevance:

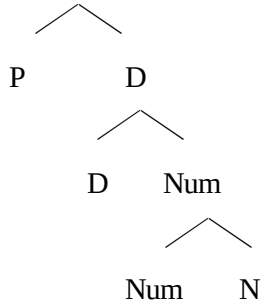
(139) V



Under the assumption that extended sisterhood is the right notion, this structure is compatible with the findings in column #1 of (138). The findings in column #2 are surprising however as they would lead us to expect to find cases of V-D selection, especially given the existence of cases of P-Num selection, i.e. selection between a lexical category and a functional category associated with a different lexical head that we discuss below.

The same pattern is found with (strong) prepositions.[52] Normally, in a PP [$_{PP}$ P [$_{DP}$ D Num N]]:

(140) P



The selections internal to the DP are as they were described above. In addition, Ps can select N (e.g. locative *in* selects a Noun that is a concrete or abstract location). However, there are prepositions like *among* or *between* which select pluralities. *Among* is like *gather* in that it selects either a plural number and in this case imposes no restriction on the N, or selects a plurality

[52] Weak (-ly used) prepositions (to, with, for, by, of etc..) are most likely grammatical formatives which typically impose no selection on their object.

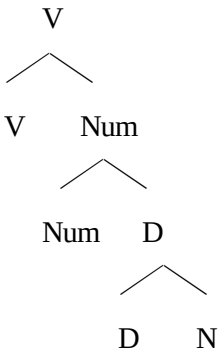
denoting noun (*crowd*) but imposes no restriction on its number. *Between* on the other hand, is like *cluster*: it only tolerates plural (dual) number but imposes no restriction on the Noun.

Only a complete survey of what is actually found would definitely show that these patterns are representative. I will assume they are, as no counterexample has so far emerged.
We recap the predictions of extended sisterhood together with the observations we made:

(141) There should be heads selecting only N: this is actually the norm
There should be heads selecting only Num: uncommon but exists (the preposition *between*, perhaps the verb *cluster*)
There should be heads selecting D: inexistent (??)
There should be heads selecting two out these three or all three (since D seems never to be selected, the only potential case would be (Num and N): inexistent (??)

This shows that extended sisterhood is too weak a notion. There is another sense in which extended sisterhood is too weak. It is reasonable to suppose that, ultimately, selection (and perhaps some templates) drives how Merge functions. If the network of selectional relations drives Merge, it is clear that syntactic structures are enormously undetermined by the conjunction of observed selectional relations and extended sisterhood. This problem is difficult to fix even by introducing features with no detectable reflection apart from structural hierarchy because there are many ways that the cooccurence restrictions these features would impose could be met.
For example that the following "verb- complement" structure is well formed (one among several) from the point of view of meeting the requirements of observable selectional relations under extended sisterhood:

(142)



I conclude that Strict Sisterhood is correct, postponing till section 7.4.3 a discussion of how to implement it.

7.4.1.2 The Special Case of Idioms

I now discuss the special case of selection found with idioms, which leads to the same conclusion regarding the desirability of subjecting selectional relations to strict sisterhood.

First, it is clear that idioms constitute special cases of cooccurence restrictions, of a very selective sort. For example, a complex idiom such as *take advantage of*, can be described as involving an idiomatic verb *take* selecting a complement headed by an idiomatic *advantage*, itself taking as complement an idiomatic P *of*.

Whether a string could in principle be idiomatic is highly constrained: for example, there are no idiom subject + object excluding the verb, or modifier of the direct object + Preposition introducing an adjunct PP, etc.. The results of investigating what possible strings of elements can constitute idioms provides a direct and powerful probe into what possible selectional relations there are: possible idiom types tell us about possible selectional configurations, non accidentally non existing idiom types tell us about impossible selectional configurations. …Clearly, it is worthwhile trying to specify what kind of substring of a string can form an idiom.

To illustrate one rather simple view, suppose that idioms must form a "continuous" chunk of structure in a sense to be made precise. This means that if a discontinuous expression forms an idiom, this idiom can also always be found as a "continuous expression" in a different context This correlation is found in (143) below: the string in bold in (a) is a discontinuous idiom (split by raising to subject) and this is possible because *cat* is the subject of the PP small clause *out of the bag* with idiomatic reading in an unsplit case as in (b):

(143) a. The **ca**t seems to be **out of the bag**
b. let the **cat out of the bag**
c. [cat out of the bag]

To implement such an idea, we need to make more explicit what we mean by continuous and what we mean by chunk of structure. On the latter, an obvious candidate is that a chunk of structure means an underlying or derived constituent:

(144) Idiom take 1:
an idiom is an underlying or derived constituent

For example, the idiom *kick the bucket* in *John kicked the bucket* would qualify because it is underlying VP constituent. Similarly, the idiom *keep close tabs* on in *they kept close tabs on you* would also qualify because it is an underlying constituent.

As for continuity, we must at least superficially allow idioms to have "holes" in them as *one* in *keep one's cool*. To allow for this, let us permit constituent gaps in the idiom constituent. Note that we need to restrict these gaps to being phrasal to exclude cases of a non existing idiomatic expressions, e.g. the specifier an the complement of a head without the head itself. Furthermore, discontinuity in the sequence of heads on the spine of the tree should be disallowed: if it was not, it would open Pandora's box. This is because it would be theoretically undesirable to allow, say a gap of one head (e.g. D) as opposed to two or more (no grammatical phenomenon is known to count), essentially predicting that any two elements in a string can in principle by themselves form an idiom together.

(145) Idiom take 2:
an idiom is an underlying or derived constituent from which one or more phrasal constituents has been subtracted. [53,54]

The effect of idiom take 2 is that idioms will meet the following (underlying or derived) structural description:

If Y is the highest head (for c-command) of the idiom and W its lowest, all intermediate heads (e.g. Z) must be part of the idioms. Specifiers of and adjuncts to these heads can be but do not

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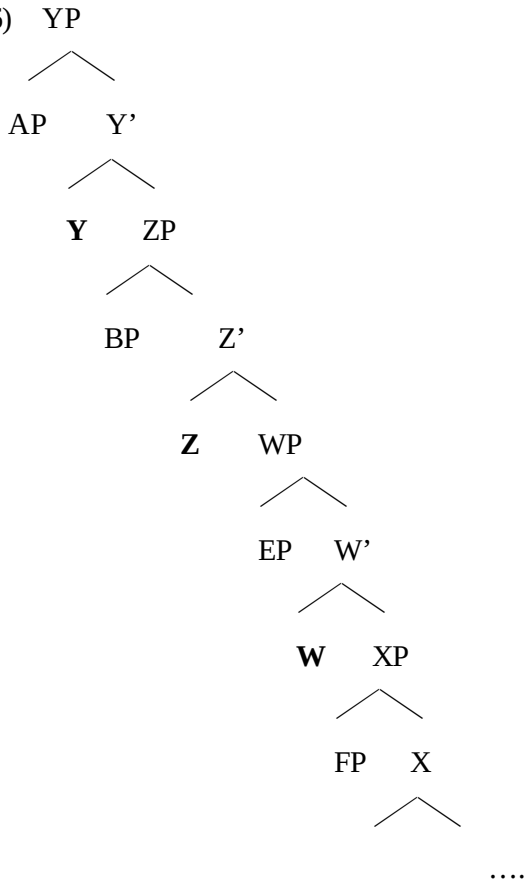
[53] Even though it is not needed for the point we will make, it is worth noting that the data provided in lists of existing idioms as well as by large corpus surveys such Riehemann 2001 or by Nunberg, Sag and Wasow (1994) may support a still stronger thesis, close to a standard albeit not uncontroversial thesis in generative grammar, namely that idioms must be continuous chunks of structure in underlying structure.
(i) Idiom take 3: an idiom is an underlying constituent from which one or more phrasal constituents has been subtracted. Such a thesis is called into question for example in Ruwet (1991) or Nunberg, Sag and Wasow (1994) who list a number of putative counterexamples (p.515-516). One of the most interesting is passives such as *les dés sont jetés* /*the die is cast* because they support current analyses take [*the die cast*] to be an underlying constituent (essentially what corresponds to the lower VP in a v-V VP shell). Some other putative counterexamples are unconvincing*: what's eating NP* similar to French *quelle mouche l'a piqué* (the idiom is [*be -ing [what eat NP*], can be viewed as an underlying idiom subject to normal syntactic rules, in the same way as in *He kicked the bucket* in which the idiom is *kick the bucket* subject to normal syntactic rules, here V to T), *hard to take* (the idiom is the use of *take* as in *I can't take this*), *Is the pope Catholic* (the idiom is [*Q Pres be the pope catholic*]) subject to normal syntactic rules.
It is remarkable however that some idioms e.g. *every which way* are counterexamples to our view of underlying structure since they would clearly be derived but not underlying constituent. This suggests that these authors are right in assuming that (i) is false.
Note finally that it is unclear how idiom take 3 could be enforced in a model that both has (i) no D-structure but intersperse Merge and Move (as Chomsky's Minimalist Approach) (ii) a lexicalist approach (e.g. computation of syntactic structures on abstract features with Late Insertion as in Distributed Morphology).
[54] Note that idiom take 2 derives Koopman and Sportiche's 1991 constraint on possible idioms reproduced below, independently motivated by the various arguments for VP internal subjects.
Possible idioms in Koopman and Sportiche 1991: If X is the minimal constituent containing all the idiomatic material, the head of X is part of the idiom.

have to be part of the idiom: the sequence of idiomatic heads on the spine of the tree must be uninterrupted.

(146)



Equipped with this characterization of possible idioms, we can turn to the question of how it bears on possible syntactic structures.

As we noted, idioms chunks enter into (particularly tight) selectional relations with each other. The observation that V's never select D's has as a side effect the fact that there are no V-D idioms, an unexpected finding under standard syntactic analysis. In addition the existence of numerous V-N idioms with a free intervening D slot (*tirer parti, tirer le/aucun parti, make headway, make the/any/no headway, etc.*…) requires one of two modifications to our assumptions: either give standard syntactic structures in favor alternatives consistent with existing patterns, or give up

(145). I suggest the first option is the correct one to pursue because there seems to be no coherent way to pursue the second. The reason is that it is neither possible to exclude functional categories to participate in idiomatic expressions viz. the plural in *pull strings*, the present tense or the [+Q] C in *is the Pope Catholic*, nor is it to specifically exclude Ds viz. the previous idiom, or *kick the bucket*, *every which way*, etc..

7.4.2 Alternatives to Locality of Selection?

7.4.2.1 Presupposition

The reasoning we have been providing rests on two observations: the non existence of V-D selection excluding N and the concomitant absence of V-D idioms, and the existence of V-N selection across D (and Number) and the concomitant existence of V-N idioms excluding D (and Number).

One might object to the idea that there is any syntactic reflex of V-N selection, e.g. strict sisterhood, because its effect could be recovered in some alternative way. One such way involve presupposition (Fox, p.c., Spector, p.c.). Roughly, the idea would be as follows: there are independently attested observations about presupposition projection, which will account for the V-N selection facts if observed selectional patterns arise as a result of presupposition projection. For example, "Every N is intelligent" presupposes that such Ns are animate. And more generally "Det NP VP" presupposes that every NP satisfies the presuppositions of VP. Another way of stating this observation is to say in DNP VP, (i) it is presupposed that whatever x the VP property holds of, x is presupposed to have some properties weaker than VP, and (ii) x has the property NP. This of course would generalize to other configurations (e.g. [V DP]).

The idea that observed selectional restrictions arise as a reflex of the theory of presupposition seems appealing. Adopting it however does not answer the question we set out to answer. It merely displaces it to the question of why presupposition projection works the way it does rather than some other imaginable way. For example, why is it that in DNP VP, nothing is presupposed of individuals with the property not NP or with the property "dog", or of the type of function D can denote or some other property.

Postulating that the syntactic structure of [DNP] VP really is [D NP] [$_{VP}$ NP V'] reduces the way in which presupposition projection works in this case to the way it works in structures such as [A B] in which A is presupposed to be able to meet the property B and vice versa (as in "talkative boys" which presupposes that talkative objects must be able to speak and boy objects must be able to be talkative). The logic of the reasoning is the same as the one we had previously, with its effects now specified to apply to a different domain (presupposition projection).

7.4.2.2 Conservativity[55]

Such a postulated syntactic structure has an added benefit.
Work on Generalized Quantifiers (*generalized quantifiers* (*type <1> functions*) *over* E_s (over the *domain* E_s of individuals in situation s) defined as the set of functions from P_E into {T,F}) relates this result to the proposed universal property of Dets that they all be conservative (detA B iff detA A∩B), a property itself reducible (cf. Keenan , 1993) to the fact that the set of natural language determiners (in a semantic, but perhaps not in a syntactic sense) is precisely the boolean closure of the union of the set of intersective determiners with the set of co-intersective determiners (both of which reduce the space to search to evaluate truth to individuals in A).

The proposed syntactic structure could derive the fact that determiners must be conservative, modulo plausible learning principles.
According to our conclusion, the syntactic structure of [[DNP] VP] really is [[D NP] [$_{VP}$ NP V']]. This would mean that such a sentence would state that DNP would have the property expressed by [NP V'], that is the conjunction of NP and V.

Suppose 'now that there is a non conservative D_1 such as the sentence D_1NP VP is true iff some subset S1 of the NPs and some subset S2 of the nonNPs have the property VP.

[55] This section is inspired by work reported in Fox, 2003, which, although different in detail, is similar in spirit to what is said here.

If the syntactic structure of D_1NP VP really is D_1NP [NP V'], such a sentence would always be false for any NP, since it would say that the nonNPs in S2 have the property NP (and the property V'). Unless of course S2 is the empty set.
This by itself implies nothing. But it could be plausibly argued, I think, that such Ds are unlearnable if we make the following assumption about learning strategies: learning strategies to infer the meaning of a D are biased never to postulate a D meaning which systematically gives rise to contradictory statements. This would derive why D's must be conservative.

I will mention one problem arising with this view of syntactic structures that would require more discussion than I will provide here. For the line of reasoning we have been pursuing to go through, it is important to assume that the trace of an NP t_{NP} is always interpreted in structures such as DNP [t_{NP} V], a principle which we adopted independently (namely: a lowest trace must be interpreted). However, there are cases in which such an assumption superficially runs into trouble. Here are two representative cases, one with a Focus particle, one with a trace of A-bar movement and one with a trace of A-movement (traces indicated):

(147) a. Only animals are ~~animal~~ intelligent
b. Which democrat don't you think ~~which democrat~~ won

Given that the trace of ~~which~~ is not interpreted, under the assumptions of the text, it would seem that such sentences should receive the following interpretations:

(148) a. Only animals are intelligent animals
b. Which is the democrat which you do not think was a winning democrat

This seems to be the wrong meanings. The first stated meaning (148a) is compatible with non animals being intelligent (since they are not both intelligent and animals) unlike what is intended by (147a). The second stated meaning (148b) is compatible my answering Bill if I think Bill won but I do not think he is a democrat. This does not seem a reasonable answer to the question posed by (147a). Although I will not offer a detailed treatment of these problems here, the idea of the treatment is the same for both cases: an XP and its traces is a single object (and not two distinct

objects with the same content as standard notation suggests)[56]. In particular, they cannot differ in world variable value nor can they be treated independently from each other separately when computing alternatives in focus constructions. Thus the proper representation for the meanings of the sentences above would be:

(149) a. The only objects which are intelligent objects are animals
b. Which is the person who is a democrat (in the actual world) which you do not think was a winner and a democrat (in the actual world)

The first case now becomes straightforward. The second does not allow the previous answer unless I have contradictory beliefs.

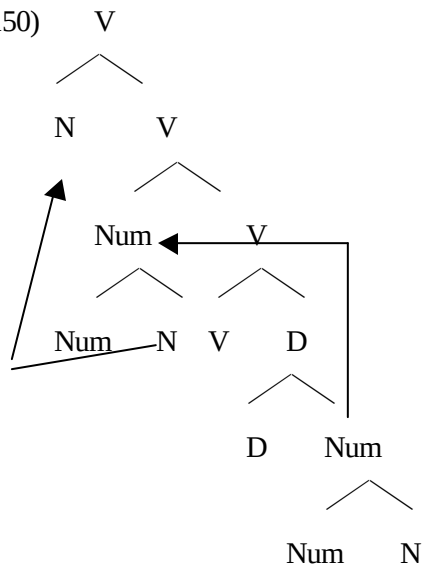
7.4.3 Implementing Strict Sisterhood

7.4.3.1 Underlying Structures

When it comes to predicted possible selectional dependencies, strict sisterhood is more restrictive but seems hopeless if the assumed Merge structures given in (139) and (140) are correct (we are ignoring the implausible Merge structure above). Strict sisterhood would require V-N sisterhood, V-Num sisterhood and no V-D sisterhood. The first requirements could be satisfied if later Merge configurations create the proper sisterhood relations. Thus, starting from (139), NumP movement to a position adjunct to VP followed by NP movement to a position adjunct to VP (or the reverse) would create the required sisterhood configurations:

[56] A better notation would be multidominance trees (as in Kracht, 2003 or Starke, 2001)

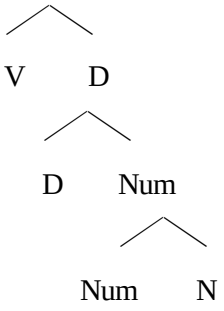
(150)



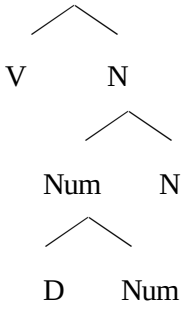
There is no independent motivation for such derived configurations. Further derivation would be needed to create the surface-observed DP constituent [D Num N].

What then if they were incorrect? First, note that selection is a symmetric relation: we do not know which element should be hierarchically higher. If we observe a V-N relation, it may be that N is a daughter of a projection of V or V is a daughter of a projection of N.
Given the observation in (141), here are two classical possible structures attempting to satisfy strict sisterhood:

(151) a. *



b.

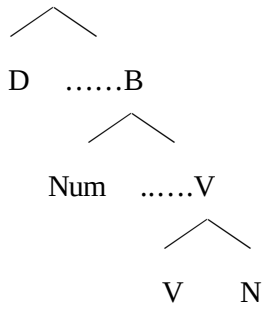


(a) is the standard underlying structure, problems for which we have already discussed.
(b) is similar to the pre-DP era structure with determiners and other closed categories associated with the nominal domain etc.. thought to be dominated by a projection of N.

What makes (b) implausible is on the one hand the semantic literature showing NP to be an argument of D and not vice versa and the syntactic literature surrounding the existence of N to D movement (see e.g. Longobardi, 2001) suggesting that D is hierarchically higher than N.[57]

Instead of exploring all possibilities, I will outline proposals that seems to not only meet strict sisterhood requirements but also seems independently motivated by the previous discussion of reconstruction suggesting that arguments of predicates cannot be DPs, that is that at the very least, the D of a DP argument of a V is VP external.
Consider first the case of a verb selecting a nominal internal argument (such as *say*). For such a case, we postulate the following underlying structure (initial Merge order), A and B being categories whose identities need to be determined:

(152)

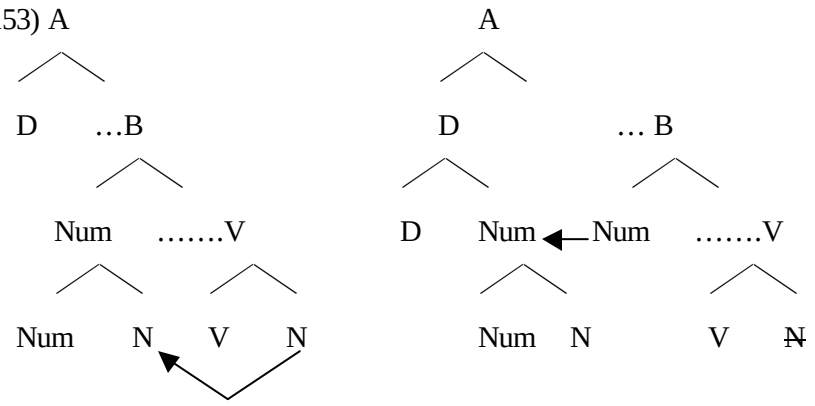


V and N are strict sisters. Num is merged higher in the structure, and D still higher (exactly where needs to be determined – I will return to this question in section 7.4.3.2). Num-N and D-Num sisterhood requirements are met by movement of one to a position sister of the other. I assume one step movement in each case (thus to a non c-commanding position)[58] yielding the successive derived structures below (followed by further derivation):

[57] This remains true despite the fact that we technically allow movement to a non c-commanding position: given our assumptions, if N or Num was attracted to a c-commanding D and become a sister of D, the resulting constituent should be a projection of D and not of Num as in (151b)

[58] Nothing here hinges on this assumption. Another – perhaps different – way of construing the derivation that would preserve c-command would require enriching the syntactic structure as in the line of work advocated in R. Kayne's work: NP to Num for example would involve raising NP to Specifier of Num

(153)



Such a structure generalizes from our earlier conclusions based on reconstruction that DP were derived constituent. There, we were considering that DPs contain D and NP. When we take into account the presence of Number, we need to say that NumP is a derived constituent, as well as DP. It is worth noting that this conclusion is independently suggested by the fact that English synthetic compounds, say of the type N-V normally preclude plural morphology on the nominal argument of its verbal head. N by itself can count as a saturator of an argument place of V, without Num being present: this means that NPs are arguments of Vs and that Number is external to VPs.[59]

Taking Number into account means that we need to update what we mean by high split and low split. We have seen that there may be high and low splits in raising structures for D. In addition, there may be high and low split derivation for Number (and any other projection above NP within VP).

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followed by raising of Num to a functional head F above Num, and subsequently remnant moving the complement of the original Num position to a position above FP.

[59] Given this conclusion, it is reasonable to wonder about what the function of the category Number is. I would like to speculate that it is a generalized pluralizer, applying to eventualities or situations (what is called verbal number for certain languages – see Corbett, 2000, chapter 8. Its relation to NPs can be thought of in the same way as the relation between a focus particle and its focus: it marks a singularity or pluralities of eventualities/situations and associates with an NP to indicate that this plurality arises because there is a plurality of individuals.

I will not address this question in any detail here, but the type of reasoning to use to decide this question – once the precise role of Number is understood - is straightforward.
Suppose for example that Numerals and other "counting" expressions are introduced within the NumberP projection (as specifiers of or adjuncts to NumberP). Consider the data in (73), (81) and (82) repeated below:

(154) Four prime numbers seem to be located between four and twelve
(◊ = it seems that there are four prime numbers located between four and twelve)

(155) Four prime numbers seem not to be between four and twelve
(≠ it seems that there aren't four prime numbers between four and twelve)

(156) Three prime numbers were proved to be between four and twelve
(≠ it was proved that there are three prime numbers between four and twelve)

What these show is that reconstruction of a numeral is possible with bare *seem* (a fully restructuring verb) but not when the infinitive clause is negated or when the main verbs is *prove*, both situations in which only minimal restructuring is allowed. Under the assumption of the text, this means that in minimal restructuring contexts, only high split derivations are allowed with Number. [60]

7.4.3.2 The Clausal Skeleton

Given our proposal regarding underlying structures and the way in which derived structures are formed, the smallest subconstituent of a DP is constructed by raising the NP to become the sister of some head. This newly formed constituent is in turn raised to form the next biggest

[60] Another relevant set of data I will not discuss here is that analyzed in Sauerland and Elbourne (2002) and Sauerland (2004). In our terms, their data: *a. A Northern team is likely to be in the final. (a >> likely, likely >> a), b. A Northern team are likely to be in the final. (a >> likely, *likely >> a) c. *There were a Northern team holding a meeting in here* suggest that their Mereology Property (or Sauerland's (2004) "high" Number must always enter into high splits.

subconstituent and so on. The effect of this derivation is that the DP internal hierarchy of heads duplicates the hierarchy that these heads obey in sentence structure. This gives us a probe as to what underlying sentence structure looks like. Given a DP internal hierarchy D > Number > N, we expect the hierarchy of clausal functional projection given in (152). It also makes the prediction (that we will not discuss here) that the lowest position a particular DP can occupy in a clause is the position at which the highest head composing it is generated.

Ultimately, what will determine where in the hierarchy of clausal functional projections a particular D is first merged will be determined buy the lowest scope it exhibits relative to other scope inducing elements in this hierarchy. A full scale investigation of this matter is beyond the scope of this paper but we can be a bit more precise than this in particular cases, which will serve as illustration of this kind of reasoning.
Consider the following English or French sentence:

(157) Tous les visiteurs n'ont pas souvent vus ceci
All the visitors have not often seen this

First note that such a sentence can be interpreted with the following scope relations: Neg>Often>All. This fact suggest that *all* is generated lower than the frequency adverb, a conclusion corroborated by the fact that *all* can float in such a position as seen below:

(158) Les visiteurs n'ont pas souvent tous bien regardé ceci
The visitors have not often all well looked at this

Given our previous discussion, a DP such as *all the visitors* must contain four different heads which for the time being I will call: D, Art(icle), Number and N, hierarchically arranged in this order and all lower than frequency adverbs, but higher than v, in the specifier of which NP is found. This suggest the following hierarchy of position: Neg > Often > all > the > Number > NP>v. In addition, the strict order *all>well* suggests that *all* at least is found higher than manner adverbials.
Note that there is no a priori reason why elements in complementary distribution should be merged at the same height. For example, the universal quantifier *all* may (*all the visitors*) but

does not have to (*all visitors*) cooccur with the definite article. In the first case, it seems to be playing the same role as other universals (*every, each*) which do not cooccur with the definite article.

We a priori neither can conclude that all universal quantifiers (of category say D) are merged at the same height in the clause nor can we conclude that *every* and *each* are merged higher than the Art, the category of the definite article, the way *all* seems to.

8 Speculations, Prospects and Conclusions

8.1 Wh-movement

We concluded that the lowest trace of movement must always be interpreted and that traces are copies. It is surprising from this point of view that trace of wh-words are never interpreted as contributing question force in their underlying position. Thus, a system which takes traces to be copies must account for the fact that in a sentence such as the following in (a), and structure in (b), the wh-element is only interpreted once as in (c):

(159) a. I wonder which book you read
b. I wonder which book you read which book
c. I wonder which book you read ~~which~~ book

Given the proposal that DPs are constructed by successive Merging of its different parts at different heights as discussed, one available analytical option to handle such cases is to suppose that the wh-element is not interpreted in the low position because it is only introduced high in the structure. Thus, the underlying structure associated with (160a) would rather look like (161b) and its derived structure (162c):

(160) a. I wonder which book you read
b. I wonder which you read book
c. I wonder which book you read ~~book~~

In which *book* raises to independently merged *which* to form the DP *which book*.
The syntactic mechanisms needed are already in place under the proposal of the text and the advantage is that no special assumption is needed to handle the lack of reconstruction of the wh-element. Furthermore, it would be simplest to assume that wh-element are generated directly in the specifier of CP.
However, both multiple questions with wh-in situ and complex wh-constructions raise a problem for such an approach:

(163) a. I wonder which student read which book
b. I wonder during which meeting you think [he slept __]

The second construction suggests that we need to reconstruct into an embedded clause a constituent containing a wh-element. The first shows that the presence of two wh-elements do not trigger an interpretation with two question operators. What this suggests is that the wh-elements do not have question force by themselves. We can then adopt a modified version of the proposal above (which has been suggested for certain languages) as follows. In English (and more generally in languages allowing multiple questions with wh-in-situ), the wh element does not have question force per se.[61] Rather it is an indefinite D entertaining with a question operator in the CP system an agreement or polarity dependency. A phrase such as *which book* is indeed a derived constituent but the element *which* is not merged in the C system but much lower.
A number of observations supports such a view in a variety of languages. For example, we might expect that wh-word be used for other purposes than as questions words (as is clearly the case in English, French, Dutch, Chinese etc…). Second, the fact that wh-words are not generated in the CP system is consistent with the facts of French which suggest that:
(i) wh-elements such as *which/what* appear inside DPs lower than certain determiners such as the definite article *le/la/les* as in e.g. *lequel, laquelle, lesquelles, auquel* (lit. *the-which, to-the which*), the latter form including suppletion of à *(to) + le (the-masc) = au* corroborating the (derived) syntactic hierarchy: P > Article > wh

[61] The prediction is made that if a wh-word truly carries question force, multiple wh constructions should be excluded: Italian, as described in Rizzi 1980, may be one such example.

(ii) wh-elements are adjectival in nature as they both agree in number and gender with head nouns (as do articles) like adjectives and enter into constructions limited to adjectives such as: *quel est ton nom / which is your name* (cf.. Ruwet, 1982).

Wh-movement would involve at least two steps as indicated below:

(160) a. I wonder Op you read which ….book
b. I wonder Op you read [which book] ….~~book~~
c. I wonder [Op [which book]] you read ~~[which book]~~ ….~~book~~

a first step would move an NP (or NumberP) to a target category *which*[62] thus forming the phrase [which NP]; a second step would move this phrase to a target category *Op* in the CP system, host of the question property, yielding what is normally called wh-movement. In the case of a multiple question, only one such wh-phrase would raise to Op.

8.2 Movement types and triggers

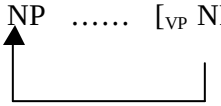
In the minimalist program, movement is driven by the need to cancel out uninterpretable features. This is primarily motivated by A-movement constructions (it may appear somewhat less well motivated for A-bar movement – except perhaps the successive cyclic steps). Thus in the following case of raising from VP internal subject position to the position subject of a clause:

(164) DP [[$_T$ will] [$_{VP}$ t call]]

Some uninterpretable feature (EPP) is assumed to be eliminated by overt movement. The underlying structure we are proposing suggests a different motivation for this type of movement. Indeed, movement according to the proposal of the text is typically driven to create a phrase within which selection is locally satisfied as in:

[62] The underlying position of such phrases can probably be detemined by capitalizing on the fact that wh-in situ (in e.g. Dutch) behave like scrambled XPs.

(165) D NP …… [$_{VP}$ NP [$_{V}$ call]]]



The movement is still driven by a formal, syntactic requirement, but by a fully general one that we may call the Principle of Locality of Selection (selectional relations must be syntactically local at LF) that provides the right format for interpretation. Here, the meaning of a D makes it need a nominal restriction to be properly composed into a meaningful whole. The function of the movement is to provide this restriction in a local syntactic configuration.

Under such a view, the fundamental property driving the operation Merge always is the need to saturate argument positions of functions under sisterhood, whether this is done under first Merge, or under Remerge (=Move). The existence of Remerge (=Move) is a consequence of the fact that a given element (e.g. an NP) can be the argument of two distinct functions (V and D) and cannot, due to the nature of phrase structure satisfy both properties under sisterhood in a single tree (it cannot simultaneously be a sister to V and D). This suggests that the different behavior of A and A-bar movement is determined by the properties of the attracting category.

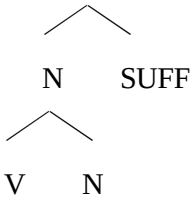
8.3 The Principle of Locality of Selection: Possible Consequences

8.3.1 Allowed analyses

If the formulation of this Principle of Locality of Selection we have advocated – Locality as Strict sisterhood – is correct, there are numerous consequences for the type of syntactic analyses that are allowable, in particular regarding configuration without movement. This is especially true if it is assumed that this principle applies to morphosyntactic constructs, as it seems to.

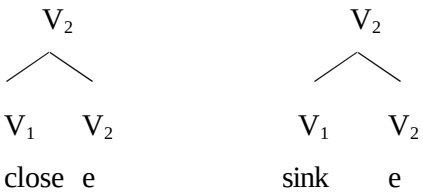
The reason it seems to is that in the "theory neutral" cases, we never a case of say, a suffix, which can merge with a Noun only if this noun is itself derived from a verb. Such a hypothetical suffix SUFF would only be licensed in such structures as below:

(166)



An explanation for such an observation is found if there is no distinction between syntax and morphosyntax, i.e. if syntax is fundamentally decompositional in the sense that the atoms of morphosyntactic combinatorics are identical to the atoms of syntactic combinatorics.
A consequence of such approaches is to rule out many possible analyses. It is plausible to analyze causative *close* and *sink* to be related to non causative *close* and *sink* by affixation of a silent causative verbal head (because e.g. of Myer's generalization – see for example Pesetsky, 1995, for discussion) heading the compound (under William's normal 1981 Right Hand head Rule):

(167)



Consider for example phrases such paradigms as:

(168) a. They closed the door half way
b. The door closed half way

(169) a. ?? They sank the boat half way.
b. ?? The boat sank half way

The adverbial *halfway* in the a sentences in the b sentences is selected by the non causative V_1. As a consequence, it should be a sister of a projection of V_1 (and thus not a sister of a projection of V2). This requires that the adverb be adjoined to V_1 and thus requires decompositional analyses of verbs (that is phrasal organization inside what looks like a word) essentially yielding VP-shells type analyses.

This line of reasoning on the internal structure of Verb Phrases is developed in ongoing work of mine showing that (i) analyses of the correlation between the distribution and meaning of adverbials such as *again* originally defended in Morgan (1969) and McCawley (1973), later in von Stechow (1996) and Beck and Johnson (2004) (ii) the internal structure of low end of Cinque's adverbial hierarchy both can in fact be derived from the Principle of Locality of Selection.

8.3.2 The nature of quantification

Looking at the kind of underlying structures we postulate, it is rather evident that there is a much closer parallelism between the way in which quantificational adverbs and Determiners function. Thus, comparing the underlying structures of *all cats sleeps* and *cats always sleep:*

(170) a. .. [all … [cat sleep] ..
b. .. [always …[cat sleep] ..

The similarity is quite apparent. This raises the possibility that the distinction between Adverbial quantification (A-quantification) and Determiner quantification is not one of type but rather one of choice of ranging domains or restrictions (eventualities or situations for Adverbs, individuals for Determiners). Given the existence of French pairs such as:

(171) a. Pierre a lu beaucoup/peu/trop de livres
Peter has read many/few/too many books
b. Pierre a beaucoup/peu/trop de livres
Peter has many/few/too many read books
'Peter has done much/ little/too much book reading'

We can even speculate that *all* and *always* (and other similar pairs) truly are allomorphs of each other, specific phonological realizations of the same underlying quantifier surfacing differently depending on what kind of restriction it attracts.

8.4 The Principle of Locality of Selection: General Conclusions

The central theoretical hypothesis we propose is the principle of Locality of Selection, in which Locality is understood to mean strict sisterhood. Based on empirical observations about what kind of selectional restrictions there are, this principle leads to:

Regarding the form of syntactic structures, a view according to which functional structure of both a predicate and argument(s) of this predicate are external to the maximal projection of this predicate in syntactic structure. Thus all DPs are multiply and always underlyingly split in this sense. This has been documented here for NP/DP and Vs but it would extend to NP/DP and Ps, as well as NP/DPs and A.

Regarding the general architecture and properties of the theory of syntax

- A theory of reconstruction which makes Reconstructability a defining property of Movement relations.
- A redrawing of the boundaries between Move and Merge and thus to what can count as underlying structures and derived structures.
- A modification of what motivates Merge, and consequently a modification of what counts as allowable Merge and Remerge.
- Boundary conditions on possible syntactic analyses, which, coupled with a view of the relation between morphosyntax and syntax excludes many classical analyses and current analyses.

REFERENCES

Barss, A. (1986) *Chains and Anaphoric Dependencies*, PhD Dissertation, MIT

Beck, Sigrid and Kyle Johnson. 2004. Double objects again. Linguistic Inquiry 35.97-124.

Beghelli, Filippo and T. Stowell. 1997. The syntax of distributivity and negation. In: A. Szabolcsi (ed.) *Ways of Scope Taking*. Dordrecht: Kluwer. 71–108.

Belletti, A. and L. Rizzi (1988) "Psych Verbs and Theta Theory", Natural Language and Linguistic Theory 6, 291 -352.

Bobalijk, J. (2003) Floating Quantifiers: Handle with care.(revision of 1998 Glot article and bibliography) In Lisa Cheng and Rint Sybesma, eds. *The Second Glot International State-of-the-Article Book*. Mouton de Gruyter, pp. 107-148.

Boeckx, C. (2001) Scope reconstruction and A-movement," NLLT19: 503-548

Burzio, L. (1986) *Italian Syntax*, Reidel, Dordrecht.

Cardinaletti, Anna and Ur Shlonsky (2000) "Restructuring in Italian, clitic positions and clausal strata", University of Bologna and Venice and University of Geneva

Chomsky, N. (1965) *Aspects of the Theory of Syntax*, Mouton, The Hague.

Chomsky, N. (1995) *The Minimalist Program*, MIT Press Cambridge, Mass.

Cinque, G. (1999) *Adverbs and Functional Heads*, Oxford University Press.

Cinque, G. (2004) "Restructuring" and Functional Structure", in L. Rizzi (ed.), *The structure of CP and IP*. Oxford University Press, New York.

Corbett, G. (2000) *Number*, Cambridge University Press, Cambridge.

Déchaine, R.-M., and M. Wiltschko. 2002. 'Decomposing Pronouns'. Linguistic Inquiry 33.3, 409-442.

Elbourne P. 2001d. On the semantics of pronouns and definite articles. In WCCFL 20: Proceedings of the 20th West Coast Conference on Formal Linguistics, ed. Leora Bar-el and Karine Megerdoomian, 164–177. Somerville, MA: Cascadilla Press.

Fox, D. (2000) *Economy and Semantic Interpretation*, MIT Press, Cambridge, Mass.

Fox, Danny. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33:63-96.

Fox, Danny 2003. On Logical Form, in Minimalist Syntax, Randall Hendrick ed., Blackwell.

Grimshaw, J. 1991: Extended Projection. Manuscript, Brandeis University.

Haegeman, L. (2005) The dual status of *sembrare* and the functional structure of the clause, ms. Université de Lille.

Hornstein, N. (1999) "Movement and Control," *Linguistic Inquiry*, 30, 69-96.

Hornstein, N. (1999a) “Minimalism and Quantifier Raising”, in *Working Minimalism*, (N. Hornstein and S. Epstein eds., MIT Press, Cambridge.

Johnson, Kyle and Satoshi Tomioka. 1998. Lowering and mid-sized clauses. In Graham Katz, Shin-Sook Kim, and Heike Winhart (eds.), *Reconstruction: Proceedings of the 1997 Tübingen workshop*, 185-205. Arbeitspapiere des Sonderforschungsbereichs 340, Bericht Nr. 127.

Kayne, R. (1994) *The Antisymmetry of Syntax*, MIT Press.

Koopman, H. (1997) "The Internal and External Distribution of Pronominal DPs", in Studies in Comparative Syntax, Kyle Johnson and Ian Roberts, eds., Kluwer, Dordrecht, The Netherlands

Koopman, H. (2005) Korean (and Japanese) morphology from a syntactic perspective, manuscript, UCLA. to appear in Linguistic Inquiry 36.4

Koopman, H and A. Szabolcsi (2000) *Verbal complexes* . Current series in Linguistic Theory. MIT Press

Koopman, H. and D. Sportiche (1991) "The Position of Subjects" *Lingua* 85.2/3.

Koizumi, M. (1993) “Object agreement phrases and the split VP hypothesis”, In Papers on Case and Agreement I: MIT working papers in linguistics 18, 99-148.

Kracht, Marcus (2003) Constraints on Derivations. *Grammars* 6

Ladusaw, William (1977) “The scope of some sentence adverbs and surface structure,” *NELS* 8, Proceedings of the Eighth Annual Meeting of the Northeastern Linguistics Society, GLSA, Dept. of Linguistics, University of Massachusetts, Amherst.

Ladusaw, William (1988) “Adverbs, negation and QR,” in *Linguistics in the Morning Calm 2, Selected Papers from SICOL-1986*, The Linguistic Society of Korea: Seoul, 481–488.

Larson, R.K. (2000) ACD in AP?. Paper presented at the 19th West Coast Conference of Formal Linguistics (WCCFL 19), Los Angeles, CA

Lasnik, H. 1998. Some reconstruction riddles. University of Pennsylvania Working Papers in Linguistics, Vol 5.1, pp. 83-98.

Lebeaux, D. (1991), “Relative Clauses, Licensing and the Nature of Derivations”, in Phrase Structure,Heads and Licensing, S. rothstein and M. Speas eds., Syntax and Semantics 25, Academic Press.

Lebeaux, D. (1998), “Where does the Binding Theory Apply?”, Technical Report, NEC Research Institute, NEC.

Longobardi, Giuseppe 2001. " The Structure of DPs: Some Principles, Parameters and Problems" In *The Handbook of Contemporary Syntactic Theory*. Edited by M. Baltin, and C. Collins. Malden: Blackwell.

Marantz, Alec. 1997. 'No escape from syntax: Don't try morphological analysis in the privacy of your own Lexicon.' Proceedings of the 21st Annual Penn Linguistics Colloquium: Penn Working Papers in Linguistics 4: 2, ed. Alexis Dimitriadis et.al. 201-225.

May, R. (1977) *The Grammar of Quantification*, Doctoral Dissertation, MIT.

May, R. (1985) *Logical Form*, MIT Press, Cambridge.

McCawley, J. (1973) “Syntactic and Logical Arguments for Syntactic Structures”, in Osamu Farjimura, ed., *Three Dimensions in Linguistic Theory*, TEC Corp, Tokyo.

McCloskey, James (1997). Subjecthood and subject positions. In Liliane Haegeman (ed.) *Elements of grammar: Handbook of generative syntax,* 197-235. Dordrecht: Kluwer Academic Publishers.

Morgan, J. (1969) “On Arguing about Semantics”, *Papers in Linguistics* 1, 49-70.

Moritz, L. & D. Valois (1994), “Pied-Piping and Specifier-Head Agreement”, *Linguistic Inquiry* 25: 667-707

Moro, A. (1997) *The Raising of Predicates*. Cambridge University Press.

Nunberg, G., Ivan Sag and Thomas Wasow (1994) Ïdioms”, Language, 70:3, Sept. 1994

Pesetsky, David. 1995. Zero syntax . Cambridge, Mass.: MIT Press.

Pollock, J -Y . (1978) "Trace Theory and French Syntax", in S.J. Keyser, ed., *Recent Transformational Studies in European Languages,* MIT Press, Cambridge, Mass.

Rebuschi, Georges 1994. ‘Skolémisation et (non-)spécificité’ ; *Faits de langues* 4, *L’indéfini*, 121-128

Reinhart, T. (1997). Quantifier scope: how labor is divided between QR and choice functions. Linguistics and Philosophy, 20:335-397

Rieheman, S. (2001) A constructional approach to Idioms and Word Formation, Doctoral Dissertation, Stanford Univiersity.

Rizzi, L. (1978) "A Restructuring Rule in Italian Syntax", in *Recent Transformational Studies in European Languages*, S.J. Keyser, ed., MIT Press, Cambridge, reprinted in Rizzi (1982).

Rizzi, Luigi. 1980. Violations of the WH-island constraint in Italian and the subjacency condition. Journal of Italian Linguistics 1/2:157-195, reprinted in Rizzi (1982).

Rizzi, L. (1982) *Issues in Italian Syntax*, Foris Publications, Dordrecht.

Rizzi, L. (1997) "The Fine Structure of the Left Periphery", in L. Haegeman (ed.) Elements of Grammar, Kluwer Publications, Dordrecht, 1997

Rizzi, L. (1990) *Relativized Minimality*, MIT Press, Cambridge, Mass.

Romero, Maribel. 1998. 'The Correlation between Scope Reconstruction and Connectivity',in *Proceedings of WCCFL 16*, CSLI, Stanford, CA, pp. 351–166.

Ruwet, N. (1982) "les Phrases Copulatives" in *Grammaire des insultes et autres études*, Editions du Seuil, Paris

Ruwet, Nicolas. 1991. On the use and abuse of idioms. In *Syntax and Human Experience*, University of Chicago Press, Chicago: 171–251.

Sauerland, Uli and Paul Elbourne (2002) —Total reconstruction, PF-movement, and derivational order," *Linguistic Inquiry* 33, 283-319.

Sauerland, Uli (2004) "A team," definitely. *Snippets* 9

Schlonsky, U. (1991) Quantifier phrases and Quantifier Float. Dans Sherer, Tim (éd.), Proceedings of the North Eastern Linguistics Society, 20. GLSA, University of Massachusetts, Amherst. pp. 337-350.

Sportiche, D. (1988) "A Theory of Floating Quantifiers and its Corollaries for Constituent Structure", *Linguistic Inquiry* 19.3.

Sportiche, D. (1990) "Movement, Agreement and Case", manuscript, UCLA, published in Sportiche (1998).

Sportiche, D. (1995) "Sketch of a Reductionist Approach to Syntactic Variations and Dependencies", in H. Campos and P. Kempchinsky eds., *Evolution and Revolution in Romance Syntax*, Georgetown University Press. reprinted in Sportiche (1998).

Sportiche, D. (1997) "Reconstruction & Constituent Structure", talk delivered as an MIT Linguistics department Colloquium, MIT.

Sportiche, D. (1998) Partitions and Atoms of Clause Structure, Routledge, London

Sportiche, D. (1999) "Reconstruction, Constituency and Morphology", talk delivered at the 1999 GLOW conference, Berlin.

Sportiche, D. (2003) “Reconstruction, Binding and Scope”, to appear in Syncom: The Syntax Companion, Martin Everaert and Henk van Riemsdijk, eds., Blackwell Publishers, 98 pages

Starke, M. (2001) *Move reduces to Merge: a Theory of Locality*, Doctoral Dissertation, Université de Genève.

Travis, L. (1992) “Inner Aspect, and the Structure of VP”, *Cahiers de Linguistique de l’UQAM*, 1(1).

Vergnaud, J.R. (1974) *French Relative Clauses*, Doctoral Dissertation, Massachusetts Institute of Technology.

Von Fintel, Kai and Sabine Iatridou, (2003) Epistemic Containment, *Linguistic Inquiry*, 34:2, 173—198.

Von Stechow, Arnim. 1996. The different readings of *wieder* ‘again’: a structural account. Journal of Semantics 13.87-138

Williams, Edwin. 1981. On the notions ‘lexically related’ and ‘head of a word’. *Linguistic Inquiry*, 12:245–274.

Williams, Edwin. 1983. Against small clauses. *Linguistic Inquiry* 14.2:287-308

Wurmbrand, S. (2001/2003) Infinitives:Restructuring and Clause Structure Studies in Generative Grammar 55, Mouton de Gruyter.

Zubizarreta, M -L. (1982) *On the Relationship of the Lexicon to Syntax*, Doctoral Dissertation, MIT.