EXTRAPOSITION AS STRANDING
(or, why Kayne's intuition was right but his analysis wasn't)[*]

Luis Vicente, 31st January 2003

1. Introduction.

As is well known, one of the consequences of Kayne's (1994) Antisymmetry system is that rightward movement and adjunction are illegal operations. One of the domains most severely affected is extraposition, which had traditionally been argued to involve precisely what Kayne's theory disallows: rightward movement of the extraposed constituent and right hand-side adjunction to a higher projection. The alternative Kayne proposed was to re-analyse extraposition as stranding, that is, as extraction of a sub-constituent, leaving the "extraposed" phrase in the base position.

This new view of extraposition raised a lot of criticism from the very beginning. Indeed, I believe that these reactions are well justified and that Kayne's analysis, as such, is untenable. However, I also believe that the intuition behind it –namely, that extraposition is parasitic on movement of the phrase the extraposed constituent depends on- is right. In this paper, I propose an analysis of extraposition that maintains Kayne's intuition while avoiding its pitfalls. Nonetheless, this proposal is not compatible with Antisymmetry, since I will argue for base-generated right-adjunction in the case of relative clauses.

2. The depth of extraposition and some failures to account for it.

2.1. The traditional analysis.

The kind of sentences I will be concerned with are the ones in (1). In (1a), we have PP extraposition; in (1b), relative clause extraposition.

1) a. I read [a book] yesterday [$_{PP}$ about history]
   b. I saw [a girl] yesterday [$_{RC}$ that I didn't know]

For many years (see Büring & Hartmann 1997 for a recent attempt to defend it), the most usual analysis of these sentences involved an operation that targeted the constituent to be extraposed, and, via movement, adjoined it to the right of a higher projection, as in (2).

[*] I would like to thank Mark de Vos for his constant help with the English data, and Jeroen van Craenenbroeck, who made me aware of the Dutch data presented in section 5.4.

2) a. [$_{IP}$ [$_{IP}$ I read [a book t_i] yesterday] [$_{PP}$ about history]$_i$]
b. [$_{IP}$ [$_{IP}$ I saw [a girl t_i] yesterday] [$_{RC}$ that I didn't know]$_i$]

This analysis meets a theoretical problem from the perspective of minimalist syntax: extraposition is taken to be an optional operation. Chomsky (1995:146) argues that "choice points will be allowable only if the resulting derivations are all minimal in cost". This doesn't seem to be the case here, since we are comparing a derivation in which nothing happens to one in which an extra movement operation has taken place[1].

Leaving this problem aside, there is an empirical one that provides a very strong argument against the hypothesis depicted in (2). Notice that it posits a very high attachment site for the extraposed constituent, higher indeed than the surface position of its head. If the head happens to be the highest element in the clause, as in (3), we predict that the extraposed phrase would be so high that no other element of the clause could c-command into it. In other words, the prediction is that an R-expression contained inside an extraposed phrase should not give rise to Condition C effects. But, as shown below, the prediction is wrong:

3) a. *[Which picture] did he$_i$ see [$_{PP}$ of John$_i$]?
b. [Which picture] did John$_i$ see [$_{PP}$ of himself$_i$]?
c. *[Which picture] did he$_i$ see [$_{RC}$ that John$_i$ had taken]?
d. [Which picture] did John$_i$ see [$_{RC}$ that he$_i$ had taken]?

In the case of PPs (3a), one could argue that the extraposed PP reconstructs down to its wh- phrase, and then even further down to its base position, so that it falls into the c-command domain of *he*. Nonetheless, even if this solution could be made to work, it could not be applied to relative clauses. Following the work of Lebeaux (1988, 1992) and others (see, for instance, Fox 2001; Nissenbaum 2000; Stepanov 2001a, b), I will assume that relative clauses are attached to their heads post-cyclically, that is, after the head has undergone movement. Given the traditional analysis of extraposition and the late-insertion hypothesis, the relative clause in (3c) would have been merged with the copy in SpecCP of *which picture*, and then undergone rightward movement (presumably attaching to a right adjunction slot in SpecCP). If we think of reconstruction as LF activation of a lower copy (see Bobaljik 2001), then it becomes impossible to get the relative clause into the c-command domain of *he*. Simply, there never was a copy of the relative clause in the relevant position.

Furthermore, if the attachment site of extraposed phrases was really as high as predicted in (2), then all kind of adverbs should be able to intervene between the head and the extraposed phrase. The truth is, though, that only low adverbs (i.e., attached to VP or some other similar low projection) are allowed to appear in between. The contrasts in (4) come for free under the stranding hypothesis, since the extraposed phrase occupies a position low enough[2].

[1] Though see Fukui (1993), who argues that rightward movement in English should be costless because it respects the setting for English of the Head Parameter.
[2] In the case of extraposition from objects in English, the stranding hypothesis requires a) overt object shift, and b) overt verb raising to some higher head so as to mask object shift. For the time being, I will simply assume this is so. I will return to this issue in a later section.

4) a. I saw [a girl] in the park [that was wearing a blue dress]
b. I saw [a girl] yesterday [that was wearing a blue dress]
c. *I saw [a girl] actually [that was wearing a blue dress]

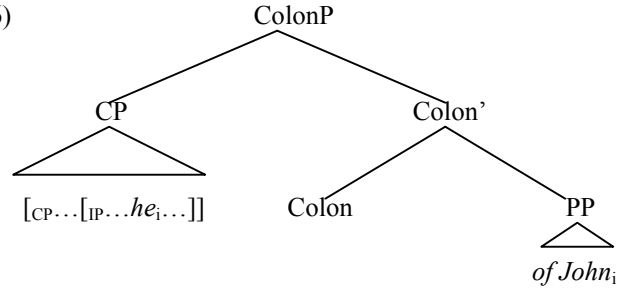
2.2. Koster's Parallel Structures.

Koster (2000) identified more problems in the classical approach to extraposition. For instance, the source of extraposition can be deeply embedded (5a), even in contexts where regular leftward movement is banned in Dutch (5b):

5) a. Hij heeft [met de moeder [van de vrouw *t*]] gesproken [die alles wist]
he has with the mother of the woman talked who all knows
b. *[Welke vrouw] heeft hij [met de moeder [van *t*]] gesproken?
which woman has he with the mother of talked

Koster's proposal is to assume that relative clauses and PPs do not directly complement their head NPs. Rather, they are instances of a wider grammatical notion, parallel structures, which also includes coordination. In his analysis, PPs and relative clauses are connected to their heads by means of a special coordinator, dubbed *Colon* by Koster. *Colon* takes the PP or the relative clause as its complement. Interestingly, the options for the specifier slot are broader than just the head NP. The specifier can consist of a larger phrase containing the head NP, as long as the features of that NP can percolate up to the label of the "larger constituent"[3]. Koster takes CP to be the limit to the percolation.

6)



Although his system gets the facts in (5) right, Koster cannot account for the pattern in (3-4) either. The reason is that, because of the way his system builds up sentences like (3), *he* is deeply embedded into the specifier of ColonP –as shown in (6)- and cannot c-command into the complement containing *John*. As for (4), if the licenser of the extraposed phrase was contained in a constituent large enough, this hypothesis could also generate the ungrammatical (4c). Moreover, Koster takes all parallel structures to be subject to the Coordinate Structure Constraint. As a consequence, even though we can derive the island status of relative clauses, we also wrongly predict that extraction out of PPs should be impossible. However, as shown in (7), this is a perfectly acceptable option in English:

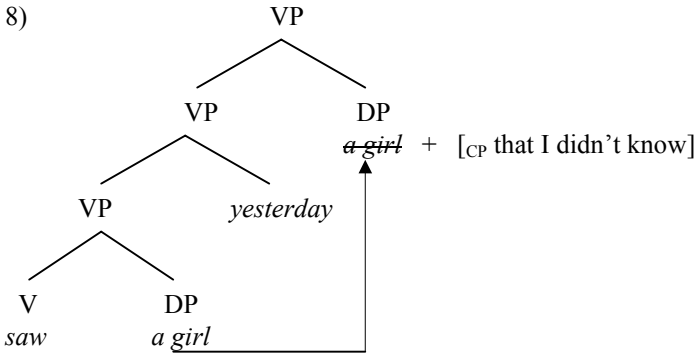
[3] As Sag (2000) points out, if the coordinator is the head, the whole construction should be a Colon Phrase. However, distributional evidence suggests that it is a D/NP. This is a potential problem for Koster's analysis.

7) Who$_i$ did you see [$_{\text{COLON P}}$ [$_{\text{DP}}$ a picture] [$_{\text{COLON}}$ ' *Colon* [of t_i]]]?

2.3. QR, deletion, and late adjunction.

Nissenbaum (2000) and Fox (2001) develop an analysis of relative clause extraposition in some ways similar to the one I propose here. In line with my proposal –and with Kayne's-, they assume that extraposition is parasitic on movement of the source NP. However, they differ from Kayne and me in the exact implementation of the idea. They argue that the head noun –without the relative clause, which is adjoined post-cyclically in the spirit of Lebeaux (1988)- is QR-raised from its VP internal position and right-adjoined to VP. This copy is invariably deleted at PF. At this point, the relative clause can be attached to either copy of the head noun[4]: if attached to the lower one, no extraposition obtains; if attached to QR-raised, unpronounced one, we get an extraposed relative. The tree below shows part of the derivation for (1b).

8)



As can be seen, this hypothesis posits a low attachment site for the relative clause that can explain the paradigm in (3), but not as low as in Kayne's theory. In support of it, Fox (2001:75) claims that Condition C effects do not always appear in sentences similar to those in (3). Thus, he gives the following example as grammatical

9) I gave him$_i$ [an argument] yesterday [that supported John's$_i$ theory].

In principle, this sentence is a counterexample to a pure stranding analysis of extraposition, since such an approach would predict that *John* would be in the c-command domain of *him*. However, it falls out from Fox's and Nissenmbaum's hypotheses, because the relative is attached to a copy of *an argument* which, allegedly, is structurally higher than *him*. However, all my informants tell me that (9) is highly ungrammatical. This reverses the situation. If (9) is wrong, a pure stranding analysis would capture the fact without trouble. On the other hand, in the Fox/Nissenbaum approach there is no obvious way to achieve the right c-command configuration.

Furthermore, they claim that this hypothesis also allows us to account for the following generalization: the scope of the source NP is at least as high as the

[4] Though this approach is controversial. Van Gelderen (in progress) argues that no overt operation can follow a covert one (f.i., QR).

attachment site of the extraposed constituent. This is exemplified in (10) –taken from Nissenbaum (2000:154)- where "free choice" *any* must be in the scope of *look for*:

10) a. I was looking very intensely for anything that would help me with my thesis.
b. *I was looking for anything very intensely that would help me with my thesis.

The explanation for this contrast is that, in (10b), *anything* has been QR-raised to a position higher than *look for*, thus making it impossible to get the "free choice reading". However, it seems to me as that this hypothesis predicts that (10a) should be wrong as well, because in this sentence *anything* has undergone QR to the same position as in (10b). The only difference is which of the two copies the relative clause is attached to[5]. Since QR takes place in both sentences, it should cause the same effects in both of them. If QR takes place in (10a) but is ignored for interpretation, it would constitute an instance of vacuous movement, which should be ruled out by Full Interpretation[6]. The conclusion, then, is that this approach does not work, although some of its insights will be used in upcoming sections.

2.4. Interim conclusion.

In spite of their deficiencies, we can extract an important conclusion from the three analyses presented above: the extraposed constituent occupies a very low position, most probably the lowest one available –i.e., the base position of its head NP. This is the intuition defended in Kayne (1994), and the one I will propose a refined analysis for in the remainder of this paper.

3. Kayne's analysis and its problems.

3.1. Kayne (1994).

Kayne's (1994) Antisymmetry theory explicitly bans any kind of rightward movement/adjunction. As a consequence, he is forced to propose that extraposition does not involve rightward movement of the extraposed constituent, but leftward movement of the head. This is illustrated below.

11) a. I saw [a girl]$_i$ yesterday [t_i [that I didn't know]]
b. I read [a book]$_i$ yesterday [t_i [about history]]

[5] Unfortunately, I cannot account for this contrast either.
[6] Alternatively, one could argue that QR is only triggered in extraposition sentences. This possibility is not appealing at all, though, because it would imply that QR is simply a means to provide an extra attachment site for the relative clause. It would be doing the same work as the rightward movement rule in Büring & Hartmann's system, which we already dismissed as untenable in a minimalist framework.

As is easy to see, in Kayne's proposal extraposition is completely dependent on movement of the head noun. This makes a very strong prediction: whenever we can safely argue that the head noun has moved, we can have extraposition. Interestingly, the prediction is borne out in a large number of contexts[7]: with ordinary subjects –(12a), under the VP internal subject hypothesis-, unaccusative subjects (12b), passive subjects (12c), ECM subjects (12d), objects (12e)[8], and wh- questions (12f), in which case the head and the extraposed relative can be separated by an unlimited number of clauses as log as the familiar constraint on successive cyclic wh- movement are met (12g). In all these cases, the attachment site of the extraposed constituent is low enough to account for the Condition C effects in (3) and (9):

12) a. [A teacher] gave the lecture [that was younger than us]
b. [A man] came [that we didn't know]
c. [A noise] was heard [that startled all of us]
d. I believe [a man] to have climbed the Mont Blanc [that wasn't trained for that]
e. I saw [a girl] yesterday [that I didn't know]
f. [Which girl] did you see [that you didn't know]?
g. [Which girl] does John believe that Peter thinks that you saw [that we didn't know]?

Moreover, extraposition can take place in an intermediate landing site (13), although this is a pretty marginal option and not all speakers accept it. Also, as exemplified in (14), the stranding analysis provides a straightforward explanation for the Right Roof Constraint: (14b) is wrong because the relative clause is placed in a slot where the head has never been –namely, inside the embedded clause. In contrast, extraposition can take place in mid sentence, since the head noun belongs in the matrix clause (14a):

13) ??[Which book] do you think, [that Mary wrote], that Bill bought?

14) a. [Which man] did you tell, *t* [that was wearing a blue shirt], that Mary had left?[9]
b. *[Which man] did you tell *t* that Mary had left [that was wearing a blue shirt]?

[7] For brevity's sake, I only give examples of relative clause extraposition (for which there seems to be no noticeable difference between using *that* or *who*/*which*). Notice, though, that, contrary to what is implied here, not all instances of PP extraposition are grammatical. Consider, f.i., *John read a book by Chomsky over the summer* vs. ??*John read a book over the summer by Chomsky*. I will not deal with these exceptions here, but their unacceptability is probably a result of the relative heaviness of the intervening constituent, as argued, for instance, in Zubizarreta (1998) or Hawkins (1990). This is evidenced by the much more acceptable examples *John read a book yesterday by Chomsky* or *John read a book over the summer by the oldest linguist at MIT*. See also Guéron 1980 for an attempt to rule them out through interpretive considerations.

[8] See footnote 2.

[9] This example, as well as (13) –for speakers who accept it- requires an intonational break both before an after the relative.

3.2. The big problem.

Attractive though it is, Kayne's stranding hypothesis comes across a thorny problem. In order to understand it, let us take a look at the structures he proposes for relative clauses and PPs:

15) a. [a [girl [that was wearing a blue dress]]]
b. [a [book [about history]]]

Recall that Kayne's analysis involves movement of *a girl* and *a book*. But, as is evident from (15), these two strings do not form a constituent. Therefore, they cannot be affected by any movement operation. This problem has been noted at several places in the literature (see, for instance, the pieces of work mentioned above, Büring & Hartmann 1997, Koster 2000 and de Vries 2002)[10]. Most of these authors consider that this problem undermines Kayne's analysis of extraposition and, on a larger scale, the whole of the Antisymmetry theory.

My belief is that, indeed, the non-constituency of the moved head is an embarrassment for Kayne's proposal. However, I also believe that a proper reformulation of the extraposition/stranding mechanisms can solve this problem while retaining Kayne's insight. The remainder of the paper is devoted to such a reformulation.

4. The difference between relative clauses and PPs.

4.1. Reconstruction asymmetries and relative clause extraposition.

The following asymmetry between relative clauses and PPs was first noticed and accounted for by Lebeaux (1988); English relative clauses do not show reconstruction effects under A-bar movement of their heads (16a), but PPs do (16b).

16) a. [Which picture [that $John_i$ took]] did he_i see?
b. *[Which picture [of $John_i$]] did he_i see?

Lebeaux (and many others afterwards) explained this contrast by assuming that the relative clause is adjoined to its head only once the derivation has been completed. Therefore, reconstruction only affects the head. Recast in terms of the copy theory of movement (see Bobaljik 2001), reconstruction means activation of a lower copy. Under Lebeaux's hypothesis, there is no instance of the relative clause attached to the lower copy of the head noun. As a consequence, no Condition C effects arise (17). On the other hand, PPs have to be attached to their heads at the beginning of the derivation. As

[10] Though Bianchi (1999:264-270) proposes an analysis of extraposition compatible with Kayne's original analysis.

a consequence, if the head reconstructs (i.e., if its lower copy is the one relevant for LF purposes), so does the PP, causing the Condition C effects (18):

17) a. [Which picture [that John$_i$ took]] did he$_i$ see [~~which picture~~] *(PF)*
b. [~~Which picture~~ [that John$_i$ took]] did he$_i$ see [which picture] *(LF)*

18) a. [Which picture [of John$_i$]] did he$_i$ see [~~which picture~~ [~~of John$_i$~~]] *(PF)*
b. [~~Which picture~~ [~~of John$_i$~~]] did he$_i$ see [which picture [of John$_i$]] *(LF)*

This paradigm gives us a straightforward explanation for relative clause extraposition. Notice that there is nothing that forces us to adjoin the relative clause in (17) to the upper copy of *which picture*. In fact, it would be possible to adjoin the relative to the lower copy of the head, as in (19), which shows the structure for (3c).

19) a. [Which picture] did he$_i$ see [~~which picture~~ [that John$_i$ had taken]]? *(PF)*
b. [~~Which picture~~] did he$_i$ see [which picture [that John$_i$ had taken]]? *(LF)*

Consider what the results of this choice would be. First, we would have derived an extraposed relative at no extra cost, since the only difference would be the attachment site of the relative. This approach derives the optional nature of extraposition. Second, the relative clause would be in a very low position, low enough, indeed, to account for the Condition C violation (3c)/(19) exhibits, since *John* is in the c-command domain of *he*. Nonetheless, although based on Kayne's (1994) approach, this analysis is no longer compatible with Antisymmetry. The reason is that the late-inserted relative must be necessarily right-adjoined to the head, and right-adjunction is banned in Kayne's theory. I do not regard this as a drawback for my hypothesis, though.

4.2. PP extraposition.

The analysis of relative clause extraposition presented above cannot be extended to cover PP extraposition. The reason is that, as shown in (16b), PPs show reconstruction effects under A-bar movement of their heads. In Bobaljik's (2001) terms, this suggests that PPs are attached to their heads before the latter enter the main structure. But the moment we decide that late adjunction is not available for PPs, another problem comes up. Apparently, it would be impossible to move leftwards the head *which picture* while stranding the complement PP, since *which picture* does not form a constituent –as shown in (15b)-, and therefore, cannot be affected by any movement operation.

20) [which [picture [of John]]] → *[which picture]…[*t* [of John]]

Though this seems to call for a rightward movement analysis, I would like to argue that these sentences can be best handled through a stranding analysis. To begin with, I believe that a rightward movement approach would not be adequate here: the Condition C effects in (3) show that the extraposed PP must occupy a very low position, which can only be attained by stranding it in the launching site of the head. Therefore, these constructions come down to the following question: how can we derive what looks like movement of a non-constituent?

I propose that what we have in sentences like these is movement of the whole structure *which picture of John* to SpecCP, followed by a selective deletion process that allows us to pronounce *which picture* in its uppermost position while pronouncing *of John* in the launching site. The PF representation of such sentences would be the following:

21) [Which picture [~~of John~~]]…[~~which picture~~ [of John]]

Let us consider how this result can be achieved. The process would start by creating a copy of *which picture of John* and moving it into SpecCP:

22) [Which picture [of John]]…[which picture [of John]]

From now on I will follow the assumptions of Nunes (1999, 2001). The first one is that in a chain like (22), one of its links must be left unpronounced in order to make the structure interpretable at PF. Nunes argues that the PF deletion operation is subject to economy conditions. Specifically, his argument is that in a structure like (22), the two links of the chain are now, in a strict sense, identical. The lower copy contains an uninterpretable [wh-] feature, whereas the upper one does not[11]. The feature of the upper copy has been checked off upon merger of the wh- phrase in SpecCP. Nunes builds on this asymmetry to argue that the lower copy must be the one left unpronounced. The argument runs as follows: if we decide to delete at PF the lower copy, we only need a PF deletion operation. But if we decide to delete the upper one, we need both a PF deletion operation and an extra operation to delete the [wh-] feature still present in the lower copy (lest it does not cause an LF violation). The consequence is that it is more economical to delete the lower copy, since it involves one single operation.

My claim is that the [wh-] does not extend to the whole copy, but rather only to *which picture*. The PP *of John* is not affected by it[12]. Therefore, the discussion above applies only to *which picture*. An intermediate step in the derivation would look like this:

23) [~~[wH]~~ Which picture [of John]]…[~~[wH]~~ ~~which picture~~ [of John]]

The next step is to delete one of the copies of *of John* to make the structure fully interpretable at PF. Interestingly, once the [wh-] feature has been dissociated from the PP, we find that there is no asymmetry between the two copies of *of John*. In other words, the economy condition that forced deletion of one of the copies of *which picture* over the other does not apply here. Therefore, we have a choice over which of the two copies of the PP will be left unpronounced: if we delete the upper one, we get an extraposed PP; otherwise, non-extraposition obtains:

[11] Obviously enough, the lower copy would also contain other kinds of uninterpretable features (Case, for instance) that can be dealt with in the same way. Because of this, I will only concentrate on the [wh-] feature.

[12] I will not attempt to explain why this is the case. It might have something to do with there being an inherent agreement relation between D and N that would make both elements share their feature, while the PP does not enter into this relation.

24) a. [~~[WH]~~ Which picture [~~of John~~]]…[~~[WH]~~ ~~which picture~~ [of John]]
b. [~~[WH]~~ Which picture [of John]]…[~~[WH]~~ ~~which picture~~ [~~of John~~]]

The advantages of this analysis are basically the same as for the analysis proposed above for relative clauses. First, we get an account of the Condition C effects with extraposed PPs, and with non-extraposed PPs under A-bar movement reconstruction. Second, we can again explain the optionality of extraposition, since there are no economy considerations underlying the choice between pronouncing the lower or the upper copy of a PP.

5. A few more issues regarding extraposition.

5.1. Object extraposition.

As acknowledged in footnote 2, the stranding analysis of extraposition requires two extra assumptions when applied to English objects: overt object shift and overt verb raising so as to mask object shift. In this sub-section, I will give an argument in favour of this position[13]. I build on Postal's (1974) observation that, in ECM sentences, a manner adverbial modifying the main verb must appear following the ECM subject (25). Mark de Vos (p.c.) tells me that the same seems to hold for time adverbials (26)[14]:

25) a. *I believe very strongly Tony to be honest (p. 134)
b. I believed Nixon incorrectly to be interested in ending the war (p. 146)

26) a. *I believed for a long time Tony to be honest.
b. I believed Nixon for a long time to be interested in ending the war.

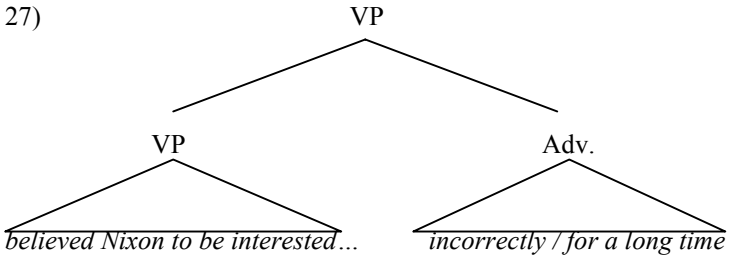
Postal argues that ECM subjects raise out the embedded clause to the object position of the main clause. In more modern terms (see, f.i., Ormazabal 1995), ECM subjects move up to the matrix clause Spec of AgrOP. Let us assume that this is the way in which *all* objects in English check objective case. The task now is to deduce the relative positions of the verb, the object, and the manner and time adverbials.

To begin with, notice that the adverbials in (25b) and (26b) must be necessarily left-adjoined to their projections, even if we acknowledge the existence of right-adjoined adverbials. The reason is that, the moment we give up Antisymmetry, we need an independent algorithm to map the hierarchical structure into a linear string. The procedure implicitly assumed for English, when confronted with a new node, linearises first all the material contained in the left daughter, followed by the material in the right daughter. Thus, imagine the structure we are dealing with were something along the

[13] See Johnson (1991) for a more complete argumentation in favour of this view.
[14] Though this does not imply that time and manner adverbials adjoin to the same position. The generalisation seems to be that the latter are lower than the former (which, according to Ernst (2002:446) *do in fact occur fairly easily anywhere from clause initial position down to PredP* –a projection immediately dominating VP). The point would be that both adverbials occur below the objective case checking position.

lines of (27). In this case we would wrongly predict that the adverbial would appear at the rightmost edge of the sentence. Since this is not possible, we are left with only one possibility: these adverbials are left-adjoined.

27)



Given the reasoning above, it follows that there must be more VP-related projections above the one the adverbial is adjoined to. In particular, I hypothesize that, apart from AgrOP, necessary for checking of objective case, there is a further, higher head to which the verb raises overtly. I will not try to characterise this head, but, on a first thought, *v* or Aspect would be likely candidates. The next leap is to extend this conclusion from ECM to ordinary sentences, which provides us with the necessary environment to argue that objects always undergo overt leftward movement. This, in turn, provides support for the stranding approach to extraposition.

5.2. Extraposition in intermediate positions.

In an earlier section, I argued that some speakers allow for extraposition in intermediate sites of movement, though this is a very marginal option and not everybody would accept such sentences. The example is repeated below:

28) ??[Which book] do you think, [that Mary wrote], that Bill bought?

Koster (2000) points out a similar contrast. Let us assume that in Dutch the OV order is derived by leftward movement of the object –originally base-generated on the right hand side of the verb, see Zwart (1993)-, and that extraposition from objects in Dutch is derived –in the same way as I suggested for English above- by leaving the extraposed phrase in the base position of the object. If this is the case, it is pretty striking that slot at the left of the verb cannot function as an extraposition site if the object is further moved (f.i., topicalisation, passivisation):

29) a. *[De vrouw]$_i$ heeft hij [t_i [die het boek geschreven heeft]] gezien
the woman has he who the book written has seen
"He has seen the woman that has written the book"
b. *[De vrouw]$_i$ werd [t_i [die het boek geschreven heeft]] gezien
the woman was who the book written has seen
"The woman was seen that wrote the book"

Bianchi (1999:267) provides an explanation for this contrast in terms of Zubizarreta's (1998) theory of prosody and word order. She argues that the obligatorily

clause final position of the extraposed relative is triggered by the need to obtain a prosodically well-formed structure. Supporting this hypothesis, Bianchi shows that in Italian extraposition in an intermediate site of movement is acceptable if the following constituent is sufficiently heavy. The English translation also seems acceptable:

30) ??[Che libro] hai trovato [*t* [che ti serviva per l'esame]] in quella famosa
which book have found that you needed for exam in that famous
libreria di Firenze?
bookshop in Florence
"Which book have you found that you needed for the exam in that famous bookshop in Florence?"

5.3. Lack of extraposition.

Surprisingly enough, Spanish does not seem to allow extraposition in any of the contexts discussed in this paper. The results are, at their very best, barely acceptable, in contrast with the full grammaticality of the English equivalents. This is specially striking if we take into account the fact that I have proposed two different extraposition mechanisms applying to diverse construction types. Below are some examples with relative clause (31) and PP extraposition (32).

31) a. ?*[Un profesor] dió la clase [que era más joven que nosotros]
a teacher gave the lecture that was more young than us
b. *?[Un coche] fue robado [que estaba aparcado en la esquina]
a car was stolen that was parked in the corner
c. *?[¿A qué chica] has visto [que llevaba un vestido azul]?
to what girl have seen that wore a dress blue
"What girl did you see that was wearing a blue dress?"

32) a. *[Un profesor] dió la clase [con un traje negro].
a teacher gave the lecture with a suit black
"A teacher gave the lecture in a black suit"
b. *[Un libro] fue robado [con tapas rojas]
a book was stolen with covers red
"A book was stolen with a red cover"
c. *[¿A qué chica] has visto [de ojos azules]?
to what girl have seen of blue eyes
"What girl have you seen with blue eyes?"

This contrast seems to be subject to cross-linguistic, but not language-internal variation. In other words, it looks as though there was a constraint in Spanish –but not in English, Dutch, or Italian- that prevents relative clauses and PPs from being separated from their heads. If such a constraint exists, the prediction would be that, whenever it is active in a given language, no extraposition at all would be allowed, and the other way around. In other words, we predict that there would be no language showing a mixed pattern in which, say, extraposition of relative clauses is allowed but extraposition of PPs is not.

5.4. Coordinate structure extraposition.

Dutch exhibits a peculiar construction in which the conjunction and the second conjunct of a coordinate structure can be extraposed away from the first conjunct:

33) a. Ik heb Jan en Marie gezien
I have Jan and Mary seen
b. Ik heb Jan gezien en Marie
I have Jan seen and Marie

I do not think that this kind of extraposition should be treated by any of the mechanisms proposed above. For one thing, in the case of relative clause and PP extraposition, the truth conditions of the extraposed and non-extraposed versions of the same sentence are identical. This is not the case in (33), though. (33a) is ambiguous between a reading in which one single seeing event involving Jan and Marie took place, and a reading with two separate seeing events, one involving Jan and the other involving Marie. In (33b), on the other hand, only the two-event reading is available. While I will not try to explain what causes this difference, it seems to me that it requires a different process from the ones discussed earlier in this paper.

6. Conclusion.

In this paper, I have showed that extraposition can be successfully analysed as leftward movement of the head, stranding the complement in the base position (something necessary, given the binding facts), while still capturing the optionality of the construction. This last result was attained by identifying true choice points in Chomsky's (1995) sense: all the resulting derivations are equally economical, in that there were certain requirements of PPs and relative clauses that could be satisfied at various points in the derivation, without preferences for any in particular. There are however, many aspects of extraposition I haven't touched upon –for instance, the restrictions on PP extraposition discussed in footnote 7. I will leave these for future papers.

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