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RELABELING HEADS. A UNIFIED ACCOUNT FOR RELATIVIZATION STRUCTURES

1. Introduction

In this paper we show how a specific approach to phrase structure theory can shed light into the syntax of different types of relativization structures (free relatives, externally headed relative clauses, pseudo relatives and reduced relatives of various types).

Although relative constructions have been systematically investigated for 40 years in the generative tradition, the debate on their correct analysis is still very much open. In particular, one aspect that remains controversial is the best way to capture the fact that the relative clause “head” seems to play a double role in the overall structure. For example, the “head” (*the*) *boy* in (1) and (2) is a constituent of the matrix clause, but at the same time it seems to satisfy the selectional requirements of the predicate internal to the relative clause. At least three main devices have been proposed in the generative tradition (see Bianchi 2002 for an historical survey). According to the raising approach (cf. Vergnaud 1974, Kayne 1994, Bianchi 1999 and Bhatt 2002 among others) the “head” is inserted directly in the relativization site and moves to a position external to the relative clause. Under an alternative approach, sometime called “head external approach”, the relative clause “head” is not transformationally related to the gap inside the relative clause. Instead, a relative pronoun (that is overt in 2 but remains phonological null in 1) moves to Spec,C by leaving a trace in the gap position and is identified with the relative clause “head” (cf. Chomsky 1981 and Browning 1986 for two classical variants of this approach). A final (less pursued) approach, the Matching Analysis, like the raising analysis, postulates that there is an internal head which is phonologically deleted under (near) identity with the external head. However, according to the matching analysis, the internal head and the external head are *not* part of a movement chain, but are related by whatever mechanism that links an elided constituent and its antecedent in ellipsis cases (Chomsky 1965; Kayne 1975, Cinque 1978 and Sauerland 2003 and Hulsey and Sauerland 2006 for a recent revival).

- (1) The boy that I will never forget is arrived
- (2) The boy who I will never forget is arrived

In section 2, we briefly summarize Cecchetto and Donati’s (2010) version of bare phrase structure theory which is the framework against which the analysis of relative constructions is set. One crucial feature of this theory is that a lexical item can transmit its label when it is merged with another category, both when this is a first merge case (this derives the result that the head projects when it is merged with a complement/modifier) and when the lexical item is internally merged (moves). A lexical item has the power to relabel the structure with which it merges. This relabeling option directly explains the properties of free relatives, as initially argued by Cecchetto and Donati and more thoroughly discussed in section 3.

In section 4, we review the main arguments supporting the raising analysis of (full) relative clauses and in section 5 we examine three main objections that have been raised against it. In section 6, we propose our approach to externally headed relative clauses. This is a modified version of the raising analysis that assumes that only the head noun raises and, being a lexical item, relabels the structure. We show how our approach is immune from the criticisms that affect the traditional version of the raising analysis. In section 7 we discuss the cases in which the “head” of the relative clause appears to be phrasal and claim that any modifier of the relative clause “head” is late merged after the “head” has raised. One important consequence of our approach is that the distinction between complement and adjunct in the nominal domain is considerably weakened. We thoughtfully defend this claim and show that the pattern of reconstruction effects in relative clause constructions supports it.

In section 8 we discuss the issue of what triggers the movement of the relative clause head, and argue that selection (by an externally merged Determiner) can act directly as the trigger of some instances of head movement. Assuming that movement in relative clauses is directly triggered by the determiner head selecting the clause implies divorcing it from the COMP area. In section 9 we discuss a welcome consequence of such a divorce, namely the straightforward understanding of a class of relative clauses not involving any CP layer: reduced relatives, and their distribution and limitations both in Italian and in English. Finally section 10 examines another positive consequence of this “selection driven approach to relativization”: Romance pseudo-relatives are analyzed as the non *wh*-counterpart of free relatives, involving the movement of a D-head (a proper name or a pronoun) to the root of the clause and a systematic relabeling option. The restriction of this class of relatives to subject relatives is explained in terms of an intervention effect and a general discussion of the different locality properties of the various types of relativization structures examined closes the paper.

2. The framework. Cecchetto and Donati’s (2010) theory of labeling

The typical case when two syntactic objects are merged is the asymmetric condition in which only one of them provides the label to the newly formed object. The label can be selected by an external object (for example, when V and the internal argument are merged the resulting object with label V is selected by *v*) and can trigger further computation (for example, when T and *v*P are merged, the resulting object with label T probes the external argument DP, which can be attracted to the canonical subject position). Assuming the Inclusiveness Condition, according to which narrow syntax merely operates on lexical items and cannot “add” interpretative material, a label cannot be a new object distinct from the items that are merged, such as a label in standard X-bar theory. Rather, a label is bound to be a subset of the features of the items that are merged. Cecchetto and Donati (2010) elaborating on Chomsky (2008), propose that, if the notion of Probe includes selection, a single labeling algorithm, reported in (3), can derive the core cases covered by the rich apparatus of X-bar theory:

(3) **Probing Algorithm:** The label of a syntactic object $\{\alpha, \beta\}$ is the feature(s) which act(s) as a Probe of the merging operation creating $\{\alpha, \beta\}$

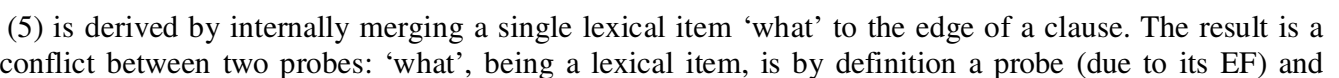
(3) is intended to apply both to cases of internal merge (=movement) and external (first) merge. It is worth illustrating how (3) works by looking at a simple case, say the derivation of a sentence like (4), illustrated in (4i) to (4v):

- (4) The boy ate the cake
- i. The label of $\{\text{ate}, \{\text{the}, \text{cake}\}\}$ is the categorial feature of V (the transitive verb selects for a direct object)
 - ii. The label of $\{v, \{\text{ate}, \{\text{the}, \text{cake}\}\}\}$ is the categorial feature of *v*

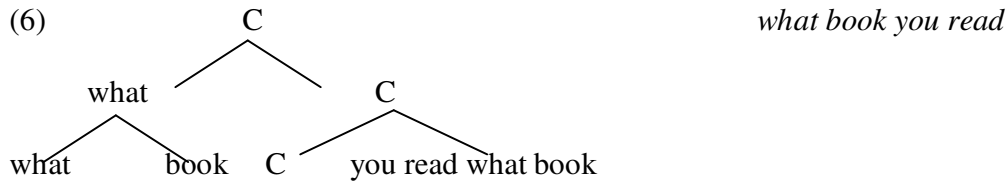
- iii. The label of $\{\{\text{the, boy}\}, \{\nu, \{\text{ate, \{the, cake\}\}\}\}$ is the categorial feature of ν (when the external argument is merged in Spec, ν the feature which triggers the merging operation is the categorial feature ν , which requires that the external argument be merged)
- iv. The label of $\{\text{T}, \{\{\text{the, boy}\}, \{\nu, \{\text{ate, \{the, cake\}\}\}\}\}$ is the categorial feature of T (T selects for νP)
- v. The label of $\{\{\text{the, boy}\}, \{\text{T}, \{\{\text{the, boy}\}, \{\nu, \{\text{ate, \{the, cake\}\}\}\}\}\}$ is the categorial feature of T (when the subject is internally merged in Spec, T the feature which triggers this operation is the categorial feature of T -- the phi-features of T can be checked in situ via Agree, so they do not, at least directly, trigger merge of the external argument).

3. Labeling conflicts: free relatives

Consider the structure in (5).



should provide the label. On the other hand, ‘C’, being the Probe of the merging operation, should also provide the label. This kind of conflict never arises when a phrase is internally merged, as in (6).



Here Merge holds between two SOs, and no conflict arises: by the Probing Algorithm in (3), ‘C’, the Probe of the merging operation, labels the entire construction.

The prediction is that the minimal difference between (5) and (6) should be reflected in the distribution and interpretation of the two structures: more precisely, (5) is predicted to have two possible labels, while (6) has a single labeling possibility. This prediction is reflected by the systematic ambiguity of a phrase like ‘what you read’: it can be interpreted as a free relative and be embedded under a verb selecting a DP (cf. 7):

- (7) a. I read what you read/a book
b. I read the thing that you read

However, it can also be interpreted as an indirect interrogative clause, and be embedded under verbs selecting for clausal complements (cf. 8):

- (8) a. I wonder what you read/ if the sun will shine tomorrow
b. I wonder what book you read.

Crucially no ambiguity at all, either in interpretation or in distribution, arises when phrasal movement is involved: as shown in (9), the structure resulting from phrasal movement can only occur in environments for clauses, and can only be interpreted as a simple interrogative:

- (9) a. I wonder what book you read
d. *I read what book you read

Cecchetto and Donati (2010) do not discuss in much detail a possible objection that can be raised against their approach, namely a class of free relatives that appear to allow phrasal wh-movement. This is illustrated in (10):

- (10) I shall visit whatever town you will visit

Since our approach to full relatives is going to be an extension of Cecchetto and Donati’s (2010) approach to free relatives, let us deal with this potential counterexample in some detail, before switching to full relatives.

‘Ever’-relatives are found in a variety of languages, but Italian might be especially revealing in this respect. Battye (1989), in an insightful but neglected paper, explicitly addresses the issue of whether the counterpart of ‘ever’-relatives can be on a par with free relatives and denies this by coining the term “pseudo free relatives”. He identifies several areas of differences between genuine free relatives and pseudo free relatives. We discuss here five of them. The Italian counterpart of the ‘-ever’ suffix is ‘-

unique'. Since in Italian *unqu*e relatives with the wh-word *quanto* are not attested (and neither are free relatives with *quale*), in the following examples (adapted from Battye 1989) free relatives with *quanto* (lit. 'how much') are contrasted with pseudo free relatives with *qualunque* (lit. 'whichever').

Property (i) '-unique'-items can have an absolute use, namely they do not need to appear in a relativization structure. Ordinary free relatives (by definition) cannot have an absolute use:

- (11) E' un argomento di tesi che avrei proposto a qualunque studente/* quanti (studenti)
It is a dissertation topic that I might have proposed to whichever student / *what student

Property (ii) '-unique'-items can occur with the complementizer that occurs in full relatives. Ordinary free relatives cannot.

- (12) Qualunque costituente che venga spostato in COMP
Whichever constituent that is moved to COMP
(13) *Quanto che venga spostato in COMP/ *Quanti che vengano spostati in COMP
what that is moved to COMP

Property (iii) '-unique'-items can co-occur with a relative pronoun. Ordinary free relatives cannot.

- (14) Qualunque ragazzo a cui parlo mi dice la stessa cosa
Whichever boy to whom I speak tells me the same thing
(15) *Quanti a cui parlo mi dicono la stessa cosa.
what to whom I speak tell me the same thing

Property (iv) '-unique'-items have an adverbial use. Ordinary free relatives do not.

- (16) Hai fatto un errore, qualunque motivo ti abbia spinto
You made a mistake, whichever reason pushed you
(17) *Hai fatto un errore, quanti (motivi) ti abbiano spinto
you made a mistake, what reasons pushed you

Property (v) '-unique'-items do not appear in infinitival complements. Ordinary free relatives do.

- (18) *Cerco qualunque studente mandare al mio posto
I search whichever student send in my place
(19) ?Cerco quanti mandare al mio posto
I search what send in my place

These five properties clearly tell apart normal free relatives and pseudo free relatives of 'ever' types. A very natural hypothesis is that the lexical operation that adds the '-unique'/'-ever' suffix to the wh-word removes its wh-feature, turning the wh-determiner into an ordinary quantificational one. This explains why 'whatever'-phrases cannot sit in indirect questions:

- (20) Mi domando quale/*qualunque è arrivato
I wonder which/whichever is arrived
(21) I wonder what/*whatever happened

Furthermore, if the '-unique' phrase is an ordinary quantificational DP, it is expected that, although modification by a relative clause is possible (as with other quantificational DPs), it is not required. This explains the absolute use (property (i)) of '-unique' phrases in Italian. In fact, even in English, although

most informants find a sentence like “I might suggest whatever topic for his dissertation” less than felicitous, examples of absolute uses are attested. The following is just an example from a random Google search: “I don't know what price range you are building in, but an architect can help you maximize your square footage or features of whatever house for your budget”.

Properties (ii) and (iii) are easily explained in the same vein. If ‘-unique’-items are ordinary quantificational DPs, we expect them to occur in ordinary relatives clauses, namely co-occurring with a complementizer and with a relative pronoun.

The details of the analysis of ordinary relatives we have in mind will be presented in the next section. What is relevant here is that ordinary relatives are crucially characterized by the fact that they are selected by an external determiner (a common feature of any recent version of the Raising Analysis: see below), and what moves is only the bare determinerless ‘head’ of the relative clause. In *ever* relatives, we assume, the –‘ever’/‘unique’ determiner is such an external determiner, and the ‘head’ of the relative is the nominal part of what ends up not being a constituent at all:

(22) I will visit whatever [_{CP} [_{NP} town] (that) [_{IP} you will visit town]]]

In English grammar, there is an explicit prohibition against using ‘whatever’-phrases with an overt complementizer, but this prohibition testifies that this use is possible, although it is strongly disfavoured by prescriptive grammars. Not surprisingly, examples are attested, as the following sentence resulting from another random Google search shows: “Consider that the value of whatever house that stands on any lot is derived in large part from the perceived value of other, comparable houses in the neighborhood”.

Going back to Italian, notice that ‘unique’ –relatives are fully felicitous only in the subjunctive. Interestingly, the subjunctive mood typically licenses the dropping of the complementizer in Italian, as illustrated in (23).

- (23) a. Credo *(che) parte domani
(I) believe *(that) (he) leave-3SG-INDICATIVE tomorrow
b. Credo (che) parta domani
(I) believe (that) (he) leave-3SG-SUBJUNCTIVE tomorrow

It is thus legitimate to interpret the obligatoriness of the subjunctive as evidence that the complementizer *che* is indeed always there in –‘unique’ relatives, and superficially dropped in most cases.

As for property (iv), it is shared by English and Italian, as shown by an example like (24):

(24) Whatever/*What happens, I am not here

As noted by Dayal (1997), the possibility of an adverbial use for -ever free relatives (unlike free relatives, which are totally infelicitous in the same context), relates to the quantificational nature of –‘ever’ determiners.

Also property (v) is shared by English and Italian, as confirmed by the pair (25a) and (25b):

- (25) a. I found out what to read
b. *I found out whatever (book) to read

If –‘ever’/–‘unique’ structures are quantificational DPs, as we proposed, the ungrammaticality of (25b) is only expected, since quantificational DPs (and overt DPs in general) cannot sit in this type of structure (cf. 26):

(26) *I found out every book to read

The grammaticality of a structure like (25a), and its Italian counterpart, is equally expected under our approach. In fact, ‘what’ occupies a position in the CP area in (25a), and as always in free relatives, a labeling conflict arises. One possible labeling output is one in which C transmit its label and ‘what to read’ becomes a CP, which is selected by ‘find out’ (cf. “I found out that reading is dangerous”).

Summarizing, five properties clearly set apart ordinary free relatives and pseudo free relatives in Italian and some of them clearly hold for English, suggesting that the analysis for Italian can be extended to English. They strongly suggest that pseudo free relatives are ordinary quantificational DPs, and therefore must receive a different analysis from ordinary free relatives. Crucially, the idea that a labeling conflict arises when a lexical item is merged with a complex syntactic object is *not* falsified by the existence of pseudo free relatives. On the contrary, this idea can explain the systematic differences between pseudo free relatives and ordinary free relatives quite directly, as we just showed.

We also assume that the same approach to pseudo free relatives can extend to other ‘maximalizing relatives’ (Grosu 2002) like (27), whose interpretation strongly suggests the presence of a silent *ever*-type determiner.

(27) I will read what books you will tell me.

4. Full relatives: advantages of the raising analysis

As we mentioned, the gist of the raising analysis is that the position of the gap inside the relative clause and the external “head” are transformationally related. There are various variants that we will not analyze in detail here, but all of them have one obvious advantage, namely that, since the existence of transformations is well attested in constructions distinct from relative clauses, the relation between the gap and the “head” is explained with no need to introduce a special mechanism. In addition to this fundamental positive feature, the raising analysis has other merits, as pointed out by its proponents:

(i) It accounts for the pattern found with idiomatic expressions. The relativization of the idiomatic object is allowed if the idiomatic verb is internal to the relative clause, but not if it is external:

- (28) a. Il décrit dans son livre [la part qu’il a prise *t* aux travaux du 9ème congrès]
he describes in his book the part that he has taken at the workings of the 9th conference
‘He describes in his book the part that he had in the 9th conference’.
b. *Il a pris aux travaux du 9ème congrès [la part qu’il décrit dans son livre]
he has taken in the workings of the 9th conference the part that he describes in his book
(Vergnaud 1974:58-9)

The contrast in (28) indicates that the external “head”, namely ‘(la) part’, sits at some level in the argument position inside the relative clause, under the assumption that idiomatic expressions like ‘prendre part’ must form a unit when they are inserted in the syntax from the lexicon.

(ii) It accounts for the pattern of relativization of predicative DPs, which is impossible if the features of the matrix and those of the embedded subject do not match. (29) is ungrammatical, because the predicative DP ‘les comédiens’ does not agree (in number) with the copula inside the relative clause, although it does agree with the main verb copula.

- (29) *Ce ne sont pas les comédiens que leur père était (Vergnaud 1974: 63-68)
 it not are not the comedians that their father was

(iii) It accounts for the existence of internally headed relative clauses, which would simply realize overtly what the raising analysis takes to be the underlying structure of externally headed relative clauses. One example of an internally headed relative and of the corresponding externally headed structure is given in (30) with Japanese examples (the “head” noun is in bold). This feature of the raising analysis should not be underestimated. While the raising analysis can explain the existence of two related relativization strategies by simply assuming that the “head” can raise at different point (before or after Spell-Out), alternative approaches to relative clauses have a harder time to explain why relativization can be realized through two different structures.

- (30) a. Yoko-wa [[Taro-ga sara-no ue-ni oita] **keeki**]-o tabeta
 Yoko-TOP Taro-NOM plate-GEN on-LOC put cake-Acc ate
 ‘Yoko ate a piece of cake which Taro put on a plate.’
 b. Yoko-wa [[Taro-ga sara-no ue-ni **keeki**-o oita] -no]-o tabeta.
 Yoko-TOP Taro-NOM plate-GEN on-LOC cake-ACC put-NOMINALIZER-ACC ate
 ‘Yoko ate a piece of cake which Taro put on a plate.’ (Shimoyama 1999: 147)

While the three properties just discussed support any version of the raising analysis, the properties that we are going to discuss now call for the version (stemming from Kayne 1994, see especially Bianchi 1999) which assumes that the determiner preceding the relative NP is externally merged: only the noun (and its dependents, if any) raises, while the determiner is inserted after the relative construction has been created by the occurrence of the relevant transformation. This type of raising approach is consistent with the fact that the external determiner must have wider scope than a quantifier inside the relative clause. This is shown with Italian examples in (31), a *wh*-relative, and in (32), a *that*-relative. In the *a*. sentences, the existential quantifier that is the external determiner of the NP that contains the relative clause must have wide scope. The *b*. sentences show that a determiner that occupies the position of the gap can get wide scope in the corresponding simple clause (these examples are modeled after the ones in Bianchi 1999).

- (31) a. Un'aula in cui ho mandato ogni studente (era molto rumorosa) $\exists \forall \text{AE}^* \forall \exists$
 A room in which (I) sent every student was very noisy
 ‘A room where I sent every student was very noisy’
 b. Ho mandato in un'aula ogni studente / Ho mandato in un'aula ogni studente $\exists \forall \text{AE}$
 I sent every student in a room / I sent in a room every student
 ‘I sent every student in a room’
 (32) a. Un compito che ho distribuito a ogni studente (era troppo difficile) $\exists \forall \text{AE}^* \forall \exists$
 An assignment that (I) have given to every student was too difficult
 ‘An assignment that I gave to every student was considered too difficult’
 b. Ho distribuito un compito a ogni studente / Ho distribuito a ogni studente un compito $\exists \forall \text{AE}$
 (I) have given an assignment to every student / (I) have given to every student an assignment
 ‘I gave an assignment to every student’

The impossibility of the $\forall \exists$ reading in the *a*. sentences follows if the indefinite determiner is merged outside the relative clause, after the “head” of the relative clause has raised, under the standard assumption that a relative clause is a strong island (this explains why the universal quantifier is trapped inside the relative structure and cannot get wide scope in the *a*. sentences).

Converging evidence comes from the lack of definiteness effects in structures like (33b). The grammaticality of (33b) is expected if the definite determiner is externally merged and never sits inside the relative clause, where it would trigger a definiteness effect, as shown in (33a).

- (33) a. *There were the men in the garden
b. The men that there were in the garden

In fact, even with idiomatic expressions whose direct object is obligatorily indefinite (cf. the ungrammaticality of (34a)), the relativized head can be introduced by a definite determiner (34b).

- (34) a. *They made the fun of me (Fabb 1990:71)
b. The fun that they made of me

In the literature on relative clauses, another type of evidence that is commonly taken to support the raising analysis is the (alleged) existence of reconstruction effects with the relative clause head. However, this point requires a full-blown discussion, which we entertain in section 7.2 below.

Summarizing, several considerations strongly support the raising analysis, and, more specifically, the version that assumes that the NP (the “head”) is merged with D after the former has raised from inside the relative clause. Notwithstanding its merits, the raising analysis remains very controversial, since it is affected by at least three outstanding problems. These are illustrated in the next section.

5. Problems of the raising analysis

A severe critique of the raising analysis is due to Borsley (1997), who mentions several problems. Three of them are particularly severe and must be discussed immediately.

Relative clauses in many Indo-European languages come in two different varieties, namely relatives introduced by a relative pronoun and relatives introduced by a complementizer corresponding to the English ‘that’. The raising analysis makes a (different) wrong prediction for each type of relative.

(i) Incorrect word order in *wh*-relatives. Assuming that *wh*-elements such as *which* are determiners, the direct prediction of the raising analysis would be that in *wh*-relatives, after raising of the relative clause “head”, the structure should be (36), not (35).

- (35) The man which John saw
(36) The [[which man]_j John saw t_j]

(ii) Lack of a determiner in *that*-relatives. As shown by *wh*-relatives, in relative structures two determiners surface. The one internal to the relative clause is a *wh*-determiner, while the external one is whatever determiner selects the entire relative NP. However, only one determiner surfaces in *that*-relatives, while the raising analysis predicts the existence of two (cf. the ungrammaticality of (37)).

- (37) a. *The the man that I saw
b. [the [[the man]_j that I saw t_j]]

A final general problem with the raising analysis, also discussed by Borsley, is the Case mismatch problem.

(iii) Case Mismatch. In sentences like (38), the very same DP should get two cases, nominative in the relative clause and accusative in the matrix clause. Similarly in (39) the very same DP should get

nominative in the matrix clause and accusative in the relative clause. This raises a problem, under the standard assumption that a DP can check/be assigned just one grammatical case.

(38) I saw the man_j that t_j left

(39) The man_j that I saw t_j left

In fact, as shown by the Polish example (40), in languages with morphological case, the DP is assigned the “matrix” case:

(40) Widziałem tego pana, który zbił ci szybę
 saw-1SG the-ACC man-ACC who-NOM broke your glass
 ‘I saw the man who broke your glass.’ (Borsley 1997: 635)

Proponents of the raising analysis discussed these problems and proposed various solutions that include some non independently motivated stipulations. For example, to derive the correct word order, proponents of the raising analysis assume an unmotivated movement of *man* in (35), stranding the determiner *which*, which has moreover the property of turning a specifier into something accessible to selection by an external head. Iatridou et al. 2001’s capture this by postulating that the moved category can project (this is assumed by Bhatt 2000 as well). The problem with allowing cases of projecting movement, however, is that the more familiar instances of movement (e.g. *wh*-movement, raising, passive movement) never involve a projecting movement. In all these cases, it is the target that projects. So, it is necessary to explain why the moved category can project only in relative clauses, and not in the more familiar cases.

In the next section, we show that the three problems with the raising analysis and with the notion of projecting movement efface if we adopt the perspective on labeling outlined in section 2 and the approach to free relatives defended in section 3.

6. A *HEAD* raising analysis for relative clauses

The crucial feature that we are going to capitalize on is the fact that, under the Probing Algorithm in (3), any lexical item has the power to transmit its label both in case of External Merge and in case of Internal Merge (movement). A case in which a lexical item “projects” in movement configuration is free relatives when they have a nominal distribution (“[_{DP} What you say] is horrible”). We are going to argue that ordinary relatives are just another case of this sort.

6.1 *Wh-relatives*

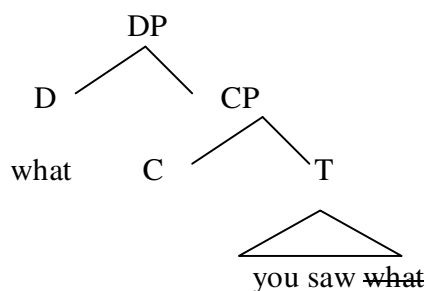
Consider a *wh*-relative like (41). Under a version of the raising analysis *a la* Bianchi/Kayne, the first step of the derivation (cf. 42a) is obvious. However, (42a) is problematic in two respects. First, the word order is just wrong, as we already mentioned. Second, the label of the structure with which the external determiner combines is equally wrong, since a determiner combines with a NP, not with a CP. Clearly the desired configuration is something like (42b), but the problem is how to get from (42a) to (42b), namely how to derive the ‘projecting nature’ of the movement of ‘man’

(41) The man which John saw

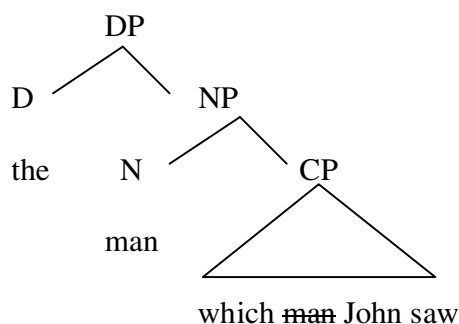
(42) a. [_{DP} The [_{CP} [_{DP} which man]_j John saw t_j]]
 b. [_{DP} The [_{NP} [[_{NP} man]_i] [_{CP} [_{DP} which t_i]_j John saw t_j]]]

However, assuming the Probing Algorithm in (3), the ‘projecting nature’ of the movement of “man” in (42) is predicted: “man” is an LI, therefore it has an EF and acts as a Probe when it is externally merged with C. By (3), it “relabels” the structure and allows it to combine with the external determiner. It is worth confronting the derivation of a free relative with a nominal distribution with that of a ‘wh’-relative. In both cases, the crucial feature is that a lexical item “projects” when it is externally merged. The main difference is that the LI is a determiner in free relatives, while it is a noun in (wh) relatives.

(43) a. free relative



b. wh- relative



A question that arises at this point is the precise landing site of the movement of N in structures like (43b). Clearly, N moves to some position in the CP area. In order to identify it, it is instructive to consider again the Japanese sentences in (30), repeated here with a new numeration.

- (44) a. Yoko-wa [[Taro-ga sara-no ue-ni oita] **keeki**]-o tabeta
 Yoko-TOP Taro-NOM plate-GEN on-LOC put cake-Acc ate
 ‘Yoko ate a piece of cake which Taro put on a plate.’
 b. Yoko-wa [[Taro-ga sara-no ue-ni **keeki**-o oita] -no]-o tabeta.
 Yoko-TOP Taro-NOM plate-GEN on-LOC cake-ACC put-NOMINALIZER-ACC ate
 ‘Yoko ate a piece of cake which Taro put on a plate.’ (Shimoyama 1999: 147)

Interestingly, when the relative clause head ‘keeki’ does not move (namely in the internally headed relative in 44b), the nominalizer particle ‘no’ surfaces in the right periphery of the relative clause. This particle is not present when ‘keeki’ moves. In our approach, this can be interpreted as an indication that in (44a) ‘keeki’ moves to the structural position that is occupied by the nominalizer particle in (44b). The particle is not needed in (44a), since the movement of ‘keeki’ can relabel the structure by turning it into a nominal constituent.

We propose that the ‘projecting’ noun in English and Italian moves to the same slot in the CP area which is overtly visible in Japanese. We leave to future research the identification of the precise location of this structural position in the fine structure of the CP area (cf. Rizzi 1997). In section 8 below we will deal with question of the trigger of the nominalizing movement of N.

6.2 ‘that’-relatives

As we mentioned, the main problem the raising analysis is confronted with in the case of ‘that’ relatives is the absence of a second determiner, shown by the ungrammaticality of (45):

(45) *The the man that I saw

Assuming the raising analysis, we must assume that a null determiner (underlined in 46) is stranded in the base position of the noun head, before the noun head raises and projects.

(46) [DP The [NP [[NP man]_i] [CP that I saw [DP D t_i]]]

Assuming an invisible category is a brute stipulation if this category is never directly detectable. However, the stranded D *is* visible in many languages. The relevant evidence, as observed by Bianchi (1999), is provided by so-called resumptive pronouns in relatives in (substandard) Romance varieties like (47). Since so-called resumptive pronouns are homophonous with definite articles, we analyze them as the stranded head of the DP from which the N has moved out.

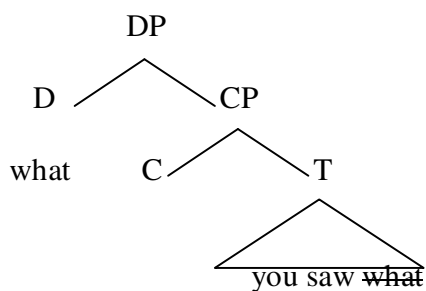
(47) L'uomo che l'ho visto (Sub-standard Italian)
the man that (I) the-MASC have seen

Crucially, the distribution of resumptive pronouns is restricted to 'that'-relatives, as predicted by the raising analysis. Resumptive pronouns are not attested in *wh*-relatives, even in those sub-standard varieties that allow them in 'that'-relatives: if resumptive pronouns are determiners just as *wh*-elements are, they are clearly predicted to be complementary.

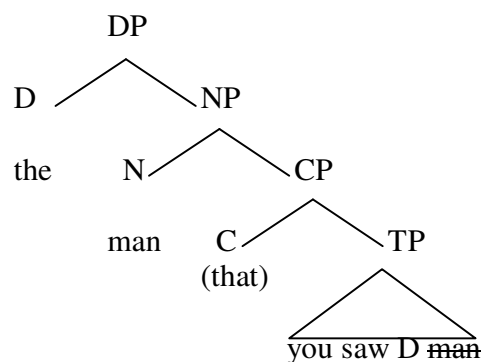
(48) *L'uomo a cui gli ho parlato (Sub-standard Italian)
the man to whom (I) the-MASC have spoken

It can be shown that the strategy illustrated with (47) is quite general across Romance and Semitic varieties (cf. Borer 1984 a.o.), since in all these varieties there is clear evidence that so-called resumptive pronouns are determiners. Even in the case of 'that'-relatives a comparison with free relatives can be useful:

(49a)



(49b)



Our analysis raises a natural question. Non *wh*-determiners, which in certain varieties are overtly realized as resumptive pronouns, are stranded inside the T area of the relative clause in 'that'-relatives (cf. 49b). However, *wh*-determiners are stranded in the CP area of the relative clause in *wh*-relatives (cf. 43b). The question is what explains this different position for the stranded determiner. A natural explanation is in terms of locality. When D is endowed with a *wh*-feature (cf. 43b), it is visible to the root C, therefore the *wh* D-label is closer than the Noun to C. So, the entire DP is attracted to C. If the D is not endowed with a *wh* feature (cf. 49b), the N can move alone since the D-label no longer acts as an intervener. A related issue is that head movement in configurations like (49b) violates the Head Movement Constraint. However, see Roberts (2001), Suranyi (2005; 2007; 2008), Donati (2006), Cecchetto and Donati (2010)

among others for various approaches assuming head movement not to be restricted by such a condition. We conclude this section by pointing out that our approach also offers a natural basis to fix the case mismatch illustrated with sentences (38) to (40) above. In fact, in both *wh*-relatives and ‘that’-relatives, there are two DPs that share the same N head. The lower DP (with a possibly null D) gets nominative, the higher DP gets accusative.

We have proposed a version of the raising analysis according to which what moves in externally headed relatives is always a noun, which, by virtue of being a lexical item, can relabel and nominalize the structure according to the Probing Algorithm in (3). This version of the raising analysis can be shown to be immune from problems that affect other versions. However, an outstanding obstacle seems to be in front of us. In many cases, the nominal constituent that is modified by the relative clause is not a simple noun, but is a phrase. Putting it in other terms, the “head” of the relative clause does not need to be a head (in the sense of phrase structure theory). (50) is just an example:

(50) The [[book about Obama] which you bought]

The next section is devoted to this issue. In fact, as we will show, far from being a problem, the pattern of relatives clauses with a phrasal “head” turns out to support our approach.

7. Relative clauses with a phrasal “head”

The problem raised for our analysis by structures like (50) should be clear enough. Under the Probing Algorithm in (3), even if “book about Obama” moves, it cannot relabel the structure, which preserves the wrong CP label and therefore cannot be selected by the external determiner. So, the wrong step of the derivation is (51b).

- (51) a. $[_{DP} \text{The } [_{CP} [_{DP} \text{which book about Obama}]_j \text{ you bought } t_j]]$
 b. $*[_{DP} \text{The } [_{CP} [_{NP} \text{book about Obama}]_i [_{CP} [_{DP} \text{which } t_i]_j \text{ John saw } t_j]]]$

In fact, we only have a way-out, if we want to maintain the gist of our proposal. Namely we must assume that whatever material modifies the head noun (“about Obama” in 51) can (and must be) late-merged, after the head noun has moved and has “relabelled” the structure. In this section we defend this assumption. In section 7.1 we show that so-called complements of nouns do not pose any special obstacle to the late merge analysis. In section 7.2 we consider reconstruction effects in some detail and show that they offer independent evidence in support of the late merge analysis of modifiers of the head noun.

7.1 Complements of nouns look like adjuncts

The idea that adjuncts can be merged late in the derivation has been extensively used and is not particularly controversial. The reason is that they are exempted from the theta-criterion, which is the condition that forces arguments to be inserted in the derivation as early as the predicates they receive a theta role from. The difficult case for our approach is (alleged) complements of nouns in structures like (52):

(52) The picture of John that he bought

Here as well we are forced to say that ‘of John’ is late merged, after the noun ‘picture’ has raised and relabeled the structure. In this sense, we are led to treat alleged complements of the noun as adjuncts. Is this plausible? Curiously, the fact that nouns can take complements is taken for granted in many syntax textbooks but it is never put under any close scrutiny. Arguably, the rationale for this is that in case of

pairs like ‘destroy’ / ‘destruction’ it seems natural to analyze the satellite (‘the city’ / ‘of the city’) in the same vein. But is this necessary, or at least desirable? Several considerations indicate that it is not and that bridging the gap between adjuncts and arguments of the noun may be necessary.

(i) Theta criterion exemption. The key criterion to distinguish arguments from adjuncts in the verbal domain is that, as we said, only the former obey the theta-criterion. However, so-called complements of nouns are never required for the structure to be acceptable, unlike the complements of transitive verbs. This is usually expressed by exempting the nouns from the theta criterion, but this is a tacit way to ‘adjunctivize’ the so-called complement of the noun.

(ii) Islandhood. Another familiar way to distinguish arguments from adjuncts is based on their islandhood status. In the verbal domain, there is an argument-adjunct asymmetry in that only adjunct clauses are islands for extraction, while extraction from argument clauses is much easier. However, in the nominal domain the argument/adjunct asymmetry is weaker, since both relative clauses and complement clauses of the noun are islands. This common pattern is captured by assuming the Complex NP Constraint. Again, adjuncts and so-called complements of the noun pattern alike.

(iii) Constituency tests. In the clausal domain, standard constituency tests indicate that the verb and internal object form a minimal constituent. For example, ellipsis in (53) elides and the proform in (54) replaces the complex constituent ‘buy a house’. However, (55) and (56) are sharply ungrammatical since ellipsis and proform apply to the group of words ‘will buy’ (excluding the internal argument ‘a house’), which is not a constituent.

- (53) John will buy a house and Mary will ~~buy a house~~ too
- (54) John will buy a house and Mary will do that too
- (55) *John will buy a house and Mary ~~will buy~~ a house too
- (56) *John will buy a house and Mary do that a house too

Strikingly, as pointed out to us by Chiara Branchini, if we apply the same type of constituency tests to the unit formed by the noun and by its alleged complement, the results are quite different. In Italian, the proform ‘quello’ (‘that (one)’) can replace the unit formed by determiner and noun, crucially excluding the alleged complement of the noun (cf. 58). Similarly, the unit formed by determiner and noun can be fronted, while the alleged complement is stranded (cf. 59). Finally, in a cleft structure the post-copular unit can be formed by determiner and noun, while the alleged complement of the noun sits in the postcopular clause (cf. 60).

- (57) Ho visto **la foto** di Gianni
I have seen the picture of Gianni
 - a. [DP la [NP foto [PP di Gianni]]]
 - b. [DP la [NP foto]] [PP di Gianni]
- (58) Ho visto **quella** di Gianni
I have seen that of Gianni
- (59) LA FOTO ho visto di Gianni (non il ritratto)
The picture I have seen of Gianni (not the portrait)
- (60) E’ la foto che ho visto di Gianni
It is the picture that I have seen of Gianni

The pattern in (58) to (60) shows that at some level of representation determiner and noun form a unit that excludes the alleged complement of the noun, but this pattern is not expected if the standard representation in (57a), which reflects the fact that the head combines with its complement before any higher category is inserted, holds at any level of representation. However, if the alleged complement (‘di

Gianni) can be late merged as in (57b), the pattern in (58) to (60) can be explained by assuming that replacement by a proform (cf. 58), fronting (cf. 59) and whatever operation is responsible for cleft structures (cf. 60) operate on the constituent 'la foto' before 'di Gianni' is late merged to the D+N constituent.

All the evidence discussed until now indicates that so-called arguments of the noun behave like adjuncts and can be late merged. Still, the evidence we considered was mainly based on syntactic considerations, so we need to ask if this proposal is semantically feasible, as well. In fact, no major problem arises if complements are treated as adjuncts in the semantic component. On the contrary, if anything, a simplification would result, as we are going to show.

To be concrete, take a semantic framework like the one described in Heim and Kratzer (1998). In that framework, nouns, like verbs, can be either transitive (of type e, e, t) or intransitive (of type e, t). However, since transitive nouns do not always require arguments, it must be assumed that they are lexically ambiguous; they are of type e, e, t when they take an argument ("The picture *of John* (is nice)") while they are of type e, t when they don't ("The picture *in the drawer* (is nice)"). Furthermore, in this approach the preposition 'of' in the PP 'of John' and the preposition 'in' in the PP 'in the drawer' are taken to be semantically very different, although they belong to the same syntactic category. The former preposition would be semantically vacuous; it would not change the semantic type of the DP 'John' (namely, e), with which it combines. So, 'of John' would denote an entity of type e , which would become the argument of the noun 'picture', which in this structure would be of type e, e, t . The resulting expression 'picture of John' has the desired type e, t .

On the other hand, 'in' would contribute to the semantics of a PP like 'in the drawer', since it is transitive preposition, namely it has the type e, e, t . When it combines with 'the drawer', the resulting PP has the semantic type e, t (assuming that the definite description is of type e). This PP is further combined with the intransitive noun 'picture' by predicate modification and the resulting expression 'picture in the drawer' has the desired type e, t .

In this story, not only transitive nouns like 'picture' must be treated as lexically ambiguous, but the syntactic category of prepositions does not have a uniform semantic mapping, since some PPs denote individuals and others denote sets.

One possible alternative is assuming that all PPs denote sets, which intersect with the set denoted by the noun. In this alternative story, the NP 'picture of John' would be given the same treatment as the NP 'picture in the drawer'. Technically, this is feasible and even desirable, since it would allow us to avoid a systematic ambiguity for the category of nouns, which would all be of type e, t . Furthermore, all prepositions would play a semantic role and this would further diminish the gap between syntax and semantics, since there would be a uniform mapping between the syntactic category of preposition and semantic type e, e, t .

So, treating so called complements of nouns as adjuncts, far from introducing a problem for their semantic interpretation, would simplify the syntax/semantics interface. The only price to pay is that the semantics/pragmatics interface might become more complex. While the semantic content of a preposition' like 'in' is easily defined in spatial terms, the semantic contribution of the preposition 'of' is admittedly vaguer. What 'of John' means should be determined contextually, utterance after utterance. In some cases, 'of John' would refer to the set of things that portrait John but in other cases the link to John might be much more indirect. For example, 'picture of John' might be used to refer to the set of pictures that John considered buying yesterday or thought about while taking a shower or is holding in his hands now. However, this complication of the semantics/pragmatics interface is unavoidable for all those cases in which a PP does not correspond to the internal argument of the noun. Therefore, our proposal does not complicate the picture in any significant way.

7.2 Reconstruction effects

The hypothesis that the material that modifies the head noun of the relative clause is late merged makes a precise prediction concerning reconstruction effects; since the head noun has moved from within the relative clause, assuming the copy theory of traces, it should behave as if it were in its base position as far as Condition C is concerned. However, if any material that modifies the head noun is late merged, no Condition C should be triggered by this material, since no trace/copy of the modifier is present in the gap position of the relative clause. This prediction is borne out by the sharp contrast between (61) and (62):

- (61) The professor of John_i's that he_i always praises
(62) * The professor_i that he_i always praises

Here the very degraded status of (62) under the relevant interpretation can be clearly reduced to a Condition C effect (cf. *He_i always praises the professor_i) and the acceptable status of (61) can equally be explained if no Condition C effect holds due to lack of reconstruction. However the vast literature on reconstruction effects in relative clause (cf. Bianchi, 1999, Cecchetto 2000, Munn 1994, Safir 1999, Sauerland 2003, Vergnaud 1978 a. o.) has neglected the contrast illustrated in (61)-(62). The reason is that this literature has focused on the presence/absence of reconstruction effects as an argument for or against the traditional version of the raising analysis, namely the version that assumes that what raises is the noun *plus the material that modifies it*. From this point of view, the contrast in (61)-(62) is puzzling, since (61) would be a counterevidence for the raising analysis while (62) would support it. However, the modified version of the raising analysis that we proposed straightforwardly explains this contrast.

Having said this, let us briefly review other data that have been discussed in the existing literature. One argument often used in support of the traditional version of the raising analysis is the presence of reconstruction effects (=absence of Condition A effects) in sentences like (63):

- (63) The picture of himself [that John likes *e* most] (was never on display)

Note that the grammaticality of (63) is *not* expected under our version of the raising analysis, which assumes that 'of himself' is late merged. How can this be explained?

In fact, a problem with (63) arises no matter what analysis of relative clauses one wants to adopt, since data like (63) stand in direct contrast with data like (61). As initially observed by Munn (1994), the diagnostic based on Condition C and the one based on Condition A give opposite result when they are applied to the modifier of the head noun. In the case at hand, we observe a dissociation between Condition C reconstruction effects, which are missing (cf. 61), and Condition A reconstruction effects, which are attested (cf. 63).

In the literature two strategies have been employed to overcome the puzzle introduced by the pair made by sentence (61) and sentence (63). One is due to Sauerland (2003) and Hulsey and Sauerland (2006), who use this dissociation between Condition A and Condition C as evidence that relative clauses are structurally ambiguous between a raising and a non-raising matching analysis (see Carlson 1977 and Heim 1987 for earlier claims that relative clauses are structurally ambiguous and Bhatt 2002 for independent evidence for this claim). If relative clauses are given a (traditional form of) the raising analysis, Condition A reconstruction effects are expected (cf. the fact that the anaphor is bound in 63). If relative clauses are given a non-raising (so-called matching) analysis, the head NP is merged outside of the relative clause with an elided NP inside the relative clause that must be similar enough to the head NP for the purposes of ellipsis licensing. Therefore no Condition C reconstruction effect is expected, for the R-expression in the relative clause head is not c-commanded by the material inside the relative clause (cf.

the fact that ‘John’ is not illicitly bound in (62). Sauerland approach explains the dissociation between (61) and (63), but is theoretically very costly. As observed by Cecchetto (2006), Sauerland introduces an undesirable redundancy in the theory, because relative clauses are treated on a par with sentences like “Flying planes can be dangerous”. In doing so, he multiplies the cases of structural ambiguity. Furthermore, his approach faces the empirical problem of explaining the presence of Condition C reconstruction effects in sentences like (62), which Sauerland does not discuss.

The second way to deal with the unexpected dissociation between (61) and (63) is to deny the reliability of either (61) or (63). Both Bianchi (1995) and Cecchetto (2006) questions the diagnostic based on Condition A reconstruction effects and claim that data like (63) are not reliable due to a serious complicating factor, namely the fact that DPs can have an implicit subject PRO (cf. Giorgi and Longobardi 1991, especially chapter 4, for this observation and for extensive evidence). So, one cannot exclude that the anaphor in cases like (63) is actually bound by PRO, which sits in the subject position of the NP, as shown in (64):

(64) [DP The [NP PRO_i picture of himself_i] [that John_i likes ~~picture~~ most]] (was never on display)

If the representation in (64) is correct, the absence of the Condition A effect does not need to be interpreted as a case of reconstruction, because the position in which *himself* overtly sits is c-commanded by a suitable antecedent, namely PRO. In turn, PRO is controlled by *John*, but this control configuration is a case of backward pronominalization that does not require c-command. So, in order to explain the grammaticality of (63), it is *not* necessary to assume that a copy of the entire picture NP is found in the complement position of the verb *like*. Cecchetto discusses (65) to support his view, a case in which the absence of a Condition A effect in a relative clause not only can but *must* be treated as a case of binding by an implicit PRO.

(65) La descrizione di se stesso [che ~~descrizione~~ aiuterebbe Gianni a passare l'esame] (non è stata presa in considerazione dalla commissione)
The description of himself that would help Gianni to pass the exam (was not considered by the committee)

The acceptability of (65) cannot be due to the fact that the anaphor ‘se stesso’ (“himself”) is interpreted in the position of the gap, that is, (65) cannot be a case of reconstruction. This is so because the position of the gap (the subject position of the relative clause) is not c-commanded by the alleged antecedent of the anaphor (‘Gianni’). So, the only way to explain the acceptability of (65) is assuming that PRO in the subject position of the complex NP acts as a binder of the anaphor, as shown in (66). PRO in turn is backward controlled by ‘Gianni’.

(66) [DP La [NP PRO_i descrizione di se stesso_i] [che ~~descrizione~~ aiuterebbe Gianni_i a passare l'esame]]

In the same vein, Safir (1999) provides an example like (67), in which the anaphor ‘himself’ cannot be directly bound by its intended antecedent (‘the rock star’), since the two of them are not in local configuration. Even in cases like (67), the presence of PRO in the relevant NP is called for.

(67) The rock star said that his wife would not identify which pictures of himself she had defiantly sent to the tabloids. (Safir, 1999:595)

If Bianchi and Cecchetto are right in pointing out the complicating factor introduced by the presence of PRO, the alleged cases of reconstruction in relative clauses based on Condition A are not reliable,

because they involve nouns like *picture*, which in principle can take an NP internal subject PRO. So, a large part of the literature on this topic rests on a shaky foundation.

Before leaving our discussion of reconstruction effects, we need to discuss a final case. Bhatt (2002) points out that sentences like (68) and (69) are ambiguous. The DP in (68) ‘has a reading where what John said can be paraphrased as ‘X is the only book that Tolstoy wrote’. This is the ‘low’ reading. It also has a ‘high’ reading, which can be paraphrased as ‘x is the only book about which John said that Tolstoy had written X.’ “ (Bhatt 2002: 57). A similar ambiguity arises in (69):

(68) The only book that John said that Tolstoy had written

(69) The first book that John said that Tolstoy had written (Bhatt 2002: 57)

The presence of the low reading in (68) and (69) is interpreted by Bhatt (2002) as an evidence that the modifier (‘only’/‘first’) can reconstruct, and this would indirectly show that it is not late merged but has been raised to its position together with the head noun ‘book’. If Bhatt’s interpretation is right, our version of the raising analysis is seriously challenged, since the *phrase* ‘only book’/‘first book’ cannot relabel the structure under the Probing Algorithm in (3).

However, there is some reason to question Bhatt’s account of the ambiguity of (68) and (69), since we observe that the equivalent of the low reading described by Bhatt (2002) holds also in (70a), where no modifier is present. To see this, consider (70a) in a scenario in which Mary has given birth to two twins yesterday night, but John incorrectly said that Mary had a single baby. Given this scenario, a possible continuation of (70a) is the one in (70b):

(70) a. The baby that John said that Mary has given birth to....

b. must have been cloned

In the reading that makes the continuation in (70a) possible, it is John (and not the speaker) who takes responsibility for the appropriateness of the singular form “baby”. Presumably the speaker is first using John’s words to report the facts and is then distancing from those words somewhat ironically in the continuation in (70b). In the same vein, when (68) and (69) receive what Bhatt calls the low reading, it is John (and not the speaker) who takes responsibility for the appropriateness of the modifier “only/first”. We conjecture that in all three cases the relevant reading may be explained as a case of scare quotes, although we must leave to future research the task of developing a precise semantic account for this phenomenon. Adopting a scare quote analysis would allow us to avoid assuming reconstruction of the modifier in (68) and (69).

In this section we have discussed reconstruction effects in relative clauses. After having pointed out a pair of sentences that strongly support our version of the raising analysis (61-62), we discussed murkier cases and show the factors that make them complicate. All in all, although the pattern is quite complex, the distribution of reconstruction effects supports our approach.

8. The trigger of movement in relative constructions

Our account is not complete without a brief reflection on what exactly triggers the instances of relabeling movement we are discussing here, since we will have to make some assumptions that imply a severe departure from standard hypotheses on how movement is derived. These considerations on the trigger of movement in relative clauses will then allow us to move further and extend our analysis to other types of relative constructions.

As for free relatives, no real issue arises given out account: since free relatives involve the movement of wh-elements, which are independently known to be moveable, nothing special needs to be said. Whatever mechanism forces wh-movement in questions is also responsible for wh-movement in free relatives: in Agreement terms, there will be a Probe C with a wh-feature to be valued, searching and attracting a wh-goal in its c-commanding space. This view further implements our proposal that free relatives and questions have the very same structure and derivation and that their difference in distribution is just due to the projecting property of lexical items.

Things are more interesting for full relatives. In our approach (but, *mutatis mutandis*, the same holds for any raising analysis) a serious issue arises as for the trigger of the movement given that the ‘head’ N has no specific morphological marker (it is not wh-): this is true for ‘that’ relatives in the first place, where the head moves directly from its base position to the edge of the clause (71a), but also for the ‘wh’-relatives, where there is a step of the derivation, when the head moves out of the wh-phrase and merges to the root, for which no wh-trigger can be called for: (71b).

- (71) a. the [man [that [I met ~~man~~]]]
 b. the [man [[who ~~man~~] [I met [~~who-man~~]]]]

We have seen that the result of the operation is that of providing an external Determiner with an object satisfying its selectional requirements (through relabeling). It is very tempting to argue that this is indeed the trigger of the operation itself. How can we reach this conclusion without introducing an unwanted look ahead in the computation or an anticyclic operation?

Consider the notion of selection and its role in the computation: in most standard views, selection is responsible for any structure building operation². In contrast with standard Agree relations, selection involves an element still sitting in the numeration and a syntactic object already formed in the computational space. If we want to adhere to a strict minimalist thesis and assume that selection is a type of probe-goal relation, this amounts to saying that an element in the numeration can probe an element in the computation and trigger *external merge* (see Rizzi 2008 for a similar view). In (72), to illustrate, the verb ‘think’ in the numeration probes for the SO ‘that Mary will leave’. As a result, the two merge together: (73).

- (72) { think_C, ... }
 [C that Mary will leave]
 (73) [think_C [C that Mary will leave]]

Under the minimalist assumption that Move is just an instance of Merge, the null hypothesis is that the same mechanism can also trigger *internal merge*: in (74), for example, a D in the numeration can act as a probe searching for an appropriate N-goal to merge with. Suppose it finds an appropriate goal in the N feature present within the SO ‘[that man will come]’.

- (74) { the_N, ... }
 [that [_Nman] will come]

Direct merging of ‘the’ with ‘man’ in the base position of the noun would violate the No Tampering Condition. As an alternative, the Probe D (still in the numeration) triggers *internal merge* of the N, which can turn the root into an appropriate SO with which D can merge: (75).

- (75) the_N [_Nman that ~~man~~ will come]

More generally, it seems reasonable to assume that an LI still in the numeration can directly trigger a movement operation insofar this movement creates the proper SO that satisfies the selection requirements of the LI. Let's call this movement 'selection driven movement'.

Since in our system only head movement has the property of relabeling its target, we predict that only head movement can be selection driven.

Issues concerning triggers are important but intricate, and a proposal of this kind, directly linking head movement to selection needs to be closely scrutinized in its predictions. In particular, it would be necessary to verify whether this kind of account can hold for other types of head movement (like, say V movement, or T movement) and whether introducing 'selection driven movement' does not over-generate. Although this paper is not the place to elaborate a fully-fledged theory of 'selection driven movement', we can observe that this approach nicely fits with a proposal concerning canonical cases of head movement, namely Suranyi's (2005) 'head movement *qua* root merger' theory³. We leave this important reflection for a different context, and rather focus here on some consequences of this approach on our understanding of relative clause constructions of different kinds.

Notice first of all that claiming that N movement in relatives clauses is directly triggered by external selection means divorcing this operation from the realm of the complementizer: contrary to what happens in wh-movements, where C is both the locus and the probe of the operation, here the left edge of the clause is involved only because it is the root and not because of its feature specification. A well-known fact might be interpreted as a direct evidence of this divorce. Wh-elements in Spec, CP are incompatible in many languages with an overt complementizer (due to the so-called Doubly Filled Comp Filter: DFCF, by Chomsky and Lasnik 1977).

- (76) a. *I wonder who if will come
b. *The man who that you know

Although the exact nature of this phenomenon is still unknown, it testifies the strict relation between the feature specification of the complementizer and that of the element it merges with in wh-movement constructions. As is well known, however, no such effect holds between the head of a relative clause and the complementizer, in any language:

- (77) The man (that) you know.

Traditionally, this is explained by proponents of the raising analysis (e.g. Bianchi 1999) by claiming that relative 'heads' and the Wh-elements move into two different landing sites in the COMP area. Given the approach we are assuming here, we can provide a simpler explanation. The landing site of the two instances of movement may be the same (the edge of the clause), but the trigger differs: in wh-movement C is involved as the trigger, and this affects its realization (DFCF); when the relative head moves, C is not involved (because the trigger is external selection), and the movement has no consequence on the realization of C: no DFCF.

But if the movement of the relative head is directly triggered by the selection features of an external element, we expect it to hold and have similar properties in at least two different contexts other than full relatives: a) in structures which do not involve any complementizer layer and are not even clausal (what is needed for movement to feed external selection is that it merges the appropriate feature to the root, not necessarily to C). Reduced relatives are the case in point; and b) in structures where the external selector is not D but some other elements. More precisely, we expect there to exist structures similar to free relatives, where the raising head of the clause is a D selected by, say, an external V, but no wh-feature is involved. Romance pseudo relatives, we argue, are the case in point. Let us have a closer look to both types of constructions and see how our analysis accounts for their properties.

9. Reduced relatives

Reduced relatives in English are illustrated in (78).

- (78) a. The philosopher admired by Marx
b. The philosopher admiring Marx

In English, reduced relatives either contain a past participle (cf. 78a) or a present participle (cf. 78b). The distribution of reduced relatives is precisely constrained. They all correspond to subject relatives. Furthermore reduced relatives with a past participle are fully productive only with passive verbs (cf. 78a), while they have a marginal status with unaccusatives (cf. 79) and they are impossible with transitive and unergative verbs (cf. 80 and 81):

- (79) ? The guy arrived yesterday
(80) *The guy opened the window
(81) *The guy phoned yesterday

Reduced relative with a past participle are fully productive in Italian as well:

- (82) a. Il ragazzo amato da Maria
The boy loved by Mary
b. La ragazza amata da Gianni
The girl loved by Gianni
c. Il ragazzo arrivato ieri
The boy arrived yesterday
d. La ragazza arrivata ieri
The girl arrived yesterday

As extensively discussed by Burzio (1986) Italian reduced relatives are perfect with both passive (cf. 80a and 80b) and unaccusative (cf. 82c and 82d) verbs, while they are totally out with unergative and transitive verbs (cf. 83 and 84):

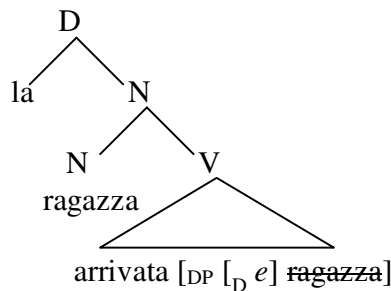
- (83) * Il ragazzo aperto la finestra
The guy opened the window
(84) *Il ragazzo telefonato ieri
The guy phoned yesterday

Given the strong similarity in structure and in meaning between full relatives and reduced relatives, it would be desirable to offer a unified account. Clearly, such an account should also explain why (some type of) reduced relatives are possibly only with some type of verbs. We claim that our approach to full (and free) relatives can do the job, when it is extended to reduced clauses. We shall first illustrate what we have in mind with Italian, but our conclusions are directly extendable to English, as we will show.

Let us simply assume that the derivation of a reduced relative is the same as the one of a 'that'-relative, as is natural given the strong similarity between them, and that the crucial difference is that no CP layer is present in the former. The derivation of a reduced relative is illustrated in (85) (cf. Kayne 1994 and Bhatt 2000 for earlier raising analysis of reduced relatives). As in 'that'-relatives, the noun

('ragazza') is generated in a DP having a null determiner. This DP is generated in the argument position, since the verb is unaccusative. As in full relatives, an external Determiner in the numeration can trigger the internal merging of the noun 'ragazza' to the root, from where 'ragazza' can relabel it forming an NP.

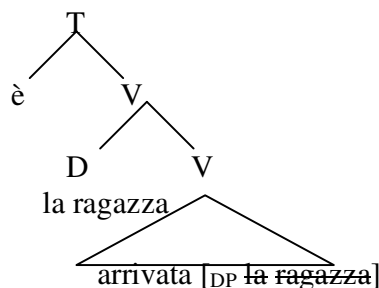
- (85) La ragazza arrivata
the girl arrived



A natural question that this analysis introduces is what prevents the entire DP to raise from the internal argument position to the root position. In fact, nothing does. However, if the entire DP raises, another (grammatical) derivation results, namely the one underlying a sentence like (86a). This derivation is illustrated in (86b). Since a DP, under the Probing Algorithm in (3), being a phrase rather than a lexical item, cannot project, V obligatory does and the entire structure is selected by the auxiliary, not by D.

- (86) a. (La ragazza) è arrivata
The girl is arrived

b.

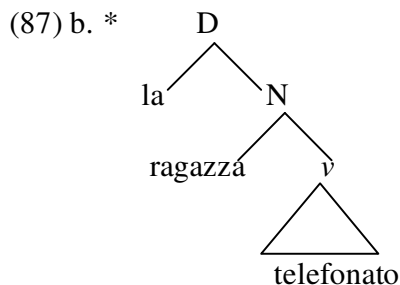


We need to assume that a null determiner sits in the argument position of the verb in structures like (84). However, this is not any special feature of reduced relatives, since null determiners are assumed for 'that'-relatives as well, and it is quite natural to assume the same type of input structure for the two relativization strategies. Since passive and unaccusative verbs share the same argument structure, our account straightforwardly extends to reduced relatives with passive (cf. 82a and 82).

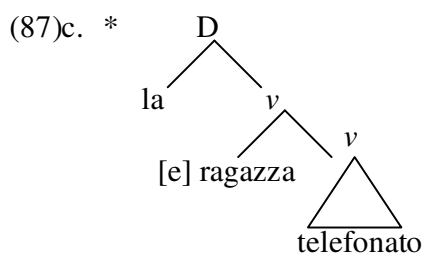
Let us move to the cases in which reduced relatives are *not* possible. To explain this impossibility, let us ask what is wrong with possible derivations of the ungrammatical structure in (87a). A first attempt is (87b). In (87b), a probing conflict arises since a LI (*ragazza*) and a probing phrase are merged. The problem is that no matter what category projects, an NP (as opposed to a DP) is not a legitimate receiver of the theta role assigned by *v*. So, (87b) is a theta criterion violation, under the standard assumption that NPs are not theta role assignees. This problem does not hold in structures like (86) since the unaccusative

verb assigns the internal theta role to the DP $[[e] \text{ ragazza}]$ before the lexical item ‘ragazza’ raises.

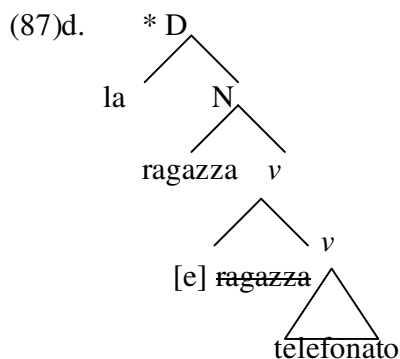
- (87) a. *la ragazza telefonato
the girl phoned



Another conceivable structure underlying the ungrammatical (87a) might be (87c), where the external argument position is occupied by a DP with a null determiner. However, (87c) is illicit as well. The problem is that, if a phrase (as opposed to an LI) sits in Spec,v, the phrase cannot project and v must. The resulting structure is not compatible with the selection of the external determiner (but only with an auxiliary, as in *(la ragazza) ha telefonato*, ‘the girl has phoned’).



Finally, a last attempt to derive (87a) is illustrated in (87d). In (87d) it is assumed that the head noun moves out of its argument position stranding the null determiner in Spec,v. In whatever position the head noun raises, it should be able to project, being a lexical item, and might be selected by the external determiner. The alleged derivation in (87d) mimics what happens in the good cases of (reduced) relatives, since we would have a head noun that raises and relabels the structure.



There is independent reason to exclude (87d), though. Consider the step by which the noun ‘ragazza’ moves and merges to vP : it is string vacuous, but it turns ‘ragazza’, an element which is not the head of a

constituent (ν P) into the head of that very constituent. Clearly, if such a movement were an option, the very notion of label and its importance in the computation would be completely nullified. We will assume that it is not, and that vacuous movement is disallowed. This explains at the same time why reduced relatives with unergatives and transitives are impossible, and why full relatives are (as in *la ragazza che ha telefonato*: ‘the girl that has phoned’): in the latter case, a subject N can move to the root and ‘relabel’ the structure without making any vacuous movement step because the CP layer is present and intervenes between the subject position and the root, so that movement between these two positions skips C, as sketched in (88)⁴.

(88) D [_N N [_C C [_D [e] N...

All in all, all conceivable attempts to derive subject reduced relatives fail if the past participle derives from a transitive verb. Exactly the same logic applies to unergative verbs, if they are concealed transitive, as proposed in much work stemming from Hale and Keyser (1993).

The analysis of Italian reduced relatives we have proposed easily extends to English reduced relatives with a past participle, as in (73a) repeated here as (89).

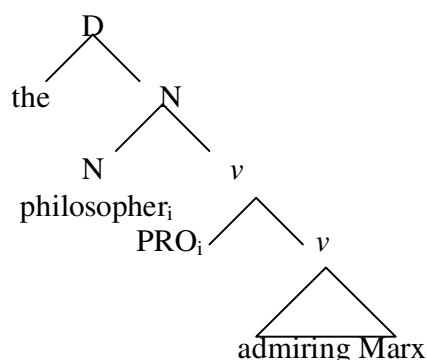
(89) The philosopher admired by Marx (writes obscurely)

As we already mentioned, the distribution of reduced relatives with a past participle in English basically reproduces that of reduced relatives in Italian: they are only possible with passive and marginally with unaccusative verbs, as shown by the ungrammaticality of (90).

(90) *The philosopher admired Marx (writes obscurely)
(intended interpretation: The philosopher who admired Marx writes obscurely)

As for reduced relatives with present participles in English, which are allowed with any kind of verb, a slightly different analysis needs to be proposed, illustrated in (91). In (91) the noun ‘philosopher’ is externally merged and projects according to the Probing Algorithm in (3), but we assume that nothing goes wrong with theta assignment since the ν P contains a PRO in argument position.

(91) The philosopher admiring Marx



The reason for this different analysis (and different distribution) is apparent. While PRO can sit in the phrase headed by a *present* participle, as assumed in (91), and as independently confirmed by the grammaticality of (92), PRO cannot sit in the phrase headed by a *past* participle, as shown by the

ungrammaticality of (93):

- (92) [PRO Admiring Marx] is dangerous
(93) *[PRO Admired Marx] is dangerous

The assumption that PRO sits in the subject position in structures like (91) can shed light on why reduced *object* relatives with a present participle are not allowed:

- (94) *The philosopher Marx admiring (writes obscurely)
(intended interpretation: The philosopher who Marx admires writes obscurely)

We assume that (94) is ruled out by whatever reason explains why PRO and overt DPs are in complementary distribution.

The account of reduced relatives that we have proposed has three welcome features: (i) the analysis for reduced relatives is minimally different from the analysis of 'that'-relatives, (ii) the impossibility of past participle reduced relatives with transitive and ergative verbs follows straightforwardly and (iii) the restriction of reduced relatives to subject relatives receives an explanation.

To the best of our knowledge, no alternative account exists that combines these three features.

10. Pseudorelatives and locality

Given our claim that head movement, being directly triggered by the selection feature of an external head (§8), does not need to involve special feature checking in C, we expect the same kind of derivation to hold when the selecting element is not an determiner. This, we will show now, is what happens in so-called pseudorelatives.

Pseudorelatives in Romance are adnominal clauses typically embedded under (certain) verbs of perception, that only superficially resemble relative clauses. One clear example of pseudorelative is in (95). The relative structure in (95) is distinguished from a restrictive relative since it “modifies” a pronoun. It is not an appositive relative clause either, since it lacks the specific prosodic contour of appositives and has a different meaning (95 roughly means “I saw him while he was kissing Maria”).

- (95) Ho incontrato lui che baciava Maria
(I) have met him that kissed Maria
I saw him kissing Maria

Another property sets pseudorelatives apart from genuine relatives: they can only be subject relatives: (96).

- (96) *Ho incontrato lui che Maria baciava
(I) have met Mario/him that Mary kissed
I saw Mario/him that Maria kissed

In our analysis, pseudorelatives are just another case of selection driven movement, much like ordinary relatives, but with a crucial difference. While in ordinary relatives, the relabeling movement is movement of N, in pseudorelatives like (95) the relabeling movement is movement of D. In (95) the matrix verb ‘incontrato’ (‘met’) needs to be merged with a DP. It finds an appropriate goal in the D feature of ‘lui’ within the SO ‘[che lui baciava Maria]’ (cf. 97). However, direct merging of ‘incontrato’ with ‘lui’

would violate the No Tampering Condition. So, the verb ‘incontrato’ (still in the numeration) triggers *internal merge* of D, which can turn the root into an appropriate SO, with which V can merge: (98).

- (97) { incontrato_D, ... }
 [C che lui baciava Maria]
 (98) incontrato_D [D lui che ~~lui~~ baciava Maria]

The representation in (99) illustrates the labeling output. Under the Probing Algorithm in (3), D, by virtue of being an LI, can transmit its label.

- (99) [D lui [C che [T [D ~~lui~~] baciava Maria]]]
 him that kissed Maria

This analysis amounts to making pseudorelatives also very similar to free relatives: in both cases what moves is a determiner-like head, as opposed to full relatives and reduced relatives, where what moves is a N-head. There is however an important difference in our analysis between free relatives and pseudorelatives: recall that in free relatives the probe of the operation is a C attracting a wh-goal. As a result, we discussed this in details in section 3, a labeling conflict arises (C is the Probe of the operation, but the wh-element is a Probe too by virtue of being a lexical item) and free relatives are systematically ambiguous. This ambiguity does not hold for pseudorelatives, and for a good reason: here C is not involved in the raising of the head, which is directly driven by selection. As a result, C is not a probe and no conflict arises, hence no ambiguity: pseudorelatives are never allowed to be embedded under a verb selecting for a CP⁵.

- (100) *Ho saputo lui che baciava Maria.

The fact that pseudorelatives are restricted to subjects can also be derived under our account, in the following way. In pseudorelatives, any subject intervenes and blocks object raising because the feature attracted is D and a D in subject position c-commands the goal in object position: (101).

- (101) *[D/C lui [C che [T [D la studentessa/Maria] baciava [D ~~lui~~]]]]
 Mario that the student/Maria kissed

Note that our account can also explain why a similar intervention effect does not arise in free relatives and in ordinary relatives. Plain subjects do not intervene in free relatives because what moves is a wh-D head, attracted by a wh-C, and a plain D does not act as a proper intervener: only a wh D-subject does, as shown in (102).

- (102) a. I will read what I know that you read
 b. *I will read what I wonder who reads

As for full relatives, recall that we have assumed that movement of the ‘head’ is dissociated from C and wh-features and that, at least in its final step, it is directly triggered by external selection (§8), just as in pseudorelatives. However, the reason why full relative clauses are not restricted to subject positions becomes apparent if we consider that in full relatives what moves is a N head (selected by an externally merged determiner), not a D head (103). While a D in subject position c-commands a D in object position acting as an intervener for a D-chain, this does not hold for a N in subject position, which, being

embedded under a D, does not c-command anything in the clausal spine and does not technically intervene⁶.

(103) il [_N ragazzo [_C che [_D la [_N studentessa]] baciava [_D e [_N ragazzo]]]]

Pseudorelatives are possible with proper names, as well:

(104) Ho incontrato Gianni che baciava Maria
(I) have met Gianni that kissed Maria
I saw Gianni kissing Maria

This is not surprising, since proper names and pronouns have a similar distribution and freely occur in argument positions. We assume that the derivation of a pseudorelative like (104) is identical in the relevant respect to the derivation of (95), namely ‘Gianni’ moves alone and relabels the structure by virtue of being an LI. Most analyses assume that a proper name in Romance is of category N and gets a referential type by N-to-D movement into an (often invisible) DP layer (cf. Longobardi 1994 and Chierchia 1998 for two different approaches that share this assumption). Our approach is consistent with these approaches as long N-to-D movement takes place after the proper name has moved alone to the root of the relative structure (possibly out of an invisible DP layer in its base position). Indirect evidence is provided by considering the few cases discussed in the literature in which the null DP structure that embeds the proper name is phonologically realized. One such case is pronominal adjectives like ‘solo/sola’:

(105) Il solo Gianni mangiava un gelato
the alone-MASC Gianni eat-IMPERFECTIVE an ice-cream

Interestingly, the pseudorelative corresponding to (105) is unacceptable (106 improves with a intonational break after ‘Gianni’, but this signals an appositive structure)

(106) *Ho incontrato il solo Gianni che mangiava un gelato
(I) have met the alone-MASC Gianni that eat- IMPERFECTIVE an ice-cream
(intended meaning: I met Gianni and only Gianni was eating an ice-cream)

We assume that the ungrammaticality of (106) is due to the fact that the entire phrase ‘il solo Gianni’, as opposed to the LI ‘Gianni’, has raised. However, phrasal movement does not have the power to relabel the structure, by transforming a CP into a category D, which is required by the matrix verb ‘incontrato’. We can also exclude an alternative derivation for (106), namely the one in which ‘Gianni’ first raises out of the relative structure as an LI and is then inserted in the DP containing the pronominal adjectives ‘solo’. This derivation would give the desired labeling output but does not generate the intended meaning, which is “I met Gianni and *only he* was eating an ice-cream” (the meaning which would be derived is “I met *only Gianni* and he was eating an ice-cream”⁷.

In this section we have seen that selection driven movement, as expected, occurs also with a selector different from D (the selector in restrictive relatives). When a verb triggers a relabeling movement of D, a pseudorelative structure emerges. We could explain the puzzling fact that only subject pseudorelatives are allowed as a locality effect, under the standard assumption that Relativized Minimality effects arise only if the intervener c-commands the Goal.

11. Conclusion

Although relative constructions have been systematically investigated for over 40 years in the generative tradition, the debate on their correct analysis is still very much open. The raising analysis (Kayne 1994, Bianchi 1999 a.o.), in particular, has many merits, the first being that it gives a simple explanation for the pivotal nature of the relative ‘head’, acting as a constituent both of the relative clause and of the matrix clause: the two positions are simply related by movement. We believe however that the raising analysis suffers from some drawbacks which all trace back to an incomplete understanding of the nature, the properties and the trigger of this movement operation. In this paper we proposed a slightly modification of the raising analysis which led us to bypass the limits of the standard analysis and allowed us to extend its approach to a whole class of constructions related to relative clauses but poorly understood: free relatives, reduced relatives, pseudo relatives.

We started from a specific approach to phrase structure theory (Cecchetto and Donati 2010) where a lexical item can transmit its label when it is merged with another category, both when it is externally merged and when it is internally merged (i.e. moved). This means that there is a type of movement, head movement, which has the property of relabeling the structure it merges with. Analyzing the raising of the relative ‘head’ in different types of relativization structures as an instance of this relabeling head movement, we clarified the trigger of the movement, its relation to wh-movement, its case related properties, and its locality restrictions.

This new approach led to a radical revision of some standard assumptions of the current theory, such as the difference between adjuncts and complements in the nominal domain, or the relation between selection and movement. We hope the conclusions we reached here might be a stepping stone towards further research in these different directions.

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Notes

¹ Although Cecchetto and Donati (2010) make free relatives a central case of their general theory of labeling, the idea that free relatives are derived through the “projecting movement” of the *wh*-word is not new. In fact, it goes back to Larson’s (1998) first intuition (see Bury 2003, Citko 2006, Donati 2006 and Iatridou, Anagnostopoulou and Izvorski 2001 for further development). On the projecting property of head movement see also Surányi (2005, 2007, 2008).

² With the exception of those involving adjuncts, which are by definition not selected: see Cecchetto and Donati (2010) and Hornstein (2009) for two distinct proposals on adjunction and a (tentative) derivation of adjunct islandhood.

³ Biberauer et al. (2009) observe that, given minimalist assumptions on Agree and Merge, the *absence* of selection driven movement should be stipulated. However, they do not restrict selection driven movement to head movement the way we do, with interesting consequences. We refer to Cecchetto and Donati (in progress) for a more articulated definition of our proposal on selection driven movement.

⁴ This account, where the presence of overt material in C plays a crucial role in allowing the raising of a subject noun in relative clauses, straightforwardly derives the well known contrast concerning complementizer deletion in English illustrated below:

- (i) the man (that) I saw ~~man~~
the man *(that) ~~man~~ saw me

that deletion in subject relatives makes N raising string vacuous in subject relatives (ib) but not in object relatives (ia).

⁵ This conclusion should not be undermined by the compatibility of pseudorelatives with event proforms, such as ‘ciò che’, or ‘un fatto’, as illustrated in (i).

- (i) a. Ho visto lui che baciava Maria, un fatto molto curioso
(I) have seen him that kissed Maria, a fact very curious
I saw him kissing Maria, a very curious fact
b. Ciò che ho visto è lui che baciava Maria
What that (I) have seen is him that kissed Mary
What I saw is him kissing Maria

These proforms tell us something concerning the *interpretation* of pseudorelatives, which can have both an individual and an event reading, but don’t tell us anything about their syntactic category, which is always D, as shown in (99). That these proforms are not syntactic but semantic tests is confirmed by (ii), where they are shown to be compatible with a DP insofar it has an event interpretation.

- (ii) Ho sentito l’esplosione delle torri, un fatto sconvolgente
(I) have heard the explosion of the towers, un fact shocking
I heard the explosion of the towers, a shocking fact
Ciò che ho sentito è l’esplosione delle torri
What that (I) have heard is the explosion of the towers
What I heard is the explosion of the towers

⁶ Subject (full) relatives are however more frequent and easier in at least two senses: they are much more frequent crosslinguistically (cf. Keenan and Comrie (1977)’s Accessibility Hierarchy of relativization: Subject > Direct Object > Indirect Object > Oblique > Genitive > Object of comparative) and they are acquired considerably earlier (around age 3, interestingly together with pseudorelatives: Guasti, p.c.) than object relatives (acquired very late, around age 7-8): see recently Friedmann, Belletti and Rizzi 2009, among many others. It would be very interesting to relate this ‘difficulty’ of object relatives to the impossibility of object pseudorelatives, at least parametrically. We must leave this for further research.

⁷ One might think that the head of pseudorelatives is not restricted to proper nouns and pronouns, contrary to what

claimed in the text. As shown by its two English translations, (i), in addition to receiving a restrictive relative reading, receives a temporal reading, akin to the one found in pseudorelatives:

(i) Ho visto il ragazzo che se se stava andando

I saw the boy who was leaving

I saw the boy while he was leaving

However, as Cinque 1992 correctly points out, the impression that (i) is a pseudorelative is due to the interference of an independent adverbial construction. Consider (ii).

(ii) Ho visto Gianni che se ne stava andando

(ii) is ambiguous between a pseudorelative structure (and interpretation) and a structure where the NP is the object of the perception verb, and the CP is a temporal adverbial clause with a null subject, with a meaning basically corresponding to a 'while' clause. This ambiguity can be solved by inserting a lexical subject in the adverbial clause, as in (iii). In order to make the use of a lexical subject fully natural, in (iii) the pronoun is modified by *anche* ('as well').

(iii) Ho visto Gianni che anche lui se ne stava andando

Clearly, (iii) is not a pseudorelative, since it contains no gap. Another test disentangling a pseudorelative from the adverbial construction is fronting: in a pseudorelative, but not in the adverbial construction, the noun and the clause form a constituent that can be fronted, as in (iv). That (iv) is not compatible with the adverbial construction is shown by the impossibility of inserting a lexical subject.

(iv) GIANNI CHE (*ANCHE LUI) SE NE STAVA ANDANDO ho visto

With this in mind, we can go back to (i) and show that it is not a pseudorelative. This is clearly shown if we try to front it, as in (v).

(v) IL RAGAZZO CHE SE NE STAVA ANDANDO ho visto

Here the structure gets disambiguated: the only reading available is the restrictive one, while the reading that looked like a pseudorelative in (i) disappears. This shows that that reading was indeed due to the adverbial structure, here excluded due to its incompatibility with fronting.