RELATIVE STRUCTURES (AND OTHER STRONG ISLANDS) REDUCED TO RELABELING

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0. Relativization, Nominalization and strong islandhood.

Relatives are clauses with a nominal distribution, involving A'-movement and acting as strong islands for extraction. In the framework of the theory of labeling developed by Cecchetto & Donati (2010) and Donati & Cecchetto (2011), this talk aims at providing a principled account for these three properties of relativization, connecting them as three effects of the same phenomenon: head movement and its relabeling properties.

1. Movement and label.

The starting point is the notion of Label as in (1) and the Probing Algorithm in (2) as defined by Cecchetto & Donati (2010) (but see Adger (2003), Boeckx (2008), Chomsky (2008) and Pesetsky & Torrego (2006) for similar proposals).

(1) **Labels**. When two objects α and β are merged, a subset of the features of either α or β become the label of the syntactic object $\{\alpha, \beta\}$. A label:
(i) can trigger further computation
(ii) is visible from outside the syntactic object $\{\alpha, \beta\}$ for selection

(2) **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 $\{\alpha, \beta\}$

What (2) says is that the label of any merge output is always the feature asymmetrically triggering the Merging operation. Cecchetto and Donati (2010) assume that the simple algorithm in (2) can capture the core cases traditionally described by X-bar theory if, following Chomsky (2008), every LI is endowed with a feature, call it edge feature, which forces the LI to merge with other material. If this is assumed, any time an LI is merged, it qualifies as a Probe by virtue of its edge feature. This means that an LI, being a Probe by definition, always activates the algorithm in (2) and its categorial feature can provide the label. For example, each time a head (=LI) is externally merged with its complement, the head is bound to project. This way, the system based on (2) captures the two empirical generalizations that any version of phrase structure theory must account for: namely, that the target of movement (a Probe) typically projects and that a lexical item projects when it is merged with a XP. Crucially for what follows, even when an LI is *internally* merged, it can project.

2. Head (= LI) movement creates labeling conflicts: free relatives

Head (= LI) movement is special, since it can "change" the label of the landing site of movement:

(3)   a. I wonder what you read
      b. I read what you read
(4)   a. Il presidente si chiede chi lo ama
         the president wonders who him loves
         'the president wonders who loves him'
      b. Il presidente apprezza chi lo ama
         the president appreciates who him loves
         'the president praises the people who love him'

In (3), a WH lexical item, 'what', is internally merged to a Probing C. The Probing Algorithm (2) correctly predicts that there should be a labeling conflict here. If the LI provides the label, the structure ends up being a DP, i.e. a free relative; if the probing C provides the label, the structure is a (interrogative) clause: as a result, the structure is systematically ambiguous, as shown by its compatibility both with verbs selecting for nominal complements (e.g. 'read' in 3b) and with verbs selecting for clauses, as in (3a). The same holds for (4) in Italian with 'chi' ('who').

No ambiguity arises when a phrase is WH moved: 'what book' in (5) does not qualify as a Probe, and only the target C is bound to project. (5) can only be an (indirect) interrogative clause. The same contrast is illustrated in Italian in (6).

(5)   What book you read
      a. I wonder what book you read
      b. *I read what book you read.

(6)   a. Il presidente si chiede quali italiani lo amano
         the president wonders which Italians him love
         'The president wonders which Italians love him'
      b. *Il presidente apprezza quali italiani lo amino
         the president appreciates which Italians him love

Crucially, the phrasal/head status of the moving category is the only difference: in (3-4) and (5-6), WH-movement is probed in the same way (by a probing C searching for a WH-feature), and displays the same restrictions, for example it can apply long distance (provided that it is obeys familiar locality conditions):

(7)   a. I wonder/read what you told me that I should read ~~what~~
      b. I wonder/*read what book you told me that I should read ~~what book~~

3. A HEAD raising analysis for full relative clauses

As we argued in previous work (Donati and Cecchetto 2011), full relatives can be fruitfully analyzed as involving head movement, as in (8).

(8) I like the [$_N$ book [$_C$ that [$_T$ John read [$_D$ D ~~book~~]]]]

In (8) the movement of a head, 'book, correlates with target relabeling: what moves is a N and the structure gets a N label, in accordance with the Probing Algorithm (2). This label matches the selection requirements of the externally proposed by merged D. This analysis inherits all the pros of the traditional raising analysis proposed by Vergnaud 1978, Kayne 1994, Bianchi 1999, Bhatt (2002), a.o., as the external head noun and the gap are transformationally related. Furthermore, it has the merit of explaining for free the fundamental properties of relative clauses, namely that they are clauses with a nominal distribution.

When the head looks like a phrase
Our analysis seems to face a problem when the external head of the relative clause is a phrase, as in (9).

(9) I like the book about Obama that John read

We assume that the material that modifies the head noun ("about Obama" in 9) can (and must be) late-merged, after the head noun has moved and has "relabeled" the structure. This assumption makes so-called complements of nouns and adjuncts to the nouns more similar than it is usually thought.
However, there is independent evidence that nouns do not take complements the same way verbs do.

> *Theta criterion exemption*

Even 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.

> *Constituency Tests* (Chiara Branchini p.c.)

Standard constituent tests indicate that while verb plus internal argument is a minimal constituent, noun plus alleged complement is not: a pronoun can replace determiner+noun without replacing the alleged complement of the noun (cf. 10);

(10) *a*. Ho visto [il padre di Gianni]
      I have seen the father of Gianni
   b. Ho visto quello di Gianni
      I have seen that of Gianni

Note that the same is impossible with the complement of the verb. While the proform *farlo* ('to do that') can replace verb+complement (cf. 11a), it cannot replace subject+verb by leaving the complement unaffected:

(11) Lui ha mangiato gli spaghetti….
     I have eaten the spaghetti
    a. e anche lei l'ha fatto ("farlo" = ha mangiato gli spaghetti)
    and also she it-has done

b. * e anche l'ha fatto gli spaghetti
   and also it-has done the spaghetti ("farlo" = lei ha mangiato)

➢ Ne-*Cliticization Pattern*

One of the uses of the clitic 'ne' in Italian is illustrated in (12). In (13) 'ne' is a proform for the PP 'of the meeting', namely the "complement" of the noun 'summary'.

(12) a. Ho scritto un riassunto della riunione.
      (I) have written a summary of the meeting
      b. Ne ho scritto un riassunto.
      Of-it (I) have written a summary

However, if the PP to which 'ne' corresponds is the "complement" of the head noun of a relative clause, 'ne'-cliticization becomes sharply ungrammatical:

(13) a. Ho letto un riassunto della riunione che tu hai scritto.
      (I) have read a summary of the meeting that you have written
      b. *Ho letto un riassunto che tu ne hai scritto.
      (I) have read a summary that you of-it have written

Under our analysis in terms of relabeling, 'ne'-cliticization is impossible in (13b) because any modifier of the head noun 'summary' (including the clitic material) can be merged only after the head noun has moved to the left periphery and relabeled the structure. This means that the surface position of the clitic 'ne' is lower than the position in which it is inserted into the derivation. So, the derivation of (13b) involves a lowering movement and this explains the deviance of the sentence.

➢ *Reconstruction, I*

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 violation 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 (14) and (15):

(14)   *a*. The professor of John$_i$'s that he$_i$ always praises
          b. Il professore di Gianni$_i$ che pro$_i$ /lui$_i$ elogia sempre

(15)   *a*. * The professor$_i$ that he$_i$ always praises
          b. *Il professore$_i$ che pro$_i$ /lui$_i$ elogia sempre

Note that, assuming any version of the raising analysis, the gap inside the relative clause in (15) has the form [$_{DP}$ D professor] so, the very degraded status of this sentence under the relevant interpretation can be clearly reduced to a Condition C effect (cf. *He$_i$ always praises the professor$_i$). The acceptable status of (14) can

equally be explained if no Condition C effect holds due to late merge of "of John's". No trace of "of John's" is present in the structure that can trigger reconstruction.

Notice that the vast literature on reconstruction effects in relative clauses (cf. Bianchi, 1999, Cecchetto 2000, Munn 1994, Safir 1999, Sauerland 2003, a. o.) focused on the lack of Condition C effects in sentences like (14) but it neglected this contrast between (14) and (15). 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 (14)-(15) is puzzling, since (14) would be counterevidence for the raising analysis while (15) would support it. However, the modified version of the raising analysis that we propose straightforwardly explains this contrast.

➢ *Reconstruction, II*

Bhatt (2002) interprets the ambiguity of (16) and (17) as evidence that the modifier reconstructs, and thus gets in its position by raising together with the head noun.

(16) The only book that John said that Tolstoy had written (Bhatt 2002)
(17) The two books that John said that Tolstoy had written

But a similar ambiguity holds in (18), where no modifier is present, as shown by the two possible continuations given the following scenario.

Scenario: Mary has given birth to two twins yesterday night but John incorrectly said that Mary had a boy:

(18) The boy that John said that Mary has given birth to
     … weighs three kilos
     …. must have been cloned

Whatever mechanism explains the ambiguity of (18), possibly a a scare quote analysis, might work for (16) and (17). So, we assume that (16) and (17) are not conclusive evidence for reconstruction of the modifier.

Summarizing so far, the HEAD raising approach to relative clauses has the advantage of combining the many merits of the classical raising analysis (Vergnaud 1978, Kayne 1994, Bianchi 1999) with a straightforward explanation of the projecting nature of the raising of the head, which turns a clause into something matching the selection of a Determiner: an NP.

On the trigger of head raising

Notice that the 'head' N moving and relabeling the structure in relativization 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 (as in 8), but also for 'WH'- relatives, in which the head initially WH moves

with its determiner but later moves out of the WH phrase and merges to the root. No WH trigger motivates this latter step: (19).

(19) the [book [[which book] [I read [which book]]]]

We have said that raising of the head Noun conveniently provides the external determiner with an object satisfying its selectional requirements (through relabeling). We have argued elsewhere (Donati and Cecchetto 2011) that selection is indeed the trigger of the raising operation. We assumed that a LI still in the numeration can search for a syntactic object and trigger a movement of this object insofar this movement creates the proper SO that the LI needs in order to satisfy its selectional requirements. We called this movement 'selection driven movement'. There is however a very serious problem with this approach, namely subjacency: to illustrate, in (20) *the* probing directly for *book* in the clause would be a patent violation of any cyclicity, say PIC, as in (21).

 (20) [the$_N$ [$_N$ book that I read book]]

(21) *Phase Impenetrability Condition* (PIC)
      The complement of a phase α is not accessible to operations at the level of the next highest phase β, but only the head and the edge of α are. (cf. Chomsky 2001)

This means the relation between N movement and selection must be more indirect: we will assume that the head 'book' feeding selection is not embedded in the clause but rather moved at its edge and that this movement is unprobed. Before, we must make a step back to the theory of labelling, probing and successive cyclic movement.

4. Back to labels: unprobed movement creates a label-less node

The fact that Merge typically results from a Probing operation does not imply that it has to. Rather, we assume with Chomsky (2008) that Merge, either external or internal (movement), is a costless operation applying freely.
However (2) severely constraints the application of free (=unprobed) Merge, as is desirable (totally free Merge would be in conflict with the very notion of grammatical *constraints*). In fact, (2) implies that each time Merge is *not* Probed, its output will have *no* label. This is true both for external merge and for internal merge.
But, given (1), an object without a label has a very restricted distribution: it cannot be selected and no further computation can take place inside it. Given these restrictions, do label-less object actually exist? One obvious candidate is clauses (another candidate is the structure resulting when an adjunct is merged to the clausal spine, cf. Hornstein 2009 and below). Clauses are very special objects, in that they can be root structures, and in this sense they are unique among all the syntactic

categories. This uniqueness of clauses is what underlies the idea that clauses are phases, i.e. cycles.

This peculiarity of clauses may entail another peculiarity: arguably root clauses (=sentences) do not need labels. Given (1), if labels are needed for a derivation to proceed (labels can trigger further computation) and feed external merge (through selection), when a structure is neither embedded nor triggers further computation it needs no label. This derives immediately that clauses can host unprobed instances of movement, as in (22).

(22) [ø A book [$_C$ Mary likes ~~a book~~]]

Here the element which is moved is a phrase, and thus cannot qualify as a Probe. Target C is not (obviously) endowed with a morphological feature hence there is no evidence that it probes the moved phrase either: the structure is thus unlabeled. This is not a problem insofar it is a root structure. If we are on the right track, there should be cases of "dislocation" or "topicalization" that are restricted to the root and are not possible in embedded contexts. In fact, such cases are reported in the literature for a variety of languages. These include: Hanging Topic as distinct from left dislocation in Romance (cf. 23 from Cinque 1977), Left Dislocation as distinct from Topicalization in English (cf. Lasnik and Uriagereka 1988) and right dislocation in strict head-final languages like Japanese and Turkish (cf. and Kural 1997 and Tanaka 2001).

(23) (*A) Giorgio, ieri ho conosciuto la ragazza che gli ha scritto quelle insolenze
Giorgio yesterday I met the girl that to-him has written those insults
"Speaking of Giorgio, yesterday I met the girl who insulted him"

5. Deriving the 'escape hatch' status of the edge of the phase

What happens if a label-less clause needs to be embedded? By definition, it will need a label, since it must feed selection. This leads us to the no-labeling approach to successive-cyclic-movement (cf. Bluemel 2001, Chomsky 2011, Thom 2011). Consider the derivation for "Which book do you think she likes?". Suppose that you have derived (24) and that the numeration contains the verb "think".

(24) [ø Which book [$_C$ she likes ~~which book~~]]

At this stage, the label-less layer in (24) must be destroyed, since the matrix verb must be able to select for C. This can be done only by vacating the unprobed moved phrase. This entails that 'which book' in (25) needs to move.

(25) [$_C$ [which book] do you think [[~~which book~~] [$_C$ she likes ~~which book~~]]]?

Clearly, this implies that the wh-phrase that undergoes successive-cyclic-movement must be maintained in a memory buffer until the derivation proceeds to the matrix C level, when the wh-phrase can be merged in its final landing site (this step of movement is probed by matrix C, of course). The existence of a temporary memory

buffer is tacitly assumed by proponents of the no-labeling approach to successive-cyclic-movement. We think it is important to make it explicit, in order to evaluate pros and cons of this approach. So, is this approach more costly than available alternatives? For sure, it is not more costly than the approach based on standard formulation of PIC, since the no-labeling approach to successive-cyclic-movement can explain why the edge of the strong phase is an escape hatch, *without stipulating this* as PIC does.

Embedded WH-questions, like (26), do not constitute a problem, given the assumptions we made so far:

(26) I wonder [CP which book [She likes ~~which book~~]]

Here the operation of merging 'which book' at the edge of the phase is probed by C (which is interrogative). As a result the structure receives a label on the basis of the labeling algorithm (2) and its edge does not need to be vacated.

Let us now double check that nothing goes wrong with the structures discussed in section 2, involving WH head movement:

(27) I wonder [C what [you read ~~what~~]]
(28) I read [D what [you read ~~what~~]]

When WH-head movement is involved, there are indeed two labeling possibilities, neither of which requires further movement: either C provides the label (it is the probe of the movement operation) and the structure is a clause (cf. 27), or the lexical item provides the label (by virtue of being a lexical item), and the structure ends up being a nominal clause (a DP), as in (28). With this in mind we are now equipped for deriving the strong islandhood status of relativization structures.

6. The Complex NP Constraint in free relatives: relabeling and no labeling are incompatible.

Consider first the sharp contrast in (30)-(31), modeled after examples in Rizzi (1982). Keep in mind that 'who' free relatives are totally OK in Italian, cf. (29).

(29) Chi ha telefonato sarà punito
       Who has phoned will-be punished
       The person who made a phone call will be punished

(30) ? A quale ragazzo sai chi ha telefonato *t*?
       To which boy (you) know who has phoned
       Which boy is such that you know the person who made a phone call to him?

(31) *A quale ragazzo punirai chi ha telefonato *t*?
       To which boy (you) will-punish who has phoned
       Intended meaning: Which boy is such that you will you punish the person who made a phone call to him?

The contrast shows that (strong) islandhood is immediately connected with labeling: both in (30) and in (31) we have an instance of an embedded WH-movement probed by the same C head. In embedded interrogatives, where the WH-word does not provide the label, the structure is only mildly deviant as an instance of a RM violation (cf. 30); in free relatives, where the WH-word provides the label, the structure is completely out (cf. 31). Let us see why it is so.

First of all, it is clear that in both cases 'to which boy' has moved passing through an intermediate step at the edge of the embedded clause. This step involves a temporary unlabeling of the structure, which is then destroyed by successive cyclic movement. In (30) this is possible: we are assuming that *a clause* can be label-less, as far as it is not further embedded. So, 'to which boy' can move unprobed to the edge of the (not yet embedded) clause. Of course, as soon as the clause gets embedded, the label-less layer needs to be eliminated. This forces the WH-element 'to which boy' to further move, as illustrated in (30').

(30') A quale ragazzo sai [$_\varnothing$ ~~a quale ragazzo~~ [$_{CP}$ chi [$_{TP}$ ~~chi~~ ha telefonato ~~a quale ragazzo~~]]?

In (31), on the other hand, 'who' provides the label to the embedded structure, so it is not a clause but a DP. A DP cannot be a root, in that it is not a complete cycle. Thus it cannot be label-less. The consequence is that 'to which boy' cannot move unprobed to its edge, as illustrated in (31').

(31') * [$_\varnothing$ ~~a quale ragazzo~~ [$_{DP}$ chi [$_{TP}$ ~~chi~~ ha telefonato ~~a quale ragazzo~~]]]

Another possible derivation needs to be excluded, namely the one illustrated in (31'').

(31'') *chi [$_\varnothing$ ~~a quale ragazzo~~ [$_{TP}$ ~~chi~~ ha telefonato ~~a quale ragazzo~~]]

In (31'') first "to which boy" moves unprobed at the edge of the clause. This step is possible since clauses can be root and do not need a label. However things get wrong when we try to move 'who': if the structure has no label, no further computation is allowed inside it, given the definition of label in (1). This means that C cannot Probe for "who". In a nutshell, successive cyclic movement is not allowed in free relatives, due a conspiracy of two factors:

(i) if the WH-D moves first, the WH-phrase ultimately targeting the matrix COMP cannot move, since its unprobed movement would create an unlabeled layer on the top of a nominal structure.

(ii) if the WH-phrase ultimately targeting the matrix COMP moves first, the WH-D cannot move since a layer with no label cannot trigger further computation.

7. The Complex NP Constraint in full relatives: relabeling and no labeling are incompatible.

A relevant aspect of the HEAD raising analysis is that it makes full and free relatives alike in a fundamental respect. Both of them are cases in which a lexical item that moves "projects", namely relabels the target of movement. The fundamental differences are *a)* that what moves and relabels the target is D in free relatives but N in full relatives; *b)* that movement is probed in free relatives (by C) but not in full relatives. The parallelism between full an free relatives is nevertheless important, because it will allow us to use the same logic to explain island effects in both structures.

(32)   I like the [$_N$ book [$_C$ that [$_T$ John read [$_D$ D ~~book~~]]]]

Suppose we try to extract a WH-element out of a structure of this kind, triggering a familiar Complex NP Constraint Violation.

(33) * Which boy do you like the book that ~~which boy~~ read?

In order to explain the ungrammaticality of (33), we first claim that, according to PIC, extraction of the WH-phrase 'which boy' must involve an intermediate step at the edge of the embedded C. Since, given the HEAD raising analysis, also the head 'book' has to move, there are two derivations to be considered:

- 'which boy' moves before the head 'book', as in (34):

(34) [$_N$ book [$_ø$ [which boy] [$_C$ that [$_T$ ~~which boy~~ read [$_D$ D ~~book~~]]]]]

In (34) the N 'book' moves unprobed, but by virtue of being a lexical item it does provide the right label to the structure, which becomes an NP and can be merged with the external D 'the'. However, in (34) there is a label-less layer that is not at the root. The derivation crashes under the assumption introduced in section 4 that a label-less layer is permitted only at the root (of a clausal constituent).

- Another possibility if for 'book' to move at the edge first, as shown in (35).

(35) [$_ø$ [which boy] [$_N$ book [$_C$ that [$_T$ ~~which boy~~ read [$_D$ D ~~book~~]]]]]

In this position 'book' can label the structure by virtue of being a lexical item, and the structure gets a nominal label. However, also the structure in (35) violates the constraint that a label-less layer is permitted only at the root of a clausal constituent, since the label-less node is at the top of a nominal structure and, by assumption, a nominal structure does not tolerate to be a root.

Concluding this section, we can say that successive cyclic movement is not allowed in full-relatives, due a conspiracy of two factors:

(i) if the head of the relative clause moves first, the WH-phrase ultimately targeting the matrix COMP cannot move, since its unprobed movement would create a label-less layer on the top of a nominal structure, and this is not allowed.

(ii) if the WH-phrase ultimately targeting the matrix COMP moves first, the head of the relative clause cannot move because this would embed an unlabeled layer.

8. The other side of the Complex NP Constraint. A generalized garden path effect?

As is well known, island effects are observed also when a WH-phrase is extracted out of what looks like the complement clause of a noun (but see above for a different view about "noun complementation").

(36) * Which paper did you make the claim that Mary wrote *t* ?

The account proposed up to now does not say anything about island effects in this construction. One way to go would be assuming that complement clauses, or at least complement clauses selected by nouns, must be analyzed as relative clauses (Arsenijević, 2009a, Kayne 2010). However, in this talk, we will try a different route and propose that this type of island effects might be due to processing. Although at the moment we cannot provide any quantitative analysis supporting this, it seems pretty clear that relative clauses are much more frequent and more productive than clausal complement of nouns. For example, each noun that admits a complement clause admits to be modified by a relative clause, but clearly not the other way around (in fact, only a small subset of nouns can take complement clauses). So, it is likely that, each time a speaker processes a structure like (37), (s)he goes for the relative clause interpretation and (s)he later needs to revise it, if 'that' is followed by a complement clause with no gap. Namely, each Noun complement clause would introduce a garden-path effect.

(37) The N that…..

If we are on the right track, it is clear why extraction from the complement clause of a N leads to a deviant output. Not only a garden-path is involved, but the analysis that needs to be revised involves an island violation (extraction from a relative clause, which we accounted for in section 7).
So, the processing cost with nouns taking complement clauses is very serious, because it involves re-analysis after an island effect has been triggered. We assume that this can explain the degraded status of sentences like (36). A piece of evidence supporting a garden-path analysis is the following contrast in Italian.

(38) a. *Quale paese hanno dato l'ordine che invadessero ~~quale paese~~ ?
           which country have given the order that is invaded
           'Which country did they give the order that they invade?'
     b. ?Quale paese hanno dato l'ordine di invadere ~~quale paese~~ ?
           which country they-have given the order to invade
           'Which country did they give the order to invade?

This contrast shows that it is more acceptable to extract from an *infinitival* noun complement clause, than from an inflected one. However, this contrast cannot be explained in terms of a general fact concerning extractability from infinitival clauses, as the data in (39) show.

(39) a. *Cosa cerchi l'uomo a cui avevi affidato *t*?
      What you look for the man to whom you had given
   b. *Cosa cerchi l'uomo a cui affidare *t*?
      What you look for the man to whom to give

In relative clauses constructions, no asymmetry is displayed in extraction possibilities: extracting from a relative clause is as bad when the clause is infinitival as when it is inflected (but see 44 and 45 below for a proviso). The contrast with noun complement clauses calls for a different explanation. The garden path account we are proposing here provides a simple solution: extracting from a clause like (38b) is not so bad because the 'interference' of the relative clause and the garden path effect does not hold here: in Italian infinitival relative clauses cannot be introduced by *di*, as illustrated in (40).

(40) Ho comprato il libro da/*di leggere con attenzione
    I bought the book to read carefully

Our hypothesis that some cases of CNPC constraint violations, namely those involving extraction out of the so-called "complement" of a noun, are indeed garden path effects predicts that extraction from the so-called "complement" of a noun should be OK in varieties in which this structure is not temporarily ambiguous with relative clauses.
Supporting evidence comes from Modern Greek. Vassilios Spyropoulos pointed out to us that, while extraction out of a complex NP with a relative clause is totally ungrammatical in Greek (cf. 41b), extraction out of a complex NP with a "complement" clause is not (equally) deviant (41a). Crucially, the clausal "complement" of the noun in (41a) is introduced by the complementizer *oti*, while the relative clause in (41b) is introduced by the complementizer *pu*. Since no temporal ambiguity arises in Greek, no garden path effect is observed.

(41) a.   pjon   akuses   ti   fimi   oti   apelisan
      who-acc hear-past.2sg the rumour-acc that$_{comp}$ fire-past.3pl
      'Which person is such that you did you hear the rumour that they fired him?'
   b.   *pjus   akuses   ti   fimi   pu   θa stiγmatisi
       who-pl.acc hear-past.2sg the rumour-acc that$_{rel}$ fut stigmatize-3sg
      Lit: 'Who did you hear the rumour which will stigmatize?'

Also English seems to be consistent with our garden path account. (42) is not a (strong) island effect, although there is extraction from the clausal "complement" of the noun "order".

(42) Which car did you give the order to drive?

The absence of the island effect in (42) cannot be attributed to the fact that extraction from an infinitival clause is better in the general case, given the strong deviance of (43):

(43) *Which car did John know the right person to drive?
   (cf. John knows the right person to drive that car)

So, we can say that (42) is ruled in, since it is not temporarily ambiguous with a relative structure and no garden path effect is triggered.

"Relative constructions" without a gap

Some infinitival "relative constructions" are transparent for extraction:

(44) a. les sommets$_i$ qu'il a été le seul Français à atteindre t$_i$
   'the tops that he was the only Frenchman to reach'
   b. *les sommets$_i$ qu'il a été le seul Français qui ait atteints t$_i$
   the tops that he was the only Frenchman who has reached
   (from Siloni 1995)

(45) a. Quale libro lui$_i$ è stato il primo a PRO$_i$ leggere *t*?
   b. *Quale libro lui è stato il primo che *t* ha letto *t*?
    (from Sleeman 2005)

Our approach seems to be equipped for explaining the contrast between the *a*. and the *b*. sentence in each pair. In the *a*. sentences the position of the gap inside the relative construction is likely to be occupied by PRO. If so, relativization results from a control configuration rather than from a movement configuration. Since ultimately in our approach the islandhood of relative clauses is due to the conflict between relabeling movement and wh-extraction, it is no surprise that an island effect does not arise if the relabeling movement is not instantiated in the relevant structure.

9. Extending the account to other strong islands: adverbial clauses that are free relatives

It has been noticed that a number of adverbial clauses closely resemble free relatives in that they are introduced by a bare WH-element (this includes *when*-clauses, *where*-clauses and *how*-clauses) and their interpretation is roughly equivalent to a nominal + relative clause.

(46) a. I sweat when he talks to the president ~~when~~
   b. I sweat in the moment in which he talks the president

(47) a. I fell where she fell ~~where~~
   b. I fell in the place in which she fell

Interestingly, these clauses display the same ambiguity, and the same minimal contrast concerning WH-extraction discussed above.

(48) ?Who do you know when she meets ~~who~~?
(49) *Who do you sweat when she meets ~~who~~?

If we assume that these structures are indeed free relatives when they are interpreted as adjuncts, their strong islandhood can be explained along the same lines just presented: the free relative interpretation is only obtainable if the WH-word moves to the edge of the embedded clause and provides a label to the structure: at this point the structure does not qualify anymore as a possible root, so unlabeled movement to its edge is banned (cf. 50). If the WH-phrase ultimately targeting the matrix COMP moves first, the WH-D cannot move since a layer with no label cannot trigger further computation (cf. 51).

(50) *[$_\varnothing$ ~~who~~ [$_{PP}$ when [$_{TP}$ she meets ~~who when~~]]]
(51) *when [$_\varnothing$ ~~who~~ [$_{TP}$ she meets ~~who when~~]]

There are cases of strong islands that are less straightforwardly amenable to the kind of explanation that we have been proposing for full relatives, free relatives and islands like *when*-clauses.

➢ *If-clauses*
A case at point is *if*-clauses:

(52) If he talks to the president, I sweat

The reason why it is not straightforward to extend to (52) the account for free relatives should be apparent: 'if' is not a plain WH-word and, accordingly, it is not clear which gap it could leave inside the 'if' clause. However, there are analyses in the literature that suggest that an extension of our account to *if*-clauses, is indeed possible (Arsenijević, 2009b, Bhatt & Pancheva 2006 and Haegeman 2010a a.o.) First of all, 'if' may not be a plain WH-word but it does have an interrogative use in (some varieties of) English, cf. "I wonder if…". In fact, Kayne (1991) has argued that the conditional *if* and the interrogative *if* are one and the same element. As discussed by Bhatt and Pancheva (2006), that the "complementizer" introducing the protasis is a WH-word is even clearer in other languages including many Romance varieties (where the equivalent of *if* is the canonical complementizer of embedded yes/no question), German (where the equivalent of *if* is *wenn*, which also appears in *when* clauses) and Bulgarian (which also uses an interrogative complementizer to form a conditional clauses).

A second important observation is that, from an interpretative point of view, (52) is not fundamentally different from the correspondent *when*-clause, namely sentence (46) above: "I sweat when he talks to the president". After all, (52), like (46), can be roughly paraphrased by using a nominal + relative clause:

(53) I sweat in the situations/possible worlds in which he talks the president

Starting from this type of observation, Bhatt and Pancheva (2006) propose that *if*-clauses are just another case of free relative, where a WH-word (or a null operator) is a binder of a possible world variable. So, while a canonical free relative as "what John bought" is interpreted as the plural definite description ιx [John bought x], the *if*-clause "if he talks the president" is interpreted as the plural definite description ιw [he talks to the president in w]. Haegeman (2010a) supports the analysis that posits an analogy between temporal clauses and *if*-clauses in a cartographic framework. All in all, if-clauses are not a serious challenge to the analysis we proposed. If they are free relatives, we know why they are strong islands.

10. Other strong islands: peripheral adverbial clauses

Haegeman (2003, 2010b) argues that adverbial clauses must be divided in two types, central and peripheral (cf. Tsimpli, Papadopoulou, and Mylonaki, 2010 for experimental findings supporting this distinction in Greek). Central adverbial clauses are merged before the matrix IP is completed and modify the event expressed in the matrix clause, along the lines discussed above (cf. 54). Peripheral adverbial clauses like (55) are merged after the matrix CP is completed in the derivation and structure the discourse (for example, by introducing an explicit premise to the assertion made in the main clause). Haegeman identifies several syntactic tests that can distinguish central and peripheral adverbial clauses. We mention here two of Haegeman's tests and add a third one. What they suggest is that, while central adverbial clauses are fully integrated (subordinated in a standard sense), peripheral adverbial clauses have a looser relation with the main clause.

(54) a. Se hai sete, puoi disidratarti
    If you thirsty you can dehydrate
   b. Gianni suda perché parla con me
    Gianni sweats because he talks to me

(55) a. Se hai sete, c'è una birra in frigo
    If you are thirsty there is beer in the fridge
   b. Gianni è a casa perché la sua macchina è in cortile
    Gianni is at home because his car is in the backyard

➤ *Clefting (adapted from Haegeman)*
Central adverbial clauses may be clefted, peripheral adverbial clauses may not.

(56) a. # È se hai sete che c'è una birra in frigo
    It is if you thirsty that there is beer in the fridge
   b. #È perché la sua macchina è in cortile che Gianni è a casa
    It is because his car is in the back yard that Gianni is home

(57) a. È se hai sete che puoi disidratarti
    It is if you are thirsty that you can dehydrate
    b. È perché parla con me che Gianni suda
    It is because he talk sto me that Gianni sweats

➢ *Variable Binding (adapted from Haegeman)*

In central adverbial clauses a pronoun may be bound by a quantifier. A pronoun in peripheral adverbial clauses cannot:

(58) a. (Il capo$_j$ sta facendo un'indagine sui ritardatari). Nessuno$_i$ arriva mai in
        orario, se proprio pro$_{j/*i}$ vuole saperlo
     (The boss$_j$ is making an investigation about people who arrive late at   work).
        No one ever arrives on time, if he$_{j/*i}$ really wants to know
     b. Nessuno$_i$ è uscito perché la sua$_{*i}$ macchina è in garage
        Nobody$_i$ left because his$_{*i}$ car is in the backyard

(59) a. Nessuno$_i$ arriva mai in orario, se non pro$_i$ non viene controllato
        Nobody$_i$ ever arrives on time, if he$_i$ is not controlled
     b. Nessuno$_i$ suda perché pro$_i$ parla con me
        Nobody$_i$ sweats if he$_i$ talks to me

➢ *Principle C*

Only an R-expression in a central adverbial clauses triggers a clear Principle C effect.

(60) a. ? pro$_i$ ha lavorato molto se Gianni$_i$ ha le occhiaie
        He must have worked hard, if John has rings under his eyes.
     b. ? È a casa, perché la macchina di Gianni è in cortile
        He is home, because John's car is in the backyard

(61) a. *pro$_i$ si stanca, se Gianni$_i$ lavora troppo
        He gets tired if John works too much
     b. *pro$_i$ suda, perché Gianni$_i$ parla con me
        he is sweating because Gianni is talking to me

Peripheral adverbial clauses are islands (cf. 62), but our analysis in terms of free relatives cannot extend to them, given the clear structural differences between central and peripheral adverbial clauses.

(62) *Chi$_i$ dici che nessuno arriva mai in orario, se proprio t$_i$ vuole saperlo ?
     Who (you) say that nobody arrives in time if *t* really wants to know

However, an approach in terms of labeling can naturally explain the islandhood of peripheral adverbial clauses. Peripheral clauses structure the discourse, they might introduce an independent illocutionary speech act and are not subordinate in any obvious sense. Embedding them is in fact quite difficult: look at (63).

(63) a. # Maria sostiene che se hai sete c'è della birra in frigo
    Maria claims that if you are thirsty there is beer in the fridge
    b. #Maria pensa che se hai sete c'è della birra in frigo
    Maria thinks that if you are thirsty there is beer in the fridge

(63) suggests that peripheral adverbial clauses cannot be embedded: here the only interpretation available is the (awkward) conditional one. The only exception appears to be with the verb 'say', where the peripheral reading of the adverbial clause is more easily maintained. This might show that 'say' does not always imply real embedding of the object of saying..

Let us briefly go back to Merge. If we take seriously the strong unification thesis according to which Internal Merge and External Merge are exactly the same operation, but for the fact that Internal Merge "remerges" a copy already present in one of the two objects that get merged, we expect that there should be cases where External Merge is not triggered (not probed) and, under (1) and (2), it should produce a label-less object. We propose that peripheral adverbial clauses instantiate this configuration (cf. Hornstein 2009 for a similar proposal). This explains the fact that they are not subordinated to the matrix clause in standard sense. Furthermore, their status with respect to labeling also explains their location: since the syntactic object obtained when the peripheral adverbial clause is merged with the rest of the structure has no label, this would block further steps of the derivation. So, the only position available to peripheral adverbial clause is attachment to the external boundary of the matrix clause, where no further derivation takes place. If this is assumed, we get a very natural explanation for the islandhood of peripheral adverbial clauses: if peripheral adverbial clauses are attached to the extreme boundary of the matrix clause, wh-movement out of them (cf. 62) would a case of lowering movement, since the head in the COMP area in the matrix clause that attracts the *wh*-phrase is lower than the peripheral adverbial clause, where *wh*-movement starts.

11. Other strong islands: the residue

Can we say that all strong islands that are not free relatives are peripheral adverbial clauses? We don't think so. There is likely to be a residue. One such residue is some types of reason clauses. Not all reason clauses are peripheral, or at least not obviously so (cf. 54b). Furthermore, reason clauses cannot be analyzed as free relatives, as observed by Bhatt and Pancheva (2006) a.o. This is why: while temporal, locative and conditional clauses indicate that the event in the matrix and in the adjunct clause take place at the same time, place or situation, a reason clause does *not* say that the event in the matrix and in the adjunct clause take place for the same reason. Rather a (non peripheral) reason clause like the one in (64) indicates that the event in the matrix clause takes place as a consequence of the event in the

adjunct clause. So, reason clauses are not interpreted as plural definite descriptions of "reasons".

(64) I sweat because he talks to the president

In other terms, it is not likely for 'because' to bind a position inside the clause it introduces, and consequently a free relative analysis does not seem grounded in this case. We do have some speculations to offer to explain the islandhood of non peripheral reasons clauses. Reason clauses are often introduced by a temporal expression ('since', 'dal momento che' *lit.* "from the moment that") and this suggests that the causal meaning might be superimposed over the temporal one. If so, the structure of a reason clause might contain the variable of the temporal operator and an extension of the approach offered for relative clauses might be at hand. But this definitely requires further research.

12. Very temporary conclusions

In this paper we have argued that a unified explanation for a large set of island effects is possible if one takes seriously the theory of labeling and asks what the few configurations in which labels are *not* necessary have in common.
There are island effects on which we said nothing. In some cases, notably weak islands resulting from Relativized Minimality configurations, we did so because we believe that there is already a well-established theory that can account for them. In other cases, say subject island effects, we said nothing because they might be fundamentally different from strong islands, for which we tried to propose a unified account. Furthermore, some adverbial clauses need a more careful investigation.
Even if we are on the right track, one might ask why our approach (and other minimalist approaches as well) should be an improvement with respect to famous GB account of islands, say Huang (1982). We believe that those accounts were powerful and explicit empirical generalizations about the phenomena under consideration. What is needed (or is desirable) is an attempt to derive those generalizations from the primitives of the theory. We guessed that these primitives are a specific theory of labeling in syntax together with the familiar idea that the derivation must proceed by cycles in order to reduce the computational burden. We got some promising results but, admittedly, it remains to be seen how far this idea can be stretched.
Another issue that we will leave temporarily open is whether there is a common syntactic structure between relative and complement clauses, and if so, whether relativization is the underling structure, as proposed by various people even in this conference. Although unification is tempting, it might be premature as long as there is no satisfactory account for a fundamental difference between relative and complement clauses, namely their island/non island status.

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