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EPP and ECP revisited: The role of labeling.

Abstract.

In the GB framework, EPP and ECP are stated as two independent principles, but they both attribute a special status to the subject position of clauses: subjects are obligatory, and they are not possible extraction sites (unless special conditions are met). This common core suggests the possibility of establishing a closer link between the two properties (Chomsky 2015, Rizzi 2015b). In this paper I would like to revisit EPP and ECP in terms of certain cartographic assumptions on close structure, the notion of criterial freezing, and the possibility of deriving the freezing effects from labeling.

1. Introduction

The Extended Projection Principle (EPP) and the Empty Category Principle (ECP) are two cornerstones of the Government-Binding framework (Chomsky 1981). The EPP (or, more precisely, the extended clause of the Projection Principle) states that the subject position is an obligatory component of the structure of clauses, irrespective of thematic requirements; as such, subjects differ from other argument positions, which are projected as a function of the thematic roles assigned by predicates (the Projection Principle). The ECP states that traces must meet certain licensing conditions which prohibit movement from positions which are not governed in the appropriate sense: objects are "properly governed" (i.e., governed by a lexical category, or a theta assigner, e.g., in the approaches of Stowell 1981, Rizzi 1990), whereas subjects are not; subject/object asymmetries arising under movement are thus captured. The point which is relevant for the present discussion is that EPP and ECP have something important in common, as they single out subject positions: the subject position of a clause is obligatory and is not a possible launching site of movement (unless certain special conditions are met). But postulating two separate principles, not deductively connected in any obvious way, fell short of capturing this common core: one could easily imagine systems in which subjects would be obligatory, and objects unmovable; or objects would be obligatory and subjects unmovable. So, it appears to be desirable to establish a tighter link between the obligatoriness and the (relative) unmovability of subjects.

The status of both EPP and ECP changed considerably in Minimalism. The term "EPP" was generalized to designate a feature that expresses the necessity of a specifier (as such, this new use of EPP does not say anything special about subjects of clauses); and research on subject – object asymmetries was demoted from center stage, as a consequence of the difficulty of integrating the ECP in the principled typology of UG constraints in Minimalism (apart from technical problems with the reliance on government): it does not seem to be an economy/locality principle constraining syntactic computations, nor can it be clearly identifiable as a principle dictated by the needs of the interface systems. Nevertheless, the fact remained that subjects of clauses are special in that they are obligatory (this is directly shown by languages with overt expletives), and block or restrict movement (as shown by various kinds of that-trace type effects found across languages). The purpose of this paper is to go

back to these special properties of subjects and propose a system of hypotheses which captures and deductively connects them.[1]

I will adopt a particular version of the labeling algorithm based on the insight that labeling is a matter of locality: a node created by merge receives the label of the closest head (Chomsky 2013). Labeling offers a comprehensive solution to the "halting problem" for movement: the necessity of labeling a node determines the fact that movement must continue from certain positions and must stop in other positions. In particular, the freezing effects in criterial positions (Rizzi 2006 and much subsequent work) can be derived from labeling and a natural maximality principle, preventing movement of a non-maximal node (Rizzi 2015a).

The IP-initial subject position is a typical halting site for A-movement, so the logic of the system leads to the postulation of a Subject Criterion. The "fixed subject" (Bresnan 1976), or "that-trace" effects (Chomsky & Lasnik 1977, based on observations in Perlmutter 1970) can be seen as particular cases of criterial freezing, under the Subject Criterion, ultimately to be derived from labeling and maximality. So, the EPP (in the classical GB sense) is expressed as a cartographic property of the clausal spine (an obligatory head in the high IP structure defining the Subject Criterion, a proposal building on Cardinaletti 2004), while the ECP effects (at least those that are responsible for subject-object asymmetries under extraction) are derived from Criterial Freezing, ultimately from labeling and maximality.

After a detailed illustration of freezing effects linked to scope-discourse criteria, in this article I will address the "further explanation" of the freezing effects which is offered by the approach to labeling in Chomsky (2013), operating in conjunction with the maximality principle introduced in Rizzi (2015a). Then I will discuss the subject criterion and the account it provides of subject – object asymmetries in extraction from embedded clauses, an account which can in turn be traced back to labeling and maximality. These theoretical ingredients will provide a new approach to the EPP and ECP effects which will be illustrated in the final part of the paper.

2. Criteria and freezing.

A'-constructions typically host operators of various kinds, and elements carrying special discourse-related properties such as topicality and focus. So, movement to the left periphery is widely used across languages to express scope-discourse semantic properties. The criterial approach, a central component of the cartographic study of the left-periphery, assumes that the relevant computations are guided by a system of dedicated functional heads, organized in a sequence in the left periphery (Q, Rel, Foc, Top, etc.: Rizzi 1997: see Rizzi & Bocci 2015, Rizzi & Cinque 2016 for recent assessments). Such heads have a dual function: in the syntax, they trigger internal merge of a phrase carrying matching features; at the interfaces with sound and meaning, they guide the interface systems to assign the appropriate scope-

[1] Classical ECP dealt with two major empirical domains: subject-object asymmetries in all extraction contexts, and argument/adjunct asymmetries in Weak Island context. In this paper I will be concerned only with the first case. The second empirical domain gave rise to an independent line of research involving Relativized Minimality (Rizzi 1990, 2004), the Minimal Link Condition (Chomsky 1995), and other constraints stemming from the same source, which I will not address here.

discourse interpretation and the appropriate prosodic contour. The property of criterial configurations which is immediately relevant for the present discussion is that criterial satisfaction induces freezing effects. Once a phrase enters into a criterial configuration, it is frozen in place, and becomes unavailable to further movement. Consider, for instance, the case of movement of a wh-phrase, attracted by a Q head in an embedded C-system in an indirect question, as in (1)a. Lasnik and Saito (1992) observed that the wh-movement satisfying (in our terms) the Q-criterion in an embedded clause cannot be moved further to the main C-system:

(1)a Bill wonders [[which book] Q [John published __ this year]]

b * Which book does Bill wonder [___ Q John published __ this year]]

The effect can be stated in the form of a freezing principle:

(2) An element satisfying a criterion is frozen in place (Rizzi 2006, 2011)

Is the stipulation of a syntactic principle like (2) actually needed? Natural alternatives come to mind. One could let syntax operate freely, deriving (1)b alongside (1)a, and then have cases like (1)b excluded independently as involving an ill-formed LF. Under a traditional approach to traces, the fact that the embedded C-system does not contain a wh-operator would violate selectional requirements of the verb *wonder*. Under the copy theory of traces, the representation would be something like the following, for the relevant part:

(1)b' Which book does Bill wonder [<which book> Q John published __ this year]]

The occurrence of *which book* in the lower c-system would satisfy selectional requirements, but the structure would end up with two wh-operators binding a single variable, a state of affairs ruled out, e.g., by Koopman and Sportiche's (1982) Bijection Principle.

There could also be pure syntactic ways of deriving the effects of (2), e.g., by appealing to the notion of "inactivation" (Bošković 2008): an element is active for movement when it has an unchecked uninterpretable feature; when the feature is checked, the element becomes "inactive" and cannot be further moved (an approach based on Chomsky's 1995, 2000 analysis of A-chains). So, for cases like (1)b, assuming an uninterpretable Q feature to be always associated to the interpretable criterial Q feature, the phrase *which book* would have such an uninterpretable Q feature inactivated after movement to the embedded C-system, hence movement to the main clause would be banned. By pursuing these lines of inquiry, we may see (2) as a descriptive generalization, to be captured by independent principles of syntax or interpretation.

Nevertheless, there are more complex cases that are not easily amenable to interpretive filters, or inactivation. These involve structures in which the same complex phrase contains two criterial features F1 and F2 (Rizzi 2006):

(3) [… α_{F1} … β_{F2} …]

Here one could expect the phrase to be movable to one criterial position and satisfy the requirement of one criterial feature, say F1, and then continue to move to another criterial position satisfying the requirement of the other criterial feature, F2. But these cases of double

criterial satisfaction typically do not arise: as soon as the complex phrase reaches the first criterial position it becomes unavailable to further movement.

As a concrete illustration of (3), consider a DP with a wh-specifier bearing Q and a contrastively stressed lexical restriction bearing the feature Foc in Italian:

(4) [quanti_{Q} ARTICOLI_{Foc}]
How many ARTICLES

Once the phrase has been moved to an embedded C-system, satisfying the Q criterion as in (5)a, it could be in principle further attracted by a contrastive Foc head in the main left periphery. But the further movement is ungrammatical, as in (5)b:

(5)a Non so [[quanti ARTICOLI] Q abbiano pubblicato __], non quanti libri
'I don't know how many ARTICLES they have published, not how many books'

b * [Quanti ARTICOLI] non so [__ Q abbiano pubblicato __], non quanti libri
'How many ARTICLES I don't know they have published, not how many books'

This contrasts with the case of a DP in a non-criterial position (e.g., in an object position) which, if carrying a contrastively focused lexical restriction, can be moved from an embedded clause to the front:

(6) Molti ARTICOLI mi hanno detto che hanno pubblicato __, non molti libri
'Many ARTICLES they told me that they have published, not many books'

No obvious interpretive problem would arise in (5)b. Under the copy theory of traces, the representation would be (5)b', in which the trace in the embedded C-system would contain an occurrence of the Q-operator *quanti*, which could be interpreted there:

(5)b' [Quanti ARTICOLI] **Foc** non so [<quanti ARTICOLI> **Q** abbiano pubblicato __], non quanti libri

And if the uninterpretable feature associated with Q is checked in (5)a, the uninterpretable feature associated with Foc should remain active, permitting further movement of [quanti_{Q} ARTICOLI_{Foc}], but further movement is in fact impossible. An inactivation approach thus does not (straightforwardly) capture such complex cases.

Epstein, Seely and Kitahara (2014) discuss an analogous case in which the same criterial feature, Q, is specified twice in a complex DP in English. From an intermediate representation like (7)a involving movement of the complex wh-phrase *which picture of which dog*, subextraction of the phrase *which dog* is marginal, as in (7)b, but further movement of the whole phrase is impossible, as in (7)c:

(7)a You wonder [[which picture of which dog] Q John likes __]

b?? [Which dog] do you wonder [[which picture of __] Q John likes __] ?

c * [which picture of which dog] do you wonder [__ Q John likes __] ?

Again, it can be noticed that in (7)c no interpretive problem would arise: were it (marginally) acceptable, the sentence would have the interpretation of the marginal (7)b, with an occurrence of *which picture* interpreted in the lower C-system, an option which is automatically available under the copy theory of traces. Moreover, (7)b cannot be straightforwardly excluded by inactivation: once the Q feature on *which picture* is inactivated, the Q feature on *which dog* has remained active, hence it should be able to pied-pipe the whole phrase *which picture of which dog*, as in marginal (8) but it cannot:

(8) ?? Pictures of which dog do you think John likes __?

The subextraction case in (7)b is quite marginal, as cases of extraction from a left branch often are. Other cases of subextraction from a complex criterial phrase are not marginal, and contrast sharply with the cases of complex pied-piping.

Consider, for instance, the case of a complex phrase containing both an interrogative and a relative operator (first discussed in Rizzi 2006; R is the criterial feature involved in the relative construction, distinct from Q for both syntactic and interpretive reasons):

(9) [quanti_{Q} libri del quale_{R}]
'how many books by whom

Consider a sentence like (10), from which we may want to form a relative headed by *questo autore*:

(10) Piero non è riuscito a capire **[[quanti libri di questo autore**] Q [siano stati pubblicati nel 1967]
'Piero didn't manage to understand how many books by this author have been published in 1967'

i.e., we are considering an intermediate representation like (11), in which $quale_{R}$ is attracted to the relative C-system (we assume for concreteness a matching analysis of relatives, but a raising analysis would be equally consistent with our discussion):

(11) Parlami di questo autore R Piero non è riuscito a capire **[[quanti_{Q} libri del quale**] Q [siano stati pubblicati nel 1967]
'Tell me about this author R Piero didn't manage to understand how many books by whom have been published in 1967'

The relative PP *del quale* can be subextracted, as in (12)a, but the whole phrase cannot be pied-piped to the relative C, as in (12)b:

(12)a Parlami di questo autore, **del quale** R Piero non è riuscito a capire
[[quanti libri ____] Q [siano stati pubblicati nel 1967],…
'Tell me about this author, by whom Piero didn't manage to understand
how many books ___ Q have been published in 1967,…'

b * Parlami di questo autore [**quanti libri del quale**] R Piero non è riuscito a capire

[___ Q [siano stati pubblicati nel 1967],…
'This author, how many books by whom Piero didn't manage to understand
[___ Q have been published in 1967,…'

Criterial freezing correctly blocks the pied-piping option in (12)b. But, as the principle is stated in (2), it would also block any movement from the phrase satisfying a criterion. If indeed subextraction is an option, as in (12)a, a revision of the principle is required. In Rizzi (2011) the following revised formulation is proposed:

(2') Criterial freezing (revised): In a criterial configuration, the criterial goal is frozen in place

Where the criterial goal is the element carrying the relevant criterial feature, entering in a probe-goal relation with the criterial head. So, once the phrase containing the goal is internally merged with the projection of the probe, the criterial goal is frozen in the criterial configuration, whereas other constituents of the complex phrase may be further moved, if independent principles are not violated. So *quanti*, the criterial goal of wh-movement satisfying the Q criterion, is unmovable in (12), whereas the relative operator *del quale* can be subextracted without violating the revised criterial freezing principle.

The same contrast between subextraction from and pied-piping of a complex wh-phrase in an indirect question (the former is licit and the latter is ruled out) holds for a variety of types of A'-movement: topicalisation, as in (13), contrastive focusing, as in (14), clefting, as in (15):

(13)a **Di questo autore**, Top Piero si domanda [**[quanti libri** ___] Q [siano stati pubblicati nel 1967]
'By this author, Piero wonders how many books ___ Q have been published in 1967'

b * [**Quanti libri di questo autore**], Top Piero si domanda [___ Q [siano stati pubblicati nel 1967]
'How many books by this author, Piero wonders ___ Q have been published in 1967'

(14)a **Di QUESTO AUTORE** Foc Piero si domanda [[**quanti libri ___**] Q [siano stati pubblicati nel 1967], non di quell'altro
'By THIS AUTHOR Piero wonders how many books have been published in 1967, not by that other one'

b * [**Quanti libri di QUESTO AUTORE**] Foc Piero si domanda [___ Q [siano stati pubblicati nel 1967], non di quell'altro.
'How many books BY THIS AUTHOR Piero wonders have been published in 1967, not by that other one'

(15)a E' **di questo autore** Foc che Piero si domanda [**quanti libri ___**] Q [siano stati pubblicati nel 1967]
'It is by this author that Piero wonders how many books ___ Q have been published in 1967'

b * E' [**quanti libri di questo autore**] Foc che Piero si domanda [___ Q siano stati pubblicati nel 1967.
'It i show many books by this author that Piero wonders ___ have been published in 1967'

In all these cases subextraction is fine, as in the a examples (the extractee and the remnant in bold), while pied piping of the whole phrase (in bold) is excluded by Criterial Freezing, as in the b examples.

The critical property is not that a criterial configuration cannot be moved. If the appropriate conditions are met, a criterial configuration can be moved as a whole, for instance, an indirect question can be clefted or topicalized:

(16)a E' [**[quanti$_Q$ libri di questo autore**] **Q** [siano stati pubblicati nel 1967]] che non è chiaro
'It is how many books by this author have been published in 1967 that it isn't clear'

b [[**Quanti libri di questo autore**] **Q** [siano stati pubblicati nel 1967]] non lo so davvero
'How many books by this author have been published in 1967, I really don't know

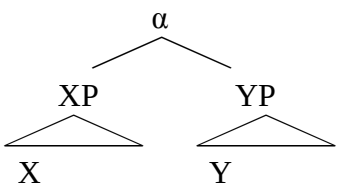
The requirement is that a criterial configuration cannot be "undone" by having the criterial goal move further, as in (5)b, (12)b, (13)b, (14)b, (15)b.

Questions of "further explanation" arise here. Does the freezing effect require the stipulation of a specific formal principle like (2)/(2')? Or can it be derived from more fundamental principles of linguistic computations? Here I will illustrate the possible impact of labeling.

3. Labeling and Maximality.

In Rizzi (2015a-b, 2016) I have proposed an analysis of freezing effects building on Chomsky's (2013) approach to labeling. According to this approach, labeling is a matter of locality: a node created by (internal or external) merge receives the label of the closest head. This algorithm provides the right label for X – YP configurations, in which a head X is merged with a phrase YP: in this case, X always is the closest head, hence the labeler, of the new node created by Merge. Other configurations are problematic. In particular, a problem arises when two phrases are merged, creating an XP-YP configuration:

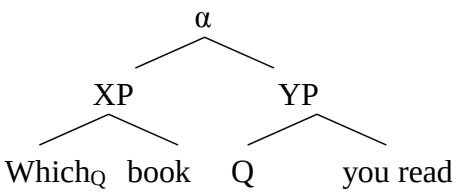
(17)



If one understands "closest head" as "head in a local configuration, i.e., a configuration not violating Relativized Minimality" (Rizzi 2015a, building on Rizzi 2004), both X and Y

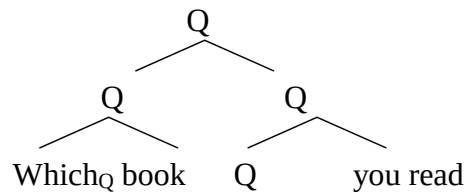
qualify as "closest head to α", because neither head intervenes (in terms of c-command) between the other head and α. So the system blocks, and α remains unlabeled. But this can only be a temporary state of affairs, if complete labeling is required at the interfaces (Chomsky 2013, 2015). Two possible ways exist to resolve the labeling problem in (17): either XP moves further, thus leaving Y as the only candidate for labeling α (a device inspired by Moro's (2000) analysis of movement as providing a solution for configurations violating dynamic antisymmetry); or XP – YP form a criterial configuration, in the sense of Rizzi (1997) and much subsequent work, as discussed in section 2 of this article. In the latter case, XP and YP share the criterial feature, a categorial feature in the criterial approach, hence both heads X and Y qualifying as "the closest head" give converging indications to label α as the criterial feature. So, for instance, in the criterial configuration arising in a question, we have the following:

(18)



The heads of XP and YP share the criterial feature Q, hence α can be labeled as a Q constituent, a question. If we adopt bare phrase structure, XP and YP are just informal ways of referring to phrases which are also labeled Q, so (18) really looks like the following, once α is labeled as Q:

(19)



At this point, the freezing effect can be readily explained. A well-known property of phrasal movement is that it can only involve maximal projections: i.e. given the traditional X-bar schema, X and XP can be moved, but the non-maximal projection X' is inert for movement: there is DP movement, VP movement, AP movement, CP movement, but no D', V', A', C' movement. The impossibility of moving non-maximal projection may be generalized in the form of a principle (Rizzi 2015a-b, 2016):

(20) Maximality: only maximal objects with a given label can be moved.

Under bare phrase structure, being a **"maximal projection"** is not a rigid inherent property of a node, as XP nodes in standard X-bar notation, but is a **dynamic** notion in the obvious sense that α is a maximal projection if the node immediately dominating it does not have the same label.

In this sense, *which book* in (19) has ceased to be a maximal projection, as the node immediately dominating it has the same label Q. Here and in general, when a phrase satisfies a criterion, it ceases to be maximal, hence it cannot be moved under maximality. Maximality

and labeling thus capture the observed freezing effects in criterial positions. One could observe that *which book* remains maximal in (19) with respect to some other specification it has, e.g., *which book* is a DP (in informal notation), while the clause containing it is not. But if we make the restrictive assumption that (20) must be satisfied for every categorial feature (for every feature defining the label of a syntactic object, including the criterial feature), extraction of *which book* in (19) remains precluded, as *which book* is not maximal w.r.t. the labeling feature Q. So, even if it is maximal w.r.t. other features defining its label, e.g., D, this does not suffice to make it movable under the assumed, restrictive concept of maximality.

This approach accounts for simple cases of violation of Criterial freezing like (1)b, in which the same feature Q in *which book* is attracted twice, but it also covers the complex cases mentioned above, in which two distinct criterial features are involved, i.e., Q and Foc:

(21) Piero non è riuscito a capire [$_{\alpha}$ **[quanti$_{Q}$ LIBRI$_{Foc}$**] Q [siano stati pubblicati nel 1967]
'Piero didn't manage to understand how many BOOKS have been published in 1967'

Here α is labeled as Q in the criterial configuration. If LIBRI gets attracted by a higher contrastive focus feature, LIBRI cannot get subextracted and move alone (for independent reasons NP cannot be extracted from a DP, in informal notation). If the whole phrase *quanti libri* is moved, maximality is violated, as before, because the phrase is not maximal w.r.t. the Q feature.

4. Subjects

The subject position of clauses is a typical "halting site" for A-movement, the final landing site of DP movement in passive, raising and in fact in any clause, under the VP-internal subject hypothesis. As it is a final landing site for movement involving the creation of an XP – YP configuration, this means that there must be a criterial configuration linked to the subject position, otherwise labeling of the XP – YP configuration would not be possible (under the restrictive view of labeling we have adopted), and the requirement of complete labeling at the interface would be violated.

If criterial satisfaction always involves an interpretive element of the scope-discourse kind, we expect such an element to characterize subject positions. In Rizzi (2006) it is proposed that the subject position in the high structure of the IP hosts the argument about which the event is reported. This interpretive element emerges in the interpretive difference between an active and a passive sentence. Consider a context in which two individuals are salient, e.g.:

(22) So che Mario e Piero non vanno d'accordo ultimamente. Ma ieri, che altro è successo?
'I know that Mario and Piero don't get along well lately. But yesterday, what else happened?'

We can naturally respond to the question in (22) both with an active and a passive sentence:

(23)a Ieri, Mario ha insultato Piero
'Yesterday, Mario insulted Piero'

b Ieri, Piero è stato insultato da Mario
'Yesterday, Piero was insulted by Mario'

The same "insulting" event is reported as being about the agent in (23)a, and about the patient in (23)b. The two referents are equally prominent in the immediate context, so the speaker is free to choose one or the other as the argument about which the event is reported. This aboutness property has consequences for discourse organization and anaphora resolution. Calabrese (1986) observed that in a null subject language like Italian, *pro* in the following sentence picks out the aboutness subject, most clearly in cases of ambiguity. So, consider the following continuation of discourse:

(24) Subito dopo, *pro* ha lasciato la riunione
'Immediately after, __ left the metting'

If (24) is uttered immediately after (23)a, the natural interpretation is that Gianni left the meeting; if (24) is uttered after (23)b, Piero left the meeting. If the intended interpretation is the one in which the person who left the meeting is not the aboutness subject in the immediate context, but the other referent, the natural choice is to use an overt pronoun:

(25) Subito dopo, lui ha lasciato la riunione
'Immediately after, he left the meeting'

If (25) is uttered immediately after (23)a, the natural interpretation is that Piero left; if after (23)b, Mario left (on these interpretive properties of overt and null pronominals, see also Belletti et al., 2007).

Restricting our attention to biargumental sentences, the freedom in the choice of the aboutness argument holds when the two arguments are equally prominent in the immediate context. It holds when the potential candidates are both given, as in context (22), and also when they are both new information, as in context (26), which naturally allows both (27)a and b as answers:

(26) Cos'è tutta questa confusione? Che cosa è successo?
'What is all this confusion? What happened?'

(27)a Un ragazzo ha buttato a terra un vecchio
'A boy knocked an old man to the ground'

b Un vecchio è stato buttato a terra da un ragazzo
'An old man was knocked to the ground by a boy'

Also in this case, the aboutness subject tends to be selected as the antecedent of *pro*. Given a continuation like the following:

(28) ...e immediatamente *pro* ha cominciato a gridare
'...and immediately __ started shouting'

If (28) is uttered after (27)a, the natural interpretation is that the boy shouted; after (27)b, the natural interpretation is that the old man shouted.

So, the assumption that was made in Rizzi (2006) and subsequent work is that the subject position expressed (at least) the aboutness property. It may express other properties as well, but aboutness seems to be the minimal distinctive property differentiating active and passive

structures like (23) and (27). This led to the conclusion that there is a subject criterion triggering the interpretive property that the event is reported as being about the argument occupying the subject position.

In the assumption that scope-discourse criteria are encoded by syntactic heads, the subject criterion must involve a functional head in the high part of the clausal spine which triggers movement of the subject DP to its Spec, and determines the aboutness interpretation at the interface.

Building on Cardinaletti (2004), this head has been dubbed Subj. Various hypotheses have been put forth on the exact nature and featural content of Subj. On the one hand, if it is the position made morphologically visible as a subject clitic in certain systems such as the Northern Italian dialects (see Poletto 2000, Manzini & Savoia 2005), with the subject clitic homophonous in part with the determiner system, it looks like a D head in the clausal spine. On the other hand, as there are good reasons for assuming a Person featural specification in the higher part of the IP structure, it is conceivable that Subj may be identified with such a specification (Rizzi 2015a, Shlonsky 2014), a possibility which is not inconsistent with its D-like status. Moreover, there may be distinct Subj-like positions in the high part of the IP, in connection with distinct interpretive properties of subjects (Cardinaletti 2004, Bianchi & Chesi 2014). Here I will continue to use Subj as a cover term both for the label of the head and for the feature(s) through which the head attracts the subject nominal to its Spec, leaving the exact featural analysis of this position (or positions) and criterial configuration(s) for future work. The essential point is that at least one Subj position is an obligatory component of the structural spine of the clause, much as T is. This is the way of expressing the EPP requirement in the system I adopt.

This approach raises the question of the nature and function of expletives. If the Subj head triggers an aboutness interpretation for the argument in its Spec, what happens when the Spec of Subj is an expletive? One idea which I find worth pursuing is that expletives can be seen as the solution of a problem. If the Subj head is an obligatory component of the clausal spine (the EPP) and triggers the aboutness interpretation, is it possible to express an event as not being about a particular argument? I believe an expletive is a formal device to do this: it formally satisfies the subject criterion, but, not having a referential content, it triggers a vacuous interpretation of aboutness, and the event is reported as not being about a particular argument. So, an expletive may be seen as a way of reconciling the formal obligatoriness of the subject position with the fact that the speaker may want to report an event as not being about an argument: this is achieved by having the subject criterion formally satisfied by a non-argument, an expletive.

Null subject languages typically do not have overt expletives. The traditional analysis is that in these languages the EPP is satisfied by expletive *pro*, a non-referential occurrence of the null pronominal. An alternative is that null subject languages have no filler at all (not even a null one) of the subject position in expletive constructions: hence in this approach the subject position may not be obligatory in some languages, i.e. the EPP is parametrized in some form. The second option is often considered more economical because it makes the notion "expletive *pro*" superfluous. Nevertheless I am not convinced that it is superior to the classical analysis. On the one hand, the classical analysis makes null subject and non-null subject languages fully parallel, except for their irreducible difference, the licensing of a null pronominal: core non null-subject languages like English and French necessarily have overt referential subject pronouns and overt expletives; full null subject languages like Italian have

the null variants of both. This parallel is broken in the alternative approach, in which core null subject languages have null referential pronominal subjects **and** nothing at all in subject position in the case of expletive constructions.

More importantly, the following typological generalization seems to hold: there are clearly attested cases of

- Non null subject languages, requiring overt referential and expletive subjects (e.g., English, French, Gungbe, etc.): *it is here, it seems that…*
- partial null subject languages, requiring overt referential null subjects, but permitting null expletives of various kinds (Brazilian Portuguese, Icelandic, various creole languages, etc.): *it is here, __ seems that…*[2]
- full null subject languages, allowing null referential and expletive subjects (Italian, Romanian, various Bantu languages, etc.): *__ is here, __ seems that…* .

This seems to exhaust the attested cases: there is no clear case instantiating the fourth logical possibility, a language allowing null referential pronominals and disallowing null expletives (*__ is here, it seems that…*). If indeed we have a systematic gap in the typology, the classical approach (e.g., in the formulation of Rizzi 1986) immediately captures it: if a language formally licenses *pro*, it may have ways of interpreting it as a referential pronoun (in this case it is a full null subject language) or not (then it is a partial null subject language), but as soon as *pro* is formally legitimate in the language, its use as a null expletive is automatically available. So a language permitting null referential pronominals but no null expletives is not expected to exist. On the other hand, an approach assuming a radical absence of the subject for null expletive constructions does not automatically exclude this configuration of properties: in such a system, licensing a null referential pronominal and permitting the radical absence of the subject positon (the parametrization of the EPP) are two conceptually and formally distinct properties, so that a priori one would expect the four logical possibilities to be attested. So, for reasons of (empirically supported) restrictiveness, I will continue to adopt the classical view that *pro* may function as a referential or an expletive pronoun, with the latter option used for expletive constructions in full or partial null subject languages, and with no parametrization of the EPP.

5. Subject-object asymmetries

Consider now subject-object asymmetries arising in context of extraction from declaratives and indirect questions:

(29)a This is the problem which I think that the student will solve __
b *This is the student who I think that __ will solve the problem

(30))a ?? This is the problem which I wonder if the student will solve __

[2] The term "partial null subject" also covers other forms of incomplete null-subject behavior, e.g., with referential null subjects limited to certain featural specifications in the pronominal paradigm, as in Finnish, Hebrew, etc.. The divide that is relevant for the typological generalization discussed here only concerns the distinction between referential and non referential null subjects.

b * This is the student who I wonder if __ will solve the problem

(31)a ?? This is the problem which I wonder which student __ will solve __
b * This is the student who I wonder which problem __ will solve __

Example (29) illustrates the familiar subject-object asymmetry across complementizer *that*. (30) and (31) illustrate extraction from a wh-island, introduced by *if* or by another wh-phrase, respectively. Here the contrast is attenuated by the fact that also object extraction is degraded for independent reasons (in traditional terms, Subjacency is violated in these cases of extraction from a wh-island), but the contrast still is clearly detectable in comparative terms, with subject extraction more degraded than object extraction.

In another sense, the effect is more robust in indirect questions: in individual varieties of English, structures like (29)b are acceptable (Sobin 2002); moreover, there is a straightforward repair strategy, complementizer deletion, which makes (29)b fully acceptable:

(32) This is the student who I think __ will solve the problem

In indirect questions, no analogously easy repair strategy is available to improve subject extraction; moreover, no dialectal/idiolectal varieties have been reported in which subject extraction from an indirect question would be at least marginally acceptable.

Starting with the core contrast (29)a-b, we can observe that, if Subj is an obligatory head in the clausal spine and there is a subject criterion, the derivation of (29)b would necessarily involve a step in which *who* is attracted by Subj in the embedded clause:

(33) … that $\text{who}_{+\text{Subj}}$ Subj will __ solve the problem

(where, again, +Subj designates whatever features are involved in the satisfaction of the Subject Criterion)

Who is frozen there under criterial freezing, hence it cannot be extracted from the clause. In terms of labeling and maximality, *who* in (33) is non-maximal with respect to the Subj feature (the Subj feature labels the whole IP, the node immediately dominating the subject *who*), hence *who* cannot be extracted because of maximality. In this way, that-trace effects are captured as a case of criterial freezing, ultimately reduced to labeling and maximality.

What about the repair strategy based on complementizer deletion? In previous work, the assumption was to assimilate the strategy to the one used in languages in which a special complementizer form appears here, such as a silent variant of the French *que* > *qui* rule (Rizzi 1990 and much subsequent work). But other languages show the same pattern as English: also in Swedish and Danish the overt complementizer blocks subject extraction, and the null complementizer form licenses extraction, while the converse case (a language permitting subject extraction with the overt complementizer and blocking it with the null complementizer) has not been reported. So, there seems to be a deeper connection between the null complementizer form and the possibility of subject extraction, than just the arbitrary fact that the language may have an unpronounced *qui*-like element. An alternative linking more directly the null complementizer and subject extraction would consist in proposing that

complementizer omission in English amounts to a radical truncation of the complementizer system, a truncation which may include the SubjP layer. So, in a representation like

(32') This is the student who I think /////// __ will solve the problem

Where ////// in fact indicates absence of structure, or the fact that the verb *think* directly selects a truncated clausal configuration, stopping immediately under the SubjP layer. Let us assume for concreteness that this layer is the traditional AgrS (or Phi), hosting agreement features ultimately expressed in the verbal morphology. Then, a more accurate representation is

(32'') This is the student who I think __ AgrS will solve the problem

Here *who* can transit through the Spec of AgrS, a non-criterial position where it checks Phi features, so that it is allowed (and required) to continue to move, which yields the well-formed extraction structure. Of course, a subject can also remain in an embedded clause with a null complementizer (*I think John is crazy*). In that case, the SubjP layer must be present to offer a halting site for the subject, hence, if he approach is on the right track, structural truncation can give rise to more or less radically reduced clausal structures.

The truncation approach correctly predicts that one will not find a variant of English with reversed judgments: subject extraction possible from declaratives introduced by *that* and excluded from declaratives with the null complementizer. This prediction appears to be correct. The alternative approach assimilating the null complementizer to the special complementizers permitting subject extraction.in other languages is not equally restrictive, in that it does not make this correct prediction.

The English varieties described by Sobin (2002) in which the that-trace configuration is acceptable may indeed involve a variant of the French *que>qui* rule involving *that* but with no overt morphological effects.

The fact that no repair strategy is possible in the case of indirect questions like (30)-(31) immediately follows under the truncation approach from the fact that in questions the complementizer layer cannot be omitted, as it must host the wh-operator.and express interrogative force. The same truncation strategy appears to be available in other Germanic languages, such as Danish and Swedish.

In a non-null subject language like French, that-trace configurations are uniformly rejected:

(34) * Voilà l'étudiant que je pense que __ résoudra le problème
'Here is the student that I think that will solve the problem'

French cannot use the truncation strategy here because complementizer omission is generally impossible in the language, quite independently from subject extraction:

(35) Pierre pense *(que) Jean est fou
'Pierre thinks (that) Jean is crazy'

The language resorts to the *que > qui* rule here, possibly an extension of the strategy fully grammatical in subject relatives (*L'étudiant qui résoudra le problème* 'The student *qui* will solve the problem), an extension which is felt as marked/marginal by many speakers:

(36) % Voilà l'étudiant que je crois qui résoudra le problème
'Here is the student that I believe *qui* will solve the problem'

(on the special status of this rule in a formal acceptability experiment and on its grammatical nature see Berthélot 2016). The fact that in French (34) is uniformly rejected, without the variability observed in English, may be due to the existence of the *que>qui* rule in the grammar, with an overt morphological manifestation which blocks a morphologically null variant of the rule.

Null subject languages do not need special rules or structural truncations to make subject extraction possible. The systematic availability of expletive *pro* always provides a legitimate filler for the Spec of Subj, thus permitting formal satisfaction of the subject criterion and extraction of the thematic subject from a lower position (much as in Rizzi 1982, ch. IV; see also Nicolis 2005 on the typological connection between null expletives and absence of that-trace effects) without passing through the freezing position. That-trace effects are thus systematically avoided, both in extraction from declaratives and indirect questions:

(37) Ecco lo studente che credo che *pro* Subj risolverà __ il problema
'Here is the student that I believe that will solve the problem'

(38) Ecco lo studente che non so se *pro* Subj risolverà __ il problema
'Here is the student that I don't know if will solve the problem'

(39) Ecco lo studente che non so quale problema *pro* Subj risolverà __ __
'Here is the student that I don't know which problem will solve'

(the subject trace is indicated in (37)-(39) after the inflected verb, which is raised to a high inflectional head in the language: Belletti 1990).

The acceptability of (38)-(39) illustrates the well-known fact that extraction from a (simple) wh-island is well-tolerated in Italian (Rizzi 1982, ch. II), particularly when the extracted element is a relative pronoun. But the important fact here is that there is no subject-object asymmetry: subject and object extraction are systematically on a par in Italian, both from declaratives and indirect questions:

(40) Ecco il problema che credo che lo studente risolverà __
'Here is the problem that I think that the student will solve'

(41) Ecco il problema che non so se lo student risolverà __
'Here is the problem which I don't know if the student will solve'

(42) Ecco il problema che non so quale studente risolverà __ __
'Here is the problem that I don't know which student will solve'

Subject extraction can always take advantage of the fact that *pro* is available to formally satisfy the subject criterion, so that extraction can always take place from a non-freezing position, on a par with object extraction.[3]

7. Conclusion

EPP and ECP in the GB analysis identified two important properties of subjects: they occupy an obligatory position in the clausal structure, and they are unmovable (unless under special circumstances, such as complementizer deletion in English). But the classical analysis failed to establish a deductive connection between the two properties, and the fact that they both singled out subjects remained accidental: one could equally well imagine a system with subjects obligatory and objects unmovable when present, or with subjects unmovable when present, and objects obligatory. The alternative approach proposed here, built on the classical insights but adopting different theoretical ingredients, establishes a deductive connection between the two properties. Subject positions are an obligatory layer of the clausal spine (our way of expressing the EPP). As they are a typical halting point, under the adopted approach to labeling they must involve a criterial configuration. Under labeling and maximality, they always trigger freezing effects, preventing further movement of a nominal expression. So, it is the conjunction of the obligatoriness of the subject layer and of its criterial character that determines the unmovability of subjects (except in special circumstances which may allow thematic subjects to avoid the freezing position). Objects may well end up in a criterial position (e.g., when focalized in the low periphery assumed in Belletti 2004, 2009 a position determining freezing effects: Rizzi 2015b), but there is no obligatory object criterion position which would preempt further object movement; so, apart from special cases in which objects occur in a criterial configuration and other independent limitations of movement, objects are always movable and extractable from embedded domains. The approach is built on the important insights of the classical analysis, but is based on very different theoretical ingredients (the criteria, labeling and maximality causing freezing effects) which permit a deductive link to be established that necessarily connects the crucial properties of subjects.

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[3] Under the freezing approach developed here, movement can never take place from one criterial position to another criterial position, as freezing applies at the first criterial position which is encountered. An anonymous reviewer raises the question of whether scrambling could feed wh-movement in German, as has been sometimes proposed. If this is indeed possible, the present approach would have to assume that the scrambling site is not (necessarily) a criterial position. But it should be noticed that the "long scrambling" position (with object movement scrambled over the subject) seems to act as a freezing position at least for LF wh-movement in multiple questions: see Grewendorf & Sternefeld (1990), and the discussion in Rizzi (2011: 24).

References.

Belletti, Adriana. 1990. *Generalized Verb Movement*. Turin: Rosenberg & Sellier.

Belletti, Adriana. 2001. Inversion as focalization. In *Subject Inversion in Romance and the Theory of Universal Grammar,* Aafke Hulk & Jean-Yves Pollock (eds), 60-90. New York: Oxford University Press.

Belletti, Adriana. 2004. Aspects of the Low IP Area. In *The Structure of CP and IP: The Cartography of Syntactic Structures*, Vol. 2, Luigi Rizzi (ed). New York: Oxford University Press.

Belletti, Adriana. 2009. *Structures and Strategies*. London: Routledge.

Belletti Adriana, Bennati, Elisa & Sorace, Antonella. 2007. Theoretical and developmental issues in the syntax of subjects: evidence from near native Italian. *Natural Language and Linguistic Theory*. Vol. 25:4, 657-689.

Berthélot, Frédérique. 2016. Doctoral Dissertation. University of Geneva.

Bianchi, Valentina & Chesi. Cristiano. 2012. Subject Islands and the Subject Criterion. in *Enjoy Linguistics! Papers offered to Luigi Rizzi on the occasion of his 60th birthday*, Electronic Festschrift, www.ciscl.unisi.it.

Bošković, Željko. 2008. On the Operator Freezing Effects. *Natural Language and Linguistic Theory* 26: 455-496.

Bresnan, Joan. 1976. On the form and functioning of transformations. *Linguistic Inquiry* 7, 3-40.

Calabrese, Andrea. 1986. Some Properties of the Italian Pronominal System: An Analysis Based on the Notion of Thema as Subject of Predication", in H. Stammerjohann, ed. *Tema-Rema in Italiano*. Tuebingen: Gunter Narr Verlag, 25-36.

Cardinaletti, Anna. 2004. Towards a cartography of subject positions. In Rizzi, Luigi (ed.). *The structure of CP and IP*. New York, Oxford University Press, 115-165.

Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris Publications.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 2000. Minimalist inquiries. In Martin, R., Michaels, D. and Uriagereka, J. (eds.). *Step by step: Minimalist syntax in honor of Howard Lasnik*, 3, 89-155. Cambridge, MIT Press.

Chomsky, Noam. 2008. On Phases. In R. Freidin, C.P. Otero and M.L. Zubizarreta, eds. *Foundational Issues in Linguistic Theory. Essays in Honor of Jean-Roger Vergnaud*, 291-321. Cambridge MA: MIT.

Chomsky, Noam. 2013. Problems of Projection. In *Lingua*, 130, Special Issue "Core Ideas and Results in Syntax", 33-49.

Chomsky, Noam. 2015. Problems of Projection: Extensions. In E. Di Domenico, C. Hamann, S. Matteini eds., *Structures, strategies and beyond – Studies in honour of Adriana Belletti*. John Benjamins, Amsterdam, 3-16.

Chomsky, Noam & Howard Lasnik. 1977.Filters and Control. *Linguistic Inquiry* 8: 425-504.

Cinque, Guglielmo. 1999. *Adverbs and Inflectional Heads*. New York: Oxford University Press.

Epstein, Samuel D., Hisatsugu Kitahara & T. Daniel Seely. 2014. What do we wonder is not syntactic? To appear in *Explorations in Maximizing Syntactic Minimization*, Chapter 11. Oxford: Routledge 2015.

Koopman, Hilda and Dominique Sportiche. 1982. Variables and the Bijection Principle. *The Linguistic Review* 2: 139-160.

Lasnik, Howard & Saito. Mamoru. 1992. *Move Alpha*, Cambridge, Massachusetts: MIT Press.

Manzini, M. Rita & Savoia, Leonardo M.. 2005. *I dialetti italiani e romanci*. Alessandria: Edizioni dell'Orso,

Moro, Andrea. 2000. *Dynamic Antisymmetry*. Cambridge, Mass.: MIT Press.

Nicolis, Marco. 2005 *On pro Drop*, Doctoral dissertation, University of Siena.

Perlmutter, David. 1970. Deep and Surface Structure Constraints in Syntax. New York: Holt, Rinehart and Winston.

Poletto, Cecilia. 2000. *The Higher Functional Field. Evidence from Northern Italian Dialects*. New York: Oxford University Press.

Rizzi, Luigi. 1982. *Issues in Italian Syntax*. Dordrecht: Foris Publications.

Rizzi, Luigi. 1986. Null Objects in Italian and the Theory of *pro*. *Linguistic Inquiry*, 17.3, 1986, pp. 501-557.

Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, Mass.: MIT Press.

Rizzi, Luigi. 1997. The Fine Structure of the Left Periphery. In Liliane Haegeman (Ed.), *Elements of Grammar*, 281-337, Dordrecht: Kluwer.

Rizzi, Luigi. 2004. Locality and Left Periphery. In Adriana Belletti, ed., *Structures and Beyond. The Cartography of Syntactic Structures, vol.3*, New York: Oxford University Press.

Rizzi, Luigi. 2006. On the Form of Chains: Criterial Positions and ECP Effects. In L. Cheng, N. Corver, eds, *On Wh Movement*, 97-133, Cambridge, Mass.: MIT Press.

Rizzi, Luigi. 2011. On Some Properties of Criterial Freezing. In E.P. Panagiotidis, ed. *The*

Complementizer Phrase. Oxford: Oxford University Press, 17-32.

Rizzi, Luigi. 2015a. Cartography, Criteria, and Labeling. In U. Shlonsky, ed., *Beyond Functional Sequence- The Cartography of Syntactic Structures, Vol 10,* Oxford University Press, New York, pp. 314-338. 2015.

Rizzi, Luigi. 2015b. Notes on Labeling and Subject Positions. In E. Di Domenico, C. Hamann, S. Matteini eds., *Structures, strategies and beyond – Studies in honour of Adriana Belletti*. John Benjamins, Amsterdam, 17-46.

Rizzi, Luigi. 2016. Labeling, maximality, and the head – phrase distinction. *The Linguistic Review*, 33(1): 103-127.

Rizzi, Luigi and Ur Shlonsky. 2007. Strategies of Subject Extraction. In H.-M.Gärtner & Uli Sauerland (eds). *Interfaces + Recursion = Language? Chomsky's Minimalism and the View from Syntax-Semantics*. Berlin: Mouton de Gruyter.

Rizzi, Luigi and Guglielmo Cinque. 2016. Functional categories and syntactic theory, *Annual Review of Linguistics*, 2: 139-163.

Rizzi, Luigi and Giuliano Bocci. 2015. The left periphery of the clause – Primarily illustrated for Italian, to appear in the Blackwell Companion to Syntax, II edition.

Shlonsky, Ur. 2014. Subject positions, subject extraction, EPP and the Subject Criterion. In E. Aboh, M.T.Guasti, I. Roberts, eds., *Locality*, New York: Oxford University Press.

Sobin, Nicolas. 2002. The Comp-trace effect, the adverb effect and minimal CP. *Journal of Linguistics* 38, 527-560.

Stowell, Timothy.1981. *Origins of Phrase Structure.* PhD dissertation, MIT, Cambridge, Massachusetts.