

# Subject islands and the Subject Criterion

VALENTINA BIANCHI

Università di Siena  
valentina.bianchi@unisi.it

CRISTIANO CHESI

IUSS, Pavia  
cristiano.chesi@iusspavia.it

Subject island effects are variable and unstable. Previous accounts, relying on well-defined structural properties of subjects, fail to capture this variability. We argue that subjects are islands only when they satisfy the Subject Criterion, which implies that at the interface they are interpreted outside the predicative nucleus of the clause, in a categorical structure (à la Ladusaw 1994); on the contrary, they are transparent for extraction when they undergo total reconstruction into the predicative nucleus of the clause, giving rise to a thetic structure. The thetic vs. categorical interpretation correlates with (non)presuppositionality and it is constrained by various factors, most notably the stage-level vs. individual-level nature of the predicate: this interaction of different factors can account for the observed variability, and is supported by our experimental evidence. The transparency of totally reconstructed subjects is not stipulated, but is shown to fall out from a top-down oriented syntactic computation, as proposed in Chesi (2004).

*Luigi is a great linguist.*      (*individual-level predicate*)

*Luigi is sixty.*                      (*stage-level predicate*)

*Happy birthday Luigi!*

## 1. Introduction

In the traditional typology of island constraints originating from Ross's (1967) dissertation, subjects were classified as strong islands. Recent research has highlighted the fact that not all subjects give rise to equally robust islands effects; however, the precise assessment remains controversial to date, and different empirical generalizations have been proposed in the literature. In this paper we propose that subjects qualify as islands for extraction only when they are interpreted as part of a categorical semantic structure, whereby they must be interpreted outside the predicative nucleus of the clause; when instead they are included in a thetic structure, they undergo total reconstruction into the thematic position (cf. Ladusaw 1994) and they are transparent for extraction. We implement the categorical/thetic opposition by means of Luigi Rizzi's (2006) Subject Criterion, and we analyze the extraction constraint in terms of a derivational system proceeding top-down and left-to-right (Chesi 2004; Bianchi & Chesi 2006, 2010, 2011).

### 1.1. *The controversial assessment of subject island effects*

In the Principles and Parameters framework, subject were considered absolute islands for extraction, and their islandhood was derived from very general constraints like Huang's (1982) Condition on Extraction Domains, Kayne's (1983) Connectedness Condition, or Chomsky's (1986) Barriers.

In the recent minimalist literature, it has been observed that subject island effects are selective, and at least three different factors have been argued to be relevant. We briefly review them in turn.

1.1.1. *External vs. Internal Merge.* According to Takahashi (1994), subjects qualify as islands when they occur in a derived position (cf. also Stepanov 2007):

- (1) a. ?\*Who does [a picture of *t*] hang on the wall? (Stepanov 2007, (1a))  
 b. Who is there [a picture of *t*] on the wall? (Stepanov 2007, (31))

This follows from two independent constraints:

- (2) Chain Uniformity Condition (Takahashi 1994)  
 Chains must be uniform: adjunction to a part of a non-trivial chain is not allowed.
- (3) Shortest move (Takahashi 1994)  
 Movement must target the closest landing site.

To illustrate the effects of (2) and (3), consider a potential derivation for (1a). After the subject [*a picture of who*] has moved to Spec,IP, we cannot directly extract the wh-phrase *who*, as this movement would violate Shorted Move:

- (4) \* who does [<sub>IP</sub> **who** [<sub>IP</sub> [<sub>DP</sub> **a picture of <who>**] [<sub>VP</sub> <<sub>DP</sub> **a picture of who**> hang on the wall ]]]]?

On the other hand, if we try to extract the wh-phrase by adjoining it to the subject DP, as in (5), the derivation violates Chain Uniformity:

- (5) \* who does [<sub>IP</sub> [<sub>DP</sub> **who** [<sub>DP</sub> **a picture of <who>**] ] [<sub>VP</sub> <<sub>DP</sub> **a picture of who**> hang on the wall ]]]?

On the contrary, intermediate adjunction is possible when the subject DP occupies the base position, as in (1b)-(6):

- (6) Who is there <sub>IP</sub> [<sub>DP</sub> **who** [<sub>DP</sub> **a picture of <who>**] on the wall?

The derivation can then proceed cyclically and finally converge.

1.1.2. *External vs. internal argument.* Note that Takahashi's proposal predicts that all subjects occupying a derived position are islands. However, this prediction is called into question by the following data, from Chomsky (2008, (6)-(7)):

- (7) \* Of which car did [**the (driver, picture) *t***] cause a scandal?

- (8) Of which car was **[the (driver, picture) t]** awarded a prize?<sup>1</sup>

Chomsky (2008) argues that, irrespective of their base or derived position, subjects are islands only if they correspond to external arguments, as in the active sentence (7), but not when they correspond to an internal argument, as in the passive sentence (8) or in the unaccusative structure (6). Chomsky's account of this generalization rests on two hypotheses:

- i. The A-movement of the subject to Spec-IP and the A'-movement of the wh-phrase proceed in parallel, since both are triggered by probes located in C. Therefore, the wh-phrase is extracted from the base subject position.
- ii. Extraction from the base internal argument position can exploit intermediate movement through the edge of the vP phase, whereas extraction from a base external argument position cannot. Consequently, extraction in (7) violates the Phase Impenetrability Condition.

1.1.3. *Discourse-linking*. Chomsky's approach predicts that all external arguments are islands for extraction. But even this prediction has been defied in the literature. Jiménez Fernández (2009) points out the following contrast in Spanish, involving two instances of extraction from a (derived) external argument:

- (9) a. ¿[De qué cantante] te parece que **[algunas fotos t]** han escandalizado  
of which singer to-you seem that some pictures have shocked  
a la audiencia?  
to the audience
- b. ¿?¿De qué cantante te parece que **[las fotos t]** han escandalizado  
of which singer to-you seem that the pictures have shocked  
a la audiencia?  
to the audience (Jiménez Fernández 2009, (57b), (60a))

The crucial difference between the two sentences is that in (9a), the subject is an indefinite introduced by a weak determiner, whereas in (9b), the subject is definite (and specific). Accordingly, the author proposes that the crucial property determining islandhood is Discourse-linking (in the sense of Pesetsky 1987). This is a special kind of existential presupposition: the subject denotation coincides with, or belongs in, a set of entities that has already been introduced in the context (in (9b), a set of pictures).<sup>2</sup> Then, a DP is opaque to sub-extraction when the features of Definiteness and Discourse-linking make it a strong (impenetrable) phase.

## 1.2. A starting hypothesis

Note that the three analyses that we reviewed agree w.r.t. two "extreme" cases: on the one hand, unmoved and non-D-linked internal arguments are transparent for

<sup>1</sup> As the reader will immediately notice, the acceptability of (8) contrasts with the unacceptability of Stepanov's (1a). One difference between the two examples concerns the stranding of the preposition *of* in (1a) as opposed to pied piping in (8), but neither author compares the two possibilities.

<sup>2</sup> If the subject is quantificational, its denotation is a quantifier that lives on (Barwise & Cooper 1981) a set of entities already familiar from the context.

extraction (4); on the other hand, D-linked external arguments occupying a derived position block extraction (5).

- i. Derived subject position (**DS**)
- ii. External argument (**EA**)
- iii. D-linking (**DL**)

- (4) l'autore di cui sono state pubblicate [**numeroso lettere t**] **-DS -EA -DL**  
 the author of whom have been published several letters
- (5) ?\* l'autore di cui [**le lettere t**] hanno provocato uno scandalo **+DS +EA +DL**  
 the author of whom the letters have raised a scandal

However, all the other cases on which the three factors disagree constitute a *grey area*, where acceptability judgements are unstable from speaker to speaker, and often not clearcut:

- (6) a. il personaggio di cui è stata pubblicata [**l'intervista \_**] **-DS, -EA, +DL**  
 the personality of whom was published the interview
- b. il personaggio di cui [**l'intervista \_**] è stata pubblicata **+DS, -EA, +DL**  
 the personality of whom the interview was published
- c. il personaggio di cui mi ha scandalizzato [**un'intervista \_**] **-DS, +EA, -DL**  
 the personality of whom me scandalized an interview
- d. il personaggio di cui mi ha scandalizzato [**l'intervista \_**] **-DS, +EA, +DL**  
 the personality of whom me scandalized the interview

We believe that this observation should be taken very seriously. Consider from this perspective the three factors listed above. Factors (i) and (ii) are categorical, in that they refer to easily identifiable structural properties of the subject: therefore, they predict different but equally clearcut patterns of acceptability, and they cannot account for the observed grey area. Only factor (iii) is compatible with variability, since as is well known, certain noun phrases are ambiguous between a D-linked (presuppositional) and a non-D-linked interpretation.

On these grounds we assume, as a starting hypothesis, that D-linking (presuppositionality) is the crucial factor that is responsible for subject island effects, and we preliminarily hypothesize that factors (i) and (ii) may be relevant to the extent that they contribute to determine a D-linked interpretation of the subject.

## 2. Presuppositionality and island effects

Our starting hypothesis is not novel: the idea that presuppositionality induces islandhood was systematically explored by Diesing (1992). In this section, we briefly summarize Diesing's proposal and the reinterpretation of it proposed by Ladusaw (1994).

In exploring the interpretive properties of indefinite noun phrases, Diesing builds on Carlson's (1977) distinction between individual-level predicates, expressing a stable and characterizing property of an entity, and stage-level predicates, expressing a transitory property. Crucially, individual-level predicates only allow for presuppositional subjects, whereas stage-level predicates are compatible with both presuppositional and non-presuppositional subject. Thus, the i-level

predicate *altruistic* in (7a) induces a presuppositional interpretation of the subject bare plural (whereby the set of firemen is nonempty). On the contrary, the s-level predicate *available* allows for a reading whereby the existence of firemen is not presupposed, and it is asserted that there exist some available firemen (in the circumstance of evaluation).

- (7) a. Firemen are altruistic. (i-level)  
 b. Firemen are available. (s-level)

The asymmetry is captured by Diesing in syntactic terms. On her analysis, individual-level predicates are control predicates, whose subject is generated outside VP, whereas with stage-level predicates, the subject originates within VP, and even if it raises to a VP-external position, it may undergo reconstruction. Diesing then proposes a Mapping Hypothesis whereby

- a) VP-external indefinites receive a presuppositional interpretation;  
 b) VP-internal indefinites are non-presuppositional and get bound by a default existential closure applying at the VP-level.

This syntactic account of presuppositionality implies interesting consequences in the domain of island effects. Since all presuppositional noun phrases occupy a VP-external position at LF, and such a derived position is not transparent for extraction,<sup>3</sup> it follows that presuppositionality entails islandhood. As a matter of fact, the necessarily presuppositional subjects of i-level predicates are absolute islands (8a), whereas subjects of s-level predicates can be transparent (8b):

- (8) a. \*Was sind für Schuhe wasserdicht? (i-level)  
 what are for shoes waterproof?  
 b. Was sind für Karotten im Kühlschrank? (s-level)  
 what are for carrots in-the refrigerator?

Although its empirical consequences are quite interesting, Diesing's Mapping Hypothesis is rather stipulative. However, Ladusaw (1994) proposed a reinterpretation of the Mapping Hypothesis in terms of the 'Brentanian' distinction between categoric andthetic judgments. To characterize these very roughly, we may say that athetic judgment is a simple judgment whereby we accept or reject the existence of an object (or eventuality); a categoric judgment is instead a compound judgment, whereby we first accept the existence of an object, and then we accept or reject the judgment that this object has a certain property.

Rephrasing this distinction in the terms of model-theoretic semantics, Ladusaw proposes thatthetic judgments correspond to semantic structures where the subject is neither quantificational nor referential, but it is interpreted as part of the description of an eventuality: therefore, it is interpreted within the predicative nucleus of the clause, where it falls in the scope of unselective existential closure. On the contrary, categoric judgments correspond to structures where the subject is quantificational and combines with a property (of type  $\langle e, t \rangle$ ): therefore, the subject is compositionally external to the subtree which denotes the relevant property. Syntactically, this means that the subject is interpreted in different

<sup>3</sup> In Diesing's approach, this is because a noun phrase sitting in a derived position is not L-marked, and hence qualifies as a barrier for extraction (in Chomsky's 1986 *Barriers* system).

positions *at the interface*. The subject of athetic structure, even if it moves to IP for syntactic reasons, will undergo reconstruction into the base position, as schematically represented in figure 1. On the other hand, the subject of a categorical structure must occupy a high derived position at the interface; if we assume – *pace* Diesing (1992) and Kratzer (1995), and in line with more recent assumptions – that all subjects originate within v/VP, then the subject of a categorical judgment necessarily undergoes movement (either overt or covert), and cannot undergo reconstruction (cf. figure 2).

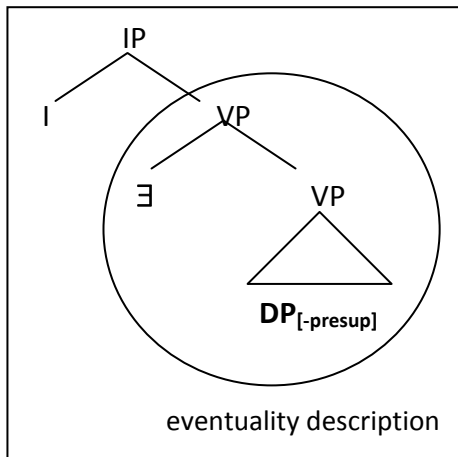


Fig 1. Thetic structure

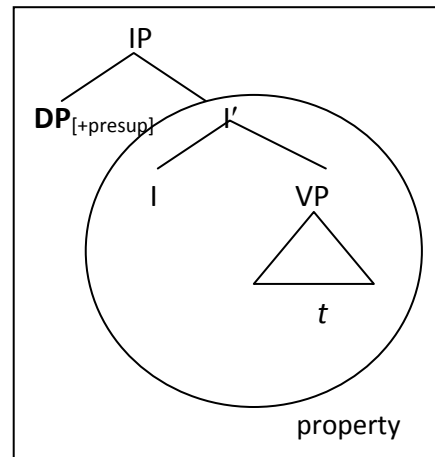


Fig. 2. Categorical structure

Note that presuppositionality follows as a side effect of thethetic/categorical divide: the subject of athetic judgment – which asserts existence – must lack an existential presupposition (and *a fortiori* D-linking), whereas in categorical judgments, the subject must be presuppositional.

Furthermore, as noted by Carlson and Diesing, the nature of the predicate constrains the semantic structure: i-level predicates are only compatible with a categorical structure, whereas s-level predicates are compatible with either a categorical or athetic structure.

In the following section, we build on Ladusaw's proposal in order to link subject islandhood to presuppositionality, and the latter, in turn, to the type of syntactic structure that is required at the interface with the interpretive component.

### 3. The Categorical Subject Criterion

Recall that we assume that all subjects originate within the 'first phase' vP, where argument structure is determined. On the other hand, Ladusaw's proposal implies that a transparent syntax-semantics mapping can obtain if and only if the subject of a categorical structure is syntactically external to the predicative nucleus at the interface, whereas the subject of athetic structure is internal to it. How can the syntax implement thethetic/categorical opposition? A natural candidate comes to mind: Rizzi's (2006) Subject Criterion.

Rizzi's Criterion builds on earlier proposals by Shlonsky (2000) and Cardinaletti (2004), who observed that there must be two distinct subject positions in the preverbal field. In particular, Cardinaletti showed that the higher subject position can only host semantically non-vacuous subjects: for one thing, a referential

subject can be separated from the predicate by a parenthetical clause (9a), whereas a semantically vacuous expletive cannot (9b). This follows from a layered structure like (9c).

- (9) a. John/He, as you know, is a nice guy.  
 b. \* There, as you know, was a man in the garden.  
 c. [<sub>SubjP</sub> DP [ (parenthetical) [<sub>AgrSP/TP</sub> DP ... ]]] (Cardinaletti 2004, (80))

Cardinaletti argues that the higher subject position is reserved for the element that qualifies as the logical subject of predication: by its very nature, this position cannot be filled by an expletive.<sup>4</sup>

Rizzi (2006) and Rizzi & Shlonsky (2007) have implemented Cardinaletti's idea in the terms of a Subject Criterion: the higher projection carries a criterial [aboutness] feature which must be matched by a DP occupying the Spec position. Note that it is an intrinsic property of criterial configurations that the element satisfying a criterion cannot be removed from the criterial position at the interface («criterial freezing»: Rizzi 2006, 2010). We can therefore propose the following reinterpretation of the Subject Criterion:

- (10) The Subject Criterion implements the categorical/thetic opposition:
- When the subject occupies the criterial position at the interface, it is interpreted as external to the predicate, giving rise to a categorical structure;
  - When the subject stops in the lower non-criterial position, it undergoes total reconstruction into the thematic position, so that at the interface it is included in the predicative nucleus, in the scope of existential closure. This gives rise to a thetic structure.<sup>5</sup>

#### 4. The Extraction from Subject Constraint

With this characterization of the syntax of categorical vs. thetic structures, we can now formulate a constraint on extraction from subjects:

- (11) Extraction from Subject Constraint (ESC):  
 Only a subject occupying the thematic position *at the interface* is transparent for extraction.

This formulation immediately raises at least two questions: first of all, *why* should the interface position matter? And second, *how* can it possibly matter, given that extraction takes place in the course of the syntactic derivation that leads to the final interface with the external components? The constraint seems puzzlingly counter-cyclic. We will return to these serious concerns in § 5; in this section, instead, we discuss the empirical predictions of the ESC.

In view of our reinterpretation of the Subject Criterion (10), the ESC implies that

<sup>4</sup> For Cardinaletti, the lower Subject position is Spec-v,AgrS/TP, i.e. a position that just checks phi-features. For Shlonsky (2000), the higher position checks the person feature, whereas the lower one checks the number feature. Similar splits have been independently proposed in Kiss (1996), Sigurdsson (2000), a.o.

<sup>5</sup> Our view of the interpretive import of the criterial position is different from Rizzi's. We briefly return to this point in § 6.

- i. only a reconstructed non-criterial subject is transparent for extraction;  
in other terms,
- ii. only the subject of a thetic structure is transparent for extraction.

Recall now from § 2 that individual-level predicates are only compatible with a categorical structure, whereas stage-level predicates are compatible with both a categorical and a thetic structure. Since extraction from subjects requires a thetic structure [ii], and only stage-level predicates are compatible with the latter, we have the following empirical predictions:

- iii. the subject of an individual-level predicate is never transparent for extraction;
- iv. the subject of a stage-level predicate is transparent only if it is non-presuppositional (i.e., only if it is part of a thetic structure).

These predictions are not easy to test because, as is well known, some predicates are ambiguous between an individual and a stage-level interpretation (see Diesing 1992, ch. 2 for discussion),<sup>6</sup> and the compatibility of stage-level predicates with both types of structure leaves much room for variation. In (12) we provide a prototypical paradigm to test the predictions of our ESC. (12a) exemplifies extraction from an indefinite subject with an individual-level predicate: this is predicted to be unacceptable. (12b) exemplifies extraction from an indefinite subject with a clearly stage-level predicate (the stage-level interpretation is enhanced by the phasal adverbial *already*): this is predicted to be significantly more acceptable than (12a). Finally, (12c) exemplifies extraction from a definite subject of a stage-level predicate; if the subject is presuppositional, extraction is expected to be degraded.<sup>7</sup> Preliminary testing with some native speakers indicates that these predictions are on the right track.

- (12)[Context: *An art collector has ordered reproductions of a number of masterpieces: some big size reproductions and a small-size one for each.*]
- a. ?\* Of which masterpiece is [one reproduction\_] absolutely perfect?
  - b. Of which masterpiece is [one reproduction\_] already available?
  - c. ? Of which masterpiece is [the small-size reproduction\_] already available?

In order to better test these predictions, we performed an experiment with native speakers of Italian, which is reported in the next subsection.

#### 4.1. Experimental evidence

In preparing the experimental materials, two syntactic properties of Italian had to be taken into account.

First, in main interrogative clauses subject inversion is obligatory (13a-b), and a non-inverted subject is strongly marginal (cf. Rizzi 1991):

<sup>6</sup> As an illustration, the individual-level adjective *simpatico* (likeable) becomes compatible with a phasal adverbial like *by now* when a specific ‘point of view holder’ is made explicit:

(i) Gianni è (?\* ormai) simpatico.

John is (by-now) likeable

(ii) Gianni mi è (ormai) simpatico.

John to-me is (by-now) likeable

<sup>7</sup> It must be noted that on Ladusaw’s analysis definiteness does not necessarily imply presuppositionality. As a matter of fact, the judgment about (12c) is not clear cut.



- (13) a. Quale libro ha comprato Gianni per Maria?  
 which book has bought John for Mary  
 b. ?? Quale libro Gianni ha comprato per Maria?<sup>8</sup>  
 which book John has bought for Mary?

In order to test the islandhood of preverbal subjects, we used examples of extraction from a complement clause, since under long-distance movement of the interrogative phrase, subject inversion is not mandatory.

Secondly, Italian differs from English in allowing for free subject inversion:

- (14) È arrivato Gianni.  
 is arrived John

Thus, in principle individual and stage-level predicates might combine with either a preverbal or a freely inverted subject. In designing the experiment, we did not make any assumption about a possible relationship between the surface position of the subject and its mapping into a categorical vs.thetic structure, and we simply tested all the four possible combinations, as illustrated in the sample experimental paradigm (15). Other factors were kept constant: a) the extracted wh-phrase always contained a lexical restriction,<sup>9</sup> b) the subject was always a non-partitive indefinite, c) the predicate was an adjective or an intransitive verb.

- (15) [*Context: a discussion between two experts on constitutional laws:*]  
 a. **[i-level, preverbal]**  
 Di quale articolo ritieni che **[una revisione\_]** sarebbe incostituzionale?  
 of which section (do you) think that a revision would be unconstitutional  
 b. **[i-level, postverbal]**  
 Di quale articolo ritieni che sarebbe incostituzionale **[una revisione\_]?**  
 of which section (do you) think that would be unconstitutional a revision  
 c. **[s-level, preverbal]**  
 Di quale articolo ritieni che **[una revisione\_]** sarebbe ormai opportuna?  
 of which section (do you) think that a revision would be by-now timely  
 d. **[s-level, postverbal]**  
 Di quale articolo ritieni che sarebbe ormai opportuna **[una revisione\_]?**  
 of which section (do you) think that would be by-now timely a revision

The data were collected with a controlled judgment elicitation technique.

The experimental items consisted of 8 paradigms like (15), with 4 variable combinations each (2 subject positions X 2 predicate types). The items were divided into four different experiments (Latin Square design): in every experiment each of the four conditions (a-d) was tested with two items, so that only one example was extracted from each paradigm. The items were interspersed with an equal number of fillers, with various degrees of acceptability, and were presented in a randomized order.

<sup>8</sup> If the interrogative phrase is a bare wh-phrase, the deviance of (13b) is even stronger.

<sup>9</sup> We consistently tested extraction of D-linked wh-phrases, because this factor is known to favour extraction; cf. Starke (2001) for discussion.

All subjects performed the four experiments at different times. They were asked to indicate the degree of acceptability of each presented sentence on a continuous bar with 400 points. Figure 3 shows a snapshot of the data presentation:

Contesto: I dipendenti di un autosalone discutono di modelli di auto

Di quale vecchio modello sembra che sia ormai imminente un rilancio?

inaccettabile ————— X ————— pienamente accettabile

Next page

Figure 3

The experimental subjects were 13 adult native speakers from Northern and Central Italy, who were recruited personally or by e-mail by the investigators. The data were collected through an online interface implemented with Osucre (Van Acker 2007), and the results were analyzed with R using a within-subject analysis, 2-way ANOVA.

The results of the analysis are in the tables below:

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Residuals	12	212639	17720		

#### Error: subj:subj\_pos

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Signif.
Subject position	1	11335	11334.6	8.5792	<b>0.01263</b>	*
Residuals	12	15854	1321.2			

#### Error: subj:verb\_type

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Signif.
Verb type	1	4358.3	4358.3	3.4115	0.08954	.
Residuals	12	15330.4	1277.5			

#### Error: subj:subj\_pos:verb\_type

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Signif.
subj_pos:verb_type	1	17595	17595.0	13.558	<b>0.003136</b>	**
Residuals	12	15573	1297.7			

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

Despite the great variability in grammaticality judgments (Box Plot, Figure 4) and the non significant dependence of grammaticality on verb type, we found significant interactions between variables (Figure 5): first we found a significant effect on subject position ( $F(1, 12) = 8.58$   $p = 0.01$ ) and secondo, a strongly significant effect on the interaction between subject position and verb type ( $F(1, 12) = 8.58$   $p = 0.003$ ).

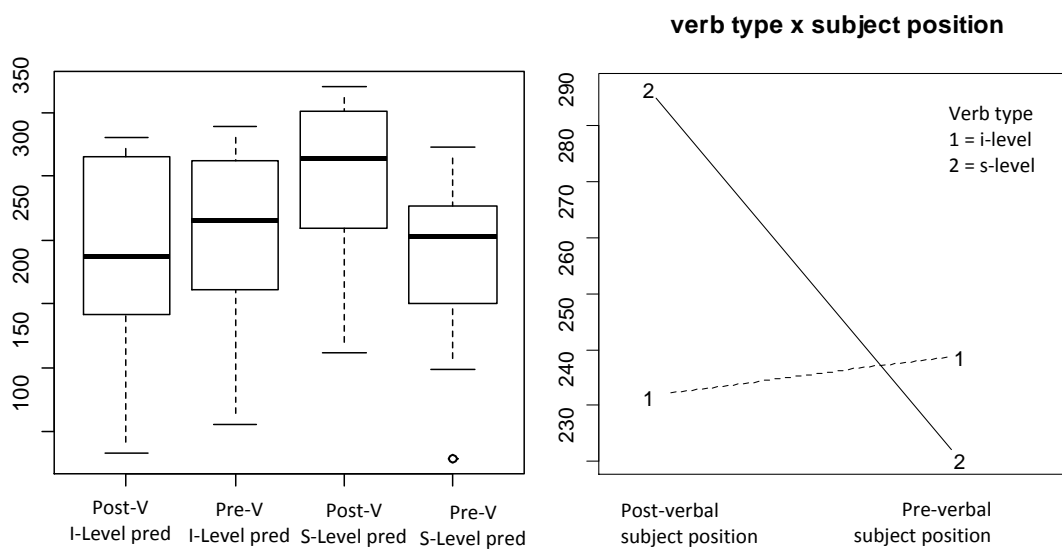


Figure 4 – Box Plot

Fig. 5 – Variables interaction

#### 4.2. Discussion

The experimental results show that by itself, the type of predicate (individual vs. stage-level) is not a significant factor, while the pre- vs. post-verbal position of the subject is significant. When the two factors are combined, however, a much stronger significant asymmetry emerges.

As shown in figure 5, in the case of individual-level predicates the different subject position does not yield a significant difference ( $F(1, 12) = 0.33$   $p = 0.6$ ). This is consistent with the ESC, given that individual-level predicates can only inhabit a categorical structure; thus, even if the subject appears post-verbally, it cannot be interpreted in the thematic position at the interface. There is actually independent evidence that free subject inversion is infelicitous with individual-level predicates (Bianchi 1993); we return to this point in § 4.3.

On the contrary, in the case of stage-level predicates the difference between extraction from a pre- vs. postverbal subject is highly significant ( $F(1, 12) = 17.94$   $p = 0.001$ ). This is not expected under the assumption that Universal Grammar makes available a non-criterial derived subject position (the lowest one in (9c)) which allows for reconstruction in thetic structures. In fact, the low degree of acceptability of extraction in condition (c) contrasts with the reported acceptability of extraction from non-categorical preverbal subjects in English, as in e.g. (16):

(16) [Of which cars] were [the hoods\_] damaged by the explosion?

From the perspective of the ESC, the island effects observed in condition (c) may follow from the hypothesis that in Italian, as opposed to English, preverbal subjects resist reconstruction even when the predicate is stage-level. This hypothesis is independently supported by the following contrasts concerning scopal interactions:

- (17) a. (It seems that) everyone isn't here yet. ( $\checkmark$  not >  $\forall$ )  
 b. (Sembra che) ognuno di loro non sia ancora arrivato. (?\*not >  $\forall$ )
- (18) a. A unicorn seems [*t* to be in the garden]. ( $\checkmark$  seem >  $\exists$ )  
 b. Un unicorno sembra [*t* essere in giardino]. (?\*seem >  $\exists$ )

(17) shows that a universally quantified subject can be interpreted in the scope of negation in English, but not in Italian. Even though we would not assume that the universal subject reconstructs down to the thematic position in (17a), still we can see that it is not 'frozen' in its surface position, which is presumably outside the scope of negation. In Italian, on the contrary, the preverbal subject seems to be frozen in place, and it cannot be interpreted in the scope of negation. Similarly, in the English example (18a) the existentially quantified subject can be reconstructed in the scope of the raising verb *seem*, whereas the same is impossible in Italian (18b). This evidence suggests the following descriptive generalization:

(19) In Italian, preverbal subjects tend not to reconstruct.

Given our hypothesis (10), whereby reconstruction is only possible from the non-criterial position, a natural interpretation of (19) is that in Italian, preverbal subjects tend to be interpreted as criterial.

At an intuitive level, this tendency may be related to the availability in Italian of one further subject position, namely, the free inversion position. There is evidence that the latter is internal to the predicative nucleus of the clause (cf. in particular Belletti 2004),<sup>10</sup> hence, from the present perspective, it does not satisfy (our version of) the Subject Criterion.

It is natural to assume that free inversion involves a more economical derivation than movement to the non-criterial preverbal position.<sup>11</sup> By local economy, free inversion will be chosen wherever possible; consequently, in any structure that allows for free inversion, a preverbal subject will be interpreted as criterial.<sup>12</sup> (We return to free inversion in § 4.3)

Notice that English lacks free inversion, and therefore, there is no more economical option ruling out movement to the non-criterial preverbal position. Consequently, preverbal subjects of stage-level predicates can be reconstructed (cf. (17a)/(18a)) and, by the ESC, they are transparent for extraction.

We can now reconsider the role of the two other factors that have been identified in the literature, as discussed in §§ 1.1.1-1.1.2 above.

<sup>10</sup> This remark applies exclusively to free subject inversion in declarative clauses.

<sup>11</sup> As for broad focus structures, if the inverted subject is *in situ*, this option is more economical by definition. As for narrow focus on the subject, if it occupies a Focus position in the left edge of the vP phase (Belletti 2004), movement to the IP area will require an additional crossing of the vP phase boundary.

<sup>12</sup> A similar suggestion for German can be found in Bayer (2006, note 5): "It appears that even sentences with easily processable inverse scope such as Paul Hirschbuhler's example *A flag was hanging from every window* seem to preferentially invoke the awkward reading in German such that *dass eine Fahne aus jedem Fenster hing* suggests that one and the same flag could hang from all the different windows. The distributive reading may be blocked by the word order option *dass aus jedem Fenster eine Fahne hing*."

As for factor [i] (DS), we have seen that derived subjects qualify as islands only to the extent that the derived position favours a criterial interpretation of the subject: as we have seen this is robustly the case in languages like Italian.

As for factor [ii] (EA), we believe that internal arguments are normally transparent because, for the most part, unaccusative and passive predicates describe a *change of state*, which cannot constitute a characterizing property of the internal argument; hence, they qualify as stage-level predicates, and they are compatible with athetic structure.

In § 1.2, we have already argued that factor [ii] cannot account for the observed variation in acceptability judgements. Nevertheless, it is important to consider cases where the empirical predictions of our ESC differ from those of factor [ii].

Cinque (1990) identified some empirical tests to distinguish unergative vs. unaccusative predicates within the class of adjectives in Italian. One standard unaccusativity test (since Belletti & Rizzi 1981) is the possibility of cliticization of the clitic *ne* out of the subject, as exemplified in (20a).

- (20) a. Ne sono note solo alcune (delle sue poesie) (Cinque 1990, (13a))  
of-them are well-known only some (of his poems)  
b. \*Ne sono ingiuste molte (di condanne) (Cinque 1990, (17a))  
of-them are unjust many (of condemnations)

Another unaccusativity test suggested by Cinque is the possibility for the adjective to occur in an adjunct *as*-clause:

- (21) a. Come era [prevedibile\_] , Gianni non è venuto. (Cinque 1990, (43b))  
as was foreseeable, John did not come  
b. \*Come era [possibile\_] , Gianni ha vinto. (Cinque 1990, (44c))  
as was possible, John won

A third test is the selection of the particle *di* to introduce an infinitival complement, as exemplified in (22a):

- (22) a. Non gli era noto \*(di) essere così famoso. (Cinque 1990, (53a))  
not him was known *di* to-be so famous  
b. Mi è impossibile (\*di) aiutarti. (Cinque 1990, (54a))  
to-me is impossible *di* to-help you

Cinque also considered transparency for extraction to be an unaccusativity test.<sup>13</sup> However, on closer inspection we can see that the subject of a stage-level predicate can be fully transparent for extraction (23a) even if it fails the three unaccusativity tests (23b-d):

<sup>13</sup> In his note 9, Cinque gives the following examples:

- (i) Mario, di cui è nota/imminente una presa di posizione sul tema,...  
M., of whom is well-known/forthcoming a statement on the subject, . . .  
(ii)\* Mario, di cui è pericolosa/ingiustificata una presa di posizione sul tema,...  
M., of whom is dangerous/unjustified a statement on the subject, . . .

As it happens, the unaccusative predicates in (i) are also stage-level, whereas the unergative predicates in (ii) are individual-level.

- (23) a. [Di quale legge] ritieni che sarebbe utile **[una revisione \_i]** ?  
of which law (do you) think that would be useful a revision?  
b. ?\* (Di regole,) **ne** sono utili [molte].  
of rules, of-them are useful many  
c. ?\* Come era utile, abbiamo controllato i documenti.  
as was useful, (we) have controlled the documents  
d. E' utile (\* di) discutere.  
(it) is useful (\* di) to-discuss
- (24) a. Di quale procedimento ritieni che sia ancora possibile **[una modifica\_]**?  
of which procedure (do you) believe that is still possible a modification  
b. ?\* Ne è ancora possibile una modifica.  
of-it is still possible a modification  
c. \* Come era [possibile]\_, Gianni ha vinto. (=21b)  
as was possible, John has won  
d. E' possibile (\* di) modificarlo.  
(it) is possible *di* to-modify-it

Thus, unaccusativity is not a necessary condition for transparency (*pace* Cinque 1990 and Chomsky 2008).<sup>14</sup>

The reverse dissociation is also observed: if an unaccusative predicate is individual-level, its subject cannot be extracted from, be it in a preverbal or in a postverbal position ((25a-b), *pace* Kratzer 1995). Individual-level unaccusatives are rare, and we exemplify here with a verbal predicate (whose unaccusativity is supported by the selection of the *be*-auxiliary):

- (25)a.\*[Di quale regione] ritieni che **[alcuni dialetti \_]** appartengano alla famiglia  
of which area (do you) think that some dialects belong in the Germanic  
germanica?  
group?  
b. \* [Di quale regione] ritieni che vi appartengano **[alcuni dialetti \_]**?  
of which area (do you) think that in-it belong some dialects?

The ungrammaticality of extraction in (25) suggests that unaccusativity is not a sufficient condition either.

Therefore, we surmise that internal argument status [ii] and a non-derived position [i] favour the transparency of the subject only to the extent that they favour a non-presuppositional reading in athetic structure.

#### 4.3. Free subject inversion

In the previous discussion, we assumed that free subject inversion involves a non-criterial position, since this position seems to be internal to the predicative nucleus of the clause (and to the focus: Lambrecht 1994, Belletti 2004). In this respect, our reinterpretation of the Subject Criterion in (10) makes a clear prediction: since individual-level predicates require a criterial subject, they are expected to be

<sup>14</sup> Three out of eight of our experimental paradigms included the adjectives *necessario* (necessary), *presente* (present) and *frequente* (frequent), which fail the unaccusativity tests.

incompatible with free inversion (under broad focus), contrary to stage-level predicates.<sup>15</sup> This is indeed the case, as observed in Bianchi (1993).<sup>16</sup>

- (26) a. Sono disponibili alcune guide turistiche. (s-level)  
         are available some tourist guides  
       b. Sono imminenti piogge torrenziali.  
         are imminent heavy rainfalls
- (27) a. \* Sono poliglote alcune guide turistiche. (i-level)  
         are polyglot some tourist guides  
       b. \* Sono dannose piogge torrenziali.  
         are harmful heavy rainfalls (Bianchi 1993, 60)

Note that the deviance of free inversion with individual-level predicates may by itself explain the unacceptability of the examples in condition (b) of our experimental paradigms: cf. (15b), repeated here for convenience.

- (15) b. [i-level, postverbal]  
         Di quale articolo ritieni che sarebbe incostituzionale [**una revisione**]?  
         of which section (do you) think that would be unconstitutional a revision

As a matter of fact, the acceptance rates for this condition were slightly lower than for the (a) condition involving a preverbal subject (in sharp contrast with the asymmetry observed with stage-level predicates), cf. Figure 4 above.

The hypothesis that the free inversion position is non-criterial leaves open two possible analyses for the free inversion structure. A first analysis, advocated most prominently by Lambrecht (1994), conceives of free inversion (under broad focus) as implementing a thetic structure. Another possibility, independently suggested by Bianchi (1993) and Pinto (1997), is that free inversion implements a categorical structure whose subject, however, is a covert spatio-temporal argument. Even this second approach can explain the deviance of free inversion with individual-level predicates, if we assume, following Kratzer (1995), that the latter lack a covert spatio-temporal argument (see Bianchi 1993 for discussion).

The choice between the two analyses depends on a wider range of theoretical assumptions than we can possibly discuss here (especially w.r.t. the adoption of something like Austinian propositions). Therefore, we leave the question open here; for our current purposes, the only crucial point is that the free inversion position is non-criterial, and this is consistent with both views.

Another question that remains to be investigated is under what conditions exactly free subject inversion is licensed (under broad focus). We have claimed that a necessary condition is the presence of a stage-level predicate; however, this is not a sufficient condition. For one thing, with transitive verbs – independently of the nature of the predicate – subject inversion is possible only if an object is moved out of vP, possibly because of a syntactic constraint (see Alexiadou & Anagnostopoulou 2001, 2006, Belletti 2004). Although this problem exceeds the

<sup>15</sup> An underlying assumption is that no covert raising is allowed from the inversion position to the preverbal criterial position.

<sup>16</sup> We specifically refer here to free subject inversion under broad focus because, as shown by Pinto (1997), inversion under narrow focus is subject to distinct conditions.

limits of the present discussion, we wish to point out an anecdotic, yet suggestive observation.

In § 4.2 we tentatively hypothesized that in Italian, the availability of free subject inversion preempts movement to the non-criterial preverbal position, by economy; as a consequence, whenever free inversion is available, movement of the subject to the preverbal field must target the criterial position. Given that by (10) the criterial position induces a presuppositional interpretation, we predict that in such sentences, an inverted subject will necessarily be non-presuppositional, and a preverbal subject will necessarily be presuppositional. In a minimal pair like (28), this is indeed observed:

- (28) a. E' arrivato **qualcuno**. (- presuppositional)  
       b. **Qualcuno** è arrivato. (+ presuppositional)  
           somebody arrived

On the other hand, whenever free inversion is impossible – for instance, in a transitive clause with a VP-internal object – there is no competition based on economy, and the subject will target either the criterial or the non-criterial preverbal position. We then predict that in such cases, the subject will be ambiguous between a presuppositional and a non-presuppositional reading: this is indeed observed in (29b).

- (29) a. ?? Ha rotto il vetro **qualcuno**.  
           has broken the pane somebody  
       b. **Qualcuno** ha rotto il vetro. (± presuppositional)  
           somebody has broken the pane

Of course, this observation must be corroborated by more robust evidence; nevertheless, we regard it as a promising line of inquiry.

Finally, a related question is how exactly the categorical/thetic structure relates to Information Structure. Lambrecht (1994) explicitly identifies a thetic structure with a broad focus sentence, whereas Rizzi (2006) argues that even in a broad focus sentence, a preverbal subject can be criterial, since it constitutes the default antecedent for a null subject in the following clause (see § 6 for discussion).

On the other hand, topics are generally assumed to be presuppositional; Ladusaw (1994) explicitly argues that topics constitute subjects of categorical structures. This raises the question of the possible coexistence of two independent topics, or a topic and a criterial subject, in one and the same clause. These issues will have to be thoroughly addressed in future research.

#### 4.4. *Intermediate summary*

To sum up, we have proposed that the islandhood of subjects is determined by their criterial status in a categorical structure: a criterial subject is frozen in place, hence it cannot undergo reconstruction into the thematic position so as to satisfy the ESC, repeated here for convenience:

- (11) Extraction from Subject Constraint: Only a subject occupying the thematic position *at the interface* is transparent for extraction.



We have provided experimental evidence that supports our proposal, with the proviso that in Italian, preverbal subjects tend to be interpreted as criterial much more commonly than in English – a fact that is plausibly related to the availability of free subject inversion in Italian, as opposed to English.

## 5. A top-down perspective

In our previous discussion, we left pending a serious concern: the ESC (11) strongly looks like a representational LF filter, and it is hardly compatible with a derivational view of the grammar as the one endorsed in the minimalist framework.

Furthermore, since non-criterial subjects appear preverbally (at least in English), a thetic structure can only be obtained by a *total reconstruction* step, which literally ‘undoes’ the previous movement of the subject DP.<sup>17</sup>

We argue that both these problems can be avoided if we abandon the standard bottom-to-top orientation and we assume instead a top-down derivation. The latter implies that the derived position of a wh-phrase is computed before the thematic position, and similarly, a derived subject position is computed before the ‘reconstruction’ position. This allows for a different implementation of long-distance dependencies (§ 5.1.2) and of reconstruction (§ 5.2).

### 5.1. Sketch of a Top-Down Left-Right grammar

5.1.1. *Phrase structure.* In a Top-Down Left-Right derivation, we start building a structure from the root of the tree (e.g. CP) and we expand it constituent after constituent according to:

- i. the minimal set of features/functional positions that are expected within each ph(r)ase, according to the grammatical constraints that are part of our competence;
- ii. the selection requirements of any lexical items introduced in the computation.

To take a concrete example, consider the computation of a DP like *the boy*. In a bottom-to-top derivation, this is the result of a Merge operation that takes two lexical items, a noun and a determiner, and forms a DP constituent. In a Top-Down Left-Right derivation, instead, the grammatical inventory consists of a lexicon and a set of non-terminal well-formed trees:<sup>18</sup> when a DP node must be expanded, the system inspects the grammatical inventory and obtains a set of features as the legal grammatical expansion of the DP.

For concreteness, we distinguish functional features from lexical features by using the + sign to prefix them. In the case at hand, assuming that DP is an extended projection (Grimshaw 1990) of a lexical item N, the minimal set of features

---

<sup>17</sup> We may try to avoid these problems by adopting Sauerland & Elbourne's (2002) hypothesis of PF movement: within narrow syntax, non-criterial subjects remain in the base position – from which a constituent can be extracted – and they undergo movement to the non-criterial derived position only in the PF branch of the derivation. Although we cannot fully discuss this possibility here, it seems to us that a solution along these lines would not be sufficiently general: the islandhood of presuppositional objects (Diesing 1992, ch. 4), exemplified in (i), still requires reference to the covert interface position derived by Quantifier Raising.

(i) ?\* Who did you see [every picture of \_\_\_]? (Diesing 1992, 97)

Thus, reference to the interface position of an argument seems to be unavoidable if we want to account for the correlation between presuppositionality and islandhood in a general way.

<sup>18</sup> These are similar to the elementary/auxiliary trees in Tree Adjoining Grammar (Joshi 1985).

expected will be the ordered set (+D, N); these features will be lexicalized/expanded sequentially, in the order indicated.

The expansion proceeds by picking up aggregated information from the grammatical inventory (either a lexical item or a non-terminal tree), and inserting lexical items according to their feature specification: +D is the functional feature associated to those lexical items that can expand/lexicalize this functional position.<sup>19</sup>)

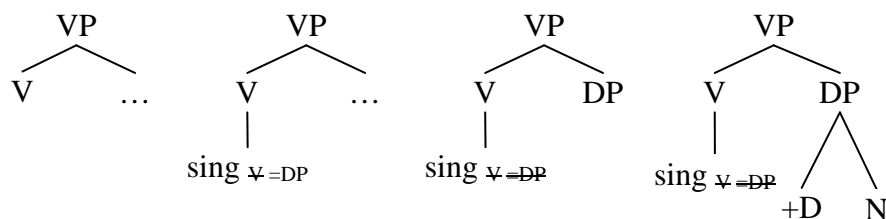
From this perspective, the grammar and the lexicon are finite inventories of finite sets of features, as shown in the toy example (12). The expansion of each constituent consists minimally of one lexical feature (the lexical head) and a set of associated functional features.

(12) English toy grammar	English toy lexicon
DP: (+D, N)	<i>the</i> : (+D)
CP <sub>declarative</sub> : (+S, <sup>20</sup> +T, V)	<i>boy</i> : (N)
CP <sub>wh</sub> : (+wh, +T, +S, V)	<i>John</i> : (+D, N)
...	<i>who</i> : (+wh, +D, N)
	<i>sing</i> : (V, =DP)
	...

In this formalism, following Stabler (1997), the thematic requirements of lexical items are encoded by select features, which are identified by the “=” prefix. For instance, in (12) the intransitive verb *sing* has a single select feature (=DP), expressing the thematic requirement for a single argument.

The select features carried by lexical heads introduce *expectations*, which trigger ph(r)ase expansion, as shown in the toy derivation (13):

- (13) i. expand VP    ii. insert *sing*    iii. project DP    iv. expand DP



5.1.2. *Movement*. However, we know that not all syntactic relations can be local: a *wh*-element like *who* satisfies both a criterial feature in the left-periphery (in the sense of Rizzi (1997, 2006) and a thematic requirement in the VP domain. The Top-Down Left-Right approach implements such a non-local dependency by introducing the *wh*-element in the derivation as soon as the criterial +wh functional feature is processed in the left-periphery: this will be the first feature to be computed from a left-right perspective (14.i).

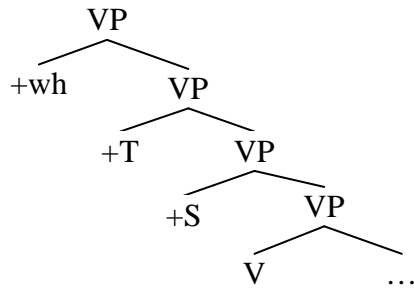
However, the lexicalization/expansion of the +wh feature will introduce more features in the derivation. Recall from (12) that *who* is specified as (+wh, +D, N): now, the (+D, N) features that qualify *who* as an argument are not expected in the criterial position (14.ii).

<sup>19</sup> Notice that, in certain languages, also empty elements (e.g. “*pro*”) can fulfill this requirement by lexicalizing (in the relevant sense) a functional feature.

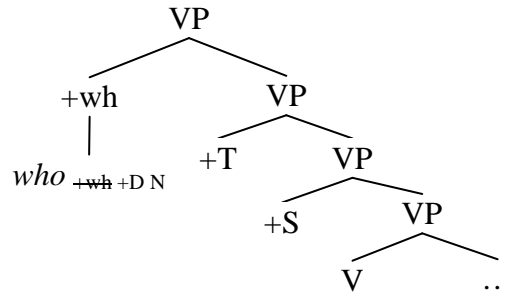
<sup>20</sup> We return below to this feature, which will be crucial in our analysis of criterial subjects.

The fact that these features are not expected forces phrasal movement, but in a completely reversed perspective: the unexpected features are moved into a memory buffer (M-buffer), which is a last-in first-out memory (14.iii); the features will be retrieved and re-merged in the structure as soon as<sup>21</sup> a compatible select feature is introduced in the derivation by a lexical head (14.iv):

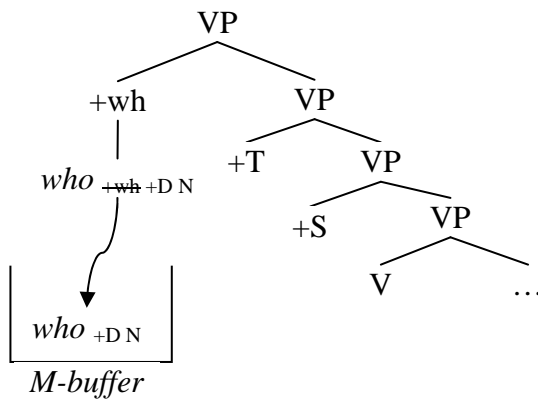
(14) i. project  $CP_{wh}$



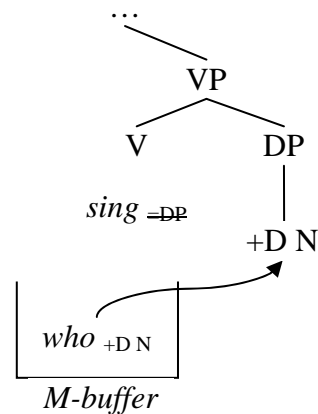
ii. lexicalize +wh with *who*: (+wh, +D, N)



iii. *who* (+D, N) features 'storage'



iv. (+D, N) feature 're-merge'



In order for a sentence to be grammatical, every pending dependency must be discharged. This corresponds to the requirement that the memory buffer be empty at the end of the derivation:

(15) Success condition:

At the end of the derivation, the M-buffer must be empty.

In this system, the notion of successive cyclic movement can be incorporated if we assume that the derivation is divided in phases.

<sup>21</sup> This implies that the system retrieves featurally compatible elements from the M-buffer to satisfy a select requirement before accessing the grammatical inventory: in more familiar terms, 'move' (internal merge) preempts 'external merge'.

A phase is a computation in which the system processes the minimal set of features that consists of one lexical feature (either N or V),<sup>22</sup> and the related set of functional features (up to QP/DP or CP/IP).

Phases have a different status according to their position with respect to the superordinate phase:

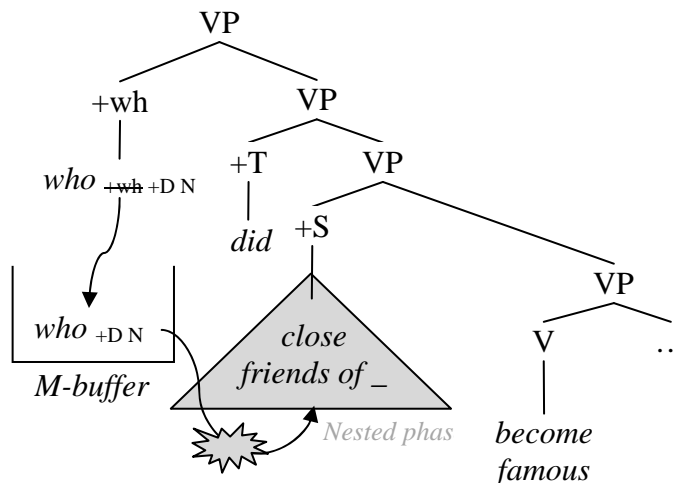
- a. phases that result from the expansion of a functional features will be processed while the superordinate phase is still under processing: hence, they qualify as computationally *nested phases*.
- b. phases that constitute the expansion of a selected category, instead, are processed sequentially with respect to the superordinate/selecting phase: after the projection of the expected categories (step (13iii)) the matrix phase is closed. We will call these phases *selected phases*.

Crucially, each phase has its own M- buffer, and successive-cyclic movement proceeds by transmitting the content of the M-buffer of a phase to the the M-buffer of another phase. We adopt the following constraints (Chesi 2004, Bianchi & Chesi 2006):

- c. nested phases cannot inherit/discharge the content of the M-buffer of the superordinate, containing phase;
- d. selected phases can inherit/discharge the content of the M- buffer of the superordinate (but not containing) phase.

The distinction between selected and nested phases allows us to account for left-branch islands (16) vs. successive cyclic extraction from complement clauses (17), by virtue of the constraints posed on the inheritance mechanism. In (16), the content of the M-buffer cannot be discharged in the M-buffer of the nested subject phase:

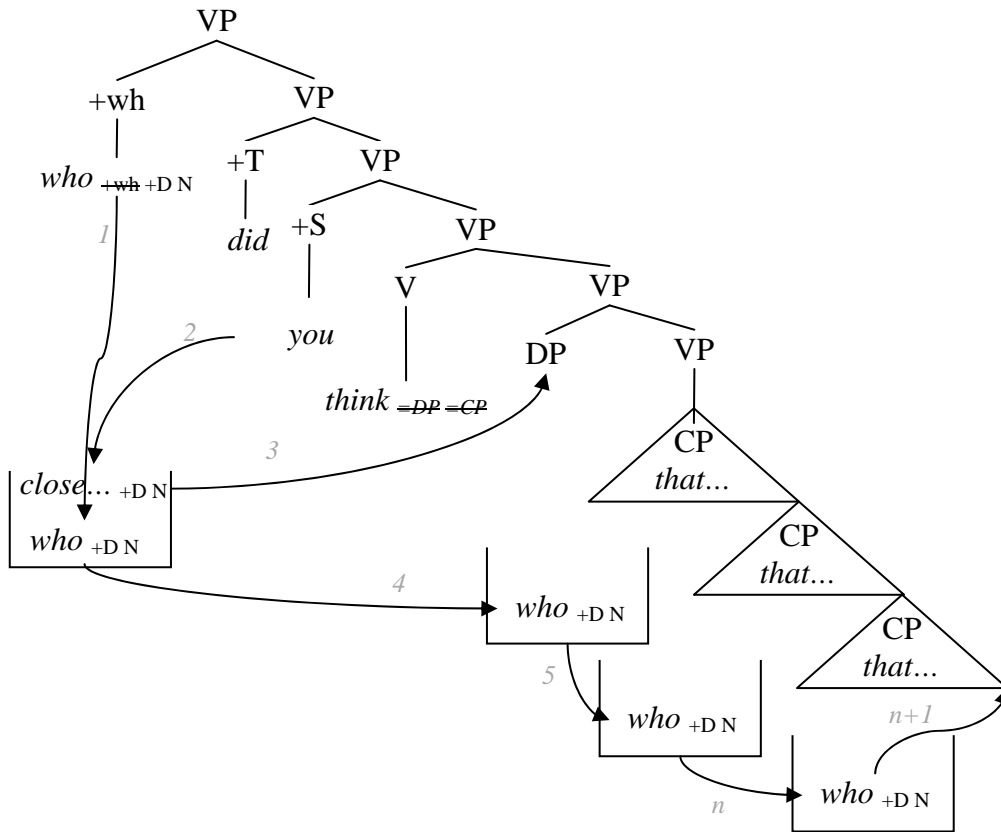
(16) \* Who did [close friends of \_] become famous?



<sup>22</sup> Here we will not be concerned with adjectives or adverbs.

In (17), instead, successive cyclic movement obtains via inheritance between selected phases:

(17) Who did you think [that David said [that Lou claimed [that Andy hated \_]]?



### 5.2. Reconstruction in a top-down grammar

We assume a parallel syntactic and semantic computation that proceeds phase-by-phase. This allows for a novel view of the phenomenon of reconstruction.<sup>23</sup> In a top-down left-to-right derivation, it is not necessary to covertly ‘undo’ a previous step of the derivation, so as to place a moved element back in its base position, as in the bottom-to-top derivation; it is sufficient to *delay* the interpretation of the moved constituent until after it has been re-merged in the selected position. This will allow, e.g., an anaphor contained in a wh-phrase to be interpreted in the re-merge position after its antecedent has been processed, even if the latter is structurally lower than the derived position of the wh-phrase.

We also allow for the possibility of storing in the M-buffer a yet incomplete constituent containing a gap (i.e. an unsatisfied select feature), and delay both its completion and its interpretation until after it has been re-merged. This assumption is required in order to account for remnant movement structures. Consider for instance remnant VP topicalization: the topicalized VP contains a trace which is bound by a linearly following phrase.

(18) [<sub>VP</sub> t<sub>1</sub> Gelesen ] hat [das buch]<sub>1</sub> keiner t<sub>VP</sub>  
 read has the book no-one (Müller 2000, (2))

<sup>23</sup> This insight is due to Barker (2007).

(19) [<sub>VP</sub> Criticized  $t_1$  by his boss ] John<sub>1</sub> has never been  $t_{VP}$  (Müller 2000, (14a))

In terms of a top-down computation, these structures require that we store in the M-buffer an incomplete VP, whose internal argument will be introduced later in the derivation. In turn, the dependency of the internal argument (scrambled or A-moved) will be discharged into the moved VP after the VP itself has been discharged from the M-buffer.<sup>24</sup>

Although we cannot address the phenomenon of remnant movement in this paper, we take (18)-(19) to indicate that delayed completion must be allowed in our grammar. We therefore assume the following hypothesis:

(20) Discharge of a dependency into a moved constituent  $\alpha$  can be delayed until  $\alpha$  itself has been discharged.

### 5.3. The ESC as a derivational effect

The hypothesis (20) allows us to reduce our ESC (11) to a derivational constraint. This can be shown in two steps.

1. The ESC prohibits extraction from a derived subject that fails to reconstruct.

In the top-down derivation, this follows if the completion and interpretation of the subject cannot be delayed. Recall that the derived position constitutes a nested phase, and hence it cannot inherit the M-buffer of the superordinate phase, so as to allow for the discharge of the extracted phrase (cf. the discussion around (16)).

2. The ESC allows for extraction from a reconstructed subject.

In the top-down derivation, this follows if we can delay the completion and interpretation of the subject. The incomplete subject is re-merged in the selected position, which constitutes a selected phase, and can inherit the M-buffer of the superordinate phase. Then, the yet unsatisfied selectional requirement of the subject's lexical head triggers the discharge of the extracted phrase from the M-buffer.

The ESC thus follows from a basic asymmetry between criterial and non-criterial subjects:

- a. Criterial subjects are immediately interpreted as soon as they are computed in the derived criterial position. This is because their interpretation is independent from that of the property denoted by the rest of the clause (§ 2).
- b. On the contrary, in the case of non-criterial subjects, interpretation is delayed until after the subject has been re-merged in the thematic position, where it is interpreted as part of a description of an eventuality, in the scope of existential closure (cf. again § 2).

In other terms, the crucial effect of the Subject Criterion is to force the criterial subject to be immediately completed and interpreted.

Let us examine in more detail the two options.

---

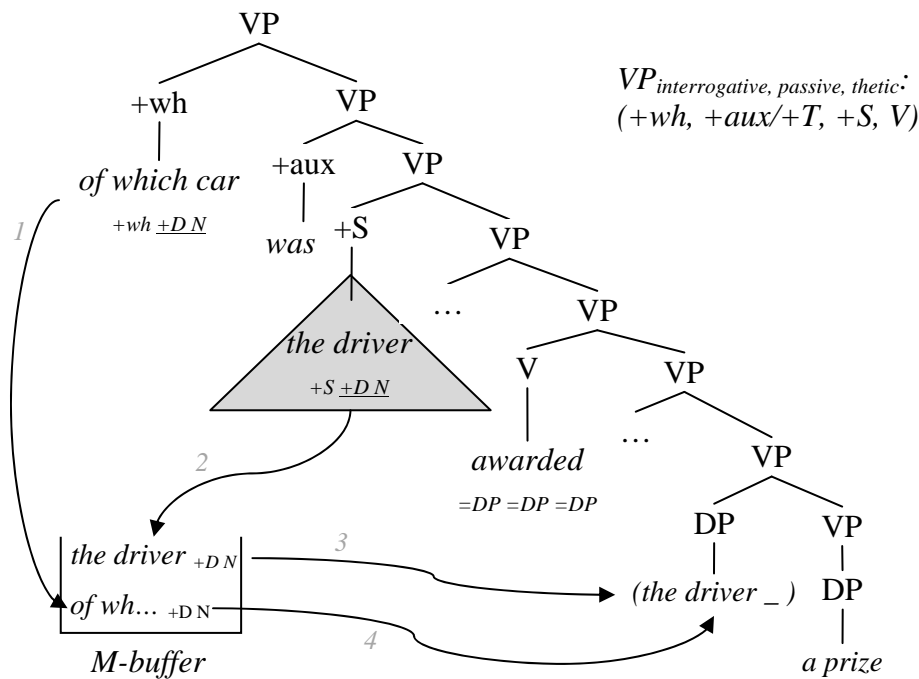
<sup>24</sup> We assume that the VP is selected by the auxiliary. Recall that the Success Condition (15) requires that by the end of the derivation, all the moved phrases – here, both the remnant VP and the extracted argument – be discharged from the M-buffer.

We propose that in the case of a non-criterial subject, delayed completion is triggered by the fact that the (+D, N) features of the subject are not expected in the preverbal non-criterial position, which expands a +S feature.<sup>25</sup>

Consequently, the subject – even though incomplete – is stored in the M-buffer, so as to be later discharged in the selected position, where the (+D, N) features are expected. Completion and semantic evaluation are deferred until after the subject has been discharged.

At that point, the subject may inherit from the superordinate phase the wh-dependency of the extracted phrase. The yet unsatisfied selectional feature of the noun head triggers the discharge of the wh-dependency, by re-merging the extracted phrase. Thus, at the end of the derivation all selectional requirements are satisfied and the M-buffer is empty, complying with the Success Condition (15). The derivation is schematically illustrated in (21).

(21) Of which car was [the driver t] awarded a prize?



Let us consider then the criterial subject of a categorical structure.

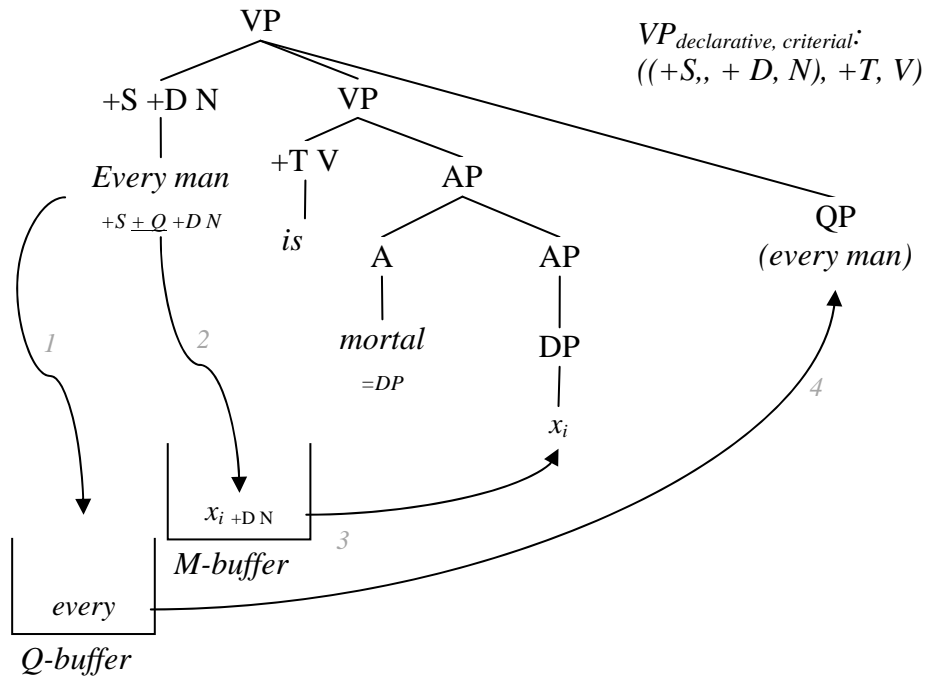
We propose that the (+D, N) features of the subject are expected in the criterial position, which expands a cluster of features (+S, +D, N). Consequently, the criterial subject is immediately completed and interpreted.

Recall that on Ladusaw's proposal, the rest of the clause is interpreted as a property which is predicated of the categorical subject. To this effect, it is necessary to apply abstraction over a variable hosted in the thematic position of the subject. This can be obtained if the categorical subject undergoes Quantifier

<sup>25</sup> +S feature is a functional feature associate to the Nominative case. In languages like English or Italian, where such a feature is morphologically unexpressed, it can be lexicalized with an empty item. More precisely, the +S feature expected, can be first expanded with a non-terminal tree such that DP<sub>Subj</sub>: (+S, +D, N); then +S is lexicalized with the empty nominative marker ε: (+S).

Raising in the way developed in Bianchi & Chesì (2010), which we briefly summarize here by means of an illustrative example:

(22) Every man is mortal



The subject QP *every man*, after being computed in the criterial position, gets stored in a dedicated memory buffer, the Q-buffer, together with a binding index  $i$ . Furthermore, a variable  $x_i$  is stored in the M-buffer.

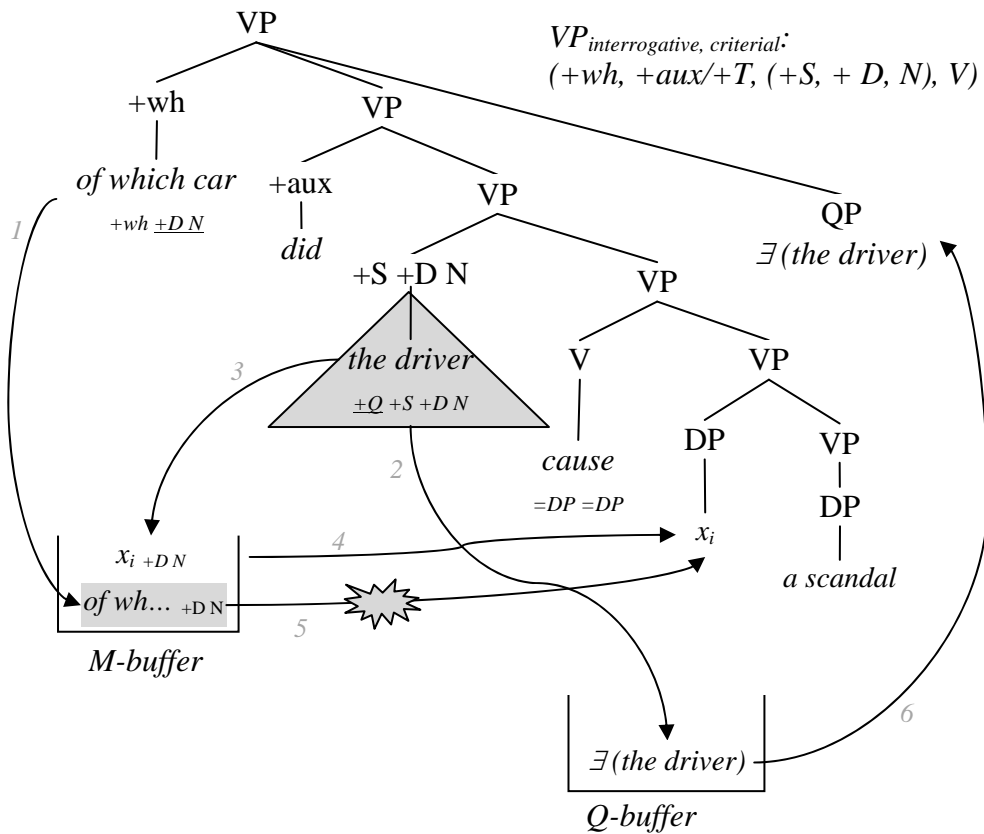
When the adjectival head is processed, it introduces a selectional requirement  $=DP$ , which is satisfied by discharging the variable from the M-buffer into the thematic position. At this point, the matrix phase is complete; the subject QP is then retrieved from the Q-buffer and is attached to the structure. Lambda-abstraction over the variable carrying the stored index  $i$  will yield the QP's scope.<sup>26</sup> Following Ladusaw's insights, this mechanism can be generalized to all criterial subjects: even when they are not inherently quantificational, they are lifted to quantifier type.

Consider now the derivation for a case of extraction from a criterial subject. Here, the dependency of the extracted phrase cannot be discharged into the subject phase that expands the criterial position, because the latter constitutes a nested phase. On the other hand, the subject is necessarily completed and stored in the memory buffer, and what is remerged in the thematic position is just a variable, which does not introduce any selectional requirement; consequently, the dependency of the extracted phrase cannot be discharged in the thematic position either.

<sup>26</sup> As the readers will notice, this is just a syntactic (simplified) version of Cooper storage. We refer the reader to Bianchi & Chesì (2010) for more discussion and empirical justification.



(23) Of which car did [the driver *t*] cause a scandal?



To sum up, in this approach the ESC (11) is reduced to the interplay of three factors:

- the impenetrability of nested phases;
- the permeability of selected phases;
- the choice at which point of the derivation the subject is evaluated: the criterial position in categorial structures; the thematic re-merge position in tetic structures.

**6. An addendum on criterial freezing**

Before concluding this discussion, it is worth comparing our proposal about the Subject Criterion to Rizzi & Shlonsky's original view.

According to the latter, the argument satisfying the Subject Criterion bears an [+aboutness] feature.<sup>27</sup> The aboutness status is supported by the following empirical test: the criterial subject constitutes the obligatory antecedent for a null subject in the following clause.<sup>28</sup>

- (24) a. Un camion<sub>i</sub> ha tamponato un autobus<sub>k</sub>. Poi pro<sub>i/\*k</sub> è ripartito.  
a truck bumped into a bus. Then (it) left
- b. Un autobus<sub>k</sub> è stato tamponato da un camion<sub>i</sub>. Poi pro<sub>k/\*i</sub> è ripartito.  
a bus was bumped into by a truck. Then (it) left

<sup>27</sup> But not a [D-linked] feature: this is what distinguishes a criterial subject from a topic. A criterial subject may constitute new information, as is indeed the case in example (24a).

<sup>28</sup> See Frascarelli (2007) for a full-fledged proposal, which, however, characterizes the antecedent of a null subject as the current Aboutness-Topic of the relevant clause.



(ii) to account for the inherent variability of acceptability judgments in this area. As for (i), we have argued that subject islands effects are due to *computational nesting* of the criterial subject position.

As for (ii), we have shown that the unstableness of acceptability judgments can be explained by the interplay of different factors in determining the categorical vs. thetic structure of the relevant clause (and consequently, the criterial vs. non-criterial status of the subject).

In this way, subject island effects are not directly reduced to an ultimately interpretive distinction, but they follow from a computational constraint that affects differently the syntactic structures correlating with two types of interpretation (categorical vs. thetic).

An analysis of island effects in terms of reconstruction seems puzzling from the perspective of a strictly cyclic bottom-up derivation. We have shown that this problem dissolves if we reverse the orientation from bottom-up to top-down: this allows us to retain a derivational account of long-distance dependencies without having resort to a representational filter. Additionally, the top-down perspective allows an implementation of total reconstruction which is conceptually more natural, in that it does not involve 'undoing' a previous derivational step.

We were once told by a distinguished generative linguist that it would be quite hard to convince a whole research community to abandon the traditional bottom-up orientation that they've been used to for years. We are well aware of this, but nevertheless we hope that, by cumulating evidence in support of the top-down approach, we will eventually convince our readers to adopt this shift of perspective.

## References

- Alexiadou, A. & E. Anagnostopoulou. 2001. The subject in situ generalization, and the role of Case in driving computations. *Linguistic Inquiry* 32, 193–231.
- Alexiadou, A. & E. Anagnostopoulou. 2007. The Subject In-Situ Generalization revisited. In H.-M. Gaertner & U. Sauerland (eds.), *Interfaces + Recursion = Language?*, 31-60. Mouton de Gruyter.
- Barwise, J. & R. Cooper. 1981. Generalized quantifiers and natural language. *Linguistics and Philosophy* 4, 159-219.
- Bayer, J. 2006. Subjects and scope. Ms., University of Konstanz. <http://ling.uni-konstanz.de/pages/home/bayer/pdf/Trondheim2.pdf>
- Belletti, A. 2004. Aspects of the low IP area. In: L. Rizzi (ed.), *The Structure of CP and IP*, 16-51. Oxford University Press.
- Bianchi, V. 1993. Subject positions and e-positions. *Quaderni del Laboratorio di Linguistica* 7, 51-69. Pisa, Scuola Normale Superiore.
- Bianchi, V. & Chesi, C. 2006. *Phases, left branch islands, and computational nesting*. *UPenn Working Papers in Linguistics 12.1: Proceedings of the 29th Penn Linguistic Colloquium*, 15-28.
- Bianchi, V. & Chesi, C. 2010. Reversing the perspective on Quantifier Raising. *Rivista di Grammatica Generativa* 35, 3-38.
- Bianchi, V. & Chesi, C. 2011. Island violations as unresolved thematically-driven dependencies. *Workshop Islands in Contemporary Linguistic Theory*, University of the Basque Country, November 2011.

- Cardinaletti, A. 2004. Toward a cartography of subject positions. In L. Rizzi (ed.), *The Structure of CP and IP*, 115-165. Oxford University Press.
- Chesì, C. 2004. *Complexity and Determinism in Linguistic Computation: Phases and Cartography in Phrase Structure Building*. Doctoral dissertation, University of Siena.
- Chomsky, N. 1986. *Barriers*. The MIT Press.
- Chomsky, N. 2008. On phases. R. Freidin et al. (eds.), *Foundational issues in linguistic theory*, 133-166. The MIT Press.
- Cinque, G. 1990. Ergative adjectives and the Lexicalist Hypothesis. *Natural Language and Linguistic Theory* 8: 1-39.
- Diesing, M-. 1992. *Indefinites*. The MIT Press.
- Frascarelli, M. 2007. Subjects, topics and the interpretation of referential pro. *Natural Language and Linguistic Theory* 25.4, 691-734.
- Jiménez Fernández, Á. L. 2009. On the composite nature of subject islands: a phase-based approach. *Sky Journal of Linguistics* 22, 91-138.
- Jurka, J. 2010. *The importance of being a complement*. PhD thesis, University of Maryland.
- Huang, J. 1982. *Logical relations in Chinese and the theory of grammar*. Ph.D. thesis, MIT.
- Joshi, A. K. (1985) "Tree Adjoining Grammars: How much context sensitivity is required to provide a reasonable structural description" In *Natural Language Parsing*, Ed. Karttunen, I., Dowty, D., Zwicky, A., Cambridge University Press, Cambridge, U.K., pp. 206-250.
- Kayne, R. S. 1983. *Connectedness and Binary Branching*. Foris.
- Kiss, K. 1996. Two subject positions in English. *The Linguistic Review* 13, 119–142.
- Kratzer, A. 1995. Stage-level and individual-level predicates. In: G. Carlson et al (eds.), *The Generic Book*. The University of Chicago Press.
- Lambrecht, K. 1994. *Information Structure and Sentence Form: Topic, Focus, and the Mental Representations of Discourse*. Cambridge University Press.
- Ladusaw, W. 1994. Thetic and Categorical, Stage and Individual, Weak and Strong. *Proceedings of SALT 4*.
- Müller, G. 2010. *Incomplete Category Fronting*. Springer.
- Pinto, M. 1997. *Licensing and interpretation of inverted subjects in Italian*. PhD thesis, University of Utrecht.
- Rizzi, L. 2001. Reconstruction, weak island sensitivity and agreement. In C. Cecchetto et al. (ed.), *Semantic Interfaces: Reference, Anaphora and Aspect*, 145–176. Chicago: CSLI. <http://www.ciscl.unisi.it/persona/rizzi.htm>.
- Rizzi, L. 2006. On the form of chains: Criterial positions and ECP effects. In L. Cheng & N. Corver (eds.), *Wh-movement: Moving on*, 97-134. MIT Press.
- Rizzi, L. 2010. On some properties of criterial freezing. In E. Phoebos Panagiotidis (ed.), *The complementizer phase: Subjects and operators*, vol. 1, 17-32. Oxford University Press.
- Rizzi, L. 2010b. On delimitation effects: Some consequences for subject-object and argument-adjunct asymmetries. *IGG* 33, University Milano-Bicocca, February 2010.
- Rizzi, L. & U. Shlonsky. 2007. Strategies of subject extraction. In H. M. Gärtner & U. Sauerland (eds.), *Interfaces + Recursion = Language?*, 115-160. Mouton de Gruyter.
- Ross, J. R. 1967. *Constraints on variables in syntax*. Ph.D. thesis, MIT.

- Sauerland, U. & P. Elbourne. 2002. Total reconstruction, PF-movement, and derivational order. *Linguistic Inquiry* 33, 283–319.
- Shlonsky, U. 2000. Subject positions and copular constructions. In H. Bennis et al. (eds.), *Interface Strategies*, 325-347. Royal Netherland Academy of Arts and Sciences.
- Stabler, E. 1997. Derivational minimalism. In Retoré (ed.), *Logical Aspects of Computational Linguistics*. Springer.
- Stepanov, A. 2007. The end of CED? Minimalism and extraction domains. *Syntax* 10, 80-126.
- Takahashi, D. 1994. *Minimality of movement*. Ph.D. dissertation, UConn.
- Van Acker, F. 2007. Online Survey Creator 7.4 for Windows. Ms., <http://www.osucre.be/>