

## Chapter 1

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# French subject inversion in extraction contexts

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ABSTRACT. Subject NP inversion in extraction contexts in French raises difficulty for standard phrase structure approaches. We present an analysis which relies both on domain union and lexical types for verbs. This analysis extends to French locative inversion whose properties have never been examined. Having unified the syntax of LI with that of other extractions, we reexamine the relation between NP inversion and information packaging in constructions with main clause assertive force.

## 1 Introduction

In this paper, we study subject inversion in extraction contexts with three goals in mind. First we present a novel analysis of extraction-triggered inversion (ETI) in a linearization-based HPSG framework, crucially relying on previously unexplored data. Second, we show that French locative inversion, whose properties have not yet been investigated, is best analyzed as an instance of ETI from a syntactic point of view. Finally, we explore the interaction of inversion with information packaging, showing that inverted subjects cannot be topics.

## 2 Inverted subjects in extraction contexts

Subject NP inversion is possible in all recognized extraction contexts in French: relatives, *wh*-interrogatives or exclamatives, clefts, PP topicalizations. In this section we illustrate the general properties of ETI with relatives.<sup>1</sup>

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<sup>1</sup>Our analysis naturally extends to quotative inversion. There are other cases of NP inversion which are not triggered by extraction [Le Bidois,1950], such as inversion in certain subjunctive embedded clauses. Note that NP subject inversion differs sharply from clitic (subject) inversion [Kayne,1972].

	inverted NP	subject	object
1. binding of <i>se</i>	+	+	-
2. quantitative <i>en</i> construction	-	-	+
3. bare Q's <i>tous, beaucoup</i>	-	+	-
4. <i>de N</i> in negative context	+	-	+
5. floating <i>beaucoup (... de N)</i>	-	-	+
6. <i>combien</i> extraction	+	-	+
7. number agreement with finite V	+	+	-
8. person agreement with finite V	-	+	-

Figure 1.1: Properties of subjects, objects and inverted NPs

**The inverted NP is a subject** A number of properties are known to differentiate a preverbal subject from a postverbal object in French (for a summary, see [Marandin,1997] and references therein). Since the inverted NP in extraction contexts shares properties with both, the question of its functional status is not trivial. The relevant observations are summarized in FIG 1.1.

These observations offer two arguments in favor of analyzing the inverted NP as a subject. First, simple generalizations concerning subjects and objects can be kept: (a) all and only subjects can bind the anaphor *se* (*L'endroit où Paul se rend / où se rend Paul* 'The place where Paul goes'); (b) all and only objects allow for the quantitative *en* construction. Examples (1.1) contrast an object with a time NP modifier, a subject and an inverted NP (with *en* the pronominal equivalent of 'weeks'):

- (1.1) a. *Paul en passera plusieurs à Paris.*  
Paul of-them spend-fut several in Paris
- b. \* *Paul en restera plusieurs à Paris.*  
Paul of-them stay-fut several in Paris
- c. \* *Plusieurs en passeront avant la décision.*  
Several of-them pass-fut before the decision
- d. \* *La décision avant laquelle en passeront  
plusieurs  
several*

(c) Objects allow for a floating *Q... de N* construction (*Il a beaucoup lu de livres* 'He read many books'). Inverted NPs do not allow it (\**L'année où sont beaucoup parus de best-sellers* 'The year during which many best sellers were published'). Note that this cannot be due to the form *de N* of the NP, since inverted *de N*'s are possible in other contexts (observations 4 and 6).

Second, the restriction on bare Qs unexpectedly favors a subject analysis of the inverted NP. Bare Qs in general are acceptable in all NP functions. However, some of them (*tous, beaucoup, un*) cannot be objects,

while others can (e.g. *tout, rien*). Since neither group forms a syntactic or semantic natural class, the restrictions must be encoded on the lexical items themselves: some bare Qs simply fail to have an accusative form [Abeillé & Godard, 1998]. Going back to ETI contexts, only those bare Qs that can be objects can be inverted NPs. This follows if inverted NPs are accusative, and is unexpected if they are nominative. However, inverted NPs cannot be accusative complements, or there would be no way to distinguish them from objects. Thus they are accusative subjects. This analysis also accounts for their differences with preverbal subjects (see observations 3,4,5,8).

**Phrase structure-based analyses** It has long been observed that the inverted subject (IS) can be linearized not only after the VP, but also between the verb and one of its complements:

- (1.2) a. *La lettre qu' enverra [PP à la direction] [NP le patron]*  
 'The letter that the boss will send to the management'  
 b. *La lettre qu' enverra [NP le patron] [PP à la direction]*

In phrase-structural terms, this fact can be accounted for by assuming that ETI sentences have a flat structure, the inverted subject being a sister of the lexical verb and its complements. Since the order between NP and PP is unconstrained in French, the two orders in (1.2) are directly accounted for.<sup>2</sup>

However, this analysis cannot account for the occurrence of the subject to the left of an embedded complement, as in (1.3b), a piece of data which has been overlooked in previous studies:

- (1.3) a. *Le livre que le patron du labo [croyait [pouvoir [recommander à cet étudiant]]]*  
 'The book that the head of the lab thought he could recommend to this student'  
 b. *Le livre que croyait pouvoir recommander le patron du labo à cet étudiant*

In order to account for (1.3b), the only available phrase-structural solution<sup>3</sup> is to assume that the higher verb (*croyait*) may inherit complements of the infinitival V via argument composition (e.g. [Hinrichs & Nakazawa,1994]),

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<sup>2</sup>Transformational analyses differ as regards the position of the inverted NP; it is assumed to be right adjoined to the VP, or in its base position to the left or to the right of the VP; see [de Wind,1997] and references therein for discussion. All transformational approaches assume that extraposition is responsible for the order variation in (1.2).

<sup>3</sup>Note that in a transformational analysis, extraposition is of no help in (1.3b): there would be a long-distance dependency between the V and the PP (see (1.3a)), which (rightwards) extraposition doesn't allow in French any more than in English.

thus allowing the subject of the higher verb to be followed by complements of an embedded verb.

Note first that the flat structures which have been argued for French (e.g. [Abeillé et al. to appear]) and which rely on argument composition do not provide evidence in favor of this analysis. For instance, as is well known, in causative constructions, pronominal clitics subcategorized for by the infinitival complement occur on the causative verb (1.4a); in ETI constructions this is never the case (1.4b). An argument composition analysis would have to say that the higher verb in ETI can only inherit the canonical complements from the V[inf].

- (1.4) a. *Paul le fera lire aux étudiants / \*fera*  
 Paul it make-fut read-inf to-the students / make-fut  
*le lire aux étudiants.*  
 it read to-the students  
 ‘Paul will make the students read it’
- b. *Un message que veut lui envoyer Paul /*  
 A message which wants to-him send-inf Paul /  
*\*lui veut envoyer Paul.*  
 to-him wants send-inf Paul  
 ‘A message which Paul wants to send to him’

Second, since the inverted NP is a subject, the analysis requires positing a new phrase type *head-subj-comps-ph*, which would require independent justification. Third and most importantly, binding data present a serious challenge for argument composition. Assuming that an anaphor such as *l’un...l’autre* has to be bound in every ARG-ST list where it occurs,<sup>4</sup> we would not expect an ETI such as (1.5) to be acceptable :

- (1.5) *Le jour où voulait les présenter Paul l’un à l’autre*  
 The day when wanted them introduce-inf Paul to-each other  
 ‘The day Paul wanted to introduce them to each other’

The binder is the clitic *les*, which doesn’t belong to the ARG-ST of *voulait*. If *l’un...l’autre*, as an inherited argument, belongs to the ARG-ST of *voulait*, it is not bound.

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<sup>4</sup>This hypothesis is supported by the binding constraints on *l’un...l’autre* in causatives:

- (i) *Sa rigueur le fera s’occuper [des patients]<sub>i</sub> [l’ un après l’ autre]<sub>i</sub>*  
 ‘His orderliness will make him take care of the patients one after the other’
- (ii) *\* Sa rigueur le fera s’ en<sub>i</sub> occuper [l’ un après l’ autre]<sub>i</sub>*  
 His orderliness will make him take care of them one after the other

According to [Abeillé et al. to appear]’s analysis, composition-*faire* can take a cliticized verb complement if it has inherent clitics, like *s’occuper* in (i-ii). *Des patients* is inherited by *faire* in (i), while the corresponding clitic *en* is not in (ii). Thus *l’un après l’autre*, which is on both ARG-ST lists, is upstairs bound in (i) but not in (ii).

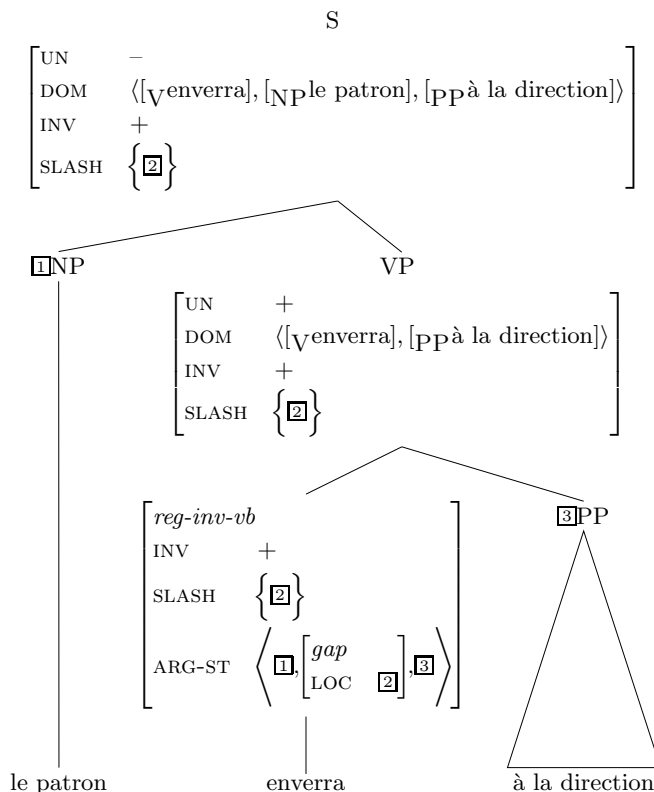


Figure 1.2: HD-DTR of the relative clause in (1.2b)

**The proposed analysis** Since purely phrase-structural analyses fail, we propose that subject inversion be analyzed as an effect of domain union. Adopting [Reape,1994]’s formalization, a DOMAIN feature and a boolean feature [UN±] are associated with every phrase. The value of DOM for a phrase is the list of its daughters in the unmarked case; if some daughter is [UN+], its own DOM value is shuffled into the mother’s DOM. ETI sentences have the same phrase structure as sentences with a preverbal subject, the difference being that the VP is domain unioned into the S domain, as exemplified in FIG. 1.2. Thus, an inverted sentence has in its order domain the subject and the immediate constituents of the VP, allowing the ordinary (V<NP) rule to order the inverted subject after the verb. Just as in a VP, the relative order of NP and PP is unconstrained (see (1.2)). In the case of (1.3), the VPs are sequentially domain-unioned, yielding at the S level a domain containing the lexical Vs, all their complements, and the subject.

The detail of the data is intricate:<sup>5</sup> while a verb with a gapped argument may always have an IS, there are constraints on inversion triggered by long-distance extractions. First, extraction out of a finite complement never

<sup>5</sup>See [Bonami & Godard, to appear] for a more complete presentation of the data and of the analysis.

licenses inversion of an upstairs subject (contra [Kayne & Pollock,1978]), although the embedded subject can be inverted (1.6). Extraction out of a VP[inf] allows inversion of the upstairs subject (see 1.3b).

- (1.6) \* *Le livre qu'a cru que Jean écrirait mon éditeur*  
 'The book that my publisher thought that John would write'

Second, object control verbs contrast with subject control verbs in not allowing the problematic order of (1.3b): the inverted subject must follow the embedded complements. In our analysis, the embedded VP in (1.8) is [UN−], contrasting with the [UN+] VPs in (1.3b).

- (1.7) *Le livre que m' a convaincu d' offrir à ma sœur un libraire*  
 'The book that a bookseller convinced me to offer to my sister'

- (1.8) \* *Le livre que m' a convaincu d' offrir un libraire à ma sœur*

To account for this array of data, we introduce the head feature [INV±] in addition to [UN±].<sup>6</sup> As in [Sag,to appear], the sharing of SLASH values between a phrase and its daughters is mediated by the lexical head. Only verbs with a nonempty SLASH value can be [INV+]. The relation between the two features is as follows:

$$(1.9) \quad \begin{array}{ll} \text{a. } \left[ \begin{array}{l} \textit{phrase} \\ \text{INV} \quad - \end{array} \right] \Rightarrow [\text{UN} \quad -] & \text{c. } \left[ \begin{array}{ll} \textit{phrase} & \\ \text{HEAD—VFORM} & \textit{finite} \\ \text{SUBJ} & \textit{list(gap)} \end{array} \right] \Rightarrow [\text{UN} \quad -] \\ \text{b. } \left[ \begin{array}{l} \textit{phrase} \\ \text{INV} \quad + \end{array} \right] \Rightarrow [\text{UN} \quad +] & \end{array}$$

Accordingly, infinitival VPs are unioned depending on the INV value, finite clauses are never unioned although they may be [INV+].

We then propose the hierarchy of verbs in FIG. 1.3. The distinction between *non-inv-vb* and *inv-vb* encodes the constraints discussed above. *long-inv-vb* are subject control/raising verbs which constrain the complement from which they inherit the SLASH to be itself inverted, and hence unioned. *reg-inv-vb* cover all other cases of ETI. The  $\square$  argument can be a gap (1.2), the slashed VP[inf] complement of an object control/raising verb (1.8), or even an NP (*Combien sont venus de clients?* 'How many customers came?'); but not a finite complement (1.6).<sup>7</sup>

<sup>6</sup>We assume that the INV feature is present on all major categories.

<sup>7</sup>Another constraint is necessary if [Bonami & Godard, to appear] are right in that inverted subject control verbs force their complement to be [INV+].

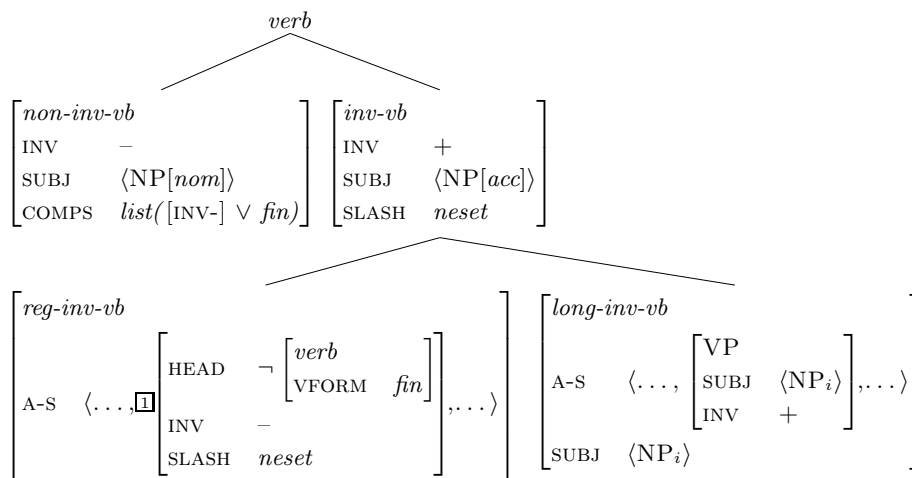


Figure 1.3: A fragment of the hierarchy of verbs

### 3 Locative inversion is triggered by extraction

The question must be raised whether French locative inversion (LI), whose syntax has not been studied previously, is another instance of ETI.

**The inverted NP is a subject** The inverted NP in LI has the very same distribution of subject-like and object-like properties as the inverted NPs in ETI; thus if the inverted NP in ETI is a subject, so is the inverted NP in LI.

**Long-distance inversion** LI is possible in a context where a raising or even a control verb intervenes between the preposed PP and the verb selecting it.<sup>8</sup> The subject is then realized on the right of the embedded verb:<sup>9</sup>

- (1.10) a. *Dans le jardin semblaient danser des statues de pierre.*  
‘In the garden seemed to be dancing statues of stone’
- b. *Du piano semblait vouloir s’échapper un son métallique.*  
(lit.) ‘From the piano seemed to want to escape a metallic sound’

Moreover, as in ETI, the inverted subject of the main verb can be linearized between the constituents of an embedded VP, as (1.11) shows:

- (1.11) *Sur la place semblait se dresser une cathédrale avec majesté.*  
(lit.) ‘On the square seemed to stand a cathedral in its majesty’

<sup>8</sup>The semantic requirements of the LI construction forbid the presence of raising to object and object-control verbs.

<sup>9</sup>English sentences parallel to (1.10a) have been taken as evidence that the initial PP in English LI is a subject (e.g. [Bresnan,1994]). This argument does not hold for French, given the possible occurrence of control verbs between the PP and the verb selecting it (1.10b). In addition, there is no case for subject PPs in French.

Since *se dresser* and *avec majesté* form a constituent (the complement of *sembler*), the only possible analysis is that the embedded VP is unioned into the matrix VP domain, which in turn is unioned into the S domain.

We conclude that the position of the subject in ETI and in LI have the same source: in each case, the position of the subject is an effect of domain union. Since domain union in ETI is licensed by extraction, the next question is whether the same is true in LI.

**The preposed PP is extracted** Turning now to the analysis of the initial PP, we are faced with two possibilities: either the PP is a filler, or the PP is not extracted. Rather, it is a constituent of the VP, realized in initial position as an effect of domain union ([Kathol & Levine, 1993] provide a similar analysis for English LI). We argue in favor of the first alternative.<sup>10</sup>

Consider the initial PP in (1.12a): *a priori*, it can be analyzed as a frame adverbial, an extracted (‘topicalized’) PP, or the initial PP in a locative inversion. The inversion in (1.12a) cannot be due to the *wh*-word *pourquoi*, which does not license inversion (1.12b). Hence it is due to the initial PP.

- (1.12) a. [<sub>PP</sub> *Dans le salon*], *pourquoi* [<sub>V</sub> *se soulaient*] [<sub>NP</sub> *des soldats*]?  
           ‘Why were soldiers getting drunk in the lounge?’  
       b. \* *Pourquoi se soulaient les soldats dans le salon ?*

First, the initial PP is not a frame adverbial, since such adverbials do not license inversion either (*A Paris, Paul va au cinéma* / \**A Paris va Paul au cinéma* ‘In Paris, Paul goes to the movies’). Second, it is not a topicalized PP, since locatives such as *dans*+NP are never good topicalized PPs in French (\**Dans le jardin, Paul ira* / \**Dans le jardin ira Paul* ‘Into the lounge, Paul will go’). Thus (1.12a) as an instance of LI.

Given the analysis of (1.12a), we now have an argument against a domain-union analysis for the position of the PP: since finite Ss never union, the PP in (1.12a) would not be able to linearize outside the *pourquoi* clause. We conclude that the initial PP in LI is extracted.<sup>11</sup>

In addition, a linearization approach to the initial position of the PP would require an otherwise unmotivated difference between preposed and in-situ PPs (PPs never precede a lexical V in French).

Since subject inversion in LI is a result of domain union on the one hand, and the PP is extracted on the other hand, we conclude that LI is just another case of extraction-triggered domain union. In spite of their

<sup>10</sup>The fact that the initial PP can be semantically either an argument (1.10–1.11) or a modifier (as in *Devant la gare bavardait un groupe d’enfants* ‘In front of the station discussed a group of children’) is not a counter-argument against an extraction analysis. In French both kinds of locative PPs behave in the same way in the VP with respect to extraction. In particular, both allow subject inversion (see [Hukari & Levine, 1995]).

<sup>11</sup>Note that extraction of PPs out of finite *wh*-clauses is possible in French.



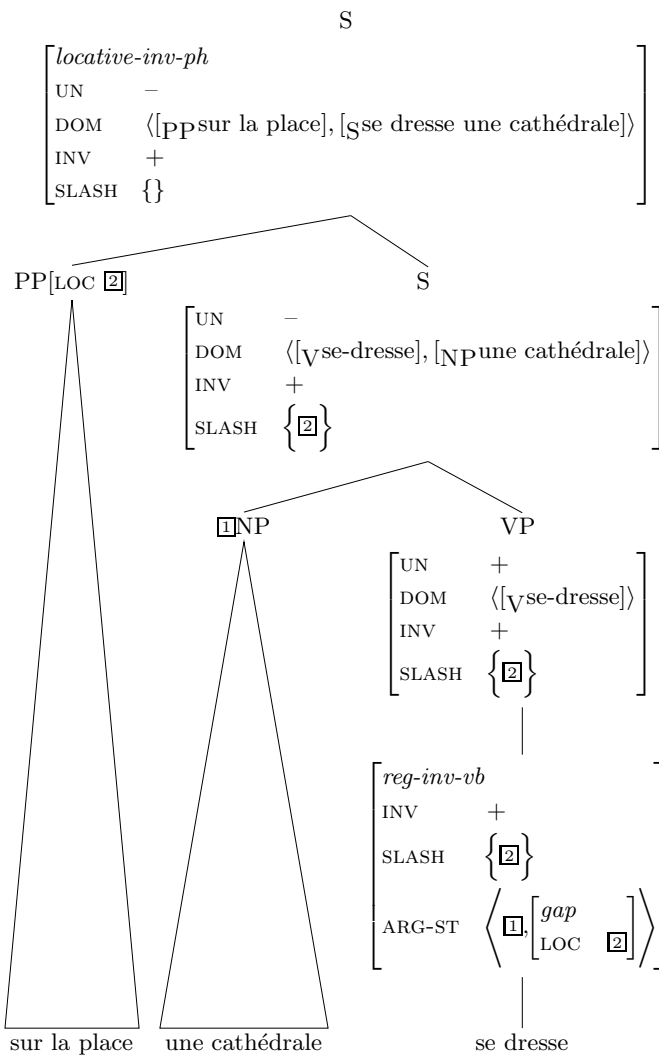


Figure 1.4: Analysis of *Sur la place se dresse une cathédrale*

similarity, LI and PP topicalization must be distinguished: (a) the set of admissible PPs is not the same; (b) inversion is obligatory in LI, and rare in PP topicalization; hence the unacceptability of *\*Dans le jardin, Paul ira* above. We thus consider that LI is a specific construction. Syntactically, it is a subtype of *head-filler-phrase* specified as [HEAD *verb*[VFORM *fin*, INV +].

## 4 Subject inversion and information packaging

The number of ETI constructions in French offers an opportunity to reexamine a traditional question with respect to NP inversion in general: is there an information-packaging [Lambrecht,1994, Vallduví & Engdahl,1996] effect associated with inversion *per se*? Adopting [Vallduví & Engdahl,1996]’s par-

tion of information into focus and ground and of ground into topic (link) and tail, we briefly show that inverted subjects are indeed constrained in that they cannot be topics. However there is no single information packaging instruction associated with subject inversion.

**Inverted subjects are never topic** French has a test for topichood: a parenthetical tonic pronoun (PTP) only cooccurs with subject NPs and clitic pronouns ([Ronat,1979]): the very elements which can be topics (1.13). Coindexation with a PTP forces a (contrastive) topic interpretation. We can easily show that an IS cannot be a topic since coindexation with a PTP is ill-formed as (1.14) shows :<sup>12</sup>

(1.13) *Marie<sub>i</sub> aime véritablement Paul, elle<sub>i</sub>.*  
 ‘MARY loves Paul’ (lit: Mary loves Paul, her)

(1.14) a. \* *Dans le faubourg se dresse la nouvelle cathédrale, elle.*  
 ‘In the suburb stands the NEW cathedral’  
 b. \* *La maison où habite Paul, lui, est immense.*  
 ‘The house where PAUL lives is huge’

**IS can belong to the focus or the ground** An IS in LI is not assigned to either focus or ground. An LI sentence can be a felicitous answer in the three following contexts: the question in (1.15) calls for an all-focus answer; that in (1.16) for a narrow focus on the inverted NP and that in (1.17) for a narrow focus on PP (hence the IS is in the ground):

(1.15) [What’s happening?]  
*De la cheminée sort une fumée inquiétante.*  
 ‘From the chimney comes out a worrying smoke’

(1.16) [And in Paul’s room, what is postered on the walls?]  
*Sur un des murs est affichée une photo de Marie.*  
 ‘On one-of-the walls is postered a picture of Mary.’

(1.17) [What about John? Where are his pictures shown?]  
*Au Louvre sont exposés ses monochromes.*  
 ‘In the Louvre are shown his monochromes’

**Constraints on IS** There are two *it*-cleft constructions in French.<sup>13</sup> The coda clause of *it*-cleft-1 is assigned to the ground, while *it*-cleft-2 is

<sup>12</sup>Following [Vallduví & Vilkuna,1997], we we assume that contrast is orthogonal to the focus/ground partition. The following sentence with a contrastive IS shows that contrast is not responsible for the ill-formedness of (1.14):

Une chambre où ne dormait que Paul  
 ‘A room where only Paul slept’

<sup>13</sup>The two *it*-clefts are associated with different intonational patterns, see [Clech-Darbon et al., 1998]).

a presentational all-focus construction with the coda-clause part of focus [Lambrecht,1994]. The unacceptability of (1.19) is unexpected, given that subject inversion is compatible with an all focus packaging (see (1.15) above).

(1.18) [Who did John speak to?]

*C'est à Marie que Jean a parlé / qu'a parlé Jean.*

'It is to MARY that John spoke'

(1.19) [What's happening?]

*C'est mon voisin que la police arrête / # qu'arrête la police.*

'Here is my neighbor arrested by the police'

Since this contrast and similar ones (for instance, an IS can be a focus in LI while it cannot be in PP-topicalization) cannot be attributed to subject inversion by itself, it means that each construction specifies whether it allows subject inversion as well as which information packaging is associated with it. The presence of the boolean INV feature on the head of the construction is sufficient to account for the presence or absence of IS. Although the integration of subject inversion in a general picture of information packaging remains for future research, we have arrived at a partial conclusion. While subject inversion has nothing to say in the focus/ground partition (IS may belong to either), it does play a role in the organization of the ground (IS may be part of the tail, but cannot be topic). This shows, in contrast with [Lambrecht & Polinsky,1997]'s proposal for inversion in Italian, that detopicalization does not imply focalization.

## 5 Conclusions

Having shown that inverted NPs were subjects in ETI constructions, we propose that inversion is an effect of an extraction-triggered domain union. This analysis accounts in particular for difficult data where the inverted main subject precedes an embedded complement. Moreover, we rely on lexical typing of verbs occurring on extraction paths to account for the intricate constraints on long distance inversion. Finally, we show that the syntactic commonality of the inversion contexts we have explored is partially reflected in the information packaging dimension: inverted subjects may not be topics.

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