

## SUBJECTS ON THE EDGE

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### Abstract

The aim of this paper is to consider the syntactic properties of the subject in typical finite and non-finite complement clauses, (re-)considering those cases that were mainly discussed by Chomsky & Lasnik (1977). It is argued that the (finite) complementizer *that* (and *if*) requires a propositional complement, thus a sentence with a lexicalized EPP. When the subject is absent, due to extraction, there is nothing to satisfy the EPP, and therefore the embedded clause does not qualify as the right complement for *that* (and *if*), triggering ungrammaticality (the ‘*that*-t effect’). On the other hand, (non-finite) *to*, akin to a locative subject, subsumes the EPP. The interpretation of the EPP in this case is that of variable, which may or may not be bound by a matrix DP (control, raising vs. arbitrary reading). The element *for* also requires a lexicalized EPP, hence the presence of a lexical DP which triggers an obviation effect. The present approach offers a novel way of approaching the properties of the subject in association with complementizers and (non-) finiteness (and vice versa).

### 1. Introduction

Just over thirty years ago, Chomsky & Lasnik (1977) discussed a number of constructions which involved different kinds of complement clauses ( $\pm$ finite,  $\pm$ Wh) and different kinds of null subjects (wh-trace, NP-trace, PRO). The aim was to show how the postulation of ‘surface filters’ could ‘simplify and restrict the theory of transformations’. The filters they considered involved properties of the C system, aiming at capturing language-specific as well as general patterns in a more principled and minimal way. In current theoretical terms, neither filters nor transformations are part of the grammar. The latter have progressively reduced to Move and then to the more basic operation of merge along with copying. The former were subsumed by independent conditions on derivation(s) and/or representation(s). Since most of the constructions discussed by Chomsky & Lasnik are still the topic of on-going research, it is perhaps worth going back to them, by focusing on the properties of the C system. The point to be developed is how ‘surface’ structure, in the sense of morphosyntax, can guide us to understand the basic properties of these constructions, which involve *to*-, *that*-, and also wh-clauses and their interaction with the embedded subject.

Consider then the following examples:

- (1) a. *Who* do you think [<sub>C</sub> (\**that*) [<sub>T</sub> ~~who~~ won the prize]]?  
 b. \**Who* did you arrange [<sub>C</sub> *for* [<sub>T</sub> ~~who~~ to leave]]?  
 c. John arranged [<sub>C</sub> [<sub>I</sub> PRO to win the prize]].  
 d. John arranged [<sub>C</sub> *for* [<sub>I</sub> \*(Peter) to win the prize]].  
 e. John seems [<sub>I</sub> ~~John~~ to have won the prize].

Subject extraction over a lexical complementizer, as in (1a-b) is a typical example of the interaction between C and the subject. A grammatical output is possible in (1a) as long as *that* is absent, while no such option is available in (1b), given that *for* has to be present. (1c) exemplifies control within a non-finite *to*-complement. The subject is necessarily null; in more standard terms, it is expressed as a specialized empty category, PRO, which is bound by a matrix argument (if there is one, arbitrary otherwise). The presence of the prepositional complementizer *for* in (1d) triggers a lexical subject and excludes control. Finally, (1e) exemplifies raising. The subject of the *to*-complement is also necessarily null on the assumption that it has raised to the matrix subject position, leaving a copy/trace in its original position. While both control and raising involve a *to*-complement, the standard idea is that they differ structurally: control complements are CPs, while raising ones are truncated IPs.

In all three constructions above (subject extraction, control, and raising) the interaction with C primarily stems from the properties of the subject, which may belong to any of the following empty categories: wh-trace/copy, PRO, DP-trace/copy. Depending on the nature of the embedded subject, the properties of C are modified accordingly. Abstracting away from the different types of subject, the constructions in (1) can be viewed from a different perspective, based on their surface properties. Descriptively speaking, the above examples show that a null subject (a copy/trace in (1a-b) and (1e) or PRO in (1c)) goes along with a null C or no C at all.

Let us elaborate on this descriptive statement. The standard view is that *that* creates an illicit environment for the subject trace/copy in Spec,IP. This is supported by the fact that the ‘*that*-t effect’ is found in all contexts of (long) subject extraction. The examples in (2a-d) involve a subject gap inside a complement, relative, cleft and comparative clause respectively:

- (2) a. Who do you think (\**that*) left?  
 (vs. Who do you think (*that*) John saw?)

- b. The student that the teacher predicted (*\*that*) will be outstanding.  
(vs. The student that the teacher predicted (*that*) everyone will admire).
- c. It was Peter that the teacher told us (*\*that*) had been outstanding.  
(vs. It was Peter that the teacher told us (*that*) everyone admired).
- d. John ate more cookies than he estimated (*\*that*) would be eaten.  
(vs. John ate more cookies that he estimated (*that*) his friends would eat).
- e. John thinks (that) Mary left.

As the second line of each example in (2a-d) shows, no relevant effect is attested with other kinds of gap, e.g. object. The presence or absence of *that* is also irrelevant to an (overt) lexical subject, as in (2e).

Suppose that instead of taking the standard view which locates the problem raised by the ungrammatical versions of (2a-d) to the subject, we take a different one which locates the problem to *that*. More precisely, suppose that it is not *that* which creates a problem for the subject gap, but the subject gap that creates an illicit environment for *that*. The contrast with (2e) further shows that once a lexical subject is present, *that* may or may not be present. Consider next the role a lexical subject fulfills: it satisfies the Extended Projection Principle (EPP; Chomsky 1982, 1995) by closing off the proposition (see Williams 1980, Rothstein 1983 for early approaches). Formally then we can say that the complement of *that* has to be a proposition, i.e. a clause where the EPP is lexically satisfied. Absence of a lexical subject leaves the proposition open, rendering the clause an unsuitable complement for *that*. If this is correct, then the ‘*that*-t effect’ is not a problem relating to the subject gap as such but to *that*.

Consider next the control and raising complements introduced by *to*, as in (1c) and (1e) respectively. While control *to* can host a subject, although of a special type, namely PRO, raising *to* cannot. The subject in the latter case cannot be a lexical DP or PRO, but has to be a trace/copy of the matrix subject. In standard terms, control *to* allows for the projection of an EPP position, licensed by a special type of Case. Raising *to* has no Case, and possibly no EPP either (Chomsky 2004). Suppose instead that if the two complements look alike, since they are both introduced by *to* and have an unrealized subject (unless *for* or an ECM verb is present), then they are structurally alike as well. Their unifying property is that they are both introduced by *to* and there is no lexical subject to satisfy the EPP. Given the discussion in the preceding paragraph then, the *to*-clause is not a proposition. The picture we have at this point is the reverse of what we just described for *that*. In particular, while *that* requires a lexical

subject, *to* excludes it. So the EPP position in the *to*-clause remains open; it then qualifies as a variable which can be interpreted in various ways (control, raising, etc.).

The aim of the present paper then is to argue that the constructions in (1) can be viewed from the perspective of the elements that introduce them, namely *that* and *to*. In this respect, they relate to properties of the C system, in a way to be further defined. While *that* (and perhaps other finite complementizers, as well as *for*) requires a lexical element to satisfy the EPP, *to* doesn't and has the effect of introducing a variable. The paper is structured as follows: section 2 considers some typical properties of *to*-complements and argues that *to* is a locative element, which can play a role similar to that of a locative subject, modulo the EPP. Section 3 discusses *that* arguing that it requires a propositional variable. Subject extraction creates a complement which does not qualify as a proposition, since there is no lexicalized EPP. The strategy is to omit *that* as well. Section 4 considers the extensions of this approach. It first considers the parametric variation regarding subject extraction, and then how it can account for the role of a subject in the distribution of other complementizers such as *if* and *for*, but also *whether* (and wh-elements in general). Finally, section 5 concludes the discussion.

## **2. *To*-clauses and their subject**

### *2.1. The structure of to-clauses*

The standard assumption is that *to* is an inflectional element which realizes non-finite I (or T). According to Chomsky (2001, 2004), T in control complements is phi-complete. This ensures that there is a PRO subject in Spec,TP which receives a special kind of Case, called null. Since phi-features are inherited from C, it follows that a C projection is also available. On the other hand, T in raising complements is defective. This means that it cannot check Case and therefore the subject DP has to move to the matrix clause. T defectiveness also implies that there is no C head. Whether or not the Spec,TP position is available further depends on the availability of an EPP feature. If control complements have a PRO subject, then non-finite T has an EPP feature. Since T in raising complements is defective and cannot host a DP subject, it is possible that it also lacks the EPP. Note that the EPP in this system is a generalized feature that triggers second merge. With respect to T (I) though it still captures the presence of a subject in Spec,TP.

The postulation of two different structures underlying *to*-complements has been challenged in the recent literature.<sup>1</sup> For example, Hornstein (1999, and subsequent work) argues against the postulation of PRO, reducing control to an instance of A-movement, as in (3a) (see also O’Neil 1997). In control, the single DP receives two theta-roles along the path of movement; in raising, on the other hand, it only receives one, given that the matrix predicate has no thematic structure. Manzini & Roussou (2000) go a step further and eliminate A-movement as well. According to their analysis, DPs merge directly to their surface position. The operation Attract (partly similar to Chomsky’s (2001, 2004, 2005) Agree) relates the single DP with one or more predicates, resulting in control or raising depending on the thematic structure of the predicates involved (cf. (3b)):

- (3) a. [John T [<sub>VP</sub> ~~John~~ tried [<sub>CP</sub> [<sub>TP</sub> ~~John~~ to [<sub>VP</sub> ~~John~~ win]]]]]  
 b. [John T [<sub>VP</sub> tried<sub>θ</sub> [<sub>CP</sub> [<sub>TP</sub> to [<sub>VP</sub> win<sub>θ</sub>]]]]]

The structure in (3b) crucially relies on the assumption that the embedded T has no EPP feature. If that were the case, then the DP would have to merge in the embedded clause. However, once that position was lexicalized, further re-merging in the higher clause would have been impossible, assuming that lexicalization has a ‘freezing’ effect. The structure in (3a) is the one suggested by Hornstein (1999). Hornstein (2001) modifies it and argues that *to*-complements have no EPP (see also Castillo, Drury & Grohmann 1999, and more recently Epstein & Seely 2006). The absence of an EPP position in all the above analyses is to some extent postulated on theory-internal reasons, without any clear attempt to correlate the lack of EPP to the morphosyntax of *to*-clauses.

Note that the elimination of the empty category PRO (and also of A- copies) weakens the need for structurally distinguishing between control and raising complements. Take for example, Hornstein’s analysis: if both constructions involve an A-copy, then the projection of C cannot, and need not for that matter, be the property that differentiates control from raising. The same reasoning holds for the analysis of Manzini & Roussou (2000). Thus control and raising complements can receive a single structure, probably of the CP-type (although a TP structure could in principle be available; see Bošković (1997) on some control complements). The option of C projecting in raising complements has also been put forward (see Epstein &

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<sup>1</sup> For earlier approaches against a structural distinction between control and raising see Brame (1976), Bach (1977), Bresnan (1978), Culicover & Wilkins (1986), according to which the infinitival complement in both cases is a VP; for a sentential status assigned to infinitives, see Williams (1980), Koster & May (1982).

Seely 2006). Even if the structural distinction is indeed eliminated, what remains to be worked out is why *to*-clauses lack the EPP. According to the discussion in section 1, the descriptive generalization is that, unless stated otherwise, the subject of a *to*-clause is null. The question then is why and how the correlation between *to* and the unrealized subject holds. In order to provide an answer, we need to look into the properties of the element *to* more carefully.

The basic argument for treating *to* as an inflectional element (residing in I, or T in current terminology) comes from the fact that it is in complementary distribution with modals, cf. *\*to should/could come* (Chomsky 1977, Pullum 1982). However, modals and *to* are categorically different: modals are verbal elements, while *to* isn't. Being verbal, modals can associate with a functional verbal projection, such as I or C in inversion contexts. On the other hand, *to* has nothing verbal. If anything it is closer to, if not the same as, the locative preposition *to*. Historically, its use with a verbal complement goes back to its prepositional status (Los 2005). Synchronically, *to* is also used to introduce locative phrases, as well as 'dative' arguments, as in the examples below:

- (4)    a.    I'm going *to the market*.  
          b.    I gave the book *to John*.  
          c.    I gave *John* the book.

The use of a locative element for the expression of dative is not uncommon (see Manzini & Savoia (2005) on Romance). The alternation with dative shift in (4c) illustrates this point. In this respect, calling *to* an infinitival marker, thus I, is perhaps rather misleading. The simplest assumption one could make is that locative/dative *to* in (4a-b) and non-finite *to* in (3) is one and the same element. What differentiates the two constructions is precisely their complement. While in (4a-b) *to* takes a nominal complement, in (3) it takes a verbal one. The two uses of *to* can then be distinguished on the grounds of complementation. If this is correct, then the argument for at least two distinct *to* elements (preposition, infinitival marker) based on complementation can indeed be reversed: there is a single *to* whose distribution varies depending on its complement.

This is further supported by the fact that in some cases the status of *to* as a preposition vs. an infinitival marker is obscured:

- (5)    a.    We should contribute *to* save the planet.

- b. We should contribute *to* saving the planet.

The verb *contribute* (and its nominal *contribution*) takes a complement introduced by *to*. While in (5a) the complement is typically recognized as a CP, since *to* is followed by the verb, in (5b) the role of *to* appears to be a bit problematic. This is due to the following two reasons: first, because a verb like *contribute* selects for a PP complement introduced by *to*, and second, because the complement of *to* preserves some of this verbal properties, on the assumption that gerunds are verbal nouns. The different forms can give rise to slightly different interpretations. Thus while the role of *to* in (5a) is rather clear, it is not so in (5b). The problem can be resolved if there is only one *to*, namely the locative (preposition) one.

A verb like *contribute* then is interesting, since it can independently select for a complement introduced by *to*. In most other cases of clausal complementation, this problem does not arise as *to* does not appear to be selected by the matrix verb. In Romance, on the other hand, the preposition that introduces the embedded infinitive (where relevant) is selected by the matrix predicate. This is illustrated by the following Italian examples:<sup>2</sup>

- (6) a. cerco *di* scrivere.  
try-1s of write-INF  
“I tried to write.”  
b. vado *a* studiare.  
go-1s to study-INF  
“I’m going to study.”

A verb like *cerco* selects the preposition *di*, while *vado* selects *a*. In both cases what is embedded under the preposition is an infinitival clause. In more standard approaches, *di* and *a* in (6) are analyzed as ‘prepositional complementizers’, that is prepositions that serve the role of a complementizer in the embedded clause. This view is challenged by Kayne (2000) and Manzini & Savoia (2007), who, based on different assumptions, argue that *di* and *a* are prepositions throughout. The treatment of ‘infinitival’ *to* as a preposition then finds comparative support. At the same time, it is well-known that *to* differs from *di* and *a* (for an early approach see Kayne 1984), along the lines indicated by (6): *di* and *a* are selected, while *to* isn’t. So while the comparative evidence supports a unified treatment of *to* as a preposition,

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<sup>2</sup> Thanks to an anonymous reviewer for pointing this out to me.

as suggested for *di* and *a*, it also shows that *to* crucially differs. The question then is how this difference is formally expressed. Since *di* and *a* are selected by the predicate they are part of the matrix clause; since *to* is not selected, then it belongs to the embedded clause. In what follows, it will be shown how this distinction is structurally implemented and what sort of implications it may have for clausal complementation.

The Italian examples in (6) highlight another difference with *to*-clauses. The verbal form that follows *di/a* is morphologically an infinitive, as the affix *-re* shows (*scrivere*, *studare*). On the other hand, English has no infinitival morphology. As already mentioned, the verbal form in the *to*-clause is simply the bare stem. The correspondence between *to*-clauses and Romance infinitives has been used as a further piece of evidence for the inflectional (non-finite) status of *to*, arguing that *to* is the equivalent of infinitival morphology, and thus an I element. As in the case of modals, the argument provided by comparing *to*-clauses to Romance infinitives is based on distributional facts. What these two constructions have in common is that they appear in more or less the same set of environments. Note that the same holds for the so-called ‘subjunctive’ clauses of the Balkan type. In Modern Greek (MG) for example, we find a finite clause introduced by the ‘modal/subjunctive’ particle *na* roughly in those contexts where English has *to* and Romance has an infinitival complement. Just like English, MG also lacks infinitival morphology. Unlike English though, the verbal form that appears in the corresponding constructions fully inflects for tense, aspect and agreement. However, *na*-clauses are far from being described as ‘infinitives’, despite the fact that the *na*-construction has historically replaced not only some subjunctive but also some infinitival clauses. In short, any similarities in distribution with the Romance infinitive do not strongly or directly at least support the analysis of *to* as an infinitive marker occupying I, as they wouldn’t support the analysis of *na* as an infinitive marker in the relevant structural position.

At the same time, the comparison with Romance can be revealing in other respects. In terms of distribution, what turns the verbal stem in English to the structural equivalent of a Romance infinitive (in the relevant environments at least) is precisely the presence of *to*. What turns the verbal stem to an infinitive in Italian is inflectional morphology, and more precisely the affix *-re* (or its equivalent in the other Romance languages). Comparatively speaking, this function is fulfilled syntactically in English, but morphologically (word-internally) in Romance. The parallelism between *to* and infinitival morphology then can be maintained, without necessarily attributing an inflectional status to *to*. This perspective can be further illuminating regarding the subject of *to*-clauses. Note that the characteristic property of the infinitival morphology *-re* is that it is a piece of inflection which appears in the same



position as agreement in finite forms. While finite inflection can (partly) fix the reference of the subject, that of the infinitive leaves it unfixed. In other words, finite inflection can pick a specific referent, as is typical of personal or definite pronouns, while non-finite (infinitival) inflection has no such property. Thus the subject of the infinitive can vary arbitrarily. Based on this pattern, Manzini & Savoia (2005, 2007) argue that *-re* satisfies the EPP (see section 1) in the same way that inflection in finite forms (agreement) does. Thus the interpretation that is associated with the EPP slot in the form of *-re* is that of a variable.

Bearing the preceding discussion in mind, let us next turn to the element *to*. If there is indeed some correlation between *to* and infinitival morphology, along the lines suggested above, then the role of *to* in connection with the EPP becomes clearer. Assuming that *to* is, to some extent, the structural correlate of infinitival agreement, the expectation is that it will also correspond to the EPP slot and introduce a variable in terms of interpretation. If this is correct, then *to* is closer to an argumental than a verbal interpretation. This is a further reason to argue that *to* does not occupy the I head, but a position which could be identified with the (syntactic) subject. The next point to consider is what sort of properties *to* has that allow it to qualify as an EPP satisfier. According to what we have said so far, prepositional *to* and ‘infinitival’ *to* are one and the same element, namely the locative preposition. Locative elements, such as *there* for example, can independently function as subjects, thus satisfying the EPP. This is illustrated by the following examples:

- (7)    a.     *There* is John.  
        b.     *There* arrived three men.  
        c.     We went *there*.

In (7a) and (7b) *there* appears in the subject position, while in (7c) it has a clear locative (adverbial) meaning. (7a) is a predicative construction (a presentational sentence); (7b) is an unaccusative one, with *there* having an NP associate in postverbal position. Once again, Kayne (2006) and Manzini & Savoia (2005, 2007), following different routes, argue that locative *there* in (7a) and (7c) and ‘expletive’ *there* in (7b) are the same element. For our purposes this unification of uses under a single element strongly supports not only a unified treatment of *to* but also the independent availability of a locative subject.

The next question is where exactly in the clause structure *to* appears. The simplest assumption we could make is that *to* projects in a position above I, as is typical of subjects.

Assuming that the characteristic feature of *to* is that of being a locative, we can call this position Loc, and suggest the following structure:

- (8) [Loc *to* [I ....]]]

Some clarifications are necessary here. In more elaborate theories of clause structure, lexical items occupy designated positions according to their feature make-up. As Sportiche (1997) argues, the subject occupies a D position above I. This line of reasoning is more fully developed by Manzini & Savoia (2002, 2005) who argue, on the basis of the properties of subject clitics, that D is the prototypical EPP position; other positions can be activated for the subject depending on the nature of the clitic involved. In recent work, Rizzi & Shlonsky (2007) identify a ‘Subj’ head/phrase above I, as the position where the EPP (again in the sense of a subject-predicate relation) is satisfied. The generic label ‘Subj’ reflects the function of the position and not its formal properties though. Despite differences, the idea in all the above analyses is that there is an individuated EPP position, which can formally be identified as D and be lexicalized by a full DP, a pronoun, a locative, etc..

In line with the preceding discussion, treating *to* as a locative fulfilling the EPP is not problematic. At the same time, however, identifying *to* solely with a ‘subject’ can be a bit misleading, since *to* has the additional property of introducing a clause. A further characteristic of *to*-clauses is that they can be associated with modality (cf. Stowell 1982). Consider the following examples:

- (9) a. To be in Paris!  
b. I want to be in Paris.  
c. I tried to leave.

The sentence in (9a) is a matrix optative, and as such it receives a modal interpretation. The sentences in (9b-c) are embedded clauses, where modality is also determined in connection with the matrix predicate (both complement clauses express an unrealized event). If *to* is not intrinsically modal, then it must be associated with a position in the clause structure that expresses this property. For example, in Rizzi’s (1997) articulated C system, the lower C head, called Fin, is the one where not only finiteness but also mood properties can be encoded. Adopting and adapting this analysis to MG, Roussou (2000) argues that the lower C head is better identified as M. Considering the development of *to* in the history of English,

Roberts & Roussou (2003: chapter 3) argue that *to* in its infinitival use realizes M, thus resembling modal particles in other languages (e.g. MG *na*, Southern Italian *mu*).<sup>3</sup> In the context of the present analysis *to* is not a modal particle, but has a locative property which makes it closer to a nominal (and thus an argument interpretation). Thus M can be a scope position associated with the verb (main or auxiliary); *to* relates to M indirectly by merging in M's domain, and more precisely above M. The structure in (8) then is revised as in (10):

$$(10) \quad [\text{Loc } to \text{ } [_M \text{ } [_I \text{ } \dots]]]]$$

This revised structure allows us to maintain the properties of *to* as well as its possible association with modality. Moreover, we are in a position to account for the incompatibility of *to* with modals. As already pointed out, in standard approaches this pattern was taken as a piece of evidence for treating *to* as an element under I, just like modals. According to the present approach, *to* differs from modals, since it is not verbal and furthermore it is not inherently modal. However, the presence of *to* in the domain of M allows it to be indirectly associated with modality. It is in this respect then that *to* and modals cannot co-occur despite the fact that they may appear in distinct positions in the clause-structure. Note that while modals express (various types of) modality directly as part of their lexical semantics, *to* does so only indirectly as part of the domain where it merges. In other words, this is consistent with the fact that there is nothing inherently modal in *to*.

A final piece of evidence regarding the position of *to* comes from the interaction of *to* with adverbials. Although excluded by prescriptive grammarians, adverbs can actually appear between *to* and the verb (the 'split infinitive'), as in the following examples:

- (11) a.      *to deliberately* admit to this difficulty.  
       b.      *to properly* solve the problem.  
       c.      \**to probably* admit to this difficulty.

Not only manner (VP) adverbs as in (11b) but also higher (sentential) adverbs as in (11a) can appear between *to* and the verb. According to Cinque (1999), a subject-oriented adverb like *deliberately* appears quite high in the functional hierarchy. If *to* can precede this adverb, then it must occur even higher in the clause-structure. Interestingly, a modal adverb like *probably*

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<sup>3</sup> The analysis of *to* as a complementizer was first mentioned in Rosenbaum (1967). Lencho (1992) provides empirical justification for this claim, and this is also tentatively suggested by Kayne (2000: 297ff).

in (11c) is not allowed, presumably for the same reason that *to* cannot co-occur with a modal verb.

In short, it has been argued that the ‘infinitival’ *to* is the same element as the locative preposition *to*. In the former case, *to* is followed by a verbal form, while in the latter by a nominal. The (almost) parallel distribution of *to*-clauses with Romance infinitives was used as a piece of evidence for the role *to* plays with respect to the embedded subject. More precisely, unlike standard approaches these distributional facts do not support the analysis of *to* as an inflectional element, but instead reveal the role of *to* as some form of a subject, in ways similar to the infinitival affix in Romance. What both elements have in common is that they provide some form of lexicalization for the EPP. In the case of infinitival morphology, this is achieved word-internally, while in the case of *to* this is done syntactically. It was further argued, following the analysis of Manzini & Savoia (2005, 2007) for the Romance infinitival affix that the EPP slot lexicalized by *to* corresponds to a variable.<sup>4</sup> In structural terms, there is no EPP position available in the I domain, but only in the C (M) domain where *to* merges. In the discussion that follows, the role of *to* regarding the various readings (control, raising, arbitrary) will be considered, discussing the implications of this approach for the postulation of empty categories as well.

### 2.1 *The interpretation of the EPP variable*

The lexicalization of the EPP by *to* in so-called ‘infinitival’ clauses, further predicts that in the presence of *to* a lexical subject will not be present. Consider the following examples:

- (12) a.       \**to John* leave  
       b.       *for John* to leave

A lexical subject in the I domain is excluded, as the ungrammaticality of (12a) shows. However, it can appear above *to*, once *for* is present as in (12b). If *to* is in the lower C system, then the DP must be higher in the clause structure. We will discuss the presence of a lexical DP in association with *for* in the following section. Recall that in recent approaches, *to*-clauses are taken to lack the EPP. This claim or assumption has been mainly based on theory-

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<sup>4</sup> Manzini & Savoia (2007) analyze the ‘subjunctive marker’ *tē*, as a nominal element which introduces a variable. Like *to*, *tē* also appears in the C system. The same analysis is suggested by Roussou (2007) for MG *na*. Just like *to*, *na* is treated as a locative (deictic) element, given that it can also appear in presentational contexts. However, unlike *to*, it has no other (e.g. prepositional) uses. Interestingly, both *tē* and *na* introduce control and raising complements, exactly like *to*.

internal reasons. More precisely, the absence of EPP is attributed to abstract features associated with non-finite T, which happens to be realized as *to*. There is nothing that links this absence to the morphosyntactic properties of *to* itself. According to the present analysis, on the other hand, the reason why there can be no lexical subject in the I domain is precisely because the EPP is lexicalized directly by *to*.

Let us next consider how the variable introduced by *to* is interpreted. The structure assigned to *to*-clauses is the one provided in (10). Consider now the following examples:

- (13) a. John managed [*to* solve the problem].  
 b. [*To* be rich] is desirable.  
 c. John thinks that it is easy [*to* be rich].  
 d. John seems [*to* be smart]

The unrealized embedded subject and more precisely the variable provided by *to* can receive a number of different interpretations: (13a) exhibits obligatory control; the *to*-clause is the complement of the control predicate *manage*, and the embedded subject is bound by the matrix argument *John*. (13b) exhibits arbitrary control; the *to*-clause appears in subject position, and there is no argument to bind the embedded subject. (13c) is an instance of ‘non-obligatory control’; the subject of the *to*-clause can either take the DP *John* as its antecedent or receive an arbitrary reading. Finally, (13d) exhibits raising; the *to*-clause is the complement of the raising predicate *manage*, and the embedded subject corresponds to the lexicalized matrix DP. In all the above cases, the interpretation of the embedded subject depends on the context where the *to*-clause appears. In other words, the interpretation of the variable provided by *to* depends on the interpretation of the *to*-clause as such.

According to the present approach, the *to*-clauses in (13) are not structurally differentiated: *to* is located in the C (M) domain, lexicalizes the EPP but at the same time it provides a variable, thus leaving the proposition open. Any differences in interpretation then will have to come from outside the *to*-clause. Consider control in (13a). Its characteristic property is that the matrix DP is thematically interpreted with respect to two predicates. As Manzini & Roussou (2000) argue the DP essentially binds an open position (variable) that corresponds to an argument slot of each predicate. Thematic roles then are not so much features but relations determined at the interface. Butler (2004) argues that if argument slots are variables (“over the holders of the property or relation”, p. 6) then they need to be bound in order to get identified. Building on Adger & Ramchand (2003), Butler assumes that a

variable carries a syntactic identification [ID] feature, while its binder carries the lamda [ $\Lambda$ ] feature. In the case under consideration, the variable is the argument slot (the open position provided by the predicate), while [ $\Lambda$ ] is carried (optionally in the case of implicit arguments) by predicative heads. This translates to an instance of  $\lambda$ -abstraction. Two or more instances of [ $\Lambda$ ] that abstract over the same variable are interpreted under Agree as one. This is actually what Adger & Ramchand (2005) call “Interpret Once under Agree” (IOA), which is reminiscent of chain formation in the sense of Brody (1997).

Bearing the above in mind let us go back to control in (13a). The analysis of Manzini & Roussou (2000) simply relates one DP with two predicates, on the assumption that there is no EPP equivalent inside the *to*-complement. This part of their analysis is incompatible with the present proposal where *to* provides an EPP lexicalization. Thus control has to be mediated by *to*. However, *to* introduces a variable; so it does not succeed in closing off the proposition. Instead it has the effect of abstracting over the argument slot of the verb, giving rise to another predicate. The *to*-clause then turns to a predicate-abstract, very much in the spirit of Williams (1980) (without postulating PRO though). Control arises when one DP abstracts over the same argument introduced by two or more instances of  $\lambda$ -abstraction. Raising, as in (13d), on the other hand arises when there is no argument slot provided by the matrix predicate (see also Manzini 2007).

Consider next the properties of control complements. Landau (2004) argues that obligatory control splits into exhaustive and partial, as in the following examples:

(14) We thought that....

- a. The chair preferred to gather at 6.
- b. Mary wondered whether to apply together for the grant.
- c. \*John managed to gather at 6.
- d. \*Mary is able to apply together for the grant.

Modals, aspectuals, and implicatives (e.g. *dare*, *manage*, *forget*, *force*) give rise to EC. Desideratives (e.g. *want*, *prefer*, *decide*), interrogatives (*wonder*, *ask*), factives, and propositionals (e.g. *say*, *declare*, *imagine*) give rise to PC. Adapting the analyses of Iatridou (1993) and Varlokosta (1994), Landau further argues that these two readings correlate with temporal restrictions. In EC, the temporal reference of the complement clause is anaphoric to that of the matrix one, while in PC it is dependent on the matrix tense. In the latter case, the

embedded clause can be temporally modified, as long as its modification is posterior to the then temporal reference of the matrix clause. This is shown by the following examples:

- (15) a. \*Yesterday, John was able/managed to solve the problem tomorrow.  
b. Yesterday, John wondered how/hoped to solve the problem tomorrow.

Landau's analysis is crucially based on the presence of PRO, whose reference is determined through a rather complicated 'feature-calculus' (see Boeckx & Hornstein 2004 for criticism). In order for this mechanism to go through, various abstract features regarding the embedded C and T are further postulated. However, which features are present and where can only be determined on the basis of what sort of predicate will (or not) appear later on in the derivation. Thus apart from being technically complex, this analysis also requires a 'look-ahead' property.

None of the above problems arises in the context of the present proposal. No abstract features are postulated to derive the control reading, beyond what is morpho-syntactically present. In the case of English, the element that mediates control is simply *to*. Roussou (2007) argues that the temporal restrictions attested with obligatory control predicates are the reflection of event-unification, which is an instance of restructuring (see Wurmbrand 2001). For example, EC predicates like aspectuals, modals, and (some) implicatives are known to be typical restructuring predicates. Restructuring forms a complex predicate and as such it gives rise to argument structure composition. In this context then, the position left open by *to* will become part of the argument structure of the matrix predicate. It is in this respect then that the same DP argument becomes associated with two predicates, thus receiving two thematic-roles. Similar considerations can naturally extend to PC, with the difference that the semantics of the matrix predicate do not force identification of the controlled argument with its controller. As Culicover & Jackendoff (2001) and Jackendoff & Culicover (2006) argue, this class of predicates can also allow for disjoint reference. Consider the following:

- (16) *John tried (very hard) for his children to succeed.*

A verb like *try* can also take a *for-to* complement; in this disjoint reference becomes available (I will come back to the role of *for* in section 4.3)

Raising in (13d) can be analyzed along the same lines. Raising complements also trigger restructuring ('functional' according to Wurmbrand 2001). Unlike control predicates,

raising ones do have not argument structure, so there is nothing equivalent to argument composition. Thus the EPP variable supplied by *to* gets bound by the matrix DP, which in turn becomes thematically interpreted by the embedded predicate only.<sup>5</sup> Consider next the arbitrary interpretation in (13b). The *to*-clause appears in subject position and there is no restructuring. In the absence of the right configuration, the EPP variable gets bound by a generic operator associated with the matrix clause (presumably residing in the matrix C), giving rise to the arbitrary interpretation. The arbitrary reading also arises in matrix *to*-clauses (cf. *To be in Paris!*), in the absence of a ‘controller’, as expected.

The construction in (13c), on the other hand, can converge with either an arbitrary or a specific interpretation. According to Manzini & Roussou (2000) the choice between the two readings depends on the temporal interpretation of the higher clause. More precisely, present tense can give rise to a generic or a specific reading. In the former case, the EPP variable converges with the arbitrary interpretation. In the latter case, it takes its reference from the most salient DP, i.e. the one provided by the linguistic context. The syntax then provides the variable, but it is interface considerations that deal with the ambiguity. Past tense, on the other hand, brings in an episodic interpretation: *John thought it was easy to solve the problem*. In this case the specific interpretation is the preferable one. Note that the specific reading in non-obligatory control contexts is very much like the one standardly attributed to another empty category, namely *pro*. As a matter of fact, Hornstein (1999) assumes that the ‘controlled’ infinitival subject in this case corresponds to *pro* (since DP-movement would be blocked by the presence of *it* in the intermediate clause). However, this alternative has the undesirable result of replacing one empty category with another, and more crucially a category, such as *pro*, which is not independently attested in the English grammar, since English does not have null referential subjects.

The above discussion has been rather indicative of how the present approach can guide us to a better understanding of control (in its various manifestations) and raising. A more detailed discussion is of course required. However, this paper is not about control or raising as such, but about the structural properties of *to*-clauses. A unified account of *to*-clauses makes the postulation of empty categories unnecessary and thus unavailable under economy. Elimination of empty categories like PRO and A-copies (as well as *pro*) does not entail elimination of the relevant interpretations though. At least with respect to *to*-clauses it was shown that the different readings (e.g. control vs. raising vs. arbitrary vs. specific) arise at

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<sup>5</sup> According to Wurmbrand (2001: 205ff) verbs like *begin* which alternate between control and raising exhibit lexical vs. functional restructuring respectively.



the interfaces. Syntactically they are mediated by the element *to* and the ways it combines with the embedded predicate and other elements that may or may not be present in the higher clause. Moreover, there are no abstract features postulated, whose only function is to derive a given interpretation. To some extent then this approach allows us to derive certain properties of these constructions from their morphosyntax along with interface requirements.

To summarize, in this section I have considered the structure of *to*-clauses. It was argued that *to* is not an infinitival marker but the locative preposition *to*. The similarities with Romance infinitives were taken to indicate that *to*, just like the infinitival affix under the analysis of Manzini & Savoia (2005, 2007), provides a lexicalization of the EPP slot. Since it lacks referential content of its own, it introduces a variable whose reference needs to be fixed. In control and raising complements, the EPP variable gets bound by a DP in the matrix clause. In all other contexts, it receives an arbitrary reading, or where relevant a specific one.

In the following section, I will consider the properties of *that*-clauses, showing that while *to* introduces a variable, essentially leaving the proposition open, *that* requires complement with a lexicalized EPP, a complement which qualifies as a proposition.

### **3. Complementizers and subject wh-extraction**

#### *3.1 An overview*

The case that will be considered in this section is subject extraction over a lexical complementizer (the *that*-t effect), a phenomenon that was first noted by Perlmutter (1971) (see also Chomsky & Lasnik 1977, Taraldsen 1979, Pesetsky 1981/82, for early approaches). In the Government and Binding (GB) framework, the *that*-t effect was attributed to a violation of the Empty Category Principle (ECP): (i) the subject trace cannot be antecedent governed because *that* creates a minimality barrier (Chomsky 1986), or (ii) because it cannot be properly (head) governed by a lexical C; in the latter case, a null C counts as a proper governor on the assumption that it carries abstract agreement features (Agr-in-C) (Rizzi 1990). In the minimalist framework, (proper) government is dispensed with. Moreover, reanalyzing traces as copies makes it unclear how and why a lexical C would affect them.

Within minimalism, a number of approaches have been formulated in order to account for this phenomenon, which either maintain the Agr-in-C strategy or seek a different account altogether. For example, Szczegielniak (1999) argues that the embedded Spec,CP is a phase-peripheral position, which when endowed with phi-features (i.e. there is no *that*) allows for the subject to move further. Pesetsky & Torrego (2001) relate subject extraction to T-to-C movement, assuming that *that* is also an instance of this movement; movement of the subject

to the embedded Spec,CP suffices to satisfy the EPP property of C, rendering T-to-C movement (hence *that*) unnecessary, and therefore unavailable under Economy. Ishii (2004) invokes the Phase Impenetrability Condition (PIC) and concludes that when C is null, it is simply not there, thus avoiding any violations of the PIC. Koopman (2000) makes use of remnant TP movement, attracted by bridge (‘restructuring’) verbs, which necessitates absence of *that*. Finally, Kandybowicz (2006) argues for a prosodic account: the lexical complementizer and the subject trace cannot be adjacent at PF (they cannot be part of the same prosodic unit) (see also section 4.2). In all the above accounts, the presence of a copy/trace in the embedded Spec,TP is somehow assumed to be present.

On the other hand, Roussou (2002), following Manzini & Roussou (2000) on A-movement, argues that the *wh*-phrase merges directly in its scope position from where it binds a variable provided by the predicate in the embedded clause. Thus there is no copy of the *wh*-subject in the embedded Spec,TP. The ungrammaticality arises because in this case there is nothing to lexicalize the EPP (D, as Chomsky 1995), in the embedded clause. The null C in this context can fulfill this role, on the assumption that it reflects the realization of I on C, and thus of the relevant  $\phi$ -features on C as well. The EPP is then satisfied indirectly. *That* blocks this realization, hence the ungrammaticality:

(17) *Who* do you think  $[_{C[+D, \phi]}]$   $[_I]$   $[_v \text{ left}_x]$

The question of course is why the realization of the relevant features on C is null; this is a problem shared by all accounts that assume some version of the Agr-in-C mechanism. Despite this problem, the structure in (17) anticipates the inactivity condition of Chomsky (2005), which predicts that the subject cannot raise beyond Spec,TP once it has all its features valued, and therefore subject extraction cannot target this position.

Rizzi & Shlonsky (2007) provide an account in terms of ‘criterial freezing’ (Rizzi 2006). The subject satisfies the ‘subject criterion’ (the EPP in the sense of the subject-predicate relation), in the Spec,SubjP above I. Subject *wh*-movement cannot pass through that position, given the freezing effect, so the only option is for it to move directly from its thematic position inside the *v*/VP, as argued for null subject languages (Rizzi 1982). The ‘subject criterion’ in this case is satisfied by a head-head relation between Fin and Subj, as shown in (18). This is possible to the extent that Fin can (freely) bear  $\phi$ -features which in the following configuration get valued by the intermediate subject copy in Spec,FinP:

(18) Who do you think [ $t'$  Fin+Phi [Subj [ $t$  came ]]]?

The structure in (18) maintains the Agr-in-C strategy of Rizzi (1990). Feature valuation in Fin is crucially based on the fact that Fin is not a criterial position. Perhaps this requires some clarification, as Fin is a scope position regarding verb movement. So presumably, it has to be considered a non-criterial position with respect to its specifier.

The basic problem with (18) though has to do with the postulation of phi-features in Fin. The question then is how this structure does not overgenerate. Consider the following:

(19) \**John* seems [ $t'$  Fin+phi [Subj [ $I$  has [ $_{v/V}$   $t$  left]]]]

The matrix predicate is a raising one, so the DP *John* is thematically related to the embedded predicate only. If Fin can bear phi-features, then there is nothing to restrict movement of the DP from a VP-internal position to Spec,FinP, by-passing Spec,SubjP thus voiding a freezing effect. Once in Spec,FinP it values the relevant set of phi-features and next moves to the matrix Spec,SubjP where it freezes, having satisfied the ‘subject criterion’. Note that (19) can also be made compatible with a truncated structure assigned to raising complements, on the grounds that the higher C (Force) is not present, thus excluding the presence of *that* as well. Case cannot be invoked for the ungrammaticality of (19), given that Case in this system is no longer the trigger for movement (as it was in GB for example).

To complete the picture, subject wh-extraction is not always successful, as the following examples show:

- (20) a. \*Who do you wonder *if/whether* left?  
 b. \*Who did you arrange *for* to leave?

Presumably there is no strategy that could save the constructions in (20). Unlike *that*, the elements *if/whether* and *for* cannot be absent. The question is what exactly blocks the generation of phi-features in Fin, in the sense of Rizzi & Shlonsky (2007). It is possible to argue that this option is blocked in the case of *for* since the embedded clause is non-finite and therefore cannot bear phi-features for independent reasons. On the other hand, *whether* just like wh-phrases is not sensitive to the  $\pm$ finite distinction, cf. *I wonder whether I should go/to go*. So the explanation would be that phi-features cannot be borne by a Fin head that is underspecified for finiteness. The problem though remains with *if*, which only selects a finite

complement, cf. *I wonder if John left/\*to leave*. Furthermore, if *if* expresses clause-typing and merges in Force (the higher C), then Fin is in principle available for the generation of phi-features that could rescue subject extraction.

The picture that emerges so far is as follows: the various (old and new) approaches rely on the properties of the subject (trace) or the features associated with the subject position (e.g. EPP). The implicit assumption throughout is that a lexical C seems to lack some property that would enable it to participate in subject extraction. Given the limitations of the above approaches, I will provide an alternative which builds on the requirements of the complementizer *that* and not on those of the subject. In other words, I will argue that it is the subject gap that creates a problem to *that* and not the other way round.

### 3.2 The ‘that-t effect’: a novel account

The analysis that will be put forward will focus on the properties of the complementizer *that*, arguing that the latter requires a complement which qualifies as a proposition. Thus there has to be a lexicalized EPP position that would close the open position of the predicate, yielding a proposition. The problem with subject extraction then is shifted from the properties of the subject to those of the lexical complementizer and can be defined as follows:

- (21) *That* requires a lexicalized EPP position that closes off the proposition. If this requirement cannot be met, *that* has to be absent.

Consider subject extraction then, as in (23):

- (22) a. \*Who do you think [*that* [<sub>I</sub> \_\_ left]]?  
 b. Who do you think [<sub>I</sub> left]?

Given (21), the ungrammaticality of (22a) arises because the embedded clause does not qualify as a proposition and thus cannot be the complement of *that*. More precisely, there is nothing to lexicalize the embedded EPP position, since the subject is realized as a wh-phrase in the matrix Spec,CP. This creates an illicit context for *that*, and the structure is ruled out as ungrammatical. Grammaticality is possible to the extent that *that* is absent, as in (22b). In other words, if the subject is absent, *that* has to be absent as well. The reverse of course does not hold, given that the presence or absence of *that* does not affect the lexicalization of the subject (EPP) (cf. (2e)). I will come back to (22b) shortly.

Note that the interaction between lexicalization and the requirement for a propositional complement involves PF and LF respectively. In other words, while the ungrammaticality has to do with the interpretation at LF, it is triggered or manifested by the absence of a lexicalized EPP position which is visible at the PF interface. The interaction between LF and PF underlies the analysis of Aoun, Hornstein, Lightfoot and Weinberg (1987), according to which the ECP resolves to two locality conditions. The head government clause of the ECP applies at PF on the basis that “only those empty elements that are visible at PF are subject to the condition, and only those heads that are visible at PF may satisfy it” (p. 539). The antecedent government, on the other hand, applies at LF in the form of generalized binding. In terms of the present approach, the PF requirement is more constrained as it makes no reference to empty elements but only to lexicalization. The LF requirement involves interpretational aspects, which typically arise under Merge as well as Agree. With respect to the ‘*that*-t effect’ the interpretational side does not relate to the subject dependency as such, but to the distribution of *that* in the absence of a subject. It is this latter aspect that differentiates the present proposal from any of its predecessors.

At this point of our discussion, we should consider the position of the subject gap inside the complement clause. According to (22b) there is no subject in the EPP position in the I domain. This is consistent with the inactivity condition of Chomsky (2005), as well as the freezing effect of Rizzi & Shlonsky (2007); the latter explicitly argue that the subject variable corresponds to a copy inside v/VP (the thematic position), as in (23):

(23) who do you think [<sub>I</sub> [<sub>v</sub> ~~who~~ left]]

The question is whether the variable has to be structurally represented as a copy. Related to this is the issue of remerge. Chomsky (2006: 7) argues that “There is no rule of formation of copies or remerge, as has sometimes been supposed; just IM applying in the optimal way...Repeated IM yields many copies”. Internal Merge (IM) (traditional movement) requires copying of the merged element, and merger of a copy in the new position. If understood correctly, this means that a lexical item  $\alpha$  can only merge once; what looks like remerging is merge of a copy. Pursuing this argument further, we derive what looks like a rigid formulation of the ‘freezing’ effect: once  $\alpha$  merges in a given position it freezes there; the only way to relate  $\alpha$  to other positions for the purposes of interpretation and PF-realization is to introduce copies. In other words, if ‘merge  $\alpha$  once’ affects root positions only, then employing copies is the only mechanism out. However, if ‘merge  $\alpha$  once’ does not necessarily

affect root positions but relates to PF-realization, then copies may not be necessary, as long as there is some independent mechanism that relates  $\alpha$  to other positions in the tree. This mechanism is very close to what we understand as Agree, and the analysis pursued by Manzini & Roussou (2000) with respect to A-copies (see section 2). This approach has the additional advantage of allowing elements which are not identical, but nevertheless compatible in terms of their feature specification, to be related under Agree. For example, the open position (variable) corresponding to the internal argument of the predicate can be associated with an inflectional element such as a clitic. Similarly, the EPP corresponding to another open position of the predicate can be realized as an inflectional affix, or a clitic, or both at once. It's hard to see how the copy theory can account for these patterns, without resorting to additionally postulating empty categories like PRO or *pro*. But if the interpretation attributed to these elements is computed at the interface, then it is unclear what role they serve in syntax apart from satisfying theory-internal reasons (see Borer (1986) on the EPP).

Suppose nevertheless that a wh-copy is necessary. While copying in syntax can be assumed to apply freely (thus non-costly), it increases complexity at the interfaces. In particular, PF requires an algorithm that will determine which of the two (or more) copies in the chain will be pronounced and how. On the other hand, LF has to convert two otherwise identical elements belonging to the same chain to two separate entities: an operator and a variable in the case of a wh-dependency for example. In connection to this, Fox (2002: 67) proposes the 'Trace Conversion Rule', i.e. a rule that converts the lower copy to the equivalent of a trace (a variable), together with  $\lambda$ -abstraction:

$$(24) \quad \text{Which boy Mary visited which boy} \rightarrow \text{Which boy } \lambda x [\text{Mary visited } \textit{the boy } x]^6$$

The rule in (24) ensures that under  $\lambda$ -abstraction the wh-operator can be integrated in the interpretation since there is a variable available. Postulating copies in the structure has the advantage of providing a clear way of how syntactic positions can be connected (given locality conditions, perhaps defined within phases): this is done because they involve the same element. Despite its potential advantages, the copy theory turns out to be costly at the interfaces, and by implication, uneconomical.

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<sup>6</sup> According to Fox (2002: 67) there are two steps in the Trace Conversion rule: a) variable insertion under  $\lambda$ -abstraction and b) determiner insertion (cf. '*the boy x*' in the text example). Determiner insertion assimilates wh-variables to R-expressions, in the spirit of the GB theory of wh-traces.

Recall that  $\lambda$ -abstraction is also invoked by Adger & Ramchand (2003) and in particular (2005) as the mechanism that allows for the formation of chains. In their (2005) discussion of relative clauses in Scottish Gaelic, the authors argue that a variable requires identification that can be achieved in various ways. If it is a dependent element (bearing unvalued features), then it is interpreted under  $\lambda$ -abstraction. If it bears phi-features (e.g. a lexical pronoun), then it is interpreted either contextually or through binding, as long as there is feature compatibility with its antecedent. The syntactic features [ID] and [ $\Lambda$ ] that Adger & Ramchand postulate mark an element for the interpretation it will receive at the (LF) interface. As the authors admit, the way interpretation will be assigned depends on the lexical properties of the elements under consideration. In this respect, the postulation of these two features is nothing more but a diacritic that descriptively expresses their LF interpretation.

Bearing the above in mind, let us go back to (23): the predicate *left* has an open position, so it provides a variable. It is this variable then that becomes bound by the wh-phrase in the matrix clause. If the variable is in any case present, there is no need to postulate a copy. Note that the elimination of copies does not entail that a classical construal of the wh-dependency is no longer available. There is still an operator and a variable which form a chain, on the basis that an operator requires a variable and a variable requires binding. As in the case of control and A-movement, the operation that puts these two elements together can be seen as the equivalent of Agree.<sup>7</sup> The availability of a variable inside the predicate ensures that all properties stated on the presence of a gap (e.g. reconstruction) can be maintained as conditions affecting the variable, without necessitating the presence of a copy. On the contrary, postulating copies requires further mechanisms that will determine which copy will be pronounced at PF, and also which element will be the operator and which the variable at LF.<sup>8</sup>

In short, the above discussion only touches upon the issue of copies. It still indicates that the postulation of a low wh-copy does not appear to be necessary for the purposes of interpretation and the expression of syntactic properties affecting the gap. Bearing in mind the

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<sup>7</sup> I refer to this mechanism as ‘the equivalent of Agree’, because Agree in Chomsky’s system requires the presence of interpretable and uninterpretable features. Nothing in the present discussion hinges on the requirement for uninterpretable features.

<sup>8</sup> Adger & Ramchand (2005) maintain the distinction between Merge and Move. For example, they argue that the wh-construction in English is formed under movement; given that the wh-phrase carries all the relevant features, the creation of copies is necessary to distinguish between operator and variable. This distinction between Merge and Move though somehow undervalues the essence of their analysis, according to which interpretation is determined at the interfaces taking into consideration the lexical properties of the elements involved (p. 191). If the lexicon is responsible for this variation, it’s unclear why the distinct properties of wh-phrases in English cannot directly determine a split in terms of interpretation at LF, without introducing a copy. This issue is left open to future research.

discussion in section 2 as well, we can form a more general picture regarding empty categories: they are instances of different interpretations (see also Manzini 2007).

Having briefly discussed the position and properties of the embedded subject in cases of extraction, we can now turn to the properties of *that*.

### 3.3 *The properties of that*

The lexical item *that* appears as a complementizer, introducing finite, declarative complements, as in (25a), but also as a demonstrative pronoun, as in (25b):

- (25) a. (I think) *that* John left.  
b. (I read) *that* book.

As in the case of *to*, discussed in section 2, the two instances of *that* have also been treated as two distinct elements synchronically. On the other hand, Davidson (1968/1997: 828-829) argues that the complementizer *that* is nothing else but the demonstrative: “sentences in indirect discourse, as it happens, wear their logical form on their sleeves (except for one small point). They consist of an expression referring to a speaker, the two-place predicate ‘said’, and a demonstrative referring to an utterance.” This is exemplified in (26):

- (26) a. Galileo said that the earth was round.  
b. Galileo said *that*: the earth is round.

Building on this idea and on diachronic evidence, Roberts & Roussou (2003: Chapter 3) argue that the demonstrative *that* and the complementizer *that* are the same element. Their different categorial status is not inherent, but is determined on the basis of their complement. As a complementizer, *that* takes a propositional complement; as a demonstrative it takes an NP complement (individual/property). As a pronominal, it may also appear without a restriction, cf. *I believe that*; in this particular case, the missing element can be either an NP (e.g. *that story*) or a sentence (e.g. *that John left*). The two faces of *that* relate to the different kinds of variable it binds: propositional vs. individual/property. This is further supported by the fact that the distribution of *that* in clausal complementation retains some of its demonstrative properties. For example, Bresnan (1972) argues that “the semantic function of that is to ‘definitize’ a complement” (p. 69).



Once again, as in the case of *to*, the simplest assumption one could make is that there is a single element *that*. While *that* can assume different functions (complementizer, demonstrative), formally it belongs to one and the same category, that of being a nominal element. Manzini & Savoia (2007), Manzini (2008) argue that Romance-type complementizers are nominal on the basis of their formal similarities with other nominal elements (e.g. *wh*-, relative pronouns); for example the complementizer *che* is also a *wh*-pronoun. Assuming a single categorial status for *che*, Manzini & Savoia argue that the latter merges in one of the argument positions of the predicate. As a complementizer it takes a clausal complement (CP/IP).<sup>9</sup> Under this approach, *che* and by extension *that* merges outside the embedded clause. The complement clause then distributes like an argument, because it is embedded under a (nominal) element in an argument position.<sup>10</sup>

The selecting properties of *that* clearly distinguish it from *to*. More precisely: a) *that* merges outside the embedded clause, while *to* is part of it, b) *that* binds a propositional variable and as such requires a lexicalized EPP position, while *to* lexicalizes the EPP and introduces a variable, thus leaving the proposition open. The above differences can immediately explain why *that* and *to* cannot co-occur, as shown below:

(27) \**that to leave*

The complement introduced by *to* contains an open (variable) position which is incompatible with the selectional requirements of the lexical complementizer *that* for a proposition. The restriction typically formulated in terms of finiteness can now be rephrased along the above lines. The ‘finite’ complementizer *that* binds a propositional variable; the ‘non-finite’ element *to*, on the other hand, leaves the proposition open. As a result the *to*-clause is not the right complement for *that*.

We can now go back to the data in (22) regarding subject extraction. The ungrammaticality of (22a) with *that* present has been dealt with. (22b) is grammatical since *that* is absent. As already mentioned the strategy is the following: ‘if the subject is not there,

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<sup>9</sup> According to Manzini & Savoia (2005, 2007) arguments merge in designated positions within the clitic shell. For example, D represents the typical EPP (subject) position, while N is the position of the internal argument. In between we find positions for Person, Loc, Q etc. If *che* merges in N along with its complement will qualify as the internal argument. If it merges in D, then it will head a subject clause, etc.

<sup>10</sup> This approach also allows to predict why *that* is obligatory when the clause appears in subject position:

(i) \*(*That*) *John left* is surprising.

If the subject clause merges in the EPP position, then it has to be headed by a nominal element. The same can account for the fact that *to*-clauses, on the ground that *to* is also nominal (and not a verbal element).

(i) *To leave early* is desirable.

drop the complementizer'. In the absence of *that*, the embedded clause will merge directly with the matrix predicate. The fuller picture is given below:

- (28) a. John [<sub>V</sub> thinks [<sub>N</sub> *that* [<sub>(C)</sub> [<sub>D</sub> Mary [<sub>I</sub> left ]]]]]  
 b. John [<sub>V</sub> thinks [<sub>(C)</sub> [<sub>D</sub> Mary [<sub>I</sub> left]]]]  
 c. Who do you [<sub>V</sub> think [<sub>(C)</sub> [<sub>I</sub> left]]]?

Before we proceed, we should make the following clarification with respect to (28): C may or may not be present, without affecting the relevant configurations. According to what we've said so far, C is a verbal position targeted by an element such as a main verb or an auxiliary. It is not a position that can be lexicalized by a complementizer, on the assumption that in languages like English or Romance these are nominal elements; as such, they cannot merge in verbal positions. The presence of C in the (28) only indicates a scope position associated with the verb. Let us now consider the structures in (28) in more detail. (28a) involves no extraction: *thinks* merges with *that* (the internal argument), which in turn takes the embedded clause as its complement. (28b) also does not manifest extraction, but *that* is missing. Here *thinks* merges with the embedded clause directly. Embedding in this case is not mediated by a nominal element and the two propositions appear to form what looks like a paratactic construction. Finally, (28c) is the case of subject extraction. Once again *thinks* directly merges with the embedded clause. Where (28c) differs from (28b) is that the former has a reduced structure, given the absence of the EPP (D) position. The embedded clause is not a proposition and the relevant configuration essentially involves direct embedding of one predicate under another (see also Doherty 1993).<sup>11</sup>

Koopman (2000) notes that subject wh-extraction is facilitated with bridge verbs, i.e. those verbs which can also appear without *that*; as such they are considered the tensed equivalent of restructuring, in the sense that they trigger some form of clause-union. The presence of *that* blocks restructuring and subject extraction cannot proceed. Although Koopman's analysis is based on different assumptions (remnant movement), the idea of restructuring can translate rather easily to the structure we have in (28c). As already mentioned, lack of the EPP implies that the embedded clause is not a proposition; as such it cannot be embedded under *that*, which also has to be absent. Thus the reduced embedded clause directly merges with the matrix predicate. Since *that* is absent, the embedded clause

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<sup>11</sup> Ishii (2004) also assumes that the embedded clause is an IP; absence of C implies that the next available phase for the subject is the matrix v, thus facilitating subject extraction.

but merges directly with the matrix verb in a way reminiscent of serial verb constructions (obviously not the same as there is independent inflection in the embedded clause, etc.). It is in this respect then that the structure in (28c) can be viewed along Koopman's analysis of 'tensed restructuring'.

Adopting and adapting the above idea allows us to draw a nice parallel with control and raising as discussed in section 2. Recall that these *to*-complements can also be subject to restructuring once they are embedded under the relevant class of predicates. This configuration allows for the EPP variable introduced by *to* to be associated with a DP in the matrix clause. In subject extraction, absence of the EPP and of *that* allows the embedded clause to be part of the matrix one. The variable provided by the embedded predicate, corresponding to the subject, will eventually get bound by the *wh*-operator.

One potential problem for the above analysis is presented by the ungrammaticality of the following sentence:

- (29) a. \**John* thinks left  
 b. [<sub>D</sub> John [<sub>I</sub> [<sub>V</sub> thinks [<sub>(C)</sub> [<sub>I</sub> [<sub>V</sub> left]]]]]]]

Note that the sentence in (30) has two (finite) predicates and a single EPP argument in the matrix subject position. The question then is what rules out a control-type reading with *John* being associated with both predicates. After all, there is some sort of restructuring taking place, and restructuring is the context where control (or raising for that matter) takes place. However, the crucial difference here is that the embedded clause is a finite one. Recall from our discussion in section 2 that control in English is mediated by *to* in the sense that *to* introduces a variable that under certain structural conditions (restructuring) becomes bound by a matrix DP.<sup>12</sup> In (29), however, there is nothing to mediate this relation. More precisely, there is no element to introduce the EPP variable that could be bound by *John*. Thus (29) is ungrammatical.

It is interesting to point out that even in languages like MG where control complements are finite (given the absence of infinitives), control is mediated by the element *na*. *Na* has the effect of re-opening the EPP position (lexicalized through inflection; see the

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<sup>12</sup> Note that a verb like *think* can trigger control, once the right context is supplied:

(i) John was thinking of leaving

Presumably it is the presence of the *-ing* (along with *of*) that allows control. Inflection in this case appears to have an effect similar to of the infinitival affix in Romance.

discussion in the following section) and introducing a variable, as shown below (see Roussou 2007; also Manzini 2007 on Albanian):

- (30) O Janis prothimopiithike *na* fiji  
the John was.willing-3s prt leave-3s  
“John was willing to leave.”

Thus although control is not in principle blocked in finite complements, it still requires an element that will provide a variable so that binding can go through. To put it differently, the definite inflection in the embedded clause cannot qualify as a variable for the purposes of control (binding), unless there is some element that has the effect of ‘undoing’ this property.

This approach can also account for the ungrammaticality of the sentence in (19), repeated below as (31) which was presented as problematic for Rizzi & Shlonsky (2007):

- (31) \**John* seems has left.

If (29) is ruled out as a control structure, (31) is ruled out as a raising one. Just like control, raising requires an EPP variable. There is nothing to supply this property in the present context, hence the ungrammaticality of the above sentence. Perhaps one could argue that the auxiliary *has* bears finite inflection, so there is some form of an agreement affix. However, note that the *-s* that appears in 3<sup>rd</sup> singular in the present tense is not sufficient to satisfy the EPP. This is empirically supported by the fact that English does not permit null subjects with this form. In this respect it differs from typical null subject languages like Italian or MG where the (finite) inflection provides an alternative mode of EPP satisfaction (Borer 1986, Alexiadou & Anagnostopoulou 1998, Manzini & Savoia 2002, among others. See also the discussion in sections 2 and 4.1). Even if *-s* could partially satisfy the EPP in some form, it couldn’t be bound under control or raising, on the assumption that finite inflection is somehow definite (a personal or definite pronominal). As already mentioned with respect to the MG example in (30) control (and raising) can only be compatible with finite inflection of this kind, only when another element mediates, with the effect of re-opening the EPP position and turning it into a variable. Absence of such an element in (31) predicts that the construction will be ungrammatical, on the grounds that it cannot satisfy the relevant interpretational requirements at LF.

To summarize, under the current approach we succeeded in dispensing with the postulation of abstract phi-features on C, and therefore eliminated one of the basic problems raised for those analyses that require the presence of such features in order to account for the *that-t* effect.

### 3.4 Extending the analysis to *for*, *if*, and *whether*

In order to complete the picture let us consider the properties of the element *if/whether* and *for* which also interfere with subject extraction, and at least *if* and *for* also block control. Consider the examples in (20) repeated below for ease of exposition:

- (32) a. I wonder *if* John left.  
 b. \*Who do you wonder *if* left?  
 c. I arranged *for* Mary to leave.  
 d. \*Who did you arrange *for* to leave?

The ungrammaticality of (32a) and (32c) shows that *if* and *for* also require a propositional complement: a lexicalized EPP position has to be present. If this is not the case as in subject extraction, then the result is ungrammatical. Starting with *if*, we observe that unlike *that* which can be absent, *if* cannot (cf. \**I wonder John left*). If the contexts where *that* can be omitted are bridge contexts, then the contexts where *if* appears are non-bridge ones. Just like *that* though, *if* also binds a propositional variable. The difference is that *if* brings in indefinite quantification, and more precisely a distribution similar to polarity items on the clausal level (see Adger & Quer 2001). We can further assume that when *if* introduces a complement clause (an embedded interrogative) it merges as an internal argument of the matrix predicate (thus it is also nominal), taking the CP/IP as its complement. Based on the above we can also predict the incompatibility of *if* with *to* along the lines suggested for *that*. More precisely the ‘*if to*’ sequence is ruled out because *if* requires a propositional variable. A clause introduced by *to* does not qualify as such, and therefore the result is ungrammatical.<sup>13</sup>

Consider next the case of *for*, which cannot drop either. Unlike *if* (and *that*), *for* is compatible with *to* provided there is an independently lexicalized subject (EPP) projecting

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<sup>13</sup> Kayne (1991: fn. 56) observes that *if to* maybe possible, in sentences like *John got up, as if to leave*. However, as he points out this is only possible when *as* is present; moreover there seems to be some sort of reduction involved (*as if he were to leave*). He argues that this is evidenced by the fact that *as if* behaves like a constituent (cf. *As if, in my opinion, to leave* vs. \**As, in my opinion, if to leave*). If Kayne is correct, then the co-occurrence of *if* with *to* is only apparent, since *if* in this case is part of *as*.

above *to*, as shown in (32c) (cf. Chomsky & Lasnik's (1977) 'for-to filter').<sup>14</sup> If the subject is absent due to extraction, the result is ungrammatical, as shown in (32d). Along the lines discussed for *that* and *to* we can also assume that the element *for* in (32c-d) is nothing else but the preposition *for*. As Bresnan (1972: 79-80) argues: "for-complements are in some ways less specific or definite than *that*-complements [...]. The key to the meaning of the for complementizer lies in the meaning of the preposition for [...] the use of for to express subjective reason or cause". If subjectivity is associated with modality, then the presence of *for* with a modalized *to*-clause as part of its complement comes as no surprise. At the same time note that *for* can also be used with a finite complement, as in "*for we all know the implications of this approach*"; in this case it clearly expresses reason. The latter example also supports the idea that *for* takes a proposition as its complement. By the same reasoning, we can also take *for* to merge as an argument of the verb, like *that* and *if*, taking the embedded clause as its complement.

Although *for* can occur with *to*, this is done to the extent that there is a lexicalized subject present. This is due to the fact that although *to* can be considered as the lexicalization of the EPP, it gives a predicate abstract as it introduces a variable. Therefore the *to*-clause is not the right complement for *for*, if a DP subject is missing. In terms of interpretation, the variable introduced by *to* can only be associated with the lexical DP; control is therefore excluded, despite the presence of *to*. It is in this respect that *for* can be considered an obviator. Disjoint reference is the only option. Coreference is only possible if the DP is an anaphor, such as *herself*:

- (33) a. Mary arranged for *herself* to leave.  
 b. Mary arranged for *her* to leave. (\*her = Mary)

If *for* merges in the higher clause, along with *that* and *if*, this places the DP closer to the matrix clause (if not part of it). This predicts that a) the anaphor finds an antecedent locally, and b) the pronominal will be disjoint in reference from the matrix subject (cf. (33b)). A more detailed analysis requires an analysis of binding which is beyond the scope of the present paper.

The full incompatibility of *that* and *if* with *to* (and the partial incompatibility of *for* with *to*) also predicts that these complementizers rule out control, on the assumption that

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<sup>14</sup> The *for-to* construction is available in Hiberno-English (Henry 1995). Presumably, *for* has different properties in this grammar that allow it to appear with a non-propositional complement.

control is mediated by the variable introduced by *to*. This opens the way to reconsider Kayne's (1991) facts regarding the distribution of control (PRO in his terms) in the various finite and non-finite contexts without invoking government or similar structural conditions. In particular, Kayne argues that the reason why PRO cannot occur as the subject of an *if* clause is because *if* is a lexical governor. The relevant pair is provided by embedded interrogatives introduced by *whether* which do allow for PRO (or a PRO interpretation in our terms), as in the example below:

- (34) a. John wonders *whether* to leave.  
 b. John wonders *what* to do.

According to Kayne, PRO is possible in (34a) because *whether* is not a head but a phrase thus occupying the embedded Spec,CP. This is indeed the behavior of other wh-elements, as (34b) shows.

The element *whether* differs from *if* in other respects as well. While *if* can introduce conditionals (thus associated with certain kinds of quantification in its conditional and embedded interrogative use), *whether* cannot. Moreover, *whether* is insensitive to the  $\pm$ finite characterization of its complement clause, just like other wh-phrases (see Stowell 1981: 422, Kayne 1991, Roberts 2005: 28-29, among others):

- (35) a. I wonder *whether* I should leave/*whether* to leave.  
 b. I wonder *what* John read/*what* to read.

In terms of the analysis put forward here the  $\pm$ finite characterization is understood as follows: a finite complement has a lexicalized EPP and qualifies as a proposition, while a non-finite complement has a variable in the EPP position and does not qualify as a proposition. Bearing this clarification in mind, we can say that *whether* along with wh-phrases does not care about the status of its complement (proposition vs. predicate). What *whether* shares with the other wh-phrases is the *wh*-feature, which corresponds to a quantifier binding a variable. There is no restriction as to what sort of variable that will be as long as it is compatible with the feature specification of the wh-element. Thus it is the *wh*-feature that sets *whether* apart from *if* and on a par with the other wh-phrases. This approach can go through without making any claims about the status of *whether* as a head or a specifier. In fact this distinction is irrelevant in the context of the present discussion.

Given the preceding discussion, the compatibility between *to* and a wh-element is accounted for. The interpretation of the variable introduced by *to* will be determined contextually. Landau (2004) argues that control with wh-complements is not exhaustive. This is predicted if restructuring is obligatory for exhaustive control. If a wh-complement blocks restructuring (i.e. there is no complex predicate formation), then what looks like ‘non-obligatory control’ is the only option. More precisely, the embedded subject can be understood as either coreferential with the matrix one or converge with an arbitrary interpretation (*John wonders whether to shave himself/oneself*). The present analysis then can offer a new perspective to the data discussed in Kayne (1991). For Kayne these patterns offer support for the postulation of PRO. In current terms, they offer support for an analysis that focuses on the properties of complementizers and their interaction with the EPP position.

Although *whether* allows for control (i.e. an EPP variable provided by *to*), it behaves like *that*, *if* and *for* in blocking subject wh-extraction:

- (36) a. \*Who do you wonder *whether* left?  
 b. \*Who do you wonder *whether* to leave?

The basic difference between (36a) and (36b) is that the embedded clause in the latter case (*whether to leave*) is grammatical; however, the relevant chunk in (36a) (*\*whether left*) is ungrammatical, presumably for the same reason that a null subject is generally excluded in finite clauses in English. The ungrammaticality of (36a) and (36b) then will have to be attributed to an element in the higher clause. The most relevant candidate is the wh-phrase (*who*) in the matrix Spec,CP. The problem then looks like a (relativized) minimality one: *whether* intervenes, blocking the association of *who* with the embedded variable. It is possible that the independent aspect of ungrammaticality in (36a) mentioned above further affects the degree of grammaticality of (36a) in relation to (36b). We leave this possibility open.

Having considered the properties of complementizers in relation to subject extraction and control, I will next turn to some further empirical cases that concern the implications of this approach for the parametric variation with respect to subject extraction.

## 4. Theoretical and empirical consequences

### 4.1 The parameter of subject extraction

Let us next turn to the various strategies used cross-linguistically for subject extraction. With respect to English, ungrammaticality is due to the fact that *that* fails to bind a propositional



variable, since in the absence of a lexicalized EPP the embedded clause does not count as a proposition. The strategy English adopts is that of ‘dropping’ *that* as well. This mechanism of ‘complementizer drop’ is also found in Danish, as in the example below (Vikner 1995: 121, fn. 30):

- (37) Hvem tror du (\**at*) vil købe den her bog?  
 who think you that will buy this here book  
 “Who do you think will buy this book?”

Danish, like English, can allow for a complement not headed by *that/at*, so this is the strategy employed in (37).

The second strategy is that of providing an independent lexicalization of the EPP slot. This is the typical pattern found in pro-drop languages. Consider the examples in (38a) and (38b) from MG and Italian respectively:

- (38) a. Pjos nomizis *oti* telefonise?  
 who think-2s that telephoned-3s  
 b. Chi credi *che* abbia telefonato?  
 who think-2s that has telephoned  
 “Who do you think has telephoned?”

The traditional approach is that inflection is the equivalent of a pronominal element (Rizzi 1982). As already pointed out in sections 2 and 3, the finite inflection can be taken to correspond to the morphological realization of the EPP. In other words, while English satisfies the EPP at the syntactic level, pro-drop languages of the MG and Italian type satisfy it morphologically (word internally). Assuming that MG *oti* and Italian *che* also require a propositional variable,<sup>15</sup> thus a lexicalized EPP, the prediction is that subject wh-extraction will always succeed in these languages, since the EPP is always lexicalized through inflection.

A similar strategy is found in those languages that have a subject clitic. This strategy is attested in various Italian dialects, as the well-known example below shows (Brandi & Cordin 1989: 125):

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<sup>15</sup> On MG see Roussou (2008); on Italian and Romance in general see Manzini & Savoia (2007, this volume).

- (39)           Quante ragazze tu credi   che *gli* abbia   parlato?  
                   how-many girls you think-2s that cl. have-3s spoken  
                   ‘‘How many girls do you think have spoken?’’

The pattern in (39) is more complex than the one in (38), given that in (39) the EPP is doubly realized both through the subject clitic *gli* as well as through inflection (on both the auxiliary *abbia* and the participle *parlato*). Since all these lexicalizations refer to a single EPP argument in terms of interpretation they are interpreted as one at the interface. In other words, they are all interpreted as parts of the same chain. Note also that while the wh-phrase is in the plural the embedded inflection is that of the singular; in other words, agreement (in terms of number) is with the clitic and not with the wh-phrase. Data like the above were used as a piece of evidence to argue that subject extraction in null-subject, and subject-clitic languages takes place from a postverbal position, i.e. from inside the v/VP. This was supported by the fact that lack of agreement in number is found with postverbal subjects in the relevant dialects. Although this is correct, agreement with a preverbal (*gli*) or a postverbal subject is an independent property (see Manzini & Savoia 2002, 2005). For present purposes it suffices to say that as long as the EPP is lexicalized at least once (with or without agreement) inside the complement extraction domain, the complementizer can be present, since it sees a proposition. A similar pattern is found in those languages where a full resumptive pronoun is inserted to satisfy the EPP when subject extraction takes place. For example Maling & Zaenen (1978) show that those Dutch dialects that show the *that*-t effect can void ungrammaticality once the pronoun *er* is present in the embedded subject position (see also Koster 1986).

Note that the dependency formed between the wh-phrase and its variable inside the complement clause is not quite the same in English on the one hand, and MG and Italian on the other. As discussed in detail in section 3, the wh-phrase is syntactically connected to the variable provided directly by the embedded predicate, since there is no EPP in the embedded clause. In MG and Italian (Standard and dialects), on the other hand, this connection is not direct but is mediated by the EPP element (be that inflection or a clitic). What the wh-phrase essentially binds then is the variable provided by the ‘definite’ inflection in the embedded clause, as indicated below (assuming that  $\lambda$ -abstraction also takes place, cf. section 3.2):

- (40)           *who*...EPP<sub>x</sub>...V<sub>x</sub>

In this respect the EPP-inflectional element is very similar to a resumptive pronoun (see also Tsimpli 1997). It is then possible to find additional differences between English and MG/Italian regarding other effects (e.g. reconstruction, etc.). Given space limitations the investigation of this issue is left open for future research. However, it is worth pointing out that the presence of inflection can lead to ambiguity which has to be resolved at the interface. Consider the following example:

- (41) *Pjos pistevi oti perase tis eksetasis?*  
 who think-3s that passed-3s the exams  
 a. Who does he think passed the exams?  
 b. Who<sub>i</sub> thinks that he<sub>i/j</sub> passed the exams?

The MG sentence in (41) can give rise to three different interpretations, depending on whether the wh-phrase is construed with the matrix or the embedded inflection or both. This ambiguity arises because both infections are 3<sup>rd</sup> singular and thus compatible variables of the wh-phrase *pjos*. If *pjos* is construed with the embedded inflection (EPP) only, we get the reading in (41a); in this case there is a gap (variable) inside the embedded clause only. If it is construed with the matrix inflection, then we can have two options, as in (41b). Either *pjos* is also construed with the embedded inflection, or not (so the subject of the embedded clause is some other individual, distinct from the matrix one). Ambiguity of this sort does not arise in English: the gap is either in the matrix or the embedded clause. The two readings found in (41b) are only secondarily derived given the presence of the pronominal subject *he*. In short, the way the EPP is lexicalized in the various grammars can have different effects regarding not only the availability of extraction, but also the availability of various interpretative options.

The famous *que* → *qui* rule has been recently analyzed along the lines of a subject clitic strategy. For example, Rooryck (2000) argues that *qui* is *que+il*, while Taraldsen (2002) argues that it is *que* followed by the clitic *-i*. On the other hand, Rizzi & Shlonksy (2007) maintain the analysis of Rizzi (1990), namely that *qui* is the realization of phi features on Fin. The relevant examples are given below:

- (42) a. Qui penses-tu *qui*/\**que* est venu?  
 who think-you that is come

- “Who do you think has come?”
- b. Qualas mattas crajast *chi*/\**cha* cumpraran quel cudesch? (Reto-Romance)  
 which girls think-2s that will.buy-3p that book  
 “Which girls do you think will buy that book?”
- c. la spranza *chi*/\**cha* turnaran quels temps docts.  
 the hope that will.return those times learned  
 “The hope that those learned times will return.”
- d. Qual cudesch crajast *cha*/\**chi* las mattas cumpraran?  
 which book think-2s that the girls will.buy  
 “Which book do you think that the girls will buy?”

The French pattern in (42a) is also found in other Romance varieties as shown in the Reto-Romance example in (42b). The examples in (42b-d) come from the Vallader dialect and are cited by Taraldsen (2002) (see also Manzini & Savoia (2005) for more data). The element *chi* is found in subject (42b), but not object (42d), extraction contexts, just like French *qui*. Unlike French *qui* though, *chi* can occur in non-extraction contexts as well (cf. (42c)). On the basis of its distribution, Taraldsen concludes that the *-i* part of *chi* corresponds to a subject clitic. If the subject is independently lexicalized as a (preverbal) DP, as in (42d), *chi* is not available.

Abandoning this line of approach, Koopman & Sportiche (2008) offer a novel account to the *que* → *qui* rule arguing that French has no subject extraction. In particular, they propose that *qui* is the relative pronoun, and the structures where *qui* is found (‘special contexts’) are simply pseudo-relatives. The proposed structure is given below:

(43) wh-SUBJ<sub>i</sub> PRED [<sub>PRSC</sub> t<sub>i</sub> [<sub>CP</sub> *qui* ...]]

According to (43) what is actually extracted is the subject of a small predicative clause. The idea then is that wh-extraction of the subject does not really take place. The strategy is to use a pronoun and resort to another structure altogether. Leaving the details of their analysis aside, we observe that this approach is compatible with the present analysis according to which the problem arises with respect to the complementizer *que*. So if *que* cannot tolerate a subject gap, the alternative is to use a pronoun to fill in this position. The difference is that the pronoun in this case does not appear in the I system, but due to its feature specification (an operator) it appears in the C system. In this respect it agrees with the *qui* in the matrix clause, and mediates for the binding of the variable in the embedded clause. At this point, I will not

choose between the clitic vs. pseudo-relative approach regarding the *que* → *qui* rule. However, it is interesting to point out that if (43) (or some version of it) is on the right track, then it represents a further strategy of ‘subject extraction’.

The basic two strategies for subject extraction involve either absence of the lexical complementizer, when this is possible, or some form of lexicalization regarding the embedded EPP; the latter can be done indirectly through verbal agreement (which usually occurs independently of extraction), or more directly through the use of a pronominal element (clitic or full pronoun). A third strategy may take the form of a pseudo-relative construction. Other strategies may also be available in those languages which do not possess nominal complementizers of the typical Indo-European type, but exhibit a different kind of embedding through serial verbs, verbal complementizers, etc.

#### 4.2. Loose ends: adverbs, prosody, and subject relatives

Although subject extraction in English requires the absence of the complementizer *that*, it is also well-known that in some varieties the presence of *that* in this context does not yield ungrammaticality (Sobin 1987, 2002):

- (44) a. Who do you think *that* left?  
 b. \*Who do you wonder *if/whether* left?

As Sobin shows, there is a grammaticality contrast between *that* on the one hand and *if/whether*, on the other. One way to account for this is to assume that *that* in these varieties has a lexical specification that makes it compatible with the subject gap. In versions of the Agr-in-C approach, the idea is that *that* in these varieties merges in the higher C head (Force), thus allowing for the realization of phi-features in the lower C (Fin) head (see Rizzi 1997, Roussou 2002, Rizzi & Shlonsky 2007, Branigan 2005; on similar patterns of variation in Norwegian, see Lohndal 2007). This distinction maintains the presence of abstract features.

Suppose that there is indeed a different status assigned to *that* in the two grammars. Recall that *that* is a nominal element. It is then possible that *that* in (44a) can also play the role of a resumptive pronoun, satisfying the EPP associated with the embedded clause. In other words, it can either merge as the internal argument of the matrix clause, taking the embedded clause as its complement, or merge inside the embedded clause in a position which is either identified with the EPP or can be connected with the EPP. Standard English then only has the former option, thus dropping *that* when the subject is not lexically realized. The

varieties under consideration can also employ the latter option, thus voiding an ungrammatical output without dropping *that*. Instead *that* becomes the element that resumes the gap.

Tentatively we could say that the resumptive approach to *that* seems to be close to the pseudo-relative analysis of subject *qui*-sentences in French by Koopman & Sportiche (2008) mentioned above. This is to some extent supported by the fact that the grammaticality of subject extraction with *that* present varies depending on the properties of the matrix verb. For example Sobin (2002: 542) observes that a *that*-t effect may be more easily accepted after a verb like *say*, as opposed to *think*, as in the following sentences

- (45) a. Who did you *say* that saw Elvis last week?  
 b. Who do they *think* that might visit the Pope?

The results showed that 64% of the subjects judged (40a) as ‘good’, 27% as ‘possible’ (‘maybe’) and 9% as ‘impossible’. On the other hand, only 22% of the subjects judged (40b) as ‘good’, 22% as ‘possible’, and crucially 56% as ‘impossible’. Variation then is not attested amongst speakers but also relates to the properties of the matrix predicate *that*. The latter variation then could perhaps be seen in the light of the ‘special contexts’ (as opposed to ‘bridge contexts’) discussed by Koopman & Sportiche. It should finally be mentioned that English does not have pseudo-relative constructions of the Romance (or MG) type. Moreover, *that* can appear with object gaps as well (unlike French *qui*). As Koopman & Sportiche show these properties of English are also shared by Dutch and Flemish, which according to their analysis also follow the French strategy with respect to subject extraction (or perhaps non-extraction).

Perhaps the above line of reasoning can also account for the ‘anti-*that*-t effect’, namely the obligatory presence of *that* in subject relatives:

- (46) a. The student \*(that) speaks Swahili has won the first prize.  
 b. It is this student \*(that) speaks Swahili.

There seem to be two interacting factors here: first, the *that*-clause is not in an argument position, but is contained within an argument, namely the DP/NP it modifies (see Rizzi’s (1990) predicative feature on *that*), and second, the subject moves locally. According to Pesetsky (1981/82) *that* in (41) can bear the index of the subject, thus being the functional

equivalent of a pronoun. Kayne (1984: 73) further modifies Pesetsky's approach, arguing that *that* qualifies as the antecedent relating to the subject gap. He supports his claim on the grounds that *that* in this context cannot take a human referent:

- (47) a. Do you know Mary? Yes, of course. In fact it was Mary who/\*?that originally got us interested in linguistics.  
 b. Do you know this book? Yes, of course. In fact it was this book that originally got us interested in linguistics.

According to Kayne, this pattern is similar to the distribution of demonstrative *that*.

Note that within a system where demonstrative *that* and complementizer *that* are not formally distinguished, Kayne's (1984) approach can be accommodated. Recall that as a complementizer *that* merges outside its complement clause in one of the argument positions of the verb, retaining in any case its nominal character. In the relative clause in (41a) (and also the cleft in (41b), on the other hand, *that* does not merge in an argument position of the verb and does not introduce a complement clause; in other words, it does not require a propositional variable. So in this case it is *that* which lexicalizes the EPP. The next question is whether *that* in this case appears in the I domain, or higher up in the C domain. Note that the same question arises for short subject wh-movement (*who left?*). If scope positions of this kind are determined in the left periphery, then *who* will have to appear in that domain, on a par with object wh-phrases (*who did you see?*). The same can extend to *that* in relative clauses, given that *that* can appear with an object gap as well. In the latter case it cannot be assumed to appear in the EPP position in the I domain, since this is realized by a lexical subject. Thus we can assume that *that* in this case appears in a D position in the C domain, roughly as follows:

- (48) a. (I saw) the student [<sub>D</sub> *that* [<sub>C</sub> [<sub>I</sub> speaks Swahili ]]]  
 b. (I saw) the student [<sub>D</sub> *that* [<sub>C</sub> [<sub>D</sub> Mary [<sub>I</sub> likes ]]]]

In the absence of a lexicalized EPP position in the I domain in (48a), the open argument slot of the verb *speaks* becomes associated with the 'operator' *that*. In (48b), it is the argument slot corresponding to the internal argument that becomes associated with the 'operator' *that*. Absence of *that* in (48a) gives rise to ungrammaticality, as there is nothing inside the relative clause to realize the EPP property, hence the 'anti-*that*-t effect' in (46a). This is only an

indicative account of how subject relatives can be accounted for in the context of the present proposal.<sup>16</sup>

The final case to be considered is that of the ameliorating effects of adverbs in subject extraction out of a *that*-complement (see Bresnan 1977, Culicover 1993, Browning 1996, Rizzi 1997), as shown in (49):

- (49) a. Who did you say *that* for all intents and purposes was the mayor of the city?  
b. Who did you say *that* under no circumstances would run for any public office?

According to Culicover (1993) the above data favor a ‘filter’ approach to the ‘*that*-t effect’. Within split-C approaches, these data have been analyzed in terms of *that* occupying the higher C (Force) once an adverb intervenes, allowing for the realization of the appropriate sent of features on the lower C (Fin) (see Rizzi 1997, Roussou 2002).

If *that* merges outside its complement clause in any case, then its distinct position in the configurations in (49) cannot be invoked for the grammatical status of these examples. Moreover, in the present approach the problem does not arise with respect to the subject gap but with respect to *that*. If the above examples are grammatical, then this means that certain adverbial elements appearing in the periphery of the embedded clause (below *that*) can satisfy the EPP. In other words, they can provide the equivalent of a predicate – subject of predication reading, something like “as for x/given x, y holds”. How and why this holds is not so clear. We have seen at least one other element that can appear in the left periphery and related to the EPP: this is the element *to* in complement (non-finite) clauses. Of course, *to* differs in not only providing a lexicalization of the EPP but also participating in its interpretation. Be that as it may, it suffices to say that some preposed adverbials can satisfy the propositional requirement imposed by *that* on its complement. That this is restricted phenomenon is supported by the fact that not all adverbials or topicalized elements have this effect. Rizzi (1997: 310) discusses the following example:

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<sup>16</sup> Note that if *that* were absent, the structure in (43a) would be very much like a matrix clause. This is consistent with the fact that *that*-less subject relatives can be parsed as main clauses. In connection to this Chomsky and Lasnik (1977) assume that the ungrammaticality of *that*-less subject relatives is due to a processing problem. On the other hand, Doherty (1993) argues that subject clauses may actually surface without *that*, in a more restricted fashion. He refers to zero relatives as contact clauses, following Jespersen’s terminology. Some examples of this construction are given below (Doherty 1993: 91):

- (i) There’s a girl want to see you.  
(ii) I knew someone years ago used to do that.



(50) \*A man who I think that, this book, knows very well.

Topicalization of the object (internal argument) retains the ungrammaticality. Rizzi points out that if the object becomes focused then the grammaticality improves. Perhaps then there is some link between a focused element and the alternative satisfaction of the EPP in the periphery of the clause. Notice that in those cases where the result is grammatical, as in (49), the notion of the EPP is understood in relation to the propositional complement of *that*. This is important because in the absence of *that* a matrix clause with a preposed adverbial and without a subject remains ungrammatical, cf. “For all intents and purposes \*(John) was the mayor of the city”.<sup>17</sup>

Kandybowicz (2006) argues that the ‘*that*-t effect’ and its amelioration in (49) is due to a PF condition: lexical C and the subject trace cannot be PF-adjacent, i.e. they cannot be part of the same prosodic unit, assuming that a lexical C constitutes an intermediate phrase (IntP) boundary. The intervening adverb breaks this PF-adjacency and the result is grammatical. However, if that were the case then any intervening element should have had this effect, contrary to fact (cf. (50)). Moreover, it is unclear how PF-adjacency can be affected by an unrealized element such as the lower copy.

In order to support his analysis, Kandybowicz provides two more pieces of evidence in favor of the PF anti-adjacency requirement. The first has to do with ellipsis, as in (51a-c), and the second with auxiliary cliticization on *that*, as in (51d-e):

- (51) a. √/?Who do you think that WROTE Barriers (as opposed to say, *edited* it)?  
b. \*Who do you THINK that wrote Barriers (as opposed to say, *know*)?  
c. A: I didn’t think that John would survive.  
B: √Well then, who do you think that WOULD?  
d. √/?Who do you think *that*’ll leave early?  
e. √/?The author the editor predicts *that*’ll be adored.

The question is how the varying grammaticality of the above examples can be accommodated within the present approach. If *that* requires a propositional complement, then the PF effects attested in (51) would have to be made compatible with propositionality. The cases in (51a)

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<sup>17</sup> The analysis of Roberts & Roussou (2002) may be relevant at this point. They argue that XP-preposing in Germanic V2 is an instance of the EPP requirement. Since it takes place in the left periphery it is not restricted to the subject but can be satisfied by any XP. In this case as well, XP-fronting does not entail subject drop in the I domain (i.e. no EPP in relation to I).

and (51c) look alike with the former being more degraded compared to the latter. What makes (51c) different is that it involves an auxiliary and also deletion. On the other hand, (51a) has none of these properties. Their only common property is that in both cases the verb (main or auxiliary) is focused. At least with respect to (51c) we can assume that deletion in particular has the effect of somehow voiding the propositionality requirement of *that*. That ellipsis can affect or uplift locality constraints is independently known (see Merchant 2001). Perhaps the reason why propositionality is upheld in (51c) is precisely because the embedded construction is elliptical, lacking not only a lexicalized EPP but also the main predicate (upon which the subject of predication can apply). On the other hand, lack of ellipsis in (51a) brings in a more degraded result.

Finally, the examples in (51d-e) are also degraded. An account of this pattern, even if it is tentative, also depends on how we view cliticization in this case. Since the auxiliary appears in a contracted form, we can rather safely conclude that it is the auxiliary that has cliticized on *that*. If cliticization has a syntactic correlate, this means that the auxiliary probably appears in a position higher than I, from where it can attach to *that*. More precisely, we can assume that the auxiliary occurs in C. Changing the position of the auxiliary can then be held responsible for the effect we get. If indeed the auxiliary in this case lexicalizes the embedded M, then the requirement for a lexical EPP may be relaxed. Recall also from our discussion of the adverbial effect that the presence of some element in the C domain can trigger different effects with respect to the satisfaction of propositionality. Perhaps in this case then lexicalization of M turns the embedded clause to an acceptable complement of *that*, despite the absence of a lexicalized EPP. Although the answers provided to the data in (51) may not be conclusive, they are at least indicative of how the present analysis can give some guidelines towards a fuller account.

To summarize, the discussion in this section has focused on the different mechanisms employed in the case of subject extraction. In particular, it was shown that one strategy involves the lexical complementizer (it can be dropped), while the other involves ways of lexicalizing the EPP (inflection, subject clitic, pronoun). It was also shown that other factors may affect the grammaticality status of subject extraction over a lexical complementizer, such as verb focusing, contraction, and intervening adverbials.

## 5. Conclusions

To conclude, the present paper has provided a discussion of finite and non-finite complements in English, starting from the basic assumption that elements such as *to*, *that*, and also *for* are

nominal. The basic distinction between finite and non-finite complements in relation to the subject has been the following: *to* provides a lexicalization of the EPP associated with the subject; the interpretation of the unrealized embedded subject is closely associated with that of the *to*-complement. On the other hand, *that* requires a lexicalized D as part of its I-complement. This reflects the requirement of *that* for a propositional complement, and corresponds to its property as a quantifier over propositions. Subject extraction removes a lexical D from the embedded clause, and this creates a problem to the interpretation (and selectional requirements of *that*); this is then considered to be the locus of the problem, usually described as the ‘*that*-t effect’. It was also shown that languages make use of different strategies to void this problem, either by affecting C, or by providing alternative ways of lexicalising the embedded D. Which option is chosen depends on the morphosyntactic properties of each grammar. This approach has a number of implications for sentential complementation in general, as well as for the interaction of syntax with the two interpretive components (LF and PF), which remain open to future research.

## References

- Adger, D. & J. Quer. 2001. The syntax and semantics of unselected embedded questions. *Language* 77: 107-133.
- Adger, D. & G. Ramchand. 2003. Predication and equation. *Linguistic Inquiry* 34: 325-359.
- Adger, D. & G. Ramchand. 2005. Merge and Move: Wh-dependencies revisited. *Linguistic Inquiry* 36: 161-193.
- Alexiadou, A. & E. Anagnostopoulou. 1998. Parametrizing AGR: word order, V-movement, and EPP-checking. *Natural Language and Linguistic Theory* 16: 491-539.
- Aoun, J., N. Hornstein, D. Lightfoot, A. Weinberg. 1987. Two types of locality. *Linguistic Inquiry* 18: 537-577.
- Bach, E. 1977. Review article on Postal: *On raising: One rule of English grammar and its theoretical implications*. *Language* 53: 621-654.
- Boeckx, C., Hornstein, N., 2004. Movement under control. *Linguistic Inquiry* 35, 431-452.
- Borer, H. 1986. I-subjects. *Linguistic Inquiry* 17: 375-416.
- Bošković, Ž. 1997. *The syntax of nonfinite complementation*. Cambridge, MA: MIT Press.
- Brame, M. 1976. *Conjectures and refutations in syntax and semantics*. Amsterdam: North Holland.

- Brandi, L. & P. Cordin. 1989. Two Italian dialects and the null subject parameter. In O. Jaeggli & K. Safir (eds.) *The null subject parameter*, 69-109. Dordrecht: Kluwer.
- Branigan, Ph. 2005. The trace-Fin effect. Ms, Memorial University.
- Bresnan, J. 1977. Variables in the theory of transformations. In P. Culicover, T. Wasow and A. Akmajian (eds.) *Formal syntax*, 157-196. New York: Academic Press.
- Bresnan, J. 1978. A realistic transformational grammar. In M. Halle, J. Bresnan and G. A. Miller (eds.) *Linguistic theory and psychological reality*, 1-60. Cambridge, MA: MIT Press.
- Bresnan, J. 1972. *Theory of complementation in English syntax*. Phd thesis, MIT.
- Brody, M. 1997. Perfect chains. In L. Haegeman (ed.) *Elements of grammar. Handbook of generative syntax*, 139-167. Dordrecht: Kluwer.
- Browning, M.A. 1996. CP recursion and *that*-t effects. *Linguistic Inquiry* 27: 237-255.
- Butler, J. 2004. On having arguments and agreeing: Semantic EPP. *York Papers in Linguistics Series 2*, 1: 1-27.
- Castillo, J.C., J. Drury & K. Grohmann. 1999. Merge over move and the extended projection principle. *University of Maryland Working Papers in Linguistics* 8: 63-103.
- Chomsky, N. 1977. *Essays on Form and Interpretation*. Amsterdam: North Holland.
- Chomsky, N. 1982. *Some concepts and consequences of the theory of Government and Binding*. Cambridge, MA: MIT Press.
- Chomsky, N. 1986. *Barriers*. Cambridge, MA: MIT Press.
- Chomsky, N. 1995. *The minimalist program*. Cambridge, MA: MIT Press.
- Chomsky, N. 2001. Derivation by phase. In M. Kenstowicz (ed.) *Ken Hale: A life in language*, 1-52. Cambridge, MA: MIT Press.
- Chomsky, N. 2004. Beyond explanatory adequacy. In A. Belletti (ed.) *Structures and beyond. The cartography of syntactic structures*, Vol. 3, 104-131. Oxford: Oxford University Press.
- Chomsky, N. 2005. On phases. Ms., MIT.
- Chomsky, N. 2006. Approaching UG from below. Ms., MIT.
- Chomsky, N. & H. Lasnik. 1977. Filters and control. *Linguistic Inquiry* 8: 425-504.
- Cinque, G. 1999. *Adverbs and functional heads*. Oxford: Oxford University Press.
- Culicover, P. & W. Wilkins. 1986. Control, PRO, and the projection principle. *Language* 62: 120-153.
- Culicover, P. & R. Jackendoff. 2001. Control is not movement. *Linguistic Inquiry* 32: 493-512.

- Doherty, C. 1993. *Clauses without 'that': The case for bare sentential complementation in English*. PhD dissertation, University of California, Santa Cruz.
- Culicover, P. 1993. Evidence against ECP accounts of the *that-t* effect. *Linguistic Inquiry* 24: 557-561.
- Davidson, D. 1968/1997. 'On saying that' *Synthese* 19:130-146, reprinted in P. Ludlow (ed.) *Readings in the Philosophy of Language*, 817-832. Cambridge MA: MIT Press.
- Epstein, S.D. & T. D. Seely. 2006. *Derivations in minimalism*. Cambridge: Cambridge University Press.
- Fox, D. 2002. Antecedent-contained deletion and the copy of movement. *Linguistic Inquiry* 33: 63-96.
- Henry, A. 1995. *Belfast English and Standard English: Dialect variation and parameter setting*. Oxford: Oxford University Press.
- Hornstein, N. 1999. On movement and control. *Linguistic Inquiry* 30: 69-96.
- Hornstein, N. 2001. *Move! A minimalist theory of construal*. Oxford: Blackwell.
- Iatridou, S. 1993. On nominative Case assignment and a few related things. *Papers on Case and Agreement II, MIT Working Papers in Linguistics* 19: 175-196.
- Ishii, T. 2004. The phase impenetrability condition, the vacuous movement hypothesis and *that-t* effect. *Lingua* 114: 183-215.
- Kandybowicz, J. 2006. Comp-trace effects explained away. To appear in the *Proceedings of WCCFL 25*. Cascadilla Press.
- Kayne, R. 1982. Predicates and arguments, verbs and nouns. *GLOW Newsletter* 8. Tilburg.
- Kayne, R. 1984. *Connectedness and binary branching*. Dordrecht: Foris.
- Kayne, R. 1991. Romance clitics, verb movement, and PRO. *Linguistic Inquiry* 22: 647-686.
- Kayne, R. 2000. *Parameters and universals*. Oxford: Oxford University Press.
- Kayne, R. 2006. Expletives, datives, and the tension between morphology and syntax. Available on line at LingBuzz.
- Koopman, H. 2000. On subject wh-extraction and partial wh-movement as remnant CP movement. Paper presented in the Antisymmetry Workshop, Cortona (15 May 2000).
- Koopman, H. & D. Sportiche. 2008. The *que/qui* alternation: new analytical directions. Ms, UCLA. Available on line at LingBuzz.
- Koster, J. 1986. The relation between pro-drop, scrambling and verb movement. Ms., University of Groningen.
- Koster, J. & R. May. 1982. On the constituency of infinitives. *Language* 116-143.

- Landau, I. 2004. The scale of finiteness and the calculus of control. *Natural Language and Linguistic Theory* 22: 811-877.
- Lencho, M. 1992. Evidence that 'to' is a complementizer. Paper presented at the 8<sup>th</sup> Workshop on Comparative Germanic Syntax, University of Tromsø, 20-22 November 1992.
- Lohndal, Terje. 2007. That-t in Scandinavian and elsewhere: Variation in the position of C. *Working Papers in Scandinavian Syntax* 79: 47-73.
- Los, B. 2005. *The rise of the to-infinitive*. Oxford: Oxford University Press.
- Maling, J. & A. Zaenen. 1978. The non-universality of surface filters. *Linguistic Inquiry* 9: 475-497.
- Manzini, M.R. 2007. PRO, pro and NP-trace (raising) are interpretations. Ms. University of Florence.
- Manzini, M.R. 2008. The structure and interpretation of Romance complementizers. Ms. University of Florence.
- Manzini, M.R. & A. Roussou. 2000. A minimalist theory of A-movement and control. *Lingua* 110: 409-447.
- Manzini, M.R. & L. Savoia. 2002. Parameters of subject inflection in Italian dialects. In: Svenonius, P. (ed.), *Subjects, Expletives and the EPP*. Oxford University Press, Oxford, pp. 157-199.
- Manzini, M.R. & L. Savoia. 2005. *I dialetti italiani e romanci. Morfosintassi generativa*. Alessandria : Edizion dell'Orso.
- Manzini, M.R. & L. Savoia. 2007. *A unification of morphology and syntax: Investigations into Romance and Albanian dialects*. London: Routledge.
- Merchant, J. 2001. *The syntax of silence*. Oxford: Oxford University Press.
- O'Neil, J. H. 1997. *Means of Control: Deriving the Properties of PRO in the Minimalist Program*. PhD dissertation, University of Harvard.
- Perlmutter, D. 1971. *Deep and surface constraints in syntax*. New York: Holt.
- Pesetsky, D. 1981/82. Complementizer-trace phenomena and the nominative island condition. *The Linguistic Review* 1: 297-343.
- Pesetsky, D. & E. Torrego. 2001. T-to-C movement: causes and consequences. In M. Kenstowicz (ed.) *Ken Hale: A life in language*, 355-426. Cambridge, MA: MIT Press.
- Pullum, G. 1982. Syncategorematicity and English infinitival *to*. *Glossa* 16: 181-215.
- Rizzi, L. 1982. *Issues in Italian syntax*. Dordrecht: Foris.
- Rizzi, L. 1990. *Relativized Minimality*. Cambridge, MA: MIT Press.

- Rizzi, L. 1997. The fine structure of the left periphery. In L. Haegeman (ed.) *Elements of grammar*, 281-337. Dordrecht: Kluwer.
- Rizzi, L. 2006. On the form of chains: Criterial positions and ECP effects. In Cheng, L. & N. Corver (eds.) *On wh-movement*. Cambridge, MA: MIT Press.
- Rizzi, L. & U. Shlonsky. 2007. Strategies of subject extraction. Strategies of Subject Extraction. In Hans M. Gartner and Uli Sauerland (eds.) *Interfaces + Recursion = Language? Chomsky's Minimalism and the View from Syntax-Semantics*, 115-160. Berlin: Mouton de Guyter.
- Roberts, I. 2005. *Principles and parameters in a VSO language*. Oxford: Oxford University Press.
- Roberts, I. & A. Roussou. 2003. *Syntactic change*. Cambridge: Cambridge University Press.
- Rooryck, J. 2000. *Configurations of sentential complementation: perspectives from Romance languages*. London: Routledge.
- Rosenbaum, P. 1967. *The grammar of English predicate complement constructions*. Cambridge, MA: MIT Press.
- Rothstein, S. 1983. *The syntactic forms of predication*. PhD thesis, MIT.
- Roussou, A. 2000. On the left periphery: modal particles and complementizers. *Journal of Greek Linguistics* 1: 65-94.
- Roussou, A. 2002. C, T, and the subject: *that*-t phenomena revisited. *Lingua* 112: 13-52.
- Roussou, A. 2007. In the mood for control. To appear in *Lingua* (Special Issue, ed. by J. Quer).
- Roussou, A. 2008. Selecting complementizers. To appear in *Lingua* (Special Issue, ed. by K. Grohmann & I. M. Tsimpli).
- Sobin, N. 1987. The variable status of Comp-trace phenomena. *Natural Language and Linguistic Theory* 5: 33-60.
- Sobin, N. 2002. The Comp-trace effect, the adverb effect and minimal CP. *Journal of Linguistics* 38: 527-560.
- Sportiche, D. 1997. Reconstruction, movement, and scope. Ms, UCLA.
- Stowell, 1981. *Origins of phrase structure*. PhD thesis, MIT.
- Stowell, T. 1982. The tense of infinitives. *Linguistic Inquiry* 13: 561-570.
- Szczegielnik, A. 1999. 'That-t effects' cross-linguistically and successive cyclic movement. *MIT Working Papers in Linguistics* 33, *Papers on Morphology and Syntax, Cycle One*, 369-393.
- Taraldsen, T. 1979. On the NIC, vacuous application and the *that*-t filter. Ms., MIT.

- Taraldsen, T. 2002. The *que/qui* alternation and the distribution of expletives. In P. Svenonius (ed.) *Subjects, expletives and the EPP*, 29-42. Oxford: Oxford University Press.
- Tsimpili, I. M. 1997. Resumptive strategies and L2A: A minimalist account. In E. Hughes, M. Hughes and A. Greenhill (eds.) *Boston Conference on Language Development* 21, Vol. 2, 639-655. Somerville, MA: Cascadilla Press.
- Varlokosta, S. 1994. *Issues on Modern Greek sentential complementation*. PhD dissertation, University of Maryland at College Park.
- Vikner, S. 1995. Verb movement and expletive subjects in Germanic languages. Oxford: Oxford University Press.
- Williams, E. 1980. Predication. *Linguistic Inquiry* 11: 203-238.
- Wurmbrand, S. 2001. *Infinitives: Restructuring and clause structure*. Berlin: Mouton de Gruyter.