Paper presented at the Edges Conference, Cyprus, May 2006 – First version January 2007

SUBJECTS ON THE EDGE

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Abstract

The aim of this paper is to present an account of how the lexicalization of C elements interacts with properties associated with the subject. The two main cases to be considered are control in *to*-complements and subject extraction out of *that*-clauses (and finite ones in general). It is argued that an analysis of *to* and also *that* as nominal elements can account for the role they play in the realization and interpretation of the subject. In particular, it is argued that *to* can subsume that realization of the embedded subject and accordingly mediate its interpretation, while *that* requires a lexical subject in the embedded clause so that its complement counts as a proposition. Absence of a lexical subject, as in wh-extraction, fails to meet this requirement, giving rise to ungrammaticality.

1. Introduction

A number of syntactic phenomena can manifest a close relationship between the subject and the complementizer. In the domain of A'-dependencies, the typical case is that of subject extraction over a lexical C in English (see (1a-b)), while in A-dependencies, control and raising correlate with the presence (1c-d) vs. absence (1e) of a C position respectively, under standard analyses:

(1) a. *Who* do you think [$_C$ (**that*) [$_T$ ~~who~~ won the prize]]?

b. **Who* did you arrange [$_C$ *for* [$_T$ ~~who~~ to leave]]?

c. John arranged [$_C$ [$_T$ PRO *to* win the prize]].

d. John arranged [$_C$ *for* [$_T$ *(Peter) to win the prize]].

e. John seems [$_T$ ~~John~~ *to* have won the prize].

A lexical complementizer interacts with subject extraction, both in finite (1a) and non-finite (1b) clauses. Grammaticality in (1a) arises to the extent that *that* is absent, while no such option is available for (1b), since *for* cannot delete in this context. The situation is rather different in (1c) and (1e): the standard assumption is that control complements are full CPs, while raising ones lack a C-layer, and are therefore truncated TP structures (cf. Chomsky

1982). If C is lexicalized (*for*) as in (1d), then a lexical subject disjoint in reference from the matrix one has to be present, thus blocking a null subject of the PRO type. The emerging common pattern can be summarized as follows: a null subject (wh-copy/trace (1a), or PRO (1c)) goes along with a null C, or no C at all (1e). If this description is on the right track, then we are in a position to closely investigate the ways in which the lexicalization of C interacts with that of the subject.

In more recent versions of Minimalism (Chomsky 2001, 2004, 2005), the relation between C and the subject has received renewed attention: the unvalued (uninterpretable) phi- (and T-) features of T that relate to the subject are derived from the phase head C. In other words, the phi-features of C are valued by the matching valued (interpretable) features of the subject through the mediation of T. According to the above, a simple sentence like the one in (2a) has the derivation in (2b):

(2) a. John left. (*C-T*: Probe, *John*: Goal)

b. $[C_{[\varphi]}$ [John$_{[\varphi, \sout{\text{Case}}]}$ $T_{[\varphi, \sout{\text{EPP}}]}$ [$_{vP}$ ~~John~~ left]]]

The operation Agree relates probe T and goal *John* in Spec,vP. The phi-features of T, inherited by C, match the valued (interpretable) phi-features of *John*. The DP *John* also bears an uninterpretable Case feature, which makes it an active goal (Chomsky 2004). If T bears an EPP feature, then a copy of *John* is merged in T, triggering the projection of Spec,TP. The probe C-T allows for the subject to be spelled-out in Spec,TP, despite the fact that T is not a phase head.

The above analysis has a number of implications regarding the C, T relation as well as the availability of the subject for further operations, summarized by Chomsky (2005: 9-10) as follows: "[…] for T, φ-features and Tense appear to be derivative from C. In the lexicon, T lacks these features. T manifests them if and only if it is selected by C (default agreement aside); if not, it is a raising (or ECM) infinitival, lacking φ-features and Tense. So it makes sense to assume that Agree- and Tense-features are inherited from C, the phase head [footnote omitted]. If C-T agrees with the goal DP, the latter can remain in-situ under long-distance agree, with all uninterpretable features valued; or it can raise as far as SPEC-T, at which point it is inactivated, with all features valued, and cannot raise further to SPEC-C.".

Let us start with the last point that refers to the subject, according to which a subject in Spec,TP can no longer be active for further operations. This clearly implies that subject extraction, as in (1a) at least, cannot proceed through Spec,TP. If this is correct, then two

issues arise: the first concerns the extraction site of the subject that supplies the wh-variable, which in this case will have to correspond to its thematic position; the second concerns the role of the EPP. More precisely, the question is whether the EPP is relevant in this case or not. If the answer is positive, then in the absence of a lexical subject in Spec,TP there will have to be some alternative mechanism to satisfy the EPP of T. If the answer is negative, then the implication will be that subject extraction somehow 'cancels' the EPP associated with T. Given the wh-extraction pattern in (1a) and (1b), the additional question that arises, at least in languages like English, is what sort of role the lexical complementizer (*that*, *for*) plays in this context, and why its presence seems to be incompatible with subject extraction, especially if there is no copy in the adjacent Spec,TP. In descriptive terms, there seems to be a correlation between the absence of a lexical subject and the absence of *that*. This correlation presumably stems from *that*, i.e. if there is no lexical subject in Spec,TP, *that* cannot be present, but not the other way round, since the presence of a lexical subject is not affected by the presence or absence of *that* (cf. *John thinks (that) Mary has left*).

Consider next C in non-finite contexts. According to Chomsky (2004, 2005), if C is absent, T is defective. This means that in raising contexts, the subject cannot Agree with T, but has to move (internally merge) from its thematic position directly to the matrix T, whose phi-features it values. Note though that the absence of C in raising complements may turn out to be less significant, if the inactivity condition indeed holds. More precisely, suppose C is present; given the inactivity condition, the DP would still have to directly raise to the matrix clause without passing through the embedded Spec,TP, exactly as in the case of subject wh-movement. If this is correct, the absence of C cannot be directly responsible for raising. The questions brought up above regarding the EPP and the valuation of phi-features would still apply though. On the other hand, postulating an absent C can ensure that structures like the one in (3) below cannot be derived:

(3) *It seems [$_{T}$ *John* to have left]

If C were present, the non-finite T would bear the relevant set of phi-features and Agree with the subject, which, given the EPP, would appear in Spec,TP. Merge of the expletive *it* in the matrix Spec,TP would suffice to value the phi-features of the matrix T. Note that although the postulation of a TP vs. a CP structure can provide a description of the ungrammatical sentence in (3), it cannot account for the necessity of DP-raising without targeting the embedded Spec,TP, since this property is in any case captured under the inactivity condition. Thus if C

is not strictly speaking relevant to subject raising, it could still be present, in which case the ungrammaticality of (3) would have to be attributed to some other factor.

Turning next to control complements, the standard assumption is that they are CP-clauses. In this case T has the relevant set of features that render it a probe for the subject, and if EPP is also present then the subject will appear in T. Unlike finite complements though, this subject is obligatorily null, typically notated as PRO, unless *for* or an ECM verb is present. PRO counts as a goal for T and on these grounds it should value T's phi-features. The question of course is how a null DP of this kind, which presumably bears no intrinsic valued phi-features, but instead relies on the control-dependency to acquire them (hence its bound interpretation), can nevertheless value the relevant features of T at this point of the derivation. The question then is what PRO amounts to in this system, and why it has to be null. A closer examination of the control and raising complements shows that the common factor is that they have a null subject of some sort and are introduced by *to*. The point to be pursued then is whether *to* is responsible for the presence of an unrealized subject in both contexts. If both complements are treated as CPs due to their surface similarities just mentioned, then the next question is whether *to* itself is part of the C domain.

The above line of reasoning seems to point towards two directions: the first concerns the relation of *that* (and *for*) to the subject, the second the relation of *to* to the subject. The former require an overt subject and are therefore incompatible with a null one as evidenced by the ungrammaticality that arises in subject extraction. The latter, on the other hand, requires a null subject (unless a higher element, such as *for* or an ECM verb is present). If the typical subject position associated with T (or more precisely the T domain) is captured under the EPP property, then the implication would be, according to our reasoning, that *that* (and *for*) has to see a lexicalized EPP position, while *to* doesn't, presumably due to the fact that *to* itself can satisfy the EPP. To put it differently, if the projection of an EPP position completes the proposition, then *that* requires a propositional complement, while *to* doesn't. This is the argument that will be put forward in the present paper, with the aim of showing that the relation between C and the subject is tighter than previously thought.

The aim of this paper is to show that the constructions in (2) can receive a unified account, based on the relation between the different lexicalizations of C and the lexicalization of the subject, or otherwise the EPP property of T. More precisely, it is argued that the ungrammatical version of (2a) (the *that*-t effect) is derived from the presence of *that* in the absence of a D (EPP): *that* requires an EPP-complete proposition and once the DP subject is not in its canonical position due to its wh-property, *that* cannot be present either. On the other

hand, assuming that *to* in (2b-c) is actually a (lower) C element, the absence of a lexical subject (modulo the EPP) in Spec,TP is directly attributed to it: *to* itself satisfies the EPP, rendering the presence of the DP redundant and thus unavailable (economy). Both patterns are argued to stem from the nominal, but nevertheless distinct, character of *that* and *to*. Section 2 considers the properties of *to* in relation to the realization of the subject. Section 3 discusses the properties of *that* and how they interact with subject extraction. Section 4 considers the implications of this approach, while section 5 concludes the discussion.

2. *To*-clauses and control

2.1. General remarks on their structure

As already pointed out, the standard assumption is that infinitival (*to*-) complements do not share a common structure: raising ones are truncated TPs, while control ones are full CPs. This approach is in accordance with the assumption that the element *to* is an inflectional one which realizes non-finite T (Pullum 1982). The different categorial status of *to*-clauses further correlates with the properties assigned to the embedded subject. In standard Government and Binding terms, both raising and control infinitives have a subject position (which translates to an EPP property in current terms), which is realized as a DP-trace/copy or PRO respectively. Within this approach the overall structure of the infinitive does not crucially affect the projection of a syntactic position for the subject (in fact, independent theory internal reasons seem to require it). What it can affect though is its syntactic properties, which essentially means its interpretation (an anaphor-like copy/trace or PRO). Thus in both raising and control complements, the embedded subject receives its theta role from the embedded predicate; however, in raising the lexicalization of the subject comes from the matrix clause (T), while in control, the embedded subject has to remain unrealized (PRO), since any lexicalization options are reserved for the matrix argument(s); in this case, the unrealized argument converges with a bound interpretation provided by its controller, or an arbitrary one in the absence of a controller.

In more recent analyses though, the distinction between two types of infinitival subjects has been abandoned. For example, Hornstein (1999, and subsequent work) argues against the postulation of PRO, reducing the (bound) coreferential reading between the embedded argument and its matrix controller to a movement configuration, as in (4a) (see also O'Neil 1997). Under this approach control reduces to an instance of A-movement; the difference between control and raising is due to the number of theta-roles the moved argument can pick up along its movement path, i.e. one (from the embedded predicate) in

typical raising constructions, and two (from the embedded and matrix predicates) in typical control ones. Manzini & Roussou (2000) similarly treat control and raising alike with the crucial difference though that in neither case is movement involved; instead lexical elements are directly merged in their surface position from where they attract the corresponding predicates and become associated with a thematic interpretation, as in (4b). In raising constructions only one of the predicates can supply a theta-role, while in control ones both predicates do. According to this approach then, not only PRO but A-copies/traces as well are dispensed with.

(4) a. [John T [$_{vP}$ ~~John~~ tried [$_{CP}$ [$_{TP}$ ~~John~~ to [$_{vP}$ ~~John~~ win]]]]]

b. [<u>John</u> T [$_{vP}$ tried$_{\underline{\theta}}$ [$_{CP}$ [$_{TP}$ to [$_{vP}$ win$_{\underline{\theta}}$]]]]]

The configuration in (4b) assumes that there can be no subject position, i.e. no EPP, associated with the embedded T (realized by *to*). If there were one, there would be no reason for the DP *John* not to merge in that position first. Therefore the absence of EPP in *to*-infinitives does not appear to have a principled explanation, but is simply postulated on the basis of the data. The absence of EPP in the relevant contexts has been proposed in a number of recent papers (see Castillo, Drury & Grohmann (1999), Hornstein (2001), and more recently Epstein & Seely (2006)); in this respect, the structure in (4a) is revised so as not to include a copy in the embedded Spec,TP. What all these analyses share is the fact that the lack of an EPP property has to be somehow postulated for theory-internal reasons (different for each approach), without any clear attempt to correlate this absence with the morphosyntactic properties of infinitives, and more precisely the properties of *to* as such.

It is probably clear from the above discussion that the elimination of empty categories of the PRO, trace/copy type has also weakened the structural distinction between control and raising infinitives. In particular, if in an analysis like Hornstein's (1999, 2001) for example, both control and raising involve the same mechanism of A-movement, then the presence or absence of a C-layer cannot, and need not for that matter, be the distinguishing factor between the two complement configurations. The same reasoning can hold for the analysis of Manzini & Roussou (2000). In this respect then both control and raising complements can receive a unified structure, of the CP-type for example, or even of the TP-type as has also been argued in the literature for (some) control complements (see Bošković 1997); similarly, the option of having a CP structure for raising predicates has also been put forward (see Epstein & Seely 2006). So the first observation is that an alternative approach to control/raising does not

necessitate a different structure regarding *to*-clauses and as such it makes the unification of both complements as CPs (or TPs alternatively) possible. At the same time the assumption that EPP is/has to be absent begs for an explanation.

Bearing the above discussion in mind, let us now turn to the properties of *to*-clauses in more detail. The basic argument for treating *to* as a T-element comes from the fact that it is in complementary distribution with modals (for a recent overview, see Radford 1997: Chapter 2). However, there may be some reasons to question this argument. The first concerns the fact that, while modals are verbal elements, *to* isn't. If anything, *to* is closer, both in form and in terms of its historical development, to the locative preposition *to* (see Los (2005) for a recent account and references); the question then is whether we are dealing with the same element synchronically as well. The second characteristic property is that the verb in *to*-clauses appears as a bare stem, i.e. there is no inflection of any sort associated with it. In this respect, English differs from Romance, which marks infinitives inflectionally in the form of a suffix (e.g. *–re* in Italian, *-r* in French), as the example in (5) shows:

(5) Anda*re* (Italian)
"To go."

The idea has been that English *to* in this context plays the same role as the infinitival ending in Romance, and therefore *to* can be associated with the inflectional I/T head. In other words, while in Romance the infinitival marking is provided inflectionally (in various ways), in English it is supplied by an element outside the verb, namely *to*. If indeed this is the case, then the argument can be reversed, so that *to* will be treated as an element outside the inflectional domain of the verb. Thus the closeness of *to* with the infinitival morphology can be maintained, without forcing the treatment of *to* as an I/T head.

The above picture can be completed on the basis of further comparative evidence, once we consider languages like Modern Greek (and the Balkan group in general), which lack infinitives. Instead, the corresponding clauses are finite, in the sense that the verb inflects for tense, aspect, and most importantly agreement, and are introduced by a specialized element, such as *na* in MG. The rough distribution of *na*-clauses is provided in (6).

(6) a. Ksexasa *na* klidhoso tin porta.
Forgot-1s prt lock-1s the door
"I forgot *to* lock the door."

b. *Na* ine kanis sto Parisi!
Prt be-3s one in.the Paris
"*To* be in Paris!"

c. Thelo (o Petros) *na* (*o Petros) fiji (o Petros)
want-1s (the Peter) prt (the Peter) leave-3s (the Peter)
"I want Peter to (*Peter) to leave."

As the English translations show, the distribution of *na*-clauses by and large matches that of *to*-clauses (and in turn that of Romance infinitives), as they can both occur in a complement position (6a,c), or in a matrix (optative) clause (6b). Moreover, they both share the property that a lexical subject, when present, has to precede *na/to* and cannot appear between these elements and the verb. MG allows for postverbal subjects due to independent reasons that partly relate to its pro-drop character (see Rizzi 1982), and for this reason it provides one more position for the realization of the lexical subject. The crucial point though is that no subject can appear between *na/to* and the verb. The above brief presentation shows that just like English, MG relies on the presence of an element outside verbal morphology to introduce the relevant set of clauses. Unlike English, the verb in this case fully inflects; this is consistent with the fact that MG verbs are bound stems (Ralli 2005). Where MG and Romance partly meet is with respect to the presence of some sort of inflection on the verbal stem, which in MG is full inflection, while in Romance a dedicated infinitival affix. MG then provides a more complex case, as it makes use of fully inflected forms (unlike Romance and English), but also makes use of a specialized element that escorts these forms in otherwise typical infinitival contexts (like English, and unlike Romance).

On the basis of the similarities between *na* and *to*, Roberts & Roussou (2003: Chapter 3) argue that these two elements can be analyzed as instances of the same category in the two grammars. More precisely, the idea is that they both relate to the mood properties of the clause (cf. (6b)) for example); in embedded contexts of course whether a modalized reading or not arises is also dependent on the selecting predicate. Given that neither *na* nor *to* are inflectional elements, they can be considered as part of the left periphery of the clause, and more precisely of the part which relates to mood. In articulated C terms, this can be associated with the lower C (cf. Rizzi's (1997) Fin), as in (7) below:

(7) $[C_{Op} [C_M$ *to/na* $[_I \ \ldots]]]$

Analyzing *to* as a C-type element is not novel; for example, Rosenbaum (1967:25) calls *to* a complementizer; Lencho (1992) offers empirical arguments in favor of its C status and Kayne (2000: 297ff) points in this direction based on the similarities between *to* and the Romance prepositional complementizers *de/di*. One issue that arises of course is how we can accommodate the fact that *to* is incompatible with modals (cf. **to should go*), but also with typical complementizers as *that* (cf. **that John to go*). As a first approximation we could say that the answer seems to rely on some form of incompatibility between the non-finite character of *to* and the finite character of *should* and *that*. In order to provide a more appropriate answer, we need to consider the properties of finite clauses, and more precisely of *that*-clauses (and by extension of modals). We will come back to this point in the following section, once we have considered the properties of *that* in more detail.

On the other hand, the analysis of *na* as a C element has been a controversial issue. There have been two main strands of theorizing in the relevant literature. The first takes *na* to be the 'subjunctive' marker, which is situated in a Mood projection below C (see Philippaki-Warburton 1992, 1998, Tsimpli 1990, Terzi 1992, Rivero 1994, among others). This is supported by the fact that at least matrix *na*-clauses can have the imperative or interrogative force associated with subjunctive morphology, as in (8):

(8) a. Na fijis!
prt go-2s
"You should/must/ought to go!"

b. Na figho?
prt go-1s
"Should/Can/May I go?"

As already pointed out though, the distribution of *na*-clauses cannot be simply assimilated to that of the (Romance-type) subjunctive, as they appear in typical infinitival contexts as well. The second strand takes *na* to be a complementizer, given that it introduces complement clauses and is in complementary distribution with typical complementizers such as *oti* ('that') or *an* ('if') (cf. **oti na/**). On the basis of its dual character, Roussou (2000) provides a unified account, arguing that *na* is not an inflectional element, and is associated both with mood and clause-typing in the left periphery. According to (7) then, *na* is both in M and Op. This can be implemented in terms of movement (from M to Op) or alternatively by assuming

that *na* directly merges in Op and from there it becomes associated with M as well, given its internal lexical make-up (for a more detailed account see Roussou 2007).

Given the preceding discussion, we can see that a CP-structure associated with *to*-clauses is indeed possible. If this is correct, then there is no structural distinction between control and raising *to*-complements. At the same time, the treatment of *to* as a C-type element allows us to draw a closer connection with its prepositional counterpart. More precisely, it makes it possible for us to treat the two instances of *to* (locative, complementizer) as one and the same element (Roberts & Roussou 2003); this on its own is not surprising, given that prepositions can independently introduce clauses (cf. *for*, *before*, etc.) (see Emonds (1986) on the conflation of these categories; also Kayne (2000), Manzini & Savoia (2006, 2007), among others, for different approaches).

Having outlined our basic assumptions regarding the status of *to*, we next turn to the correlation of *to* with the subject, and more precisely how *to* affects the realization and interpretation of the embedded subject.

2.2. The subject of to-*clauses*

As already pointed out, a common property of *to* and *na* is that they do not allow for a lexical subject to appear between them and the verb (cf (6c)). In fact, the restriction in Greek is even stronger, as nothing but the object clitic (and negation) can intervene, as in (9a):

(9) a. Na (min) ton dhis.
prt (not) it see-2s
"You shouldn't see him."
b. To (not) (immediately) see him.

In English (9b), on the other hand, apart from negation, an adverb may also 'split' *to* from the verb. Roberts & Roussou (2003: 100) argue that this difference has to do with an independent property of the two grammars which relates to the position of the verb, which is in situ in English but in I/T in MG. We leave aside the position and the role of negation, as this is beyond the scope of the present paper; the reader is referred to Roussou & Roberts (2003: 98-99) and Roussou (2000, 2007).

The restriction concerning the subject has to be specifically related to *to/na*, as other C-type elements, such as *that/oti* do not seem to impose such a restriction:

(10) a. thelo (o Janis) *na* *(o Janis) fiji (o Janis)
want-1s (the John) prt (the John) leave-3s (the John)
"I want John/him to leave." (vs. "*I want to John leave.")

b. Nomizo (o Janis) *oti* (o Janis) efije (o Janis).
think-1s (the John) that (the John) left-3s (the John)
"I think that John/he left."

c. I arranged for John/him to leave (vs. *I arranged for to leave).[1]

As the above examples show, a lexical subject may be available in MG, although in a peripheral position, that is before *na* (so as a Topic in the left periphery), or after the verb (so in a position lower that I/T, assuming the verb movement is at stake). In English, on the other hand, the lexical subject can only appear preceding *to* (due to the unavailability of a postverbal position), as long as the matrix predicate can license it (the typical ECM construction), or *for* is present. In fact *for* in Standard English requires the presence of a lexical subject. We will discuss this property in the following section. In the finite *that*-clause the subject is obligatorily present, after *that*, while no such requirement holds for MG *oti*, since in any case the subject is indirectly realized through the verbal inflection, in accordance with the pro-drop character of MG.

The picture then seems to be that *na/to* somehow block or subsume the realization of the subject. Consider next the subject position in relation to (9a), which also has an object clitic present. Let us further assume that clitics correspond to individuated inflectional positions (Sportiche 1996, Manzini & Savoia 2005, among others), here indicated as CL. Subjects typically precede clitics (i.e. *O Janis* ton idhe = John saw him), and therefore the syntactic subject position would have to precede that of the clitic. In traditional terms, the subject position projects syntactically in order to satisfy the Extended Projection Principle (EPP, Chomsky 1982). In Chomsky (1995) the EPP is taken to correspond to the D feature of T (or I). Its role is to ensure the projection of a specifier position associated with T/I; in more recent versions of the theory (Chomsky 2001, 2004), the EPP has a more generalized character as it may appear on any functional category (with the consequent effect of triggering the projection of a specifier). Suppose that as far as the subject is concerned at least the EPP as a D property is on the right track. In this respect, the typical syntactic position of the subject corresponds to the projection of a D (+/-definite) head in the I domain of the clause

[1] This sentence is grammatical in Belfast English, according to Henry (1995). Presumably this *for* has different properties from *for* in Standard English.

(for various formulations see Sportiche 1997, Manzini & Savoia 2005, Rizzi & Shlonsky 2006).

Leaving certain details aside, the data in (10a) and also (10c) show that the presence of *to/na* in M is not compatible with the presence of an independently projecting D in the I domain, as shown below:

(11) a. $[_{M}$ na $[_{D}$ *o Janis $[_{CL}$ ton $[_{I}$ dhi $[_{V}$ t_{dhi}]]]]

b. $[_{M}$ to $[_{D}$ *John $[_{I}$ $[_{V}$ see him]]]]

Given that the lexical subject may otherwise be available (provided certain conditions hold) the question is how the presence of *na/to* affects the lexicalization of D.

If indeed the feature content of D is +/-definite, the question can be made more precise: how does D interact with the feature content of M, when the latter is lexicalized by the elements under consideration? As argued by Roussou (2007) this is due to the fact that the content of M draws on the same feature specification, i.e. Mood is the head that encodes the +/-definite feature with respect to the verbal domain. Note that this property cannot on its own account for the unavailability of D, given that the latter depends on a particular lexicalization of M, namely *to* or *na*. To be more precise the correlation with D will have to stem from the feature specification of these elements. As far as *na* is concerned, it has been pointed out that it is the same element that appears in presentational contexts, as in (12):

(12) *Na* o Kostas!
prt the Kostas
"There is Kostas!"

Christidis (1985, 1990) argues that the two types of *na*, namely the 'subjunctive' and the 'presentational' are synchronically related (but see Joseph (1994) for a predicate analysis of presentational *na*). This means that we are dealing with two instantiations of the same element 'NA'. In particular, *na* with a nominal complement involves deixis to an object of the outside world ('exophoric'); *na* with a verbal complement involves anaphoric reference (in relation to speech time, the speaker, etc.) ('endophoric' in Christidis' terms). The difference may be due to the fact that while presentational *na* is necessarily stressed (emphatic), modal *na* isn't. If this is correct, then we have an independent way to account for the attested differences in distribution, while maintaining that we are dealing with a single *na* which has a nominal

character. This approach finds support from another Balkan language, namely Albanian. According to Manzini & Savoia (2006) the 'modal' particle *të*, which is the equivalent of *na*, also appears as an article of some sort in nominal contexts. On the basis of its distribution they assign to it a D categorial status.

The next question is whether *to* can also be considered a nominal element. The obvious place to look for this has to do with its prepositional instantiation. As a typical preposition, *to* expresses a locative meaning (motion towards), as in (13a); it is also used for the expression of the dative (the recipient of an action), as in (13b) (along with dative shift in some contexts, as in (13c)):

(13) a. (I'm going) [$_P$ to [$_D$ the market]].
b. I gave the book [$_P$ *to* [$_D$ the student]].
c. I gave the student the book. (Dative shift)

The presence of *to* in all the above constructions cannot be seen as accidental. The use of the same element for the expression of locative and dative is not surprising, and on this basis we can take *to* to be a nominal element which realizes an underlying common property. The question is whether this also holds for 'infinitival' *to*. Christidis (1990), based on observations by Bolinger (1975), argues that this is indeed the case: 'infinitival' *to* also encodes a locative meaning, which is nevertheless seen along the temporal dimension, given its verbal complement, which in turn links it to the 'irrealis' mood. On these grounds then we can treat the different instances of *to* as one and the same nominal element.

If both *to* and *na* are nominal, and more precisely carry a D feature, then the effects they have on the realization of the subject in D start getting clearer. To be more precise, it is *to/na* that directly lexicalizes D, as shown in (14):[2]

(14) a. [$_M$ *na*$_D$ [$_I$ figho [$_V$]]]
b. [$_M$ *to*$_D$ [$_I$ [$_V$ leave]]]

[2] In fact, we can take *to/na* to project their own D position above M, as argued by Manzini & Savoia (2007) with respect to *të*. Their approach has the advantage of not assigning subfeatures to features (e.g. D on M) and is compatible with their general line of reasoning whereby verbal and nominal positions are dissociated (i.e. M is a verbal position, which can be lexicalized by V-movement, while D is strictly a nominal one). Furthermore, their approach does not take the particles themselves to be modal, but allows them to acquire a modal interpretation on the basis that they merge immediately above M. For present purposes we will keep the notation in (14), bearing in mind that an alternative is indeed possible.

The structures in (14) can predict the unavailability of a lexical subject between *to/na* and the verb, cf. **to John leave*. Under this approach then we do not have to postulate the absence of an EPP property in *to*-clauses; this follows directly from the lexical properties of *to*. In other words, it is *to* that satisfies the EPP (see also Manzini & Savoia (2006) on *të*). The situation with *na* is slightly more complex, as the verb carries inflection, so some morphological satisfaction of the EPP is always present (see Alexiadou & Anagnostopoulou 1998 for example). However, what is crucial for our purposes is that the syntactic D position is not available. This morphological difference between English and MG implies that the interpretation assigned to the unrealized subject in MG will have to take along the features provided by the verbal agreement and somehow relate them to the D feature of *na*, while in English it will be directly linked to the D feature of *to*, since verbal agreement is absent.

Having provided a brief discussion of how prepositional and infinitival *to* may be related in terms of their D feature, we can now turn to the interpretation of the unrealized subject and account for the differences that may arise with respect to MG. If indeed it is the element *to* (and *na*) that satisfies the EPP, we expect that the interpretation of the unrealized subject will pass through that of *to*. Consider the following examples:

(15) 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]

(15a) is an instance of obligatory control (or exhaustive control in Landau's (2004) terms), which is clearly triggered by the presence of the matrix predicate *manage*. (15b) is an instance of arbitrary control, consistent with the fact that there is no controller available. Finally, in (15c) the subject of the *to*-clause can be construed either with an arbitrary reading, or with the matrix subject *John* (non-obligatory control in standard terms). Note that the interpretation of the unrealized subject passes through *to* in all the above cases. In other words, the interpretation of the subject is determined on the basis of the interpretation of the *to*-clause itself. According to Manzini (2007) this can be better understood, if we take *të*, and by extension *to*, *na* and the like, to introduce an EPP variable, which is bound either by a matrix argument, as in (15a) or by some relevant operator (generic, specific) as in (15b) and (15c). The sentence in (15d) represents raising: the EPP variable in this case is bound by the matrix subject. Unlike control where the single DP can be thematically interpreted with respect to

two predicates, in raising the single DP is thematically interpreted with respect to a single predicate (the embedded one).

Focusing a bit on the predicates that give rise to obligatory control of the exhaustive kind in Landau's (2004) terms, it has been argued that the temporal interpretation of the control complement is exhaustively determined by that of the matrix one (see Iatridou 1993, Varlokosta 1994 for earlier proposals). According to Roussou (2007) this kind of event composition gives rise to argument composition as well, so that the unrealized argument of the complement clause becomes identified with an argument in the matrix clause. Turning to MG, we observe that the situation is a bit more complex, as the agreement affix on the verb will have to agree with *na*. In Manzini's (2007) terms, the particle 'acts as an operator capable of reopening the EPP argument closed off by the verb inflection'. No such effect holds in English since there is no inflection in the first place to close off the EPP argument.

The aim of this section was to show that an alternative treatment of *to*, supported by further comparative empirical evidence, can provide an account as to the absence of the EPP in the relevant clauses. This also opens up an alternative way of viewing control (and consequently raising). A detailed account of the latter is beyond the scope of this paper (see though Manzini (2007) and Roussou (2007)). The advantage of this approach is that it can maintain the same structure for all *to*-clauses, without further invoking abstract features that would distinguish one from the other. In the following section, we turn to the properties of the complementizer *that*. It will be shown that it triggers a different effect on the subject, which is best manifested in subject extraction.

3. *That*- (and other) clauses and subject extraction

3.1. General remarks on subject extraction

The second case we will consider in the present discussion involves finite *that*-complements, and in particular how the presence of *that* interferes with subject extraction. Subject extraction over a lexical complementizer has always been a puzzling phenomenon (Perlmutter 1971, Chomsky & Lasnik 1977, Taraldsen 1979, Pesetsky 1981/82, for early approaches). In the Government and Binding 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 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 more further. Pesetsky & Torrego (2001) relate subject extraction to T-to-C movement, assuming further that *that* is also an instance of this movement. In their analysis, 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 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, in the sense of a PF anti-adjacency effect: the lexical complementizer and the subject trace cannot be adjacent at PF, i.e. they cannot be part of the same prosodic unit; his approach is an attempt to provide a more formal account of the filter approach of Chomsky & Lasnik (1977) (see section 4.2 for a discussion).

In the above accounts, the presence of a copy/trace in the embedded Spec,TP is somehow assumed to be present. A rather different approach is put forward by Roussou (2002) who argues that there is no copy of the wh-subject in the embedded Spec,TP. Following Manzini & Roussou (2000) the idea is that the wh-phrase is directly merged in its scope (matrix) position, from where it agrees with the relevant position(s) in the embedded clause. The ungrammaticality arises because in the absence of a lexical subject in the embedded clause, the EPP viewed as the D property associated with the I-domain, fails to be satisfied; in other words, D fails to receive a lexicalization. However, C can undertake this role indirectly through its relation with T; the result is grammatical when C is null, on the assumption that it bears phi-features, while ungrammatical when *that* is present, on the assumption that *that* cannot bear the relevant set of features (cf (16)). In other words, *that* can only be the lexicalization of C and not (indirectly) of the subject:

(16) Who do you think [C_{+phi} [T [left]]]

This approach anticipates the inactivity condition of Chomsky (2005), but still maintains the Agr-in-C strategy in some form. A disadvantage of this analysis is that it still requires the postulation of abstract phi-features on C, mediated by the C, T relation; thus the question that remains is why these features would be phonologically null.

Rizzi & Shlonsky (2006) provide an account in terms of 'criterial freezing', which in a way subsumes the generalized EPP, in a more intuitive way. Following Rizzi (2006), the idea is that once a phrase meets a criterion, i.e. it appears in a position where it satisfies scope/discourse requirements, it freezes there and cannot move further (cf. the inactivity condition). The subject itself satisfies the subject criterion in a dedicated syntactic position above T (Spec,SubjP), which derives the subject-predicate relation. In terms of the analysis suggested in the preceding section, the 'Subject' head can be viewed as the D head which closes off the proposition. It follows from this account that once the subject has moved to its criterial position it cannot move further. Thus wh-subject extraction would have to take place from the thematic, v/VP-domain. In essence then, this approach generalizes the strategy found in pro-drop languages to English as well. The next question is how the subject criterion is satisfied in this case. The answer involves the reinterpretation of the Agr-in-C strategy: the lower C head, namely Fin, can bear phi-features, which enable it to satisfy the subject criterion as part of a head-head configuration between Fin and Subj, as shown in (17):

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

As the configuration in (17) shows, subject movement targets the Spec,FinP so that the phi-features of Fin become valued. This rests on the idea that Fin is not a criterial position, otherwise movement of the subject there would trigger a freezing effect.

A few problems may be pointed out with respect to the Rizzi & Shlonsky (2006) approach. The first is more descriptive and concerns the distinction between two basic strategies: a) fixed subject strategies, which may involve resumption (Hebrew) or pied-piping (Imbabura Quechua), and b) skipping strategies, which involve movement of the subject out of its thematic position (Italian, English). Note that in either basic strategy there is something else that satisfies the subject criterion (a resumptive pronoun, expletive, etc.), while the subject always moves directly from its thematic position. So the different strategies have the 'skipping' basic component, but differ as to the position and mode of satisfying the subject criterion. The second problem is more theoretical and involves the rather free generation of

phi-features on Fin, provided subject movement is at stake. The question then is how a sentence like **John seems has left* can be ruled out, given the following representation:

(18) *John seems [t' Fin+phi [Subj [has [t left]]]]

In (18), *that* is absent, allowing for Fin to bear phi-features which are in turn valued by the intermediate trace of *John* in Spec,FinP. The extraction site remains that of the embedded v/VP. Note that in this system Case cannot be the reason behind the ungrammaticality of (18); the subject in Spec,SubjP satisfies a criterion, and Case assignment is not a trigger for any kind of movement, as it was in the GB framework. Although Rizzi & Shlonsky succeed in providing an account of the *that*-t effect which captures the effects of 'proper government' under a more generalized approach (criterial freezing), their analysis still requires the presence of an intermediate trace that would assign the right properties (feature valuation) to Fin. The other problem that remains is what allows for phi-features to be generated on Fin in the first place and why in languages like English they are necessarily null (a point already raised with respect to the analysis of Roussou (2002)). In other words, if that is the case, what is the underlying morphosyntactic property of English that gives rise to such an effect?

To complete the picture, it should also be mentioned that the *that*-t effect arises with other complementizers as well, such as *if/whether* and *for*:

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

The difference is that while a sentence with *that* can have a grammatical counterpart in subject extraction, namely the one where *that* is absent, this is not so with the elements *if/whether* and *for*. In other words, there is no strategy available that would save extraction out of these complements. The question is what would prevent the Fin+phi features strategy in the contexts in (19). One may argue that in the case of *for* this is not possible because it takes a non-finite complement (the *to*-clause), implying that phi-features can only be borne by a +finite Fin. Perhaps the same could extend to *whether* since, just like wh-phrases, it is not sensitive to the +/-finite distinction, cf. *I wonder whether I should go/to go*. In this case, the same reasoning would apply: phi-features cannot be born by a Fin head that is underspecified for finiteness. However, the problem would remain with respect to *if*, which can only select a finite complement, cf. *I wonder if John left/*to leave*. Furthermore, if *if* expresses clause-

typing and in Rizzi's (1997) system is associated with the higher C head, namely Force, the question is once again what prevents the presence of phi in Fin, rescuing subject extraction by satisfying the subject criterion. The set of data in (19) also show that subject extraction may indeed fail, if none of the possible strategies can be applied.

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), and how these may be somehow by-passed in the presence of a lexical complementizer. 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, an alternative analysis will be suggested that locates the problem, not on requirements involving the subject as such, but on requirements that involve the lexical C. More precisely, the proposal will be that subject extraction creates a problem to *that* and not the other way round.

3.2. The properties of that-*clauses and the role of the subject*

Let us start by pointing out some basic assumptions regarding the status of *that*. The element *that* has a dual role: it introduces finite, declarative complements, or it can be used as a demonstrative pronoun, as in (20):

(20) 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 (see Radford (1997: Chapter 2) for a recent overview of the relevant arguments). However, it is not so clear that the two instances of *that* have to be kept apart (see Roberts & Roussou 2003: Chapter 3). What seems to differentiate *that* in the two contexts in (20) is the nature of its complement; thus, while in its complementizer use, *that* takes a propositional complement, in its demonstrative use, it takes an NP one (individual/property). As a pronominal, it may also appear without a restriction, cf. *I believe that*; in this particular situation, the missing element can be either an NP (e.g. *that story*) or a sentence (e.g. *that John left*). On these grounds, we can take the two functions of *that* to reduce to the same nominal element.

The connection between the two readings of *that* has been previously discussed in the literature. For example, Davidson (1968/1997: 828-829) argues that: "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 (21):

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

In Davidson's analysis then, the 'complementizer' *that* in (21a) is nothing else but the demonstrative. Similarly, Bresnan (1979: 70-73) argues: "The predicates that select that-complements are those which are compatible with a definite, specific proposition. […] The function of that is to "definitize" a complement, and may be felt most easily in minimal pairs with the other complementizers. [….] That seems to seal off its domain from external time quantification and modality. One way of grasping this phenomenon is to conceive of that as itself a kind of "definiteness" operator." Bresnan provides the following examples to illustrate these two points:

(22) a. It's rather/#always odd that a man is chairing a women's meeting.
b. It's (?) rather/always odd for a man to be chairing a women's meeting.
c. It has already been decided *whether* you can go –
but I can't tell you the outcome.
d. It has already been decided *that* you can go –
#but I can't tell you the outcome.

The contrast between (22c) and (22d) shows the closeness of complementizer *that* to a D element associated with some sort of definite quantification, presumably in opposition to *whether* which is on the indefinite quantification side. Finally, Manzini & Savoia (2006, 2007) argue that Romance-type complementizers are nominal on the basis of their formal similarities with other nominal elements (e.g. wh-, relative pronouns). This is the case with Italian *che*, which also appears as a wh-pronoun, in its various manifestations in the Italian dialects. Their conclusion is that the two functions of *che* (and its dialectal variants) are distinguished in terms of the variables this element binds (propositions vs. individuals/properties).

On the basis of the preceding discussion then, we maintain the claim that we are dealing with a single element *that*. In its 'complementizer' function *that* binds a propositional

variable and turns the sentence it embeds into an argument (cf. Kayne 1982), which as expected can distribute like other nominals. Let us now go back to the case of subject extraction and investigate how this approach to *that* can provide us with a better understanding of subject extraction. Consider again the following sentences:

(23) a. John thinks (that) Mary left.
b. *Who do you think *that* left?
c. Who do you think left?
(vs. Who do you think (*that*) John saw?)
d. The student that the teacher predicted (**that*) will be outstanding.
(vs. The student that the teacher predicted (*that*) everyone will admire).
e. It was Peter that the teacher told us (**that*) had been outstanding.
(vs. It was Peter that the teacher told us (*that*) everyone admired).
f. John ate more cookies than he estimated (**that*) would be eaten.
(vs. John ate more cookies that he estimated (*that*) his friends would eat).

A close observation of the data in (23) shows that what distinguishes (23a) from (23b) is the presence vs. absence of a lexical subject in the embedded clause respectively. More precisely, *that* may or may not be present in (23a) where the subject is lexically present, but it cannot be present in (23b) where the subject appears in a peripheral position of the matrix clause, due to its wh-feature. The construction converges as long as *that* is also absent, as shown in (23c). The same pattern is systematically reproduced in embedded relative clauses, as in (23d), in cleft constructions as in (23e), and finally in comparatives, as in (23f). What the different patterns in (23) amount to is a one-way implication between the element *that* and the lexical realization of the subject. Particularly, a lexical subject seems to be a precondition for the presence of *that*. The question then is why this is so.

As already pointed out in section 2, the subject position projects in the I-domain and corresponds to the D category; thus *Mary* in (23a) merges in the embedded D. We can assume, following Manzini & Roussou (2000) that elements directly merge in their surface position. This can be read as a rigid formulation of the 'Freezing Criterion': once an element is merged in a given position then it freezes there. Unlike Rizzi's (2006) approach where positions split into criterial and non-criterial ones, triggering a freezing or non-freezing effect respectively according to scope/discourse interpretative properties, the idea here is that all positions are subject to interpretation and on these grounds qualify as 'criterial' ones.

Moreover, merger of a lexical item in a given position, assigns to the latter a lexicalization; re-merging it in another position would necessitate the presence of a trigger that would undo the effects of the initial merge operation and also impose an algorithm that would determine which copies will be spelled out. Going back to (23a) then, the element *Mary* qualifies as an argument on the grounds that it appears in D and receives an interpretation from the predicate *left*. This naturally accounts for the inactivity condition of Chomsky (2005) as well. Recall also from our discussion that D is the position where the EPP requirement is met, i.e. the position where the syntactic subject closes off the proposition.

Let us now consider how the above observations can account for the ungrammaticality of (23b). According to what we've said so far, the wh-subject directly merges in the matrix clause, so there is no instance of *who* in the embedded clause. This in turn implies that in the absence of a lexical element to provide a realization for the subject position, D is not there. However, if D is required to turn the open predicate to a proposition, we can see why *that* which requires a proposition as its complement cannot be present either. To be more precise, in the absence of a D/EPP lexicalization, *that* fails to see a proposition, and in turn to bind a propositional variable, giving rise to ungrammaticality. This kind of ungrammaticality arises with respect to the interpretation that the finite nominal C *that* requires. The *that*-t effect then reduces to a property associated with *that*, and not with a property that relates to the moved subject. It indirectly relates to the subject (D) position, on the basis that its lexicalization is crucial for the satisfaction of the EPP.

The next question is why (23c) is grammatical. At this point we should observe that the construction converges as long as the complementizer takes the same form as the subject, i.e. they are both unrealized. In other words, the strategy that English uses is the following: if the subject is not present, drop the complementizer. With respect to *that*, this option is independently available as the example in (23a) shows. What we need to answer is whether in this case, as also in the case of (23c), the syntactic C position is present or not when *that* is absent; the two options are given below:

(24) a. John thinks [$_{D}$ Mary [$_{I}$ …left]]

b. John thinks [$_{C}$ [$_{D}$ Mary [$_{I}$ …left]]

c. Who do you think [$_{I}$ … left]

d. Who do you think [$_{C}$ [$_{I}$ … left]]

On the assumption that an absent subject also implies the absence of D, we would have to adopt the structures in (24a) and (24c) accordingly. Thus in the first case, a null C implies no C at all, but a clause headed by D (and a complete proposition for the purposes of interpretation); in the second case, the embedded clause would still remain an open predicate, since it lacks D as well. The construction in (24a) then could be considered very close to a paratactic one, and presumably the same would also extend to (24c), with the difference that the latter does not qualify as a proposition in the first place.[3] The alternative is to assume that C, being a scope position, is nevertheless present. This would allow us to adopt the structures in (24b) and (24d) accordingly. This analysis perhaps requires a further modification on the conception of C; for example Manzini & Savoia (2005) take the typical I and C heads to be verb-related; in other words, they are scope positions with respect to the verb. If lexical complementizers like *that* are nominal, then strictly speaking they cannot merge in C; instead they would merge in a position above C (or the appropriate C head, in a split-C system), i.e. [*that* [$_{C}$…]] (see also fn. 2). This alternative allows us to maintain the presence of C, despite the absence of a lexical complementizer, on the grounds that they are different elements. In the present analysis I will keep the configurations with a C head, as in (24b) and (24c).

Note that irrespectively of the structure one adopts at this point, certain implications remain the same. In particular, in the absence of *that* along with that of D (with or without C) the embedded clause is not a proposition; presumably, this has to be allowed by the semantics of the matrix predicate, which at this point seem to be compatible with either complement (propositional or not). Perhaps it is in this respect that Koopman's (2000) analysis, although based on different assumptions and implementation, becomes relevant. According to Koopman, the relevant class is that of 'bridge' verbs, which in terms of her approach are treated as 'the tensed equivalent of restructuring verbs'. In English, this kind of 'restructuring' is manifested by the option of dropping *that*, which in the case of subject extraction is the only option. Despite the differences in the approach put forward in the present paper and the one of Koopman (2000), the interesting observation is that wh-extraction is facilitated in certain structural environments.[4] Anticipating the discussion that follows one can expect that

[3] If we follow the idea of a paratactic construction, then we should point out that in the first case, we are dealing with two propositions (the matrix and the embedded), while the latter involves two predicates, given that in the absence of D the second clause cannot qualify as a proposition. The closest counterpart of the latter is a serial verb construction. However, whether this is indeed the case in English or not requires a much more elaborate discussion.

[4] If this observation is on the right track it allows us to draw a nice parallelism with control. According to Roussou (2007) obligatory (exhaustive) control is the manifestation of some sort of restructuring (with modals, aspectuals, etc.). An instance of restructuring involving tensed complements may then be manifested in the case of subject extraction (with bridge verbs). In both cases it is the subject that is affected.

in non-bridge contexts, and in particular those introduced by other complementizers, subject extraction would fail, as is indeed the case (see (19) and the discussion that immediately follows).

Under the current approach we succeed in dispensing with the postulation of abstract phi-features on C, and therefore eliminate 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. The next point is to consider how this approach covers the ungrammaticality of subject extraction over the elements *if* and *for*.

3.3. The properties of if, for *and* whether.

Consider next the ungrammaticality of subject extraction with *if/whether* and *for*, as already pointed out with respect to the data in (19), repeated below for ease of exposition:

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

Let us start with (25a). The element *if*, just like *that*, can be argued to bind a propositional variable. Just like *that*, it is also sensitive to finiteness. If finiteness is linked to the expression of tense and most importantly agreement, then *if* also requires a proposition which is complete, in the sense that is has a lexicalized D. The same restriction regarding subject extraction holds for *whether* when it takes a finite complement, as in (25a) (we will come to the case of the non-finite complement). Unlike *that* though, *if* and *whether* cannot drop. This must be linked to the fact that they determine a special kind of interpretation associated with an embedded interrogative in (25a), according to the selectional requirements of the verb *wonder*.[5] The element *if*, just like *that*, requires a proposition as its complement; unlike *that* which involves some sort of definite quantification, *if* is on the indefinite quantification side (see Manzini & Savoia 2006, 2007).[6]

[5] According also to the discussion at the end of section 3.2., the verbs that select these complementizers are non--bridge ones.

[6] Note that this property of *if* also allows it to occur with non-interrogative verbs like *know*, *remember*, etc. when a polarity licensing operator is present in the matrix clause (Adger & Quer 2001, Roussou 2006):

(i) I don't know/remember *if* John left.

According to Adger & Quer (op. cit.) the *if*-clause in (i) has the distribution of a polarity item, and is embedded under an indefinite D. Roussou (2006), on the other hand, argues that this distribution stems from the lexical properties of *if* and therefore there is no need to invoke a D-layer extraneous to *if*.

Consider next (25b) where *for* is present. Recall from our discussion in section 2 that *for* requires a lexical subject, as in (26):

(26) Peter arranged *for* *(John/him) to leave.

Moreover, the embedded subject cannot be coreferential with the matrix subject, i.e. *him* in (26) cannot be *Peter*. In this respect *for* creates an obviation effect. Recall also that, according to the present analysis, *to* occupies the lower C head associated with Mood (or that it merges as a D element just above M; see fn. 2). The element *to* was argued to fulfill the EPP, hence the absence of a lexical subject in the embedded *to*-clause. The question now is why *for* cannot be compatible with *to*; in other words, why a distinct lexical D must be present. The answer to this question has to be sought in the nature of the EPP interpretation assigned by *to*. Recall that the subject introduced by *to* corresponds to a variable, which has no referential properties. Instead its interpretation has to be provided by some other element in the clause (as in typical control configurations), or in the absence of such an element, it receives the arbitrary reading. In this respect, the element *to* cannot close off the predicate, and what *for* sees is not a proposition; moreover, the element *for*, just like *to* cannot assign reference to the variable introduced by *to*. On the other hand, the projection of a distinct D position in the left periphery above *to* and immediately below *for* has precisely this effect. Furthermore, it counts as the closest binder for the variable introduced by *to*, and therefore the only interpretation that can be assigned to *to* is that of the lexical DP. The element *for* closes off the domain of the embedded *to*-clause, making coreference with the matrix subject (or object) unavailable. It is in this respect that *for* behaves like an obviator (for a more detailed discussion see Roussou (2007)). The ungrammaticality of (25b) then receives the same account as the one provided for *that* and *if/whether*: since a lexical D is absent, the complement of *for* cannot count as a proposition.

Another implication of the above approach is that *for* is also part of the left periphery of the clause, and will have to be related to a higher C in an articulated C-system. At the same time the usual question regarding the correlation between the preposition and the complementizer *for* arises. Unlike the two uses of *to*, which are typically treated as distinct, the two uses of *for* are usually accounted for as an instance of a single lexical item; thus *for* in this context is referred to as a prepositional complementizer. In this respect, it seems to share the same slot as *that* and *if*. As Bresnan (1979: 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", as shown by the following examples:

(27) a. He considers her a fool *for her generosity*/ *for being so generous to him*/ *to let herself be used by him*.
b. He considers it foolish *for her to help him*.
c. You're a bastard *for doing that*/ *to do that*.
d. It's a sin *for you to do that*.

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. On the basis of the above then we can treat the two instances of *for* as single item, just as we did for *to* and *that*.

Consider next the position of *for* in the clause structure. The fact that it can co-occur with another C-type element such as *to* suggests that *for* appears in a higher C position. If that is a position associated with *that* and *if*, as already pointed out in the preceding discussion, then it is a head that relates to clause-typing properties. Recall also that the different clause types introduced by *that* and *if* translate to different types of quantification over propositions. Given Bresnan's (1979) observations, *for* would also participate in this distinction. The structure we are dealing with then is the one below; the Operator (Op) notation is used to indicate the higher C:

(28) a. $[_{Op}$ *that/if/for* $[_{M}$ (to) $[….]]]$
b. $[_{Op}$ *for* $[_{D}$ *John* $[_{M}$ to $[….]]]]$

Unlike *that* and *if* which select a finite complement, i.e. a complement where M is not lexicalized and the EPP is satisfied inside the I-domain, *for* can select a lexicalized M (i.e. *to*) provided D projects in the C-domain, and more precisely between Op and M, as shown in (28b). The structure in (28a) can also account for the incompatibility of *that* and *if* with *to*, i.e. **that to*/**if to*,[7] exactly along the lines of what rules out the **for to* formation (in Standard

[7] 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

English): these elements require a propositional variable, which is not available when *to* is present. While in the case of *for* the situation can be remedied by the independent projection of D in the left periphery this is not available for the case of *that* and *if*, which in any case are not compatible with the (modalized) interpretation provided by *to*. This approach also correctly predicts that these elements are not compatible with control, on the assumption that control involves binding of a variable introduced by *to* (and therefore the absence of D in the I-domain in English). 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. A more detailed discussion of these facts is beyond the scope of the present paper (but see also Manzini & Savoia 2007).

Before we leave this section, it may be worth saying a few words about *whether*, which as the data below show differs from the other elements in that it can be compatible with either a finite (thus a D is present) or a non-finite (*to*, no D) complement:

(29) a. I wonder *whether/if* John should leave.
b. I wonder *whether/*if* to leave.

In (29a) the embedded clause can be introduced by either *if* or *whether* and corresponds to a proposition (D is present); this is consistent with the fact that *if* and *whether* assign indefinite quantification and can be taken to share the same slot in the tree structure. However, their similarities stop at this point. Thus *whether* cannot introduce conditionals, i.e. *if/*whether John passes his exam, then we can have a party*. At the same time, *if* is incompatible with *to*. The most obvious property that distinguishes the two elements is the presence of a wh-feature on *whether* and its absence on *if*. In this respect, *whether* behaves like all the other wh-elements which do not appear to be sensitive to the +/-finite distinction, typically signaled by the presence vs. absence of *to* (see Stowell 1981: 422, Kayne 1991, Roberts 2005: 28-29, among others):

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

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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*.

According to Kayne (1991) this similarity in distribution with wh-phrases can be accounted for if *whether* is also a wh-phrase, thus differing from *if* which is a head. This analysis further correlates with the possibility of having a PRO subject embedded inside a *whether*-clause, as in the relevant version of (30). Note that in current terms, the question is what allows *whether* to take a *to*-complement (sine the PRO-type readings are a side effect of this construction). Moreover, the specifier vs. head distinction rests on theory-internal reasons that have to do with the distribution of PRO in Kayne's analysis. What seems to be relevant, on the other hand, is the feature specification that distinguishes *whether* from *if* (irrespectively of their complex internal structure that would assign them the specifier vs. head status respectively). The crucial feature then that puts *whether* along with the other wh-phrases, and therefore distinguishes it from *if*, is precisely the wh-one.

In order to better understand the impact of *whether* in (30a), let us first consider the structure in (30b). The wh-phrase *what* is an operator that binds a variable associated in this example with the internal argument of the verb *read*, roughly translating as: "what is the *x*, such that John read *x*". A phrase like *which book* further introduces the restrictor on the quantifier, i.e. "which *x*, *x* is a book, is such that John read *x*". Under the scope of a question operator (as the one provided by the lexical properties of the verb *wonder* for example) the wh-phrase acquires an interrogative reading. The wh-feature then is responsible for binding a variable that corresponds to an individual/property (a predicate, as is the case of the over or covert NP restrictor). It is probably obvious that the form of the embedded clause (a proposition or an open predicate) is not relevant to the interpretation of the wh-phrase. This further suggests that it is this feature that makes *whether* insensitive to the form of its complement. To put it differently, *whether* can be compatible with either a proposition (hence a finite clause) or an open predicate (hence a non-finite clause, headed by *to*). With respect to the interpretation of the EPP variable introduced by *to* in the context of (30a), we observe that control is not of the exhaustive type in the terminology of Landau (2004). This means that partial or arbitrary control is available. This is expected since the presence of *whether* does not allow for the EPP associated with *to* to be solely bound by a matrix argument. If this is on the right line, then the structural difference invoked by Kayne (1991) can simply reduce to the role of the wh-feature on *whether*.

Consider next how this approach can account for the ungrammaticality of subject extraction out of *whether*-clauses, as in (31):

(31) a. *Who do you wonder *whether* left?

b. *Who do you wonder *whether* to leave?

The case of (31a) is straightforward and has already been discussed with reference to (25a): the complement of *whether* is not a proposition despite the presence of a finite form (or alternative despite the absence of *to*), since there is no D present. As already pointed out *whether*, just like *if* and *for* cannot drop and therefore subject extraction cannot be rescued. The question is why (31b) is ungrammatical, given that the sequence *whether to leave* can be grammatical under different circumstances, as shown in (30a). This means that the ungrammaticality of (31b) will have to be attributed to some other reason that relates to an element outside the *whether* clause. Clearly what differentiates the non-finite structure in (30a) from that in (31b) is the presence of the wh-phrase *who* in the matrix clause. The variable that *who* binds is the one that corresponds to the subject, which in this particular construction is supplied by *to*. However, binding of the EPP argument in this particular construction cannot take place since this is blocked by the presence of *whether*, as already pointed out. Thus while the embedded clause is well formed, the wh-element in the matrix clause fails to reach the required variable mediated by *to*, giving rise to ungrammaticality since *who* fails to bind a variable.

To summarize, the discussion in sections 2 and 3 has shown that a closer investigation of the properties of the elements relating to the C-periphery of the clause can provide us with a better understanding of the various phenomena that involve the subject (D) position in the I-domain. In particular, it was shown that *to* which appears in a position associated with M in the lower part of the C-domain has the effect of subsuming the EPP. It mediates the interpretation of the unrealized subject, depending on whether the *to*-clause is embedded under a predicate (control or not), under *for*, or appears in a non-complement position. On the other hand, *that* appears in a higher C (Op, associated with quantification) and requires a complete proposition as its complement. This means that a lexicalized D has to be present in order to close off the proposition. In the absence of such a D, as in subject wh-extraction, the result is ungrammatical. In this system then, while some C-type elements have the ability to subsume the EPP, others require it. This property stems from the lexical properties of the individual elements, a fact which correlates with the part of the C-periphery where they merge. The present analysis can further put together phenomena such as control and subject extraction, viewed from the perspective of the complementizer domain.

Finally, note that the present approach, which assigns a nominal character to the elements under consideration, can also account for their distribution in subject position. Consider the following examples:

(32) a. *That John left* has surprised everyone.
b. **John left* has surprised everyone.

The obligatory presence of *that* in subject clauses has also been a rather problematic issue, and has also been assumed to be regulated by the ECP, exactly like subject extraction out of a *that*-clause. To be more precise, the idea has been that a null C has to be governed (being a null head); however, it cannot be governed when it heads a subject clause, for the same reason that the trace of a wh-subject cannot be governed by I/T (Stowell 1981, Kayne 1984). If C is lexical on the other hand, the ECP does not apply, and the sentence is grammatical, as (32a) shows. The problems associated with government apply here as well.

In a more recent paper, Pesetsky & Torrego (2001) provide an alternative account based on the role of *that* as an instance of T-to-C movement (see section 3.1), and the idea that the uninterpretable phi-features of (finite) T must be checked by an element bearing a T feature (along with phi-features). This can account for the grammaticality of (32a): *that* deletes C's uninterpretable T feature, but it carries its own (interpretable) T feature, making it possible for the clause it heads to merge with matrix T. The sentence in (32b) is ungrammatical, because there is nothing to supply (and retain) the T feature on C. Similar considerations extend to *to*- and *for-to* clauses, which can also appear in subject position:

(33) a. *To be rich* would be nice.
b. *For Mary to be rich* would be nice.

The idea is that *for* is an instance of T-to-C movement, like *that*. The element *to* doubles the 'extraction' site (similar to resumptive pronouns). Movement of *for* to C then supplies the latter with the desired T feature. If *for* is not present, this feature is assigned to C through Agree, instead of movement. Note that their analysis requires lots of technicalities and an interaction between interpretable and uninterpretable features, which also has the effect of duplicating the same sets of features on the attractor and the attracted element. It also requires additional mechanisms that would ensure that the spell-out of *for* in the T position is *to*. It is

unclear what kind of morpho-phonological rule would determine the particular form of the 'resumptive' element after movement has taken place.

On the other hand, under the present analysis, the requirement for *that*, as well as the distribution of *to*- and *for-to*-clauses becomes straightforward. Recall that the subject position corresponds to a D feature in the I-domain. Any element that is compatible with this feature can provide it with some form of lexicalization. If *that*, *for*, and *to* are nominal in nature, then they qualify as appropriate elements to lexicalize the matrix D (and satisfy the EPP). Therefore they can be merged (along with their complement) in subject position. No further assumptions or unnecessary technicalities are required.

4. Extensions

4.1. The parameter of subject extraction

Having provided an account of the *that*-t effect which primarily stems from the properties of the complementizer *that*, partly interacting with the lexicalization (or not) of the subject, let us consider whether the various strategies used for subject extraction can provide further empirical support to our analysis.

As argued in detail in the previous section, *that* requires a propositional complement (this is a generalized property of finite complementizers at least). The realization of the wh-subject in the matrix clause creates a problem to the interpretation of *that* in the embedded clause. Two main solutions seem to be at stake to remedy this outcome. The first is the strategy employed by English: if the subject is not there, *that* cannot be there either. This mechanism of complementizer drop is also found in Danish (Vikner 1995: 121, fn. 30). The relevant example is given below:

(34) 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*, hence this is the strategy employed in (34).

The second solution is to provide an alternative way of realizing the embedded D position, and therefore maintaining the complementizer. This is the mechanism employed by languages which do not (readily) drop the complementizer. The most well-known case is that

exemplified by null subject languages of the Modern Greek or Standard Italian type, as shown in (35a) and (35b) respectively:

(35) a. Pjos nomizis *oti* tilefonise?
who think-2s that telephoned-3s
b. Chi credi *che* abbia telefonato?
who think-2s that has telephoned
"Who do you think has telephoned?"

Focusing on the MG example in (35), we note that the embedded verb necessarily inflects for agreement (the suffix *–e*). If verbal agreement is an alternative way of satisfying the D (EPP), as has been argued in the literature (see section 2.2), then subject extraction will always succeed in MG (and the languages of the same kind) since there will always be a lexicalized D. The difference of course is that D is part of the verbal inflection (thus internal to I) and does not project independently in the clause structure, as in the case of a lexical subject realized by a full DP. In these languages then, the (nominal) complementizer will also have a proposition as its complement in the relevant contexts, despite the realization of the wh-subject in the matrix clause.

As already pointed out, in English the relation of *who* with the embedded predicate is more direct, as there is no mediating D. This is quite reminiscent to the different ways control operates in English and MG. Recall from our discussion in section 2.2 that in English *to*-clauses the verb is in its bare form, and therefore there is a direct relation between *to* and the predicate it embeds, so that the variable introduced by *to* will be directly assigned the thematic interpretation provided by the predicate. In MG, on the other hand, the relation between *na* and the embedded predicate is not direct, since the latter bears agreement. The control interpretation then will have to take into account the features provided by the agreement affix of the embedded verb. A very similar situation arises in the case of subject extraction between English and MG/Italian. In the latter case, the variable bound by the wh-subject is lexicalized as part of the agreement affix, and through that it relates to the thematic interpretation provided by the verb. In English, on the other hand, there is no such mediation, given that there is no distinct agreement affix on *left*.[8] In this respect the wh-operator relates

[8] At this point we have to make the further assumption that the only agreement inflection we see in 3rd person singular (e.g. *leaves*) is not sufficient to lexicalize D. This is supported by the fact that in all cases a full DP is required, cf. *John/he writes novels*.

directly to the embedded predicate. This relation is bi-directional: the wh-phrase seeks a variable, and finds one provided by the predicate; the predicate in turn seeks an element that would saturate its external argument and becomes associated with *who*.

Related to the above point is the question of what excludes the following sentence:

(36) a. **John* thinks left.

b. [$_D$ John [$_I$ [$_V$ thinks [$_C$ [$_I$ [$_V$ left]]]]]]

Note that the sentence in (36) has two (finite) predicates and a single argument in the matrix subject position. The combination of two predicates with a single argument is the typical case of control. So the question is whether (36) can converge with a reading of the following type: *John thinks that John (i.e. he himself) left*. According to what we have said so far regarding subject extraction, the embedded clause can be well formed in the context of a verb like *thinks*. What differentiates this sentence from the one with subject extraction (e.g. *Who do you think left?*) is precisely the fact that the latter, unlike the former, contains a wh-operator which is also distinct from any of the matrix arguments. The ungrammaticality then has to be sought to the association of a single DP with two finite predicates. In other words, the question is what rules out control in a finite clause of this kind. Recall that control requires a number of conditions to be met. The first concerns an appropriate matrix predicate and clearly *think* does not fall in this category. Note that (exhaustive) control predicates impose tense restrictions on their complement, yielding event composition, which in turn yields composition of argument structure. Although *think* is a bridge verb, which somehow triggers a special relation with the embedded clause, it does not however, trigger clause union that would involve event and argument composition. The second concerns the presence of an element that would mediate the obligatory coreference relation; this is the role played by the element *to* which supplies the EPP variable, which in turn becomes available for binding by a matrix argument (or not, as in the case of non-obligatory or arbitrary control). In (36) though there is nothing that would supply this unrealized argument, and therefore control cannot be derived; hence the ungrammaticality.

Let us now go back to the strategies used for subject extraction crosslinguistically. As already pointed out, some languages may employ the mechanism of lexicalizing D. In languages like MG this happens automatically, since agreement on V is always present. Another type is that manifested in subject clitic languages, where (irrespectively of the form of agreement) a clitic is merged in D, thus completing the proposition. This strategy is

attested in various Italian dialects, as the standard examples below show (Brandi & Cordin 1989: 125):

(37) 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 clitic (expletive) *gli* in the embedded clause suffices to provide a lexicalization for the embedded D; thus the complementizer *che* sees a propositional complement. As in the case of MG, the wh-subject *quante ragazze* relates to the embedded predicate indirectly, via the subject clitic but also via verbal agreement. Note that what qualifies for this relation is D, and not other phi-features such as number for example; in fact, the number in the embedded verb is that of the clitic (singular) and not that of the wh-phrase (plural). However, this is an independent property (see Manzini & Savoia (2005) for a full discussion).

A similar pattern has been argued to hold for the French *que* > *qui* rule. As pointed out by Taraldsen (2002), *qui* is the complementizer *que* followed by the clitic *–i*, (see also Rooryck (2000) who also argues that *qui* is *que*+*il*; for Rizzi & Shlonksy (2006) *qui* is the realization of phi features on Fin):

(38) 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 cudesh? (Rheto-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?"

According to Taraldsen (op. cit.) the *que* > *qui* pattern is found in other Romance varieties as well. The data in (38b-d) come from Vallader, a Rhaeto-Romance dialect (see also Manzini &

Savoia (2005) for more data). The *chi* form is found in subject (38b), but not object (38d) extraction contexts, just like French *qui*. Unlike French *qui* though, *chi* can occur in non-extraction contexts as well, realizing the subject, as in (38c); this offers further evidence for the association of *–i* to a subject clitic. On the other hand, if the subject is independently lexicalized as a DP, as in (38d), *chi* is not available. In all these cases, verbal agreement may (but not necessarily) participate, depending on the morphosyntactic properties of the languages under consideration. Note that the lexicalization of the embedded D does not have to be associated with a subject clitic only. A full pronoun may be available in those languages that do not have subject clitics. 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).

The two basic strategies then involve either absence of the lexical complementizer, when this is possible, or some form of lexicalization regarding the embedded D; 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). It is expected at the same time that other strategies may be available, involving those languages that do not really possess nominal complementizers, but exhibit a different kind of embedding through serial verbs, etc.

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

In the analysis provided so far, the *that*-t effect has been attributed to certain lexical properties of the items under consideration in interaction with D. One mechanism is to drop the complementizer, the other to provide an alternative way of lexicalizing D. In this system there is nothing that prevents the two mechanisms to combine in a single strategy. To be more precise, it may be possible that in some grammars it is the nominal complementizer as such that lexicalizes D in a resumptive way. In this case the lexical complementizer would serve a double function and mediate the relation between the wh-phrase and the embedded predicate. This may be the mechanism employed in the various English varieties discussed by Sobin (1987, 2002) where no *that*-t effect arises:[9]

[9] Sobin (2002: 542) also 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:

(i) Who did you say that saw Elvis last week?
(ii) Who do they think that might visit the Pope?

(39) a. Who do you think *that* left?

b. *Who do you wonder *if/whether* left?

As Sobin points out, the ungrammaticality remains with the complementizers *if/whether*. This implies that it is only *that* which carries somehow different properties in these varieties. One option is to assume that, within a split C-system, *that* in (39a) is the realization of Force only and not of Fin as well (see Rizzi 1997, Roussou 2002, Rizzi & Shlonsky 2006). This distinction, although it enables us to assign different features on *that* in the two varieties, it still links this alternative to the realization of phi-features on the lower Fin head.

The question then is how this variation can be accounted for within the present analysis. Recall that *that* is treated as a nominal element. Suppose then that in this particular context *that* can provide a lexicalization of D, similarly to a resumptive or an expletive pronoun (cf. the Italian dialects). This kind of lexicalization cannot however satisfy the interpretive requirement of D; it is in this sense then that *that* is considered to play the role of a resumptive element: the presence of a wh-operator, such as *who*, in the matrix clause is necessary for interpretation to go through. This is further supported by the fact that this option does not overgenerate, i.e. it still blocks sentences like **John thinks that left*. Even if *that* can provide a lexicalization of D, it can give rise to a well-formed interpretation, only when it is part of a wh- (A'-) dependency. Once again, as already pointed out with respect to the ungrammaticality of the sentence in (36a) (**John thinks left*), association of the embedded subject, indirectly realized by *that* in this case, with the matrix argument cannot take place since the contextual requirements provided by the matrix predicate that would trigger control are not met. On the other hand, the wh-phrase in the peripheral position can have precisely this effect, as it is outside the event domain, and thus the argument structure, of the matrix clause.

Although more empirical evidence is required to support the above claim (as is also the case for the 'Force only' approach), it is worth pointing out that if parametric variation is linked to lexical properties, then we may expect that the same element may encode slightly different features across varieties. For example, in Standard MG, the complementizer *pu* is restricted to relative and factive clauses, while *oti* is the typical non-factive one, with a much

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The results showed that 64% of the subjects judged (i) as good, 27% as possible ('maybe') and 9% as impossible. On the other hand, only 22% of the subjects judged (ii) as good, 22% as possible and crucially 56% as impossible. These results show that the matrix verb plays an important role in the grammaticality of subject extraction over *that*.

more generalized use. Interestingly, in some MG dialects, the factive vs. non-factive distinction is neutralized, allowing for *pu* to fulfill the role of *oti* as well; in these grammars, *pu* appears in all *oti*-contexts instead of *oti*, that is also after verbs of saying, belief, etc. (see Nicholas 2001). In these dialects then *pu* does not have the factive characteristic that would restrict its presence to certain types of complements. An understanding of *that* in those varieties that permit a *that*-t effect in English can then be viewed along these lines, in a way that needs to be made more precise; however, such a detailed approach is beyond the scope of the present paper.

The second case that will interest us here 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 (40):

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

According to Culicover (1993) the above data favor a 'filter' approach to *that*-t effects. Within split-C approaches, these data show that *that* has a dual feature specification for Force and Fin, which is put into use when a (topicalized) adverb intervenes, forcing the splitting of these two properties, so that *that* merges in Force (Rizzi 1997, Roussou 2002). In more descriptive terms, the adverb seems to supply the required structure, which is otherwise unavailable when the subject is not present. In other words, the adverbial phrase can 'make-up' for the absence of a D position, so that *that* can be present. In terms of the present analysis, *that* has to see a full proposition, which means that there has to be some element that would supply the D property. It seems that at least some adverbials have this effect, rendering the presence of *that* in the absence of a subject possible.

It is worth mentioning that an altogether different approach is provided by Kandybowicz (2006) who relates the *that*-t effect and its amelioration in (40) 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 an intermediate phrase (IntP) boundary. According to his analysis, this effect is further supported by the following English examples:

(41) a. √/?Who do you think that WROTE Barriers (as opposed to say, *edite* 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.

In (41a) and (41c) (with ellipsis), as opposed to (41b), the embedded verb bears intonation focus; this can be treated along the same lines as the adverbial effect in (40) in the sense that there is some element that sets *that* in a different prosodic unit from the subject trace. The situation in (41d-e) is slightly different as contraction of the auxiliary with *that* improves grammaticality (at least for many speakers, according to Kandybowicz), on the assumption that contraction doesn't, since the trace becomes part of the contracted form (i.e. word internal), and therefore PF-adjacency plays no role word-internally.

The above data present us with a challenge as they show that variation can be even more refined. A split C-system approach cannot, at least readily, account for the data in (40). The question then is whether the analysis presented in this paper, regarding the properties of *that*, can do so. Before we proceed, we should consider a bit more carefully the PF anti-adjacency condition. Although PF seems to play a role, it is not so obvious that a purely PF account is at stake. The first objection concerns the fact that a null element, such as a trace (even in its copy version) would count for adjacency at PF. Suppose that copies do exist, and therefore the trace under consideration is a copy, as in the following configuration:

(41) *Who* do you think that ~~*who*~~ left?

In standard minimalist terms, PF deletes one of the two copies; here, the lower one. Thus its presence becomes irrelevant for adjacency. This is further supported by the fact that a deleted (unpronounced) copy does not count for contraction in (41d-e). Thus the postulation of a purely phonetic account can be problematic even if we assume that a copy is available. Moreover, it is not clear how intonation assignment would count silent elements.

In terms of the present analysis, the ungrammaticality of subject extraction over a lexical C has been attributed to interpretive requirements of the complementizer. More precisely, the subject is not present to lexicalize D, thus the embedded clause cannot count as a proposition and this creates a problem on *that*. Note that PF plays a role, since lexicalization, which is crucially carried out by overt elements only, is the part where syntax and morphophonology meet. So the question is whether in the absence of a lexicalized D, PF

can find alternative ways to provide this missing part. It is perhaps in this respect that the constructions discussed above play an important role: auxiliary contraction adds lexical material to *that*, intervening adverbs or intonational focus on the embedded verb add phonological heaviness on the lexical material that follows *that* (where D should have otherwise been present). In other words, the effect can be remedied once some other (appropriate) lexical material is present, or phonological heaviness is directly added on the PF-adjacent constituent. If this is correct, then a number of implications arise. The first has to do with the various strategies of subject extraction: if this approach is correct, then phonology may supply the missing property. The second has to do with the way LF and PF interact for the purposes of interpretation. If our reasoning is on the right track, there has to be a way so that LF and PF see each other. This is not so straightforward in Chomsky's (1995 and subsequently) system, but is nevertheless obvious in a representational system like that of Brody's (1995 and subsequently) where PF directly sees LF. We leave this issue open as a more detailed account is beyond the scope of the present paper. For current purposes it suffices to say that English can employ alternative strategies (PF-based, as in the case of focus on the embedded V in particular) to make up for the absence of a lexical D in subject extraction.[10]

The final case that will briefly be discussed in this section is that of subject extraction in relative clauses, as in (42), which actually exhibits an anti-*that*-t effect:

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

The requirement for *that*, although subject extraction has taken place, has been another puzzling issue in the subject extraction literature. There seem to be two interacting factors that play a role: first, the *that*-clause is not in an argument position (since it modifies the head of the relative clause), and second, subject extraction takes place locally. In Rizzi's (1990) system, *that* qualifies as a governor, i.e. is compatible with phi-features, due to the

[10] Note also that syntax has to play some role, as not any kind of intervening material between *that* and the verb can uplift the *that*-t effect. Thus only certain types of adverbs can do this, while topicalized objects fail to do so (Rizzi 1997: 310):

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

Thus adverbs and topicalized objects differ crucially. Furthermore, as Rizzi also points out, if the preposed object is focused, then the grammaticality status of (i) improves. Once again, focus plays a role which brings it very close to the requirement for a D.

predicational structure involved in relative clauses; this translates into a [+pred] feature. In older approaches, relative *that* has been treated as an element that can bear the 'index' of the subject (Pesetsky 1981/1982), essentially being the functional equivalent of a relative pronoun. Kayne (1984: 73) further modifies Pesetsky's approach, arguing that it is *that* itself that counts as the antecedent; this idea is supported by the fact that in this case it cannot take a human referent, as shown in the following paradigm:

(43) 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*.

The above character assigned to *that* is very much in the sprit of the current approach. Subject relatives then represent a case where *that* would provide the lexicalization of D, in a way similar suggested for those English varieties that do not show *that*-t effects. Recall also that the argument put forward for those varieties was that *that* can fulfill this role only when it is part of an A'-dependency. The question then is whether something equivalent holds in the present case. Consider the structure of relative clauses proposed by Kayne (1994):

(44) $[_D$ the [student $[_C$ *that* $[_I$ speaks Swahili]]]]

In terms of the raising analysis, the head of the relative clause *student* raises from within the relative to the left periphery of the *that*-clause. The whole clause is further embedded under D. In (44) *that* should fulfill two roles: that of introducing a proposition and that of supplying the D property associated with the subject, which is nevertheless absent, as it is realized in a peripheral position. Given the local configuration between *student* and *that*, the latter becomes part of the dependency headed by the NP (which is further embedded under D, and receives reference). Note that if *that* were absent, the structure in (44) 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.[11] Thus *that* in this context is required to provide the missing part of the

[11] Note that for Chomsky and Lasnik (1977) the ungrammaticality of *that*-less subject relatives is attributed to a processing problem. On the other hand, Doherty (1993) argues that subject clauses may actually surface without

embedded clause, which is in turn associated with the head of the relative clause. A more thorough account requires a detailed analysis of relative clauses, a topic which is not directly part of the present paper.

To summarize, the discussion in this section has focused on the different mechanisms employed for the facilitation 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 D (agreement, subject clitic/pronoun). A combination of the two can be found in those cases where the lexical complementizer fulfils the role of lexicalizing D and introducing a proposition, as in some English varieties or perhaps in subject relatives. Although more discussion is required, the emerging pattern seems to be quite clear. It was also shown that other factors may affect the grammaticality status of subject extraction over a lexical complementizer, such as verb focusing, contraction, intervening adverbials. These can be considered as alternative modes that compensate for the absence of a lexical D in the appropriate position.

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 D property associated with the subject; the interpretation of the unrealised 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 definite 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 in subject extraction of a lexical complementizer, otherwise known 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

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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.

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.

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