THE SYNTAX OF COMPLEMENTISERS

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ABSTRACT

The aim of this thesis is to provide a detailed analysis of certain syntactic properties of Complementisers (C), formulated within the Minimalist framework (Chomsky 1993, Brody 1993). In particular, I discuss three types of syntactic phenomena where the C position is crucially involved. In chapter 1 I provide a brief discussion of the theoretical framework and an overview of the data. In chapter 2 I discuss *that*-t phenomena. In languages like English subject extraction from a position adjacent to C yields ungrammaticality (the *that*-t effect). This is due to a violation of the Empty Category Principle (ECP). I argue that an analysis distinguishing between proper and non-proper head governors (cf. Rizzi 1990) cannot hold within the minimalist framework. Assuming that *that* can be an expletive (Lasnik and Saito 1984, Law 1991a&b), there are two possible chains to be formed: one by moving I-to-C (C is realised as zero) and the other by coindexing C and I (C is realised as *that*). In long subject extraction, I must move to C so that it c-commands the subject trace. In subject relatives, on the other hand, there is subject short movement. Thus I and C can only form a chain under coindexation. If I moves to C, then a configuration is created where both the Operator and its variable end up in the same minimal domain. Thus the Operator cannot be 'ordered' with respect to its trace and the result is ungrammatical. I call this the *Ordering effect*.

In chapter 3 I discuss factive complements. In particular, I consider factivity as a property of the complement clause, specifically of its C. I argue that C in factives bears some feature specification which: (a) derives the semantics of factive complements and (b) blocks adjunct extraction. I argue that the different locality properties of factive complements in Modern Greek (MG) and English can be captured on the basis of different features on the C head. In particular, MG possesses a special C for factives (*pu* vs. the non-factive *oti*) which, I argue, is characterised as [+definite]. The strong islandhood of MG factives is then attributed to definiteness in the same way that definite NP's are opaque to any kind of extraction. As for English, I assume, following Hegarty (1992b), that C is specified for a F(amiliarity) feature. The operator status of a [+F] C is enough to block adjunct extraction only.

Finally, in chapter 4 I discuss the subjunctive. With respect to MG I argue that the empty C triggers movement of the *na*+V complex (an instance of I-to-C movement) according to the principle of Full Interpretation. I assume, following Manzini (1994b), that the subjunctive I is licensed by a sentential operator and forms a dependency of the (Op,...,I) type. Epistemic predicates license the subjunctive because they can be implicitly modal (Veloudis 1985). Moreover, I argue that the presence of an expletive T with epistemic modality allows for independent time reference in the *na*-clause. With respect to the phenomenon of disjoint reference in Romance, I argue that this is due to the presence of an expletive C, while in the Balkan subjunctives coreference is possible due to the availability of I-to-C movement.

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CHAPTER ONE

Introduction

1. Principles and Parameters

One of the main goals of linguistic theory is to provide an explanation for what quite often seems to be a paradoxical state of affairs: it has to account for the similarities attested among the various languages of the world, while allowing for language variation. This 'double' problem has been given major importance within generative grammar, finding probably its best instantiation in the Principles and Parameters framework (Chomsky 1981, 1986a&b, 1991, 1993). The 'similarity' part is accounted for on the assumption that there is a finite set of universal principles which operate in all natural languages. The set of these innate principles constitutes what is usually referred to as Universal Grammar (UG). Language variation, on the other hand, is accounted for under the notion of a finite set of (open) values which are known as parameters. Different languages may choose different values with respect to a certain parameter. The exact parametric properties and their relationship to UG Principles have been the focus of investigation within the Principles and Parameters framework.

In Chomsky (1981, 1986b) and much related work, parameters are taken to be associated with UG principles, that is UG principles themselves may take different values in various languages. In the last few years, however, there has been a major shift in the formulation of parameters. In particular the idea is that parameters are associated with specific lexical items, as argued initially by Borer (1984) and Wexler and Manzini (1987).

This approach has become more or less the standard one in most recent work (Chomsky 1991, 1993, among others) and is based crucially on the distinction of lexical (substantives, open class) and functional (non-substantives, closed class) categories. Lexical categories, such as V(erbs), N(ouns), A(djectives) and to some extent P(repositions) have invariant properties among languages. Functional categories, on the other hand, such as I(nflection), C(omplementiser), D(eterminer), Negation etc., appear to have different (abstract) properties across languages. Parameters are then associated with the abstract properties of functional categories. The task of the present work is to provide a rather detailed account of the functional category C. The approach taken considers some of the abstract properties associated with C, as these are exhibited in a number of syntactic phenomena.

2. The Minimalist Approach
2.1 Chomsky (1993)

The issue of parameters is reconsidered within Chomsky's (1993) Minimalist Approach. The claim that language variation is associated with functional categories (non-substantive elements) remains intact; thus parameterisation is limited to the lexicon. The basic re-appraisal of parameterisation depends on the elimination of the intermediate syntactic levels such as D- and S-Structure. This leaves us with two interface components: PF and LF. The latter is in fact the only level of syntactic representation. Moreover, LF is assumed to be invariant across languages, since it is the level where interpretational requirements are satisfied under the principle of Full Interpretation. In the PF component, on the other hand, differences can be overtly detected as a reflex of the morphological properties of various languages. Within this perspective then, the burden of parameterisation moves to a characterisation of the relevant morphological properties of a particular language. In other words, parameteric variation is determined by

the existence of what is referred to as strong and weak (morphological) features.

The existence of strong/weak features correlates with a checking mechanism which essentially drives syntactic operations. Feature checking can take place either overtly or covertly. In the former case the result is detectable at PF under the SPELL OUT mechanism which maps phrase markers to PF. In the latter case, checking takes place at LF. SPELL OUT may apply at any point in the derivation and this is determined by the presence of strong or weak features. In general, strong features must be checked before LF, otherwise the output will crash at PF, while weak features are invisible to the PF component and can be checked at a later stage in the derivation. This point is best illustrated with the phenomenon of V-to-I raising and the contrast between English and French in (1)-(2) below:

(1) a.   John often kisses Mary.
     b.   *Jean souvent embrasse Marie.

(2) a.   *John kisses often Mary.
     b.   Jean embrasse souvent Marie.

Pollock (1989) and Chomsky (1991) argue that in English I lowers to V, while in French V raises to I. Therefore English does not allow VP adverbials between V and its object NP (cf. (2a)), while this is possible in French, since V-to-I raising at S-structure leaves the adverbial adjoined to VP (cf. (2b)). I-to-V lowering forms an illegitimate chain of the [t, V] type, so Chomsky (1991) argues that at LF the V+I complex moves back to I, and ECP is satisfied. In Chomsky (1993) this analysis is abandoned, since it requires an extra mechanism of LF-raising in English. Within the minimalist approach then the claim is that in either language V comes already inflected from the lexicon and raises at some point to I to check its features against those of I.

The parameter then is formalised as follows: English I has weak features, while French I has strong features. Consequently, overt V-to-I in English need not take place, since weak features are invisible at PF. However, V-raising must take place in French before the derivation reaches LF, due to the strong features of I which require checking in overt syntax. Therefore SPELL OUT takes place before V-raising in English, but after V-to-I movement in French. The crucial point is that at LF both languages look the same in that they have the chain [V+I, t_v] which in Chomsky's terms is a legitimate object, i.e it satisfies Full Interpretation (FI).

The distinction between strong and weak features, and the corresponding positions of SPELL OUT, are closely related to the notion of Economy. LF movement has to take place anyway to ensure that lexical elements are in their appropriate positions so that feature checking has been accomplished and each symbol receives the appropriate interpretation by language-external mechanisms as dictated by FI. Thus LF-movement is considered to be less costly and essentially minimises overt syntax; this is captured under the principle of Procrastinate. Moreover, movement of an element X takes place in order to satisfy its own feature checking requirements and not to facilitate the feature-checking of another element Y; this is the principle of Greed. FI, Procrastinate and Greed ensure that Economy is achieved.

The characterisation of what counts as a strong or weak feature is not really dealt with in Chomsky's work. Apart from the fact that these features are morphologically determined, nothing more is said. There is a potential problem in that it is not clear up to what extent morphology only can determine variation, since there is no one to one correspondence between syntax and morphology. Thus it is possible for one morphological form to be associated with different structures, as in the case of the complementiser *that* which can be used to introduce different types of complement clauses (for example factives and non-factives) giving rise to different syntactic patterns

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in each case (see chapter 3). Leaving these issues aside, the crucial point is that within Chomsky's framework overt movement of an element α from position A_1 to A_2 implies that α is in A_2 in overt syntax, while it is in A_1 when covert movement takes place, as illustrated in (3) below:

(3)   a. $[_{A2} \ \alpha_i]$ - $[_{A1} \ t_i]$: Overt Movement
                ↑ (SPELL OUT)

       b. $[_{A2} \ ]$ - $[_{A1} \ \alpha]$: Covert Movement
                                        ↑ (SPELL OUT)

According to Chomsky (1993) the exact position in which SPELL OUT occurs is determined by the presence of strong and weak features.

2.2 Brody (1993)

Chomsky's Minimalism is a rather mixed framework in that it combines both a derivational and a representational component, where both move α and chains are present. The former is crucially relevant in the derivational part, while the latter is relevant at LF. Brody (1993), on the other hand, provides a purely representational model: the Lexico-Logical Form (LLF). According to this approach move α is redundant since the information it encodes is reflected chain internally anyway. In other words, given that it is chains that form legitimate concepts at LF (a position endorsed by Chomsky (1993)), any extra mechanism that yields the same result is ultimately redundant. The elimination of move α then implies the absence of derivations. Consequently there is direct mapping from LF to PF, as illustrated in (4):

(4)   LF ----> PF

In other words, the SPELL OUT operation relates LF and PF directly. LF is then the interface component for the lexicon and the conceptual systems.

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There are a number of issues arising from this basic conception of (L)LF. Leaving details aside, the underlying idea is that chains are formed presyntactically. This claim follows from the following two basic arguments: first, syntactic structures are projected from the lexicon; second, thematic projection takes place prior to LF insertion since thematic positions are restricted to chain-root positions (the D-set). In the absence of a derivational component and on the basis of the direct mapping in (4), it follows that (contentive) elements must be in their PF position at LF. The point then is how parameterisation is accounted for.

Brody (1993) argues against the need for a checking mechanism, PF-triggering and Procrastinate. In particular, he argues that a checking mechanism requires the presence of features three times. With respect to the subject NP for example, these features will have to appear on the Verb, on the inflection and on the NP itself. After checking, the features disappear from Inflection but are still on both V and the NP. However, this is redundant, since they only have to appear once in order to satisfy FI. Moreover, what seems to be quite relevant is the presence or absence of certain syntactic properties, such as the distinction between opaque and transparent I in terms of thematic transmission as in Pollock (1989) which cannot be considered PF properties, but neverthless give rise to different syntactic patterns (cf. (1)-(2)). In other words, it is not clear how PF, which is a separate component, can enter into the syntactic level and trigger syntactic effects. Similar arguments extend to the Principle of Procrastinate which favours covert movement.

The exact position of (contentive) elements then is regulated by the Transparency condition (Brody 1993: 86):

(5)   *Transparency*
      The contentive category in the chain must be in the highest position licensed by morphology.

Consider for example the French and English data in (1)-(2) above. In the (L)LF framework the claim is that the [I, V] chain is universal. The difference though is that in French V occurs in the highest position of its chain, that is under I, while in English V is morphologically realised in its root position, assuming that this is the highest position licensed by the morphology of the language. In other words, in French it is the head of the [I, V] chain that is spelled out, while in English it is the root of the chain that is spelled out. So the difference between these two languages does not follow from the different levels of checking and consequently of SPELL OUT, since there is only one syntactic level: LF. The schema in (3) above, then, applies in this framework as well, without the requirement though of postulating overt and covert movement, since there is direct mapping from LF to PF. Similar considerations naturally extend to other types of chains (eg. A'-chains).

The Transparency principle in (5) then retains the idea of thematic opacity, adding the requirement that the occurrence of an element in a position other than its root position must be morphologically licensed. Thus language variation reduces to what position chain-internally is actually spelled out at PF, as dictated by the Transparency Principle in (5). One more implication is that parameterisation follows from a combination of lexical (transparent vs. opaque) and morphological information.

In the present work, I provide an approach to the abstract properties of Complementisers that is built on the idea of a single level of representation. In most of the cases the analysis of the various phenomena examined in the following chapters is compatible with both Chomsky's (1993) and Brody's (1993) frameworks. The terms overt/ covert movement are used as cover terms, and can be easily translated into the equivalent terms in any of these models. Syntactic operations are argued to follow to a large extent from structural configurations (in a way to be specified in the following chapter) with no need for postulating strong and weak features in the sense

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of Chomsky, a notion which is unclear anyway. However, the definition of chains of Brody (1993) is crucially adopted in chapter 2, with respect to the association of the C and I positions, and the effects this association has as far as subject extraction is concerned. A formulation along the lines of Chomsky (1993) is also possible, but it would require the use of extra technical machinery. Before we move to a brief outline of the thesis there is one more issue to be mentioned, and that is the implications of minimalism for locality. This will be discussed briefly in the following section.

2.3 Minimalism and Locality

On the assumption that syntactic structures are projected from the lexicon and are defined by the properties (categorial and selectional) of a head, it becomes evident that heads have a crucial role to play in the characterisation of local relations. Consider the following structure which is formalised for current purposes in the form of X'-theory:

(6)
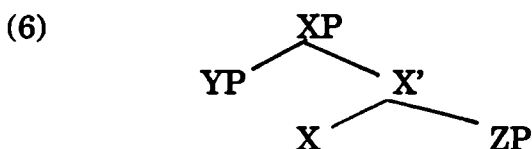
Following Chomsky (1993) we assume that in (6) above the head X enters a local relationship both with its complement, i.e ZP, and its specifier, i.e YP (see also Chomsky (1994) for an account of phrase structure, Kayne (1993) for a principled approach to X'-theory, and Brody (1994) for formalising the spec-head-complement relations in terms of a dependency). The special relationship of a head to its complement and specifier is captured under the notion of *minimal domain*. Thus in (6) above YP and ZP form the minimal domain of X, namely (X). Moreover, ZP is the minimal complement (or internal) domain of X, while the spec YP forms its checking domain (on the basis that feature checking of XP's takes place under the spec-head

configuration).

Apart from these basic relations the notion of minimal domain has a
crucial role to play in the formation of dependencies. Consider the following
examples:

(7)   a.   What$_i$ did you think [that Peter repaired t$_i$]?
      b.   *What$_i$ did you wonder [how Peter repaired t$_i$]?

The grammatical (7a) involves argument extraction out of a *that*-clause,
while the ungrammatical (7b) is a case of extraction from a *wh*-island.
Following Chomsky (1993) we can assume that the ungrammaticality in (7b)
arises because the moved element has skipped one position, namely the
embedded spec,CP. Movement to this position would have been shorter had
it not been already occupied by another *wh*-phrase, i.e 'how'. The
ungrammaticality of (7b) can then be interpreted as a Relativised Minimality
violation (Rizzi 1990); according to Chomsky it violates Economy.

Chomsky (op. cit.), however, does not define any further how economy
in the sense of shortest move is defined with respect to the above examples,
and moreover how exactly the notion of minimal domains is exploited in ECP
phenomena for example. This task is taken up by Manzini (1994a, in prep.)
who defines minimum distance as adjacency of minimal domains (cf. (8)):

(8)   (X) and (Y) are adjacent iff there is no (Z) such that some member of
      (Z) contains (X) and does not contain (Y), or viceversa.

This is best illustrated in the following configuration:

(9)
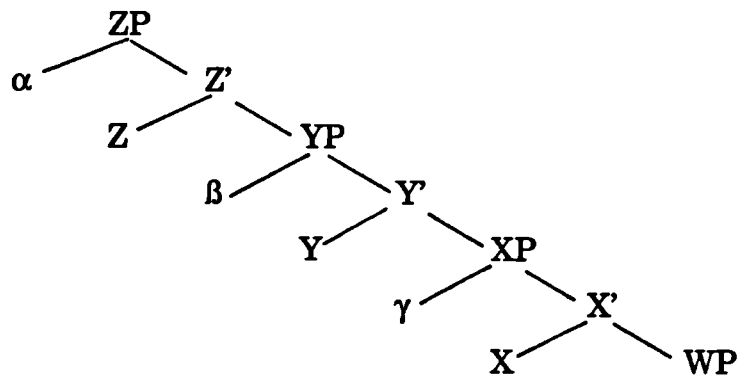
In (9) above (X) and (Y) are adjacent, since there is no minimal domain intervening between them. (X) and (Z), however, are not adjacent because there is another minimal domain intervening between these two, namely (Y). Thus dependencies are well-formed as long as they run across adjacent domains, so that shortest move is always achieved and consequently Economy is satisfied. This is essentially captured under the definition of the Locality Principle below (from Manzini (1994a)):

(10)   *Locality*

Let A_i be in (X_i). Given a dependency $(A_1,...,A_n)$, for all i, (X_i) and (X_{i+1}) are adjacent.

Thus the principle in (10) underlies the formation of head-, A', and A-dependencies. The exact details of this analysis will be dealt with in the following chapters with special reference to subject extraction and factive islands.

Note crucially that the Locality principle in (10), which is built on the notion of minimal domains, makes crucial reference to heads in the formation of dependencies, since (X) is defined with respect to its head X. Thus locality phenomena are based on the properties of heads and in particular on the formation of head-dependencies. (The effects of head movement with respect to A'-movement have been discussed, in a somewhat different form though, in Law (1991b) and Hegarty (1992a&b)). One final point regarding the

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principle in (10) is that it accounts for Economy on representational terms, so the definition of minimum distance in terms of steps within the derivation does not arise. In the following chapters I will discuss the participation and effects of the head C in the formation of dependencies.

3. Complementisers: an overview of the data

Within the Principles and Parameters framework the relation between the V and I system has been dealt with in a number of studies. For example, there have been various proposals as to whether V raises to I or I lowers to V; what allows for the first possibility and excludes the second (i.e I-lowering); and how this relationship could be captured in a principled way, either in the form of a checking mechanism (Chomsky 1993), or in terms of thematic transparency/ opacity (Pollock 1989). Moreover, the properties of the I system itself have also been analysed. The +/-finite specification of I (cf. Stowell 1982), or its splitting into various projections such as Tense and Agreement, as for example in Pollock (1989), Chomsky (1991) among others, are just some of the issues that have been considered. In comparison the C system has received a less detailed analysis within the most recent Principles and Parameters framework.

The role of C in matrix clauses has been studied with special reference to the V-2 phenomenon in the Germanic languages (starting with den Besten (1983)), or with respect to residual V-2 constructions in the sense of Rizzi (1991a). The properties of C in embedded clauses, however, have not been fully studied (but see Bresnan's (1972) older analysis, and most recently Pesetsky's (1991) work), despite the fact that the C position in embedded clauses appears to be the key link between the matrix V and the embedded I. In other words, C enters a double relation configuration: it relates to V under selection, while at the same time it relates to I, for reasons that need

to be clarified. Any kind of dependency formed between V and I will of course necessarily include C. The location of C between matrix and embedded clauses cannot be expected to have trivial consequences. The aim of this thesis then is to show that the properties related to this double association of C are responsible for a number of phenomena, which would otherwise seem to be unrelated.

Consider for example the following sentences:

(11) a. Who$_i$ do you think (*that) t$_i$ left?

b. Who$_i$ do you think (that) Peter met t$_i$?

(12) a. The man Op$_i$ *(that) t$_i$ left is my friend.

b. The man Op$_i$ (that) Peter met t$_i$ is my friend.

In (11b) and (12b) the extraction gap is in the object position and the sentences are grammatical irrespective of the presence or absence of the complementiser. The ungrammatical sentences in (11a) and (12a) involve a subject gap. They differ though in that (11a) becomes grammatical in the absence of *that*, while (12a) becomes grammatical in the presence of *that*. This is the well known case of the *that*-t and anti-*that*-t effect respectively (Chomsky and Lasnik 1977). Rizzi (1990) claims that C as a proper governor in (11a) is realised as zero, allowing therefore for subject extraction to take place. In subject relatives as in (12a), however, the property of C as proper governor is spelled out as *that*. Thus the opposite realisation of C as a proper governor in (11a) and (12a) is considered to be an accidental case of morphological spell out: zero for complement clauses, but *that* for subject relatives. However, this asymmetry is too striking to be a mere coincidence.

Interestingly what underlies the constructions under discussion is the distinction between long and short movement in (11a) and (12a) respectively. Moreover, the requirement for an overt or zero C is crucially related to the

subject gap, but not to the object gap (either in complement or relative clauses, as indicated by the examples in (11b) and (12b)). The important points, then, are the adjacency of the subject gap to C, the relation of the subject to I, and finally the effect of long vs. short movement. Based on these premises, it seems natural to draw the preliminary conclusion that it is the relation between two adjacent C and I heads that underlies *that*-t phenomena. If the reasoning so far is correct, then the requirement for the zero form of C in (11a) vs. the overt one in (12a), could cease to be a mere morphological accident and receive a principled explanation. The exact details of the analysis with respect to the association of C and I and the effects for long and short movement are discussed in chapter 2.

Similarly the relation between C and I gives different results regarding the binding possibilities of an embedded subject in the Romance and Balkan subjunctives, as in (13a) and (13b) from Italian and Modern Greek (MG) respectively:

(13)   a.   *Voglio che io vada.
                 want-1s that I go-1s
                 "I want to go."

       b.   Thelo na figho.
                 want-1s prt leave-1s
                 "I want to leave."

The Italian subjunctive complement in (13a) blocks coreference with the matrix subject, while this is possible in its MG counterpart in (13b). Most of the approaches to this phenomenon attribute disjoint reference solely to the properties of the subjunctive I (cf. Picallo 1985). Note though that there is a basic difference between (13a) and (13b): the former has an overt C, while the latter case has no complementiser, assuming that *na* is the subjunctive marker, thus an inflectional element (Veloudis and Philippaki-Warburton (1983) among others). Thus the different effects regarding subject obviation

can be attributed to the presence vs. absence of an overt C (cf. Terzi (1992), Motapanyane (1994) for proposals along those lines). Furthermore, the absence of an overt C can trigger movement of the *na*+V complex (essentially I) to C, under the principle of Full Interpretation. The properties of the subjunctive I then in combination with the possible associations between the C and I positions (eg. overt C vs. I-to-C movement) can account for the different binding restrictions on the embedded subject, probably in a way similar to the effects of C and I in subject extraction in (10) above. The relation of C and the subjunctive I is the topic of chapter 4.

Consider finally the examples in (14) from MG which appear to be of a rather different nature:

(14)   a.   *Jati$_i$ metanioses pu efighes t$_i$?
             Why regretted-2s that left-2s
             "*Why$_i$ did you regret that you left t$_i$?"

       b.   *Pion$_i$ metanioses pu sinandises t$_i$?
             who regretted-2s that met-2s
             "Who$_i$ did you regret that you met t$_i$?"

The matrix predicate in (14) belongs to the class of factive predicates (Kiparsky and Kiparsky 1970). In both MG and English construal of the adverbial in (14a) with the embedded clause is blocked. Argument extraction in (14b) is possible in English, as the translation shows, but ungrammatical in MG. The contrast between (14a) and (14b) allows us to derive the conclusion that factive complements are weak islands in English (cf. Cinque 1990), but strong islands in MG. The C *pu* is used with factive complements, while the C *oti* is used with non-factives. Since it is only *pu* that has the effect of blocking argument extraction, as the contrast between MG and English in (14a) indicates, we could assume that it is a property of this particular Complementiser to exhibit blocking effects of this type.

If this is a correct assumption, then the following two points arise: first it is possible that the C-head blocks adjunct extraction as well, and second that a similar analysis can hold for the English data with the proviso that C allows for argument extraction in this case. Assuming then that C is responsible for the locality effects attested in (14), we can preliminarily conclude that C can bear some sort of feature specification that rendersit an operator. Continuing this line of reasoning we derive the major implication that heads can block A'-(adjunct) dependencies. This is essentially the topic of chapter 3 where I provide evidence for the operator status of C in factives and the effect of heads in the formation of dependencies (based for the latter on the theory of Manzini (1994a, in prep.)).

In short, the purpose of this thesis is to provide an account of the abstract properties associated with C. To achieve this end, I will provide empirical evidence from a variety of constructions, which include crucially *that*-t phenomena, factive complements and the subjunctive.

CHAPTER TWO

I-to-C Movement and Subject Extraction

1. Introduction

One of the most well-known phenomena in the literature is that of the *that*-t effect, that is the ill-formedness of complementiser-trace sequences in languages like English. The ungrammaticality of the relevant constructions was first attributed to the violation of the *that*-t filter (Chomsky and Lasnik 1977). Since then various attempts have been made to provide a principled account of the phenomenon. Thus *that*-t effects are considered to be the result of a subject/object asymmetry, given that subjects and objects occupy different structural positions in the clause structure. Within that perspective the *that*-t effect has been reduced to an ECP violation.

The different explanations provided depend crucially on the formulation of the ECP as a disjunctive or a conjunctive statement (cf. Chomsky (1986a) and Rizzi (1990) for example). Further complications arise as it appears that the *that*-t effect may not be attested crosslinguistically, while variation within the same language is also possible giving rise to the so called anti-*that*-t effects. In the latter case, complementiser-t sequences are not only acceptable but obligatory in certain contexts, as in subject relatives. It becomes clear therefore that any empirically adequate account of the phenomenon has to take all those facts into consideration. Furthermore, to the extent that we require our grammar to be constrained in a principled way, we should seek for an explanation that ideally is based on a minimal set of assumptions which will in turn follow from general

principles without the postulation of any extra machinery. This is the line that I will pursue in the present work.

This chapter is organised as follows: in section 2 I present the data and discuss some of their main properties, providing therefore the setting for the discussion that will follow. In section 3 the *that*-t effect and the various proposals that have been put forward will be considered. In particular I argue, both on conceptual and empirical grounds, that the *that*-t effect as a violation of the head-government condition of the ECP (cf. Rizzi 1990; Law 1991a&b) is not desirable. In section 4.1 I propose an alternative within the Minimalist framework of Chomsky (1993) and Brody (1993). The proposed analysis is based on the relationship between the C and I positions, and the possible ways in which these two may be associated (section 4.2). In section 4.3 the empirical consequences of this analysis are explored. In section 5 the anti-*that*-t effect and the problems associated with the various approaches are discussed. In sections 6.1-2 I propose an account of the anti-*that*-t effect as the result of subject short movement. In particular, it is argued that an Operator and its variable cannot occur in the same minimal domains (this will be called the *Ordering effect*). Finally, in sections 6.3 and 6.4 I provide independent evidence for this proposal coming from other constructions that involve subject short movement and discuss some of the theoretical implications this analysis has.

2. Subject extraction: the data

Consider the following examples in English:

(1)   Who$_i$ do you believe (*that) t$_i$ left?

(2)   Who$_i$ do you believe (that) Peter met t$_i$?

In (1) subject extraction is allowed as long as the complementiser *that* is absent. In (2) on the other hand object extraction is allowed irrespectively of the presence of the complementiser. Subject/object asymmetries of that type arise in other constructions as well, such as relative clauses, where the pattern actually attested with respect to subject extraction is the reverse of that in (1) above:

(3)   The man *(that) left is my neighbour.

(4)   The man (that) you saw is my neighbour.

In object relatives, as in (4), the complementiser is again optional. In subject relatives, however, *that* has to be present obligatorily. Notice incidentally that the subject/object asymmetry exemplified in (3)-(4) above is not restricted to English but is also found in Norwegian for example (Taraldsen 1986a):

(5)   Vi kjenner den mannen *(*som*) snakker med Marit.
           "We know the man that is talking with Mary."

(6)   Vi kjenner den mannen (*som*) Mari snakker med.
           "We know the man that Mary is talking with."

Norwegian distinguishes between two complementisers: the complementiser *at* which introduces complement clauses and the C *som* which occurs in relative clauses. *Som* furthermore is similar to *that* in that it is obligatory with subject relatives, as in (5), but optional with object relatives, as in (6).

Extending the pattern a bit more, we notice that at least in English subject/object asymmetries of that type arise in matrix clauses as well:

(7)   Who$_i$ t$_i$ left? (vs. *Who did leave?)

(8)   What$_i$ did you buy t$_i$?

It seems that in (7) I-to-C movement in the form of *do*-support cannot take place (the construction is grammatical when *do* bears emphatic stress, but this is not crucially relevant to our discussion). In (8) on the other hand, where object-movement is at stake, subject-aux inversion takes place whereby *did* moves to C.

Let us now turn back to the data in (1) and (3). What these sentences have in common is that they involve a subject gap. However, in (1) where subject extraction takes place out of a complement clause, the complementiser *that* has to be absent. This is known as the *that*-t effect. On the other hand when the subject gap is within a relative clause, as in (3), *that* has to be present (the anti-*that*-t-effect). Therefore, asymmetries arise not only with respect to subjects and objects but also within subject extraction as well. In order to provide an explanation for the different patterns in (1) and (3) we have to take into consideration the different properties of the constructions in question. At a descriptive level these fall into the following two categories: (i) (1) involves complementation, while (3) is a relative clause (which is an instance of predication); (ii) (1) is a case of long subject-movement, while (3) involves short subject movement: the null operator moves from the spec,IP to the immediate spec,CP (Chomsky 1977). The relevant question then is to what extent these properties interact with the presence of *that*-t and anti-*that*-t effects in (1) and (3) respectively. Notice that an analysis that is based on (i) will have to attribute *that*-t and anti-*that*-t effects to the idiosyncratic properties of the different constructions they occur in, that is complementation vs. predication. This is essentially the position advanced in Rizzi (1990), Law (1991a&b) among others. On the other hand, an analysis based on (ii) will have to attribute the phenomenon to some underlying condition, which remains to be specified, that regulates the formation of operator-variable dependencies, i.e how close the Operator and the variable can occur in the clause structure. Thus the pattern attested both in subject relatives, as in (3), and matrix clauses, as in (7), will fall under the same constraint. In the present work I will argue for the latter position.

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3. The *that*-t effect: some previous accounts

3.1 The disjunctive ECP solution

Let us first consider subject extraction out of a complement clause, as in (9) below:

(9)   Who$_i$ do you believe (*that) t$_i$ met Mary?

The ungrammaticality of (9) with the complementiser present was originally treated by Chomsky and Lasnik (1977) as a violation of the *that*-t filter:

(10)   * [$_{S'}$ that [$_{NP}$ e]...]

The filter in (10) was postulated to rule out *that*-t sequences. This analysis is no longer acceptable in current theories, as the phenomenon is only stipulated and no explanation is provided. Moreover, the filter is not adequate. Looking at the phenomenon from a crosslinguistic point of view, it was noticed that there are indeed languages where sequences of this type do not give rise to ungrammaticality. Leaving aside, for the time being, the issue of null-subject languages (cf. Perlmutter's (1971) generalisation and Rizzi's (1982) analysis), we notice that there are also non-pro-drop languages that allow for subject extraction from a position adjacent to C with the complementiser present, as the examples in (11a) and (11b) below from German and Dutch (cf. Maling and Zaenen 1978) respectively indicate:

(11) a.   Wer$_i$ glaubst du [*daß* t$_i$ das Buch gelesen hat]?
          "Who do you believe has read the book?"

      b.   Wie$_i$ denk je [*dat* t$_i$ het getaan heeft]?
          "Who do you think has done this?"

The two most recent accounts of the *that*-t effect that I will consider here are the ones proposed by Chomsky (1986a) and Rizzi (1990). The crucial

point is that these two alternatives treat the *that*-t effect in a slightly different way. Chomsky (1986a) offers a disjunctive formulation of the ECP and within that perspective the phenomenon is due to an antecedent government violation (minimality). Rizzi (1990) on the other hand argues for a conjunctive ECP; in that respect the *that*-t effect is due to a (proper) head government violation. Notice that if the disjunctive or conjunctive ECP is reduced to a single clause, then both of these accounts of the phenomenon will have to be reformulated.

Let us start with the Barriers' approach (Chomsky 1986a) where the ECP is stated as in (12) below:

(12)   A nonpronominal empty category must be:
          (a) theta-governed, or (b) antecedent governed

Theta-government is defined in terms of sisterhood to a lexical head (L-marking). Subjects are not theta-governed because they are not sisters to a lexical head. Therefore they need to satisfy the second clause of the ECP, that is they need to be antecedent governed. Consider now the *that*-t effect:

(13) a.   *Who did you believe [t' [$_C$ that [t came]]]?
      b.   Who did you believe [t' [$_C$e] [t came]]]?

Chomsky (op. cit.) argues that in (13a) the subject trace *t* in spec,IP fails to be antecedent-governed by *t'* in the spec,CP. The idea is that the presence of an overt C induces a minimality effect, i.e C' counts as a minimality barrier. The *that*-t effect then is reduced to an ECP violation. In (13b) on the other hand C is empty (i.e it is not lexically filled) and cannot count as a barrier to government. Therefore *t* is antecedent-governed and the ECP is satisfied, hence the grammaticality.

The problem that arises within this approach has a more general

nature and has to do precisely with the definition of barriers. In particular, if we allow an X'-projection to be a minimality barrier, in the sense of Chomsky (1986a), then movement should be severely constrained. For example, as Chomsky (op. cit.) pointed out, V' should also be a (minimality) barrier. The fact that it is not has to be stipulated by saying that V' does not project, i.e we have the following structure:

(14)

VP
V' —— (NP)

As for I', that also needs to be defective with respect to barrierhood in the same way that IP is.

3.2 The conjuctive ECP solution

Rizzi (1990), on the other hand, argues for a conjunctive ECP as in (15):

(15)   A non-pronominal empty category must be:
         (a) (properly) head governed (licensing) and
         (b) antecedent governed or theta governed (identification).

Under Relativized Minimality the subject trace in spec,IP (cf. (13a)) is antecedent governed by the trace in spec,CP; therefore condition (b) is satisfied. However, t is not head-governed within the immediate projection of I. Moreover, *that* -a potential head governor- does not belong to the class of proper governors; so condition (a) of the conjunctive ECP is violated and the sentence is ruled out as ungrammatical.

Note, however, that if *that* is absent, as in (13b), then subject extraction is possible. According to Rizzi (op. cit.) C becomes a proper governor in English when it takes its agreeing form. The idea is that when

the trace moves to spec,CP agreement between C and I is triggered. I agrees with its spec under spec-head agreement, and C agrees with its spec for the same reason. The trace in spec,CP is identical to the trace in spec,IP, thus these two have to agree. By transitivity I and C will also agree. This is illustrated in (16):

(16)
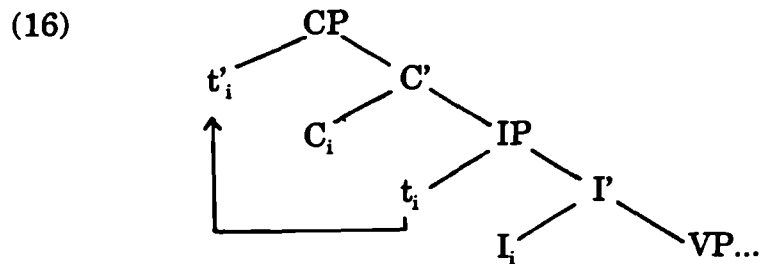
Agreement-in-C is a language specific strategy. The agreeing form of C is morphologically realised as zero in English. In languages like French agreement of that sort is morphologically manifested (the *que/qui* alternation (cf. also Kayne (1976) and Pesetsky (1982)):

(17)   Qui crois-tu *qui/*que* t va venir?
         Who do you believe (*that) will leave?

Thus *qui* is a proper governor because it has Agreement features, while *que* is not; hence the ungrammaticality when *que* is present.

Notice that Rizzi's (1990) analysis works only on the basis of a conjunctive ECP. Crucially, the definition of proper government is based on the following two notions: c-command (in the form of government within the immediate projection of a head) plus the distinction of heads into proper and non-proper governors. However, the c-command requirement is already implicit in the second clause of the ECP in (15), i.e the antecedent government clause (the identification condition). In that sense it is a primitive notion of government (or of dependencies) in general; thus there is no need for it to be restated as part of the definition of (proper) head

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government. Let us now return to the distinction between proper and non-proper governors. In the analysis offered by Rizzi (op. cit.) the two classes of governors are not constrained in a principled way; for example C is inert for government in English (unless it has its agreeing form) but not in German or Dutch. Therefore the list of heads that can be proper governors is a parameterised property. If one assumes that this distinction is not desirable on conceptual and/or empirical grounds, then condition (a) of the ECP in (15) becomes invalid. As a consequence the account of the *that*-t effect will have to be viewed from a different perspective.

Based on the same conjunctive formulation of the ECP, Law (1991a&b) offers a slightly different account of the *that*-t effect. He attempts to constrain the set of proper governors to lexical elements only, thereby excluding the presence of functional categories from that set and eliminating this distinction on more principled grounds. C is a functional element; so it does not belong to the set of proper governors. In order for the subject trace to be properly governed (under c-command) the C position has to be occupied by a lexical element such as V at LF. Law's analysis is to a large extent based on the assumption that Complementisers are expletives (cf. Lasnik and Saito 1984, Taraldsen 1986a), hence given the Principle of Full Interpretation (FI) Complementisers are eliminated at LF. There are two ways to obtain this: (a) by deletion or (b) by substitution. In languages like West Flemish (WF) for example, where Agreement-in-C is morphologically manifested in declarative complement clauses, option (b) is adopted (examples from Haegeman (1992)):

(18) a. Kpeinzen *da* Valere morgen goat.
         I-know that-3s Valere tomorrow go-3s
         "I know that Valere is going tomorrow."

      b. Kpeinzen *dan* Valere en Pol morgen goan.
         I-know that-3pl Valere and Paul tomorrow go-3p
         "I know that Valere and Paul are going tomorrow."

According to this analysis C and I in WF share a set of phi-features. At LF
the complementiser deletes and I raises to C and substitutes for it, so that
FI is satisfied. If C and I do not share a set of features then the
complementiser deletes but no substitution need take place.

Let us now return to subject extraction. Under the conjunctive ECP
the subject trace has to be head-governed by a lexical head. At LF C deletes
and I, which incorporates V, raises to C. Thus when I moves to C at LF it
already contains a lexical element and therefore I (or to be more specific the
[V+I] complex) qualifies as a proper governor. Notice, however, that this
proposal as it stands makes the wrong predictions for English. Consider the
following sentence:

(19)   *Who you do think that t left?

The LF structure of (19) is given in (19'):

(19')   Who$_i$ do you think [$_{CP}$ left$_{[V+I]}$ [t [t$_V$+t$_I$ [....]]]
                                          ↑_____|

Suppose that at LF (the level at which the ECP is operative) the
complementiser deletes and the [V+I] complex moves to C. If this is true then
the subject trace will be properly governed and therefore the sentence in (19)
should be grammatical (at LF) contrary to fact. In order to explain the *that*-t
effect in English, Law (op. cit.) assumes that the Principle of Last Resort
(which states that move α applies only in order to yield legitimate objects)
operates and prohibits I-to-C movement. In particular, the Op in the spec,CP
of the matrix clause and the variable form a legitimate object at LF. As far
as head movement is concerned, Law assumes that I lowers to V at S-
structure and raises back to I at LF (cf. Pollock 1989, Chomsky 1991). After
raising of the [V+I] complex to I at LF, the [I, V] chain forms a legitimate
object, so no movement to C is further required. As a result the subject trace

fails to be head-governed and an ECP violation arises, hence the ungrammaticality of (19).

Consider finally the explanation of the *que/qui* alternation in French which is based on the postulation of a [+Op] feature. The assumption is that in French both I and *qui*, but not *que*, are specified for the [+Op] feature. At LF *qui* is substituted by I on the basis that they share a set of phi-features by virtue of the presence of the [+Op] feature and therefore head government is satisfied. Suppose that *que* is present. *Que* deletes at LF but it cannot be replaced by the [V+I] complex due to feature incompatibility. Hence the subject trace fails to be head-governed and the sentence is ruled out as ungrammatical.

It should be mentioned at this point that although Law adopts a conjunctive formulation of the ECP he differs from Rizzi (1990) in the following respects: he does not assume that it is the subject trace in spec,CP that triggers agreement. In languages where complementiser-t sequences are allowed this is interpreted as a result not of Agr-in-C in the sense of Rizzi, but of abstract [V+I] movement to C. In German (and Dutch) for example, subject extraction out of an embedded clause is allowed given that (abstract) I-to-C movement takes place. This property of German (and Dutch) is independently present, as the V-2 phenomenon in root clauses indicates. This then explains the grammaticality of the data in (11). In English on the other hand the complementiser deletes at LF but the Principle of Last Resort applies and prohibits I-to-C movement, hence the *that*-t effect.

There are however, a number of problems with Law's analysis, as it is based on a number of stipulations. First of all why should the Principle of Last Resort apply in English only and not in other languages? Secondly, the postulation of a [+Op] feature for French but not for English remains mysterious. Thirdly, Law posits a parameter at LF, a level which at least in current terms (cf. Chomsky (1993) among others) is assumed not to be

parameterised, with regard to English by prohibiting I-to-C movement or at least some form of association of these two positions. In addition to that the operation of a Last Resort rule as the result of a language particular mechanism is postulated. Finally, Law in his analysis leaves out a very crucial point: he does not explain why (19) becomes grammatical when C is zero, or to be more precise why C has to be zero obligatorily so that the *that*-t effect is avoided. Law (1991b) assumes that when *that* is absent, the embedded clause is not a CP but an IP, a position rather difficult to maintain (cf. Pesetsky's (1991) treatment of all complement clauses as CP's).

Let us now consider the requirement for head-government more closely. As already mentioned, both Rizzi's (1990) and Law's (1991a&b) accounts are based on the notion of proper head-government. Within the minimalist framework of Chomsky (1993) head government is considered to be a redundant notion. In that respect only *local* relations are relevant, such as the ones that hold between a head and its complement (this is the most crucial locality relation) and between a head and its spec; the spec and the complement constitute the *minimal domain* of a head (this will become crucially relevant to our discussion of anti-*that*-t effects later on). This relationship essentially follows from X'-theory and should be considered as the sole residue of head-government. The empirical consequences are clear, for example as far as Exceptional Case Marking (ECM) constructions are concerned. Moreover, and relevant to our discussion, the distinction between proper and non-proper governors ceases to exist. In other words, the distinction between lexical categories being proper governors and functional categories being defective in that respect (Law 1991a&b) is dispensed with. Under locality each head has a 'privileged' status regarding its complement and its specifier. Finally, and most crucially, the question of a disjunctive or conjunctive ECP does not arise: given that the head-government clause has been eliminated, what remains is antecedent government. Notice incidentally that antece_dent government (i.e essentially c-command) is relevant to chain formation, a notion that enters into all dependencies; we will come back to

this issue later on in our discussion. For the time being, the immediate question that arises is how we are going to explain the *that*-t effect within this framework.

3.3 The *Locality* solution

Consider next the Locality Principle as in Manzini (1992). Suppose that the crucial part of the ECP is actually the second clause in (12) and (15), namely the one that requires antecedent government. This is indeed subsumed under the Locality principle below:

(20)   *Locality*

If α is a trace, there is an antecedent ß and a sequence (ß,...,α) that satisfies government.

Under (20) a sequence is defined as a set of coindexed positions that need to satisfy c-command (pair-wise). The different extraction possibilities attested between arguments and adjuncts are derived from their idiosyncratic properties. For example, the former but not the latter bear a particular relationship to a head. This is formalised in terms of addressing (cf. Manzini (op. cit.)):

(21) α has an address if there is a ß that α is a visible argument of.

The mechanism that makes an addressed argument visible is Case-marking (or incorporation in the sense of Baker (1988)). Consider next movement, and in particular the formation of A'-dependencies. When adjuncts move they need to satisfy antecedent government, thus they form ordinary chains, while arguments can long move (cf. Rizzi (1990); Cinque (1990)). In the Locality framework, A'-dependencies of arguments can be either ordinary chains or

make use of the addressing mechanism. An address-based dependency is well-formed as long as the Operator and the variable are linked via a sequence of heads, starting from the head that makes the argument visible upwards, in a way similar to Chomsky's (1986a) Extended CHAINS. In this case then, it is the intermediate heads that need to satisfy some sort of antecedent government, i.e c-command. The crucial point here is that an address-based dependency needs to contain both the variable (the addressed argument) as well as the addressing head, namely the head that makes the argument visible.

Let us now consider subject extraction. Suppose that when the subject moves, it forms an address-based dependency. Both I (as the addressing head of the subject) and the trace in spec,IP must be included in the sequence. The problem is that I is not in a position to c-command the subject trace. Manzini at this point follows essentially the strategy proposed by Rizzi (1990): that is Agr-in-C. Suppose that C and I agree. C is also in a position from where it c-commands the subject trace in spec,IP; therefore under agreement with I it qualifies as the addressing head and can be included in the sequence.

Notice that this analysis, although similar to Rizzi's, eliminates the need for proper government by substituting the notion of a proper governor with that of a Case-marking head. As was already mentioned, Rizzi's (1990) definition of proper government requires both a proper governor and c-command. Recall that the distinction between proper and non-proper governors turned out to be rather problematic. Moreover the c-command requirement does not have to be stated separately, since it follows directly from the Locality Principle in (20) as a well-formedness condition on dependencies. Thus it seems that this account has conceptual advantages over the one proposed in Relativised Minimality. One point that has to be specified though is what is meant by Agr-in-C, or to put it in more general terms how I is related to C in this case.

Having outlined some of the problems associated with the previous accounts of the *that*-t effect, I will next try to provide an alternative that follows from the Locality Principle above and to some extent from the notion of chains as in Brody (1993).

4. I-to- C movement and the *that*-t effect
4.1 The relation between the C and I positions

For present purposes I will follow the Locality Principle as stated in (20) above. I will next offer an account of the *that*-t effect by extending the proposal of Manzini (1992). In particular, I will show that the so called "agreement" between C and I is triggered without having movement of the subject to the spec,CP and that the *that*-t effect is an epiphenomenon that results from the different possible ways of associating the C and I positions (see also Roussou (1993)). To establish this I will assume (i) that some (but not all) complementisers are expletives in that they are semantically vacuous, thus adopting and adapting Law's (1991a&b) proposal and (ii) that the association between the C and I positions in complement clauses is required for independent reasons and can be carried out in different ways. The assumption in (i) has already been discussed in the previous section were Law's analysis was presented briefly. I will therefore concentrate on the parts of (ii) essential to our discussion.

Suppose we view the relationship between the C and I positions as the result of a well-formedness condition that requires clauses to be temporally evaluated, i.e to be linked somehow to the Utterance/Speech time. Direct linking of that type is found in matrix clauses. As far as complement clauses are concerned Enç (1987) argues that their tense is evaluated either partially or exclusively with reference to that of the matrix clause (Tense Anchoring). In Enc's analysis T-anchoring in both matrix and embedded clauses is

mediated through the C position (a proposal that goes back to Stowell (1982)). Leaving lots of technical details aside and simplifying the discussion, we notice that Hornstein's (1990) discussion of the Sequence of Tenses (SOT) phenomena is more or less in the same spirit. In his analysis SOT (a form of T-anchoring in our terms) is satisfied under government. In other words, the embedded T must be governed by the matrix V, i.e it has to enter a locality configuration with V, so that it will be evaluated with respect to the utterance time. In the same vein Manzini (in prep.) offers empirical evidence that T-anchoring obeys locality constraints, rendering it a syntactic phenomenon. For T-anchoring to take place, the embedded I has to establish a crucial link with the matrix V. The (V, C, I) (head) dependency is well-formed as long as all the intermediate heads are included; otherwise Locality will be violated. This is illustrated in (22) below:

(22)
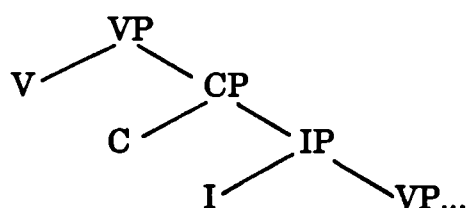
As shown in the representation in (22), the C position must be part of the sequence so that it provides the link between the matrix V and the embedded I head. If it is not included, Locality will be violated.

It seems therefore that a relationship between I and C has to be established independently of subject movement. What remains to be defined is the mechanism by which this association is carried out. In other words the question is whether there is (overt or covert) I-to-C movement or some other sort of linking of these two positions. We expect that in principle all options should be available. Which option is chosen will be determined to a large extent by the morphological properties of the language in question, giving rise therefore to parametric variation. Consequently the outcome in each case will (or will not) be visible at PF, in accordance with the representational

models of Chomsky (1993) and Brody (1993).

Let us suppose that there are two possible ways of associating the C and I positions. One is by incorporating I to C, in other words of I-to-C movement when the C position is empty. If this movement is abstract, i.e takes place at LF, the C position will be spelled-out as zero at PF. If it is overt, then I (or the [V+I] complex) will appear under C in PF. This will be similar to an embedded V-2 construction, as in many Germanic languages (cf. Vikner (1990) for example). The alternative is to form an expletive-argument chain on the assumption that C can be an expletive element. As a result, when spell out takes place the C position will receive phonological content, i.e *that*. The crucial point to bear in mind is that, as far as T-dependencies are concerned, all the relevant heads will be included in either case and therefore Locality will be satisfied. However, as will be shown shortly these two possibilities yield different outputs when it comes to subject extraction, i.e the mechanism employed in each case gives rise to different syntactic effects. We will turn to this issue shortly.

Suppose that the C position contains an expletive complementiser such as the English *that*. As mentioned before in complement clauses C participates in the formation of a Tense dependency. Furthermore, in order for the principle of Full Interpretation to be satisfied the expletive C will have to be linked to a contentive element, such as I, the head that carries Tense (and Agreement) features. The C position then will have to form an expletive chain with I. The formation of this chain can be considered similar to the one we encounter in *there*-constructions:

(23) a. There arrived a man.

      b. [There]$_i$ arrived [a man]$_i$

Consider briefly the sentence in (23a) and its LF representation in (23b). The association of the expletive *there* with the DP *a man* is required by FI as well

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as for independent reasons such as agreement with the postverbal DP for example. As (23b) shows the chain formed contains the expletive *there* and the DP *a man*. This configuration can be achieved by replacing the expletive (Chomsky 1986b) or by adjoining the argument to it (Chomsky 1991). Brody (1993), however, argues that no replacement or adjunction needs to take place as long as these two elements form a chain. The crucial point is that in Brody's framework move α is subsumed under the notion of chains, completely eliminating any derivational component in the grammar. The principle of FI will be respected as long as the expletive is associated with an argument, on the basis that FI does not apply to single items but to Chains (see also Brody (1993) for the claim that other expletives such as NP-, adjunct and head traces need to be present at LF). If this is correct, then we expect the same reasoning to extend to other expletive elements such as C. As long as the expletive is associated with a contentive element then the Principle of FI will be satisfied with no need for movement to take place. The representation therefore is as in (24):

(24) $[...[_{CP} [_C \text{ } that]_i [_{IP} [I_i]...]]...]$

Suppose next that C is empty. In this case the C position is licensed by abstract incorporation of I to C. The relevant chain is the one in (25) whereby I is under C:

(25) $[...[_{CP} [_C I_i] [_{IP} [_i t_i]...]]...]$

Keeping the parallelism with (DP) expletive-argument chains, we could say that the chain formed is similar to the one attested in sentences, such as (26):

(26) a. A man arrived.
     b. [A man]$_i$ arrived [t$_i$]

In (26) the DP is in a preverbal position and therefore the chain formed includes both the DP and its trace, as the LF representation in (26b) shows. (In Brody's framework the formation of chains like the one in (26b) does not require movement, since chains are inserted directly from the lexicon and are mapped onto syntactic structures at LF, the single level of representation. This clarification though does not affect our analysis.) Notice at this point that the parallelism we wish to draw on the basis of the examples in (23) and (26) refers to the possibility of forming two different chains: one that contains an (overt) expletive and one that contains a trace.

This possibility can extend to head-chains as well, as has just been argued for the C and I elements. Note incidentally that although the analysis proposed here is in some way similar to that offered by Law (1991a&b), it differs crucially from it. First, on independent grounds, it requires an association between C and I in complement clauses; second, it eliminates the need for the operation of a Last Resort Rule in English, an operation which becomes crucially relevant in long subject extraction. Moreover, as we will see shortly, in this way we can derive the *that*-t effect without using (proper) head-government (as in Rizzi (1990) and Law (1991a&b)) and also account for the obligatory zero form of C in subject extraction.

4.2 Expletive chains and subject extraction

Let us now go back to subject extraction, as in (27), and see how the possibility of forming two different (head) chains is relevant to the grammatical (or ungrammatical) result we get:

(27)   Who$_i$ do you believe (*that) t$_i$ left?

Recall that the zero form of C is obligatory when the subject is extracted out of a complement clause. Recall also that in our terms the zero form is the

spell-out of abstract incorporation of I-to-C. Thus it seems that in (27), when the subject is extracted out of a complement clause, the only permissible chain is the one that includes I under C and the trace, i.e $[I_i, t_i]$ (as in (25)), but not the one that includes the expletive C and I (as in (24)). Recall also that I as the addressing head of the subject in spec,IP (i.e the head that Case-marks or checks its Case and N-features) has to be included in the sequence. Therefore I has to c-command the subject trace. I in its original position cannot c-command its spec. However, I under C can. This is schematically represented in (28) below:

(28)
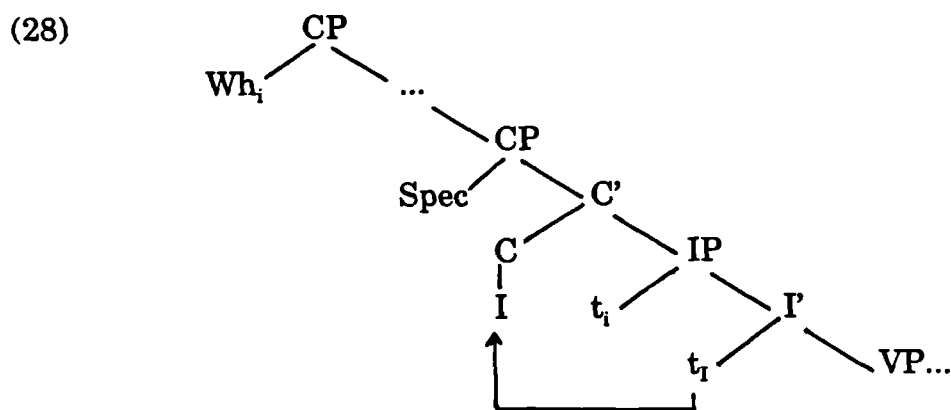
Thus in order for the c-command condition (and consequently for Locality) to be satisfied I has to be under C, hence the zero form of C^1. If, on the other hand, we decide to form the expletive chain, I will no longer be in a position to c-command the subject trace, since it will remain in its original position. As a result Locality will be violated, and the sentence will be ruled out as ungrammatical, as is in fact the case in (27) with the complementiser present.

To summarise so far, it has been argued that the zero form of C in (standard) English reflects abstract movement of I to C which is obligatory when subject extraction is at stake. Crucially this analysis is formulated within a representational model, and it is in this respect then that we talk about abstract I-to-C movement albeit with overt syntactic effects. Furthermore, this alternative could be considered as a re-interpretation of

the Agreement-in-C strategy offered by Rizzi (1990). The implicit assumption is though that the zero form of C in English is not triggered by subject movement to spec,CP but is obtained on independent grounds as a result of the association of the C and I positions. This is also the suggestion offered by Law's (1991a&b) analysis. The difference, however, between Law's analysis and the one proposed here is that the former but not the latter is based on a conjunctive formulation of the ECP and an (implicit) distinction between proper and non-proper head governors. Given the elimination of the head government requirement what we have retained is the notion of c-command. Therefore the *that*-t effect can be accounted for without postulating the operation of a Last Resort for English, while the zero form of C in subject long movement is also accommodated without invoking the presence of an IP embedded clause.

In the following section, I will discuss some of the empirical consequences of the proposed analysis.

4.3 Some empirical consequences.
4.3.1 Declaratives and embedded interrogatives.

Let us next consider some of the empirical implications this analysis has. If this approach is correct then we expect it to extend to those constructions where *that* is optional as well, as in complement clauses (cf. (29a), or in object and adjunct extraction (cf. (29b-c)):

(29) a. I think (that) Mary left.
      b. What do you think (that) Mary saw?
      c. *Why do you think (that) Mary left?

As already mentioned both (head) chains, i.e [*that*, I] and [I_i, t_i] are in principle available, unless locality constraints are imposed as in the case of

subject extraction. This is clearly indicated by the examples in (29). If the "trace" chain is chosen then C will be spelled out as zero. If on the other hand the "expletive" chain is formed then C will be spelled out as *that*[2]. Thus we do not have to specify two different types of C-zero for embedded declaratives: one for those constructions where it is purely optional (cf. (29)), and another as the result of Agr-in C, as in Rizzi (1990).

An apparent problem arises with respect to the absence of an overt complementiser in embedded interrogatives, as in the examples below:

(30)   a.   I wonder where Mary went.

        b.   I wonder what Peter bought.

The question is whether the absence of *that* can be interpreted as I-to-C movement. The cooccurrence of the complementiser *that* with a wh-phrase in the spec,CP is ruled out as a violation of the doubly filled Comp Filter (Chomsky and Lasnik 1977) or as a result of feature incompatibility between spec and head, since *that* is [-*wh*] and the phrase in spec,CP is [+*wh*]. Notice that the C position in embedded interrogatives is not an expletive element since it is specified for the +Q feature. In that respect it cannot be interpreted as semantically vacuous. If *that* is an expletive C then its absence from the constructions in (30) is expected. Suppose next that the zero form reflects abstract I-to-C movement. I will leave aside the issue of why this movement is not overtly realised, at least in (30b), as is the case with matrix interrogatives. This will have to be accounted for by whatever condition regulates embedded/root asymmetries with respect to I movement to C in English (cf. Rizzi (1991a) for example).

Consider next subject extraction out of a wh-island:

(31)   a.   *Who do you wonder what bought?

        b. Who_i do you wonder $[_{CP}what_j$ [C]$[_{IP}t_i$ [I] bought t_j]]

If I is under C in (31b) then it is in a position to c-command the subject trace and therefore the result should be grammatical, contrary to fact. Rizzi (1990) accounts for the ungrammaticality on the assumption that the subject trace cannot move to the spec,CP and therefore agreement-in-C is not triggered; therefore an ECP violation arises, since the trace in spec,IP is not properly governed. Note, however, that if subject movement to spec,CP is not required then there has to be some alternative away to account for the ungrammaticality in (31a).

Suppose that the dependency formed between *who* and its trace is in fact well-formed. I is in a position to c-command the subject trace and Locality is satisfied. The problem then arises with the wh-phrase in spec,CP. I cannot be included in the dependency formed by object movement, since it bears the address (the index) of the subject. Therefore Locality will be violated, since co-indexation fails (see also Manzini (1992) for a more detailed discussion of this issue).

4.3.2 Comp-t effects in other languages

Consider next the consequences of the proposed analysis for the absence (or presence) of *that*-t effects in languages other than English. Let us first concentrate on the *que/qui* alternation in French, as in (17b) above repeated here as (32) for ease of reference:

(32) Qui_i crois-tu qui/*que t_i va venir?

Under the proposed analysis the *qui* form reflects the presence of I in C. It seems that in all the other cases French forms an expletive chain, and only when it comes to subject extraction allows for a "trace" chain, that is abstract incorporation of I-to-C, exactly as in English. Notice that this is again quite similar to what Law (1991a&b) proposes with the additional advantage that

it does not require the stipulation of a [+Op] feature.

Subject extraction in German, on the other hand, does not exhibit a uniform pattern. First of all there are dialects where (long) subject extraction is allowed albeit with the complementiser absent, as in (33):

(33)　　　　Wer hast du gesagt ist gekommen?
　　　　　　"Who did you say came?"

Rizzi (1990) argues that the pattern in (33) is attested in those varieties of German (and Dutch[3]) that have productive V-2. In particular, subject extraction is allowed as long as embedded (V-to-) I-to-C has taken place, as the absence of the complementiser indicates. Thus the grammaticality of (33) is explained under the assumption that in these dialects C is intrinsically specified for the appropriate morphosyntactic features that make it a proper governor. Following the analysis proposed by den Besten (1983), Rizzi (op. cit.) assumes that these features in C are identified as Tense features. Notice, however, that if we eliminate the distinction between proper and non-proper governors, then the pattern in (33) will have to be explained in some other way. Note that V-to-C movement consists of two sub-chains: one that associates V with I (for the reasons exemplified in Chomsky (1993) among others) and one that associates I (or the [V+I] complex) with C. According to what we said before about the association of the C and I positions, it follows that the difference between (some varieties of) German and English reduces to the availability of overt vs. covert I-to-C movement respectively; notice incidentally that this parametric choice is also attested in the case of V-2 in German matrix clauses, while English allows for residual V-2 only (Rizzi 1991a). Notice also that I-to-C movement may be attested in embedded declaratives as well independently of subject extraction, albeit with the complementiser absent, as in (34) (from Vikner (1990)):

(34)　　　　Sie sagte (*daß) wir sollten keine Bücher kaufen.
　　　　　　"She said (that) we shouldn't buy any books."

Going back now to the example in (33) it is clear that it is the presence of I in C that allows subject extraction to take place, since I is in a position to c-command the subject trace in spec,IP.

Secondly, in Northern German dialects subject extraction is not allowed, as (35) shows:

(35)   *Wer hast du gesagt [daß gekommen ist]?
            "*Who did you say that came?"

The ungrammaticality of (35) is not surprising, given that in these dialects long-movement is generally disallowed (cf. Bayer 1984; McDaniel 1989; Anyadi and Tamrazian 1993). Thus object extraction is also blocked:

(36)   *Was hast sie gesagt daß Peter gekauft hat?
            "What did she say that Peter bought?"

Finally, there are varieties where Complementiser-t sequences seem to be allowed, as in (37):

(37)   Wer glaubst du [daß t das Buch gelesen hat]?
            "Who do you believe has read the book?"

The data in (37) at first appear to be problematic for our analysis. Within an account that distinguishes between proper and non-proper head governors, the grammaticality of (37) is attributed to the intrinsic properties of *daß* that render it a proper governor. However, under the proposed analysis, if *daß* is like the English *that* then its presence should imply that we can only form an expletive chain with I. But then if this is correct the prediction should be that the sentence in (37) is ungrammatical, contrary to fact. There is, however, an alternative account. We could assume that (for at least the dialects under discussion) there are two subject positions available, extending in that respect the analysis offered by Diesing (1992). Suppose that

extraction takes place from a VP-internal position, as in null subject languages (cf. Rizzi 1982, 1990). Then I is in a position to c-command the subject trace and the dependency is well-formed. In this case the expletive chain formed between C and I does not affect subject extraction. A conclusive analysis would require a more detailed account of the V-2 phenomenon, the structure of embedded CP's (i.e is there CP recursion for example), and of the possible subject positions along with the interaction of scrambling phenomena. However, such an analysis is beyond the scope of the present work. For our purposes it suffices to say that the possibility of subject movement out of a VP-internal position remains a viable option and one that requires more research[4]. Notice at this point that the account suggested here with respect to the data in (33)-(37) has no empirical, but only theoretical advantages over the one proposed by Rizzi (1990). In particular it allows us to derive certain phenomena that arise as far as subject extraction is concerned, without invoking the ad hoc distinction between proper and non-proper head governors.

4.3.3 The adverbial effect

Consider finally the following set of data from Culicover (1993) which are supposed to be problematic for an ECP account of the *that*-t effect:

(38) a. Robin met the man who$_i$ Leslie said that *(for all intents and purposes) t$_i$ was the mayor of the city.

b. I asked what$_i$ Leslie said that *(in her opinion) t$_i$ had made Robin give a book to Lee.

The idea is that the presence of an adverbial element after the complementiser suspends the *that*-t effect. This pattern is attested with negative adverbials as well, as in (39):

(39) a. Leslie is the person who$_i$ I said that under no circumstances would t$_i$ run for any public office.

b. Robin met the man who$_i$ Leslie said that only then had t$_i$ seen anything moving.

On the basis of these data Culicover (op.cit.) concludes that an ECP account of the *that*-t effect cannot go through, since the presence of an adverbial blocks Agr-in-C and therefore the proper government clause of the ECP should be violated. However, the sentences are grammatical.

Culicover (op.cit.) assumes that even if we postulate an additional projection between CP and IP (the Polarity Phrase in his terms) the grammaticality of the above examples cannot be explained. The structure he suggests is as in (40):

(40)

```
              CP
           /      \
        Spec       C'
              /        \
            C           PolP
                      /      \
                   Spec       Pol'
                          /        \
                        Pol         IP...
```
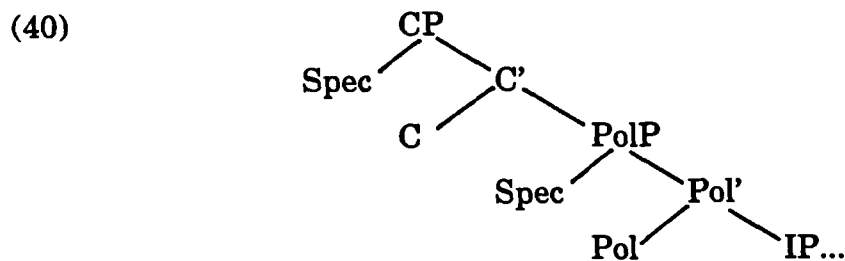
Suppose the adverbial element is in spec,PolP. Then the subject trace cannot move to that position. Therefore Agreement is not triggered and the head Pol cannot count as a proper governor although it is 'radically' empty (in Rizzi's (1990) terms). If it is lexically filled, as in the negative inversion in (39), then Agreement is excluded in principle and an ECP violation should arise. On the basis of these data Culicover (1993) concludes that the account originally proposed by Chomsky and Lasnik (1977) in terms of a *that*-t filter is empirically more adequate.

Notice, however, that under an analysis that does not require the

presence of a trace in the spec,CP (or PolP) for Agr-in-C to be triggered, the above data do not present a problem. Consider the configuration in (40). The existence of a phrase between CP and IP (at least for embedded clauses) is well-motivated (cf. the Focus Phrase (FP) of Brody (1990), Tsimpli (1990), or CP-recursion in embedded topicalisation, as in Authier (1992)). In the examples in (38) the adverbial moves to the spec,PolP (or spec,FP). The head position is empty. When subject extraction takes place I moves to Pol (or F), for the reasons outlined above (i.e to provide the links for a head-dependency), and therefore it is in a position to c-command the subject trace in spec,IP. The presence of the complementiser higher up in the clause structure is not relevant and for this reason there is no *that*-t effect attested. The same story extends to the data in (39) where the presence of a negative phrase triggers obligatory subject-aux (see also Rizzi's (1991a) residual V-2 phenomenon). Once more I is in a position to c-command the subject trace. The difference between (38) and (39) is that in the former I-movement is abstract, while in the latter it is, for independent reasons, overt. Thus, with respect to these data the proposed analysis has theoretical advantages over the one advanced in Rizzi (1990).

To conclude, it has been argued that *that*-t effects will always arise as a result of a subject/object asymmetry. These effects, however, can be voided by using different mechanisms made available by UG and exploited in different ways amongst languages on the basis of their morphosyntactic properties. For example, I-to-C may take place either overtly or covertly as in some German dialects and English respectively. This type of movement follows in both cases from a general condition (i.e 'temporal anchoring') that requires an association between the C and I heads. When the subject is extracted I under C is in a position to c-command the subject trace in spec,IP and extraction is allowed. The same holds for the *que/qui* alternation in French. When (abstract) incorporation is not attested the other possibility is to move from another subject position whenever this is permitted, as in null-subject (and possibly in some Germanic) languages. Alternatively the subject

moves from spec,IP forming an expletive C-chain, thereby giving rise to ungrammaticality. The alternative option in the latter case is to make use of a (subject) resumptive pronoun to rescue the presence of an unlicensed trace, as in the cases discussed by Rizzi (1990).

Having provided an alternative account of the *that*-t effect based on the possibility of forming two types of chains between C and I and having considered some of the empirical consequences, we will next turn to the anti-*that*-t effect and see how the proposed analysis extends to account for this phenomenon as well.

5. The anti-*that*-t effect: some previous accounts
5.1 Previous accounts

As already mentioned in section 2 subject extraction in English does not show a uniform pattern. This is evident when we look at long subject extraction out of a complement clause and subject movement in relative clauses, as the well-known contrast between (41a) and (41b) respectively shows:

(41) a. Who do you believe (*that) left?
      b. The man *(that) left is my neighbour.

(41a) is a clear case of a *that*-t effect when the complementiser is present. In (41b) on the other hand, the complementiser *that* is obligatory: in its absence the sentence becomes ungrammatical; this is known as the anti-*that*-t effect. What is interesting is that both (41a) and (41b) involve a gap in the subject position. However, there is an asymmetry as far as the presence vs. absence of the complementiser is concerned.

In Chomsky and Lasnik (1977) the anti-*that*-t effect was stated as an "unless clause" of the *that*-t Filter:

(42)   *[$_{S'}$ that [$_{NP}$e]...]

    Unless S' or its trace is in the context [$_{NP}$ NP __ ...]

According to (42) the *that*-t sequence in relative clauses is distinct from the one in complement clauses, given that it occurs in a different context, namely within an NP. Once more the condition in (42) only describes the phenomenon, without providing any principled explanation. The relevant point to bear in mind is that (42) attributes the *that*-t and the anti-*that*-t effect to the different structural configurations in which the subject gap is attested. Thus (42) essentially reduces the phenomenon to the difference between complement and relative clauses. The relevance of the distinct contexts as far as subject extraction is concerned is also encountered in more recent analyses, such as those proposed by Rizzi (1990) and Law (1991a&b), as we will see shortly.

Pesetsky (1982), on the other hand, provides a different account of the anti-*that*-t effect. The obligatory presence of *that* in subject relatives arises from Chomsky's (1981) *Nominative Island Constraint* (NIC) in (43):

(43)   A Nominative Anaphor cannot be free in S'.

In the EST framework traces of wh-movement are considered to be anaphors, since they need to be bound by an operator. Their distribution then is regulated by the constraint in (43). When subject extraction takes place out of a complement clause, the intermediate trace in Comp (Pesetsky's account is formulated in the S/S' framework where no spec,CP is available) binds the nominative trace in subject position. Since English disallows a doubly filled Comp (cf. Chomsky and Lasnik 1977), the complementiser has to delete. If the trace deletes, the nominative trace will be left unbound in the lower S'.

53

This then derives the *that*-t effect. The structure is illustrated in (44) after the deletion of *that*:

(44)　　　$[_{S'2} [_{COMP1} Wh_{i[+nom]}] [...[_{S'1} [_{COMP2} t_i] [_{S1} t_{i[+nom]}...]]$

Consider next subject relatives. If the Wh-word were to delete (i.e the null operator in *that*-relatives) so that *that* would be phonetically realised, yielding thus the correct output (cf. (41b)), then the trace would be left unbound, violating the NIC. The process that takes place to ensure the correct output (i.e the anti-*that*-t effect) is formulated as the result of a *COMP Contraction Rule*. This is schematically represented in (45):

(45)　　　$[_{COMP} Wh_i \text{ Complementiser}] \text{ ---> } [_{COMP} \text{complementiser}_i]$

Under the *Contraction Rule*, the complementiser acquires the index of the Wh-operator and the subject trace is bound by Comp; so the NIC is not violated. Crucially, this option takes place when there is an Operator in Comp but not a trace; in the latter case the Comp Contraction rule cannot work due to the different properties of (intermediate) traces and Operators. Although Pesetsky's analysis is formulated within an older theoretical framework where a number of filters were still active, it has an important implication. In particular, it attributes the anti-*that*-t effect not to the distinction between relatives and complement clauses as such but to the presence vs. absence of an Operator in Comp. This is one possibility that has not been fully explored in the recent literature.

5.2 The conjunctive ECP analysis

Rizzi (1990) attributes the anti-*that*-t effect to the context where the subject trace occurs, that is he draws a distinction between complement clauses and relatives. For present purposes we will assume that the structure of

(restrictive) relative clauses is as in (46):

(46)

NP

NP

CP

Op$_i$

C'

C

IP

that t$_i$

I'

I

VP....
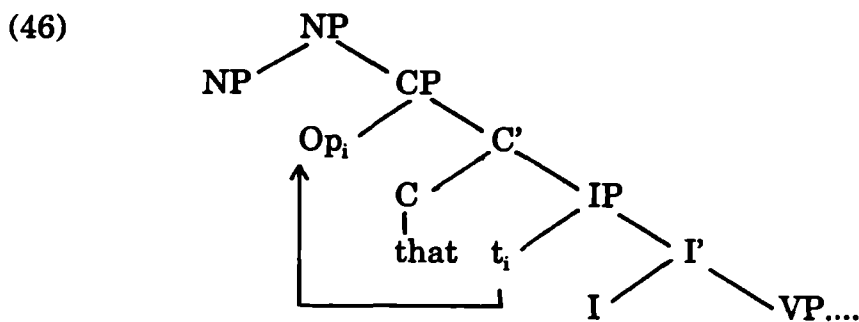
As the schema in (46) shows, the trace in spec,IP is antecedent governed by the (null) Operator in spec,CP. Therefore the antecedent government clause (the identification condition) of the conjunctive ECP is satisfied. The question is how the head government requirement clause is respected in the above configuration. I does not head-govern the subject trace within its immediate projection. Therefore C must count as a proper governor.

As already mentioned with respect to the *that*-t effect C becomes a proper governor if it carries agreement features. Thus the complementiser *that* used in relatives will have to be somehow different from the one used in complement clauses. Within Rizzi's (1990) analysis the distinct properties of these two complementisers are captured in terms of a binary feature specification. In particular, *that* in relatives is specified as [-wh, +pred], while *that* in complement clauses is [-wh, -pred]. Therefore the difference is attributed to the presence vs. absence of the predicate feature respectively. The assumption within this framework (but not in Pesetsky's (1982) analysis for example) is that the null operator in relative clauses is not specified for the *wh*-feature, since it is phonetically empty, so no clash of features arises in relative clauses. Rizzi furthermore proposes that the complementiser *that* in subject relatives carries agreement features and therefore can qualify as a proper governor. The crucial point is that this is not an instance of Agreement with an A'-position (i.e the spec,CP), given that null operators have anaphoric properties and as a consequence they do not trigger

agreement, but with the head of the relative clause (the subject of predication) which is an A-position. This is illustrated in (47) below:

(47)   [NP$_i$ [NP$_i$] [$_{CP}$ Op [C$_i$] [$_{IP}$ t [I]...]]]

As (47) shows, coindexation between C and the NP gives rise to A-agreement. The spell-out of C carrying A-agreement is *that* in English, *qui* in French, *som* in Scandinavian and so on. Therefore the Agreement-in-C strategy is once more chosen albeit with a different spell out in English subject relatives. Thus both clauses of the conjunctive ECP are satisfied, since the Agreeing form of C can now properly govern the subject trace in spec,IP.

As we can see from the brief discussion of Rizzi's account, the *that*-t and anti-*that*-t effects are essentially reduced to two different types of Agreement, based on the different properties of complementisers in each case. In the former case we have agreement of C with an A'-position, while in the latter we have agreement with an A-position. There are a few points though that need to be clarified. First of all the question is whether we actually need to postulate the presence of a [+pred] feature. Notice that predication is a syntactic/semantic notion that is obtained under a certain structural configuration. Even if *that* is specified as [+pred], we still need to get the correct structural representation (captured in terms of mutual m-command in syntactic terms) in order to derive a predication relation between an NP and a CP in this case. So the postulation of this feature could turn out to be redundant. Furthermore it is not clear that it is the C position that has to agree with the head of the relative (the subject of predication). In fact it is primarily the null operator that has to be licensed under coindexation with the head of the relative clause (cf. Browning 1987). C will ultimately be coindexed with the head of the relative as a result of spec-head agreement. Finally, if we assume that there is no need for a disjunctive or conjunctive formulation of the ECP due to the elimination of the head-government clause, then an alternative account will have to be provided for

the anti-*that*-t effect.

As was mentioned in section 3.2, Law (1991a&b) argues that only lexical categories are proper head governors. In this respect, he differs from Rizzi (1990) and he argues that the complementiser *that* used in complement clauses and the one used in relatives is one and the same entity. The explanation he provides for the anti-*that*-t effect runs as follows: the standard assumption is that the CP and the NP in relative clauses enter a predicate-subject relationship. Following and extending proposals by Holmberg (1986) (cited in Law (1991b)) and Taraldsen (1986b), Law assumes that the relative clause must be headed by a [+V] category in order for it to qualify as a predicate. Exactly as in the case of complement clauses, the complementiser *that* is an expletive element. Thus under the Principle of FI it has to delete at LF. After *that* is deleted I, which incorporates V, raises to C in order to provide the CP with a [+V] head. As a result the subject trace in the spec,IP is properly governed. Notice crucially that the Principle of Last Resort does not apply in relatives, as it does in complement clauses, because I movement to C is required for independent reasons. In other words, I-to-C is required to specify the CP as [+V] so that the predication requirement is satisfied. This is illustrated in (48) below:

(48) $[_{NP}$ $[_{NP}..]$ $[_{CP}$ $[_{C}$ I+V] $[_{IP}$ $[_{I}$ $t_{I+V}]$ ...]..]]

Consider though a zero relative which has a gap in the subject position, as in (49):

(49) *The man saw John.

According to Law the LF-structure of (49) is as in (49'):

(49') The man $[_{IP}$ Op_{i} $[_{IP}$ t_{i} saw $[_{VP}$ t John]]]

In the absence of an overt complementiser, Law assumes that CP does not project. Predication can be satisfied by adjoining the null Operator to IP, since the relevant notion of mutual m-command with the head of the relative will be satisfied. At LF the [V+I] complex raises back to I. Given that there is no C position it cannot move further up. The problem that arises is that the subject trace in spec,IP is not properly governed, so the conjunctive ECP is violated; hence the anti-*that*-t effect.

Once more one of the problems associated with this analysis is that it is based on the notion of proper government. There is, however, a further problem under this proposal that refers to the structure in (48) and was already noted by Law (1991b). In particular, it is well-known that there are predicates which are not specified for the [+V] feature. Consider the following examples:

(50) a.   Mary is [$_{NP}$ a teacher]

　　　 b.   I consider John [$_{NP}$ the leader of the team]

In (50a-b) the predicate is an NP: *a teacher* and *the leader of the team* respectively. NP's are [-V]; nevertheless, contrary to what Law suggests, they enter into predication as the above examples indicate. Thus the basis of Law's argument with respect to (subject) relative clauses is suspect.

In the following section I will argue for an alternative analysis to the anti-*that*-t effect which will be based on the two types of chain that can be formed between C and I. Furthermore I will show that the anti-*that*-t effect falls under the more general phenomenon of short subject movement.

6. Subject short movement and the anti-*that*-t effect.
6.1 The *Ordering* effect.

The main purpose of this section is to provide an alternative account of the anti-*that*-t effect. Recall that under the analysis put forward in section 4.1 regarding the *that*-t effect, the zero form of C was interpreted as the result of (abstract) I-to-C movement. As already mentioned (cf. section 4.2) this is obligatory in long subject extraction (i.e out of a complement clause) so that I is in a position to c-command the subject trace in the spec,IP. In subject relatives, however, *that* is obligatory. According to the explanation provided for the *that*-t effect, the obligatory presence of *that* is interpreted as lack of I-to-C movement. In other words the only permissible head-chain is the expletive one: $(that_i, I_i)$.

One could claim that it is a property of relative clauses in general that the complementiser is always overtly realised. However, this is not true since in object relatives for example *that* is optional:

(51)   The book [(that) Mary bought] is on sale.

Thus object relatives pattern with the clauses in (29) where the complementiser is optional. Since *that* is obligatory in subject relatives, it seems natural to conclude, as in the relevant literature, that its presence relates closely to the subject gap. Therefore the question that remains to be answered is why an expletive chain is permissible in this case, while abstract I-to-C movement has to be excluded[5].

The basic assumption is that the complementiser *that* used in relative clauses is the same as the one used in complement clauses (cf. Law 1991b). However, the difference between subject relatives and complement clauses is that the former, but not the latter, involve the presence of an operator in the spec,CP. Given that the (null) Operator moves from the spec,IP to the

immediate spec,CP, movement of this type is short movement. I will argue that it is precisely because of this short movement that abstract incorporation of I-to-C cannot take place in subject relatives. In order to justify this analysis, a number of assumptions will have to be introduced.

Let us first consider Chomsky's (1993) notion of *minimal domains*, given in (52) below:

(52)   The minimal domain (X) of a head X is the set of nodes contained in its minimal projection that are distinct from and do not contain X.

What (52) implies is that (in the simplest case) the minimal domain of a head X consists of its spec and its complement. Consider for example the configuration in (53):

(53)
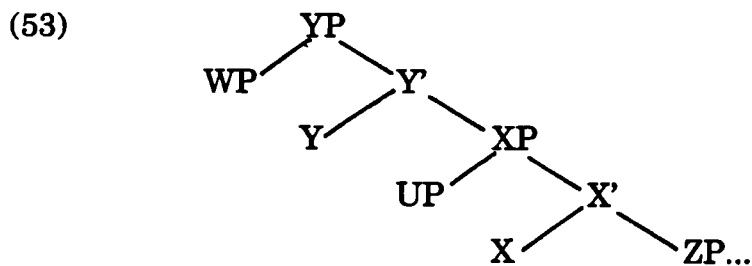
The minimal domain (X) of the head X is {UP, ZP}, i.e its spec and its complement. Accordingly the minimal domain (Y) of Y is {WP, XP}. Suppose now that X were to raise to Y. This would create an 'enlarged' minimal domain not for X but for the chain [X+Y, t_x]. The minimal domain of the chain now is {WP, UP, ZP}. As a result of this movement WP, UP and ZP are no longer in different (minimal) domains but end up being in the same minimal domain, the one created by the chain [X+Y, t_x]. According to Chomsky (1993) they are *equidistant* (γ in the definition below can be anything):

(54)   If α, β are in the same minimal domain, they are equidistant from γ.

Suppose now that in the representation in (53) we replace X with I, Z with C, and UP and WP with the subject trace and the (null) operator respectively, as in (55) below:

(55)
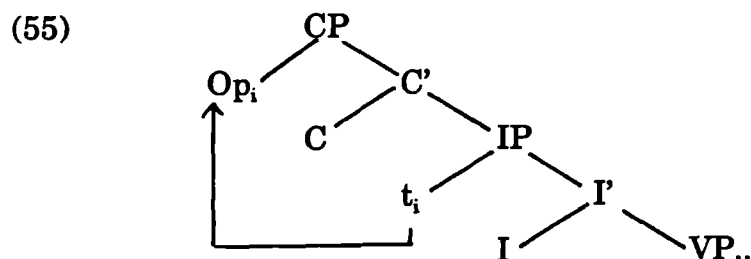
In (55) the subject has moved from the spec,IP to the spec,CP. Spec,IP is in the minimal domain of I, i.e in (I). Spec,CP on the other hand is in (C), that is in the minimal domain of C. Suppose furthermore that I-to-C movement takes place. This creates an enlarged minimal domain for the chain [I+C, t_I]. Notice crucially that this enlarged minimal domain holds for the [I+C, t_I] link only. As a result of this movement the Operator and its trace end up in the same minimal domain. In other words they become equidistant. Intuitively we understand this to mean that in this case the Operator is not considered to be 'superior' or 'ordered' with respect to its trace. It seems, however, that this type of configuration (i.e (55) with I-to-C movement) will have to be excluded. Let us call the exclusion of (55) the *Ordering effect*. Crucially, the Operator must take scope over its variable, so that the latter will be identified (as part of the recoverability condition on empty categories) at the relevant level of interpretation.

Consider the definition of scope as in May (1985):

(56)   The scope of α is the set of nodes that α c-commands at LF.

61

What we notice in the ill-formed configuration in (55), where I-to-C movement takes place, is that the Operator does c-command the trace, so according to (56) the scope requirement should be satisfied. Notice that so far we have formulated our analysis in terms of minimal domains which refer to sets of nodes in the structural configuration. The notion of c-command, however, refers to single nodes in the tree. Thus we need a re-formulation of c-command that takes minimal domains into consideration. Consider then the definition in (57) proposed by Manzini (1994a) whereby c-command is embedded in the definition of ordering/superiority of minimal domains:

(57)   (Y) is superior to (X) iff there is no node that dominates a member of (Y) and does not dominate (X).

According to (57) superiority/ordering holds of minimal domains. (57) becomes crucially relevant to the formation of dependencies, since these hold for minimal domains. In other words it ensures that a dependency is well-formed if it holds on adjacent domains; if adjacency is not attested, then the dependency will be ill-formed, yielding an ungrammatical output (cf. Manzini 1994a, in prep.) for further details and the exact technical implementation). Suppose then that (57) extends to the definition of scope. On this basis then we can define scope as well in terms of minimal domains, as in (58) below:

(58)   Let α be in (X) and ß in (Y); then α has scope over ß iff (X) is superior to (Y).

Consider now (55) albeit with I in its original position and not under C. It is clear that (C) is superior to (I), since every node that dominates a member of (C) dominates (I) as well. Thus (C) and (I) are adjacent[6]. Suppose next that I moves to C. As already mentioned this creates an enlarged minimal domain for the chain [I+C, t_I]. Notice crucially that *Ordering* is a relation that holds between two minimal domains (i.e two sets of points). Thus after I-to-C movement takes place ordering fails to hold for (C) and (I),

since these two have been 'fused' into an enlarged domain, i.e ($I+C$, t_i). In particular, (C) and (I) can no longer be considered as adjacent/ordered domains. Consequently, given the definition in (58) the Operator in spec,CP cannot take scope over the subject trace in spec,IP; hence the *Ordering effect* with respect to subject extraction[7]. If, on the other hand, head movement does not take place, then (I) does not extend to (C). Therefore we are still dealing with two minimal domains, namely (I) and (C). As a result the Operator and the variable remain in distinct minimal domains, the appropriate scope requirements (cf. (58)) are fulfilled and no *Ordering effect* arises. Under the proposed analysis then, we derive the following generalisation:

(59)   An Operator and its trace must appear in distinct minimal domains.

The theoretical and empirical consequences of the statement in (59) will become evident later on in our discussion.

Alternatively, we could express the same result by making use of the notion of A- and A'-positions, as in Rizzi (1991b). The standard assumption is that spec,IP is an A-position. Furthermore I agrees with the subject in its specifier position (spec-head agreement). Suppose that in short subject movement I moves to C. I is coindexed with an A-position, that is the spec,IP. Spec,CP is also coindexed with spec,IP, since these two contain identical elements, and with I under C. As a result of this multiple coindexation, the spec,CP becomes an A-position since it agrees with spec,IP. However, this will have to be ruled out given that Operators cannot occupy A-positions, since these are not scope positions (cf. Rizzi 1991a). In other words, when I moves to C in subject short movement it renders spec,CP an A-position; thus there is no A'-position appropriate to host the Operator and the output leads to ungrammaticality. If object movement takes place on the other hand, I-to-C movement can take place, since spec,IP and spec,CP will bear different

indices. Therefore spec,CP remains an A'-position and the presence of an Operator is licensed. Note that even if we wish to express what we called the *Ordering effect* in these terms, the crucial point remains: that is I-to-C movement will have to be blocked when subject short movement is at stake, otherwise the result will be ungrammatical. Under this alternative, the prohibition of I-to-C movement holds for (local) subject extraction only. However, the analysis proposed earlier on, that is the one formulated in terms of minimal domains, does not necessarily have to be restricted to subject extraction, but could possibly be extended to other cases of short movement, as the statement in (59) indicates. For this reason then I will make use of this approach in the present work.

6.2 Subject relatives and the *Ordering effect.*

Let us now return to the issue of subject relatives. Since I-to-C raising is excluded for the reasons outlined above the formation of an address -based dependency (or an Extended CHAIN) that includes the (Op, C+I, t_i, t_I) positions will also be blocked. Consequently the subject will have to form an ordinary chain: (Op$_i$, t_i). The C and I heads on the other hand will be linked via an expletive chain. In this case the Op and the trace remain in different domains, so the ordering relation is respected. The implication then is that an expletive chain does not extend the minimal domain. I will return to this point in section 6.3. Since the expletive chain is the only available option, so that an *Ordering effect* is avoided, we expect that in English the complementiser *that* will always be present in subject relatives to ensure that I-to-C movement has not taken place. Indeed this is the case, as the sentence below indicates:

(60) a. The man *(that) came is my neighbour.

  b. [$_{NP}$[$_{NP}$ the man] [$_{CP}$Op$_i$ [$_C$ that] [$_{IP}$ t_i came..]]]....]

Note incidentally that under this account of the anti-*that*-t effect we do not have to postulate that the C *that* used in relatives is specified for the [+pred] feature as in Rizzi (1990). Instead the anti-*that*-t effect is linked to the phenomenon of subject short movement and reflects an instance of the *Ordering effect*.

The same explanation extends to the Norwegian subject relatives where the presence of the complementiser *som* is obligatory (Taraldsen 1986a&b):

(61)   Vi kjenner den mannen *(som) snakker med Marit.
         "We know the man that is talking with Mary."

According to what we have said so far, the presence of *som* reflects that I is not under C, ensuring therefore that the Operator and the trace remain in distinct minimal domains. It is for this reason then that the expletive C has to participate in the appropriate chain. Further data from Scandinavian interrogatives points towards that direction. The complementiser *som* is once more obligatory when the *wh*-phrase is related to the gap in the subject position (Taraldsen 1986a&b):

(62)   a.   Vi vet [$_{CP}$ hvem$_i$ [$_C$ som] [$_{IP}$ t$_i$ snakker med Marit]]
             We know-1pl who that talk-3s with Mary

       b.   *Vi vet hvem snakker med Marit.
             We know-1pl who talk-3s with Mary
             "We know who is talking with Mary."

Thus the obligatory presence of *som* is associated with short movement. Furthermore, as a final point to this part of our discussion, we have to notice that the presence of *som* in embedded interrogatives as well implies that it is not specified for the [+pred] feature (cf. Rizzi 1990), since it is clear that constructions of this type do not involve predication. Moreover, the use of the same element, i.e *som*, in subject relatives and embedded interrogatives is

not treated as a pure coincidence, but receives an explanation.

Considering the French data there is a potential problem with respect to the presence of *qui* in subject relatives, as in (63) below (from Rizzi (1990)):

(63)   La chose [$_{CP}$ qui est arrivée] est terrible.
          The thing that happened is terrible.

In section 4.3.2 it was suggested that the *qui* used in long subject extraction is the morphological reflection of abstract I-to-C movement. However, this is precisely the configuration we want to exclude in subject relatives where short movement is at stake. In order to solve this problem we could assume that *qui* in (63) is the result of Agreement of the complementiser *que* with its spec with contains the empty operator (spec-head agreement). The alternative solution is to assume that *qui* in (63) is the relative pronoun (contrary to what Kayne (1976) claims). This is the position advanced by Branigan (1992) who also offers empirical evidence for treating *qui* as an operator. I will leave the choice between these two options open to future research.

In the following section I will discuss some of the theoretical and empirical consequences the proposed analysis has for the theory of movement in general.

6.3 Some empirical consequences
6.3.1 Matrix clauses

So far it has been argued that the anti-*that*-t effect is essentially the result of a strategy used to avoid the *Ordering effect*. The latter is due to the

combination of Operator short movement and head movement which creates an enlarged minimal domain. If this analysis holds, then we predict that a similar situation, i.e lack of I-to-C raising, will arise in other constructions as well where subject short movement is operative.

This prediction seems to be borne out, at least in English, with respect to subject extraction in matrix clauses:

(64) a.   Who left?
      b.   *Who did leave?

(65) a.   Who did you see?
      b.   *Who you saw?

The examples in (64) where subject extraction is involved contrast with those in (65) where object extraction is at stake. As (64a) shows I-to-C in the form of *do*-support is excluded when the *wh*-phrase is the subject. On the other hand, I-to-C raising is obligatory when the *wh*-phrase moves from the object position. Notice that the structure in (64) is similar to subject relatives, the only difference being that in (64) there is an overt wh-operator while in *that*-relatives the Operator is null. Therefore in matrix clauses, exactly as in subject relatives, I-to-C movement would create a configuration whereby the operator and the trace would be in the same minimal domain giving rise to an *Ordering effect*. It is for this reason then that *do*-support does not take place. Object extraction, on the other hand, gives the correct output with *do*-support, since the Operator and the variable are separated by at least one minimal domain. (I will come back to this issue in section 6.4). I-to-C movement is obligatory in this case for independent reasons, namely to satisfy the *wh*-criterion, assuming along with Rizzi (1991a) that root I is specified for the [+wh] feature. When the subject is extracted, on the other hand, although I does not move to C, the *wh*-criterion is satisfied on the basis that the *wh*-feature is carried by the [C, I] chain, as has been argued by Rizzi

(op. cit.).

A similar situation holds in French where I-to-C movement takes place in matrix interrogatives (an instance of residual V-2, as in English). Friedemann (1991) argues that I-to-C movement cannot take place when the subject moves locally. The empirical evidence he provides comes from the distribution of the interrogative pronoun *que*. According to his analysis *que* needs to cliticise on the C head rendering I-to-C movement obligatory, as the contrast between (66a) and (66b) shows:

(66)   a.   Que cherchez-vous?

   b.   *Que vous cherchez?
        "What are you looking for?"

However, when movement takes place from the subject position, *que* cannot appear, as the ungrammaticality of (67) shows:

(67)   *Que sent mauvais?
            "What smells badly?"

On the basis of (67) Friedemann (op. cit.) argues, assuming the analysis of Rizzi (1991a), that I-to-C movement is blocked in subject extraction. According to what we have said so far this is a straightforward case of subject short movement. Thus I-to-C does not take place in (67) so that the Operator and the trace remain in distinct minimal domains. This however, blocks cliticisation of *que* on the C head and the generalisation that *que* cannot be associated with a local subject gap follows.

Going back to the data in (64), it is worth mentioning that there have been attempts (cf. Koopman 1983) to treat the ungrammatical (64b) as the result of an ECP violation. (64b) then is essentially assimilated to the constructions that give rise to a *that*-t effect. Rizzi (1990, 1991a) also follows

a similar line of reasoning. In particular, he argues that I under C is not a proper governor because it does not head-govern the subject trace within its immediate projection. In other words C is inert for government and movement of I to C cannot render it a proper governor (cf. Rizzi and Roberts 1989). However, C can become a proper governor if it takes its agreeing form as in the *that*-t context. According to Rizzi's (1991a) analysis the head I in matrix clauses is specified for the [+wh] feature. When the subject moves to the spec,CP it triggers agreement between C and I in terms of the [+wh] feature. This movement renders C a proper governor and the head-government clause of the ECP is satisfied.

Note that the strategy followed in Rizzi's analysis is basically the one used in subject extraction out of a complement clause. As already mentioned the problem with this account is that it is based crucially on the distinction between proper and non-proper head-governors. Moreover, it is not clear why I incorporated in C cannot head-govern the subject trace, if the important notion is essentially that of c-command after all (especially if we assume the structure in note 1), while C on the other hand can when it takes its agreeing form. However, under the analysis we have put forward the explanation provided for (64) is actually the reverse of what Koopman (1983) and Rizzi (1991a) have argued for. In our terms the structure in (64) is similar to a subject relative, thus it is like the anti-*that*-t effect. I-to-C movement is excluded, so that the Operator and the trace are kept in distinct minimal domains; otherwise an *Ordering effect* will arise. The conceptual advantage of this analysis is that it provides a unified account for constructions that exemplify the same type of short movement based on a minimal set of assumptions[8].

This analysis could possibly extend to the presence of the expletive *er* in the West Flemish (WF) matrix interrogatives (data cited in Law (1991b: 281)):

(68) a. Wien komt *(er)?
          "Who is coming?"

      b. Waruornen vent komt *(er)?
          "Which man is coming?"

Although the issue of the distribution of *er* is rather complicated (see Law (1991b), and Bennis (1987) for the Dutch data and further references), its obligatory presence in subject extraction as in (68) could be interpreted as a strategy used to avoid an *Ordering effect*. In particular, if I-to-C movement takes place in (68), thus extending the domain of I, then an ill-formed configuration should arise with respect to the Operator and its variable. However, if an expletive element is used in the spec,IP, then the construction is 'saved', since there is no variable present. In other words, head-movement will not create an ill-formed configuration for the spec,CP and spec,IP positions given that there is no variable involved. This is only a tentative analysis and in order for it to be maintained further research on the distribution of *er* is required. This, however, is beyond the scope of the present work.

Another possible extension of this account is with respect to superiority effects in matrix clauses. Consider the sentence below:

(69) a. *What did who buy?
      b. Who bought what?

The standard assumption (cf. Chomsky 1981, Aoun, Hornstein and Sportiche 1981, among others) is that the ungrammaticality of (69a) is the result of a *superiority* effect. In (69a) the subject moves to CP and an ECP violation arises, since the subject trace is not properly governed in this case. Thus (69a) is treated in a way similar to the *that*-t effect. Suppose that indeed the subject raises and adjoins to spec,CP at LF (forming the Σ-projection) as in May (1985). What we also notice in (69a) is that I-to-C movement has taken

place. Thus when the subject raises it enters a configuration where it is in the same minimal domain as its variable. This violates condition (59), and gives rise to an *Ordering effect*. In (69b) on the other hand, no I-to-C movement is involved so the Operator and the variable are in distinct minimal domains, hence the grammaticality.

A closely related issue is that of Quantifier Raising (QR) with subjects, as in (70) below:

(70) a. Every child likes ice-cream.

  b. $[_{IP}$ [Every child]$_i$ $[_{IP}$ t$_i$ likes ice-cream]]

If the quantified subject raises by adjoinining to IP, as in (70b), we would expect an *Ordering effect* to arise, since this would be interpreted as movement within the same minimal domain. The potential problem can be circumvented if we assume that (QR) scope phenomena of that type take place at an interpretive level distinct from LF (the LF' level, probably as in Pesetsky (1991)), whereby syntactic conditions of that type do not hold (cf. Brody 1993).

6.3.2 V-2 languages

We will next consider subject initial clauses in V-2 languages. One of the implications of the proposed analysis is that in SVO clauses, I-to-C movement does not take place. The standard assumption in the literature, following originally den Besten (1983), is that in these languages the Verb must appear in the second position. Thus the XP occurs in the preverbal position in spec,CP and the verb is in C, hence the V-2 phenomenon. In embedded clauses, on the other hand, V-2 is not attested since the C position is already lexically filled by an overt complementiser; therefore V-to-C movement cannot take place. This is a rather simplified approach to the V-2

phenomenon since it may be instantiated differently among the Germanic languages, especially with respect to embedded V-2 (cf. Vikner 1990). With this much as background let us consider subject initial matrix clauses in more detail.

The standard assumption is that in SVO clauses the subject is in spec,CP and the verb in C; subject and I-to-C movement apply vacuously in this case. However, Zwarts (1991) argues that in subject initial clauses both the subject and the Verb remain within a functional projection lower than CP. For the present purposes we will refer to this projection as IP. The empricial evidence he provides comes from the distribution of subject clitics in Dutch, as in (71):

(71)   a.   Ik zie hem
             "I see him"

       b.   'k zie hem

Subjects in preverbal position can be reduced. This is not true of objects though as the ungrammaticality of (72b) shows:

(72)   a.   Hem zie ik
             "I see him"

       b.   *'m zie ik

According to Zwarts (1991), the contrast between (71b) and (72b) indicates that although either the subject or the object may appear preverbally, they must occupy different structural positions. Otherwise the possibility of subject, but not of object, cliticisation would remain unaccounted for.

Another piece of evidence for this conclusion comes from the different forms of subject agreement in Dutch. As Zwarts (op.cit.) points out, subject-verb agreement may have different morphological realisations according to

whether subject verb inversion has taken place or not (cf. (73) and (74)):

(73) a.   ..dat jij naar huis gaat/*ga
            "..that you are going home."

         b.   Jij gaat/*ga naar huis.
            "You are going home"

(74) a.   Vandaag ga/*gaat jij naar huis.
            "Today you are going home."

         b.   Wanneer ga/*gaat jij naar huis?
            "When are you going home?"

As the examples in (73) show, when the subject is initial (both in embedded and matrix clauses) the verb has the ending -t. However, if it is not initial, as in (74), then the verb has its stem form. Once more the conclusion is that subjects occupy a different position from topicalised (or wh-) elements.

Notice that the empirical evidence provided by Zwarts, as well as the technical implementation he offers, is in accordance with the claim made here regarding head movement and its consequences for subject short movement. If in V-2 languages both the subject and the verb were to move out of IP to the spec,CP and C respectively that would create a configuration whereby they would both occur in the same minimal domain. According to what we have said so far that would give rise to an *Ordering effect*, and ultimately the structure would have to be ruled out. If, however, we assume along with Zwarts that no movement takes place, then the proposed analysis offers theoretical support for this claim. The conclusion then is that in V-2 languages the subject and the verb do not (in fact they must not) move out of IP.

To conclude the discussion so far, it has been argued that when subject short movement takes place, head movement cannot apply. In that way we ensure that the Operator and its trace remain in distinct minimal domains,

and therefore no *Ordering effect* arises. This approach allows us to provide a generalised account of constructions such as matrix questions and relative clauses which appear to be different. In that respect subject/object asymmetries of the type discussed so far receive a natural explanation as they are attributed to independent properties associated with locality phenomena.

6.4 Some theoretical implications

So far it has been argued that in subject short movement I cannot incorporate into C without yielding an *Ordering effect*. If, on the other hand, I remains in its original position then the Operator and its variable will occur in distinct minimal domains, as the generalisation in (59) states and the result will be grammatical.

The implicit assumption so far has been that only head-movement extends minimal domains. The other crucial point stemming from this assumption is that extended minimal domains hold only for sub-chains, that is only for (two-membered) links of a head-chain. Consider the following configuration:

(75)
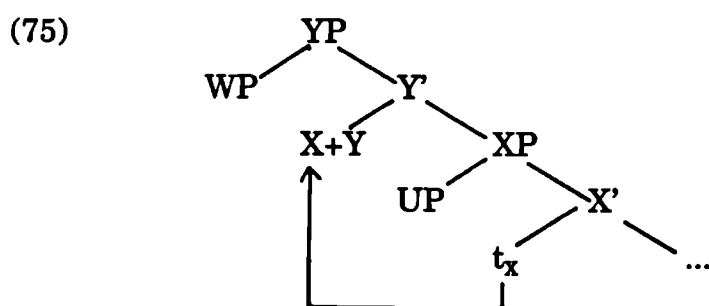
Suppose that X moves to Y as the representation above shows. This movement creates an enlarged minimal domain not for X or for Y but for the (sub-) chain [X+Y, t_x]. Moreover, the [X+Y] complex could move to a higher position Z. In this case, the new chain would be [[X+Y]+Z, t_{x+y}] (cf. Chomsky

1993). Suppose, however, that the [X+Y] head does not move to Z, but is associated to it by some other means as in the expletive chain. Since incorporation of the type in (75) does not take place, it is natural to conclude that the domain of [X+Y] does not extend to that of Z. The extended domain operation could be viewed as a generalised transformation in the sense of Chomksy (1993): a head α targets a head ß; when α moves (incorporates) to ß it extends its target. However, if α does not incorporate to ß, then the target is not extended.

Furthermore, the assumption that extended minimal domains hold only for sub-chains has empirical consequences for object extraction for example (cf. (76)):

(76) a. What did you buy?

      b. *What you bought?

As the contrast between (76a) and (76b) shows, I-to-C movement is allowed to take place when the wh-phrase is other than the subject. For the time being let us assume that the object moves from the complement position of V. Suppose that incorporation is not the relevant mechanism for extending minimal domains. Then (V) could extend by merely coindexing the V and I heads, and the same would hold for the I and C heads. Accordingly a coindexed sequence of the C, I, and V heads would be expected to create an enlarged minimal domain for the (C, I, V) chain. Consequently the Operator and its variable in object position would be in the same minimal domain; this would induce an *Ordering effect* and therefore ungrammaticality would arise contrary to fact, as (76a) indicates. If, on the other hand, the ultimate head-CHAIN consists of the [V+I, t_V], [[V+I]+C, t_{V+I}] sub-chains, then it is clear that the Operator and the variable do occur in distinct minimal domains. In other words the Operator is in the domain created by the [[V+I]+C, t_{V+I}] sub-chain, and the variable is in the domain of the [V+I, t_V] chain. Thus the statement in (59) is respected; no *Ordering effect* arises, hence the

grammaticality.

According to what we have said so far we expect that the *Ordering effect* will arise only in cases of Operator movement. The basic requirement in subject short movement for example is that the Operator is in the appropriate scope position with respect to the variable, where scope is defined as in (58) above. This is an interpretability condition, since variables are assigned values (i.e they range over a set of entities) via their association with the Operator (the phrase in the scope position). As a consequence this speculation leaves out two cases: (i) non-Operator movement, as in A-dependencies (eg. passives), and (ii) A'-dependencies of adjuncts. In the latter case, although there is an Operator involved the trace has different properties from argument traces.

Let us first start with (i). Consider for example A-movement. In passive and raising constructions movement takes place for Case reasons. Thus the trace left behind is not a (syntactic) variable since it is not Case-marked (cf. Chomsky 1981). Furthermore, the moved NP is not an operator, since it does not occupy a scope position, in the sense of May (1985) (see also Rizzi (1991a) for the definition of a scope position). Therefore, if the moved NP and its trace occur in the same minimal domain, no *Ordering effect* is expected to arise for the reasons outlined above. Another case for which we would like to exclude an *Ordering effect* is the one where the object moves to a functional projection, i.e AgrO phrase, above VP for checking of its Case features. This involves V-movement as well, as in (77):

(77)

76
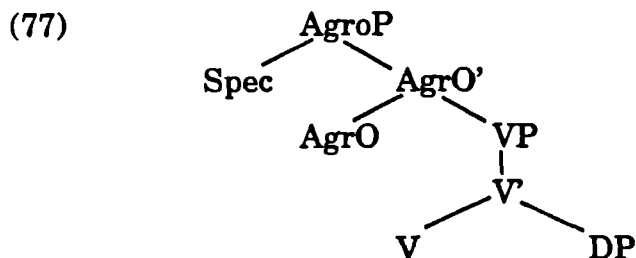
In (77) V moves to AgrO for the reasons outlined in Chomsky (1993) and the object DP also moves to spec,AgrO where it is assigned Case under the spec-head configuration. Notice crucially that V-to-AgrO movement creates an enlarged minimal domain for the [V+AgrO, t_v] chain. Moreover, the object DP and its trace end up in the same minimal domain. However, as expected no *Ordering effect* arises, since the DP in spec,AgrOP is not an Operator and the trace left behind is not a variable. Therefore no scope requirements need to be satisfied and the configuration is not ruled out.

Consider next adjunct (*wh-*)movement which is an instance of an (A',...,A') dependency. Note that in this case the original trace occurs in an A'-position. This observation leads us back to the well-known asymmetry between arguments and adjuncts. Adjuncts do not bear a special relationship to a head (while arguments do) and for that reason they cannot long-move, i.e they are sensitive to intervening operators. In the recent literature this special relationship of an argument to a head is interpreted either in terms of theta-marking/referentiality (cf. Rizzi 1990; Cinque 1990) or in terms of Case-marking (cf. Manzini 1992). In other words, adjuncts can only be identified by being linked to an operator and not by their relationship to a head. Thus adjuncts move spec-to-spec forming ordinary chains. In that respect they need to satisfy antecedent government, where the Operator and the original trace are linked via a sequence of intermediate traces. Since intermediate traces adjoin to phrases, the point that needs to concern us here is whether they can occur in the same minimal domain.

In order to make this point clearer consider the following schema:

(78)
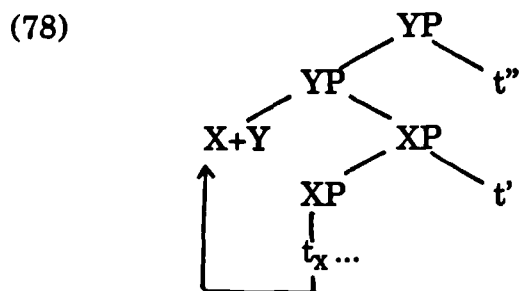
Suppose once more that in (78) the head X incorporates into Y forming the chain (X+Y, t_x). Now t and t' are in the same minimal domain. We have to make sure that no *Ordering* effect arises in this case otherwise successive cyclic movement will be blocked. Note that intermediate traces differ from variables in a number of ways. For example, variables enter a relationship with a head while intermediate traces do not. Their role is to provide the links that will connect the original trace with the operator. In that respect they do not have properties of their own and consequently they are not assigned values of their own at the relevant level of interpretation. Instead they are identified by participating in the formation of (ordinary) chains. Thus they are immune to the *Ordering effect*. Therefore intermediate traces can occur in the same minimal domain (although it is possible to assume that adjuncts do not need to move spec-to-spec, so that the postulation of intermediate traces is not required, as in Manzini (in. prep.)).

To summarise, it has been suggested that head-movement only can extend minimal domains, in the sense of Chomsky (1993). Moreover, the *Ordering effect* was shown to hold for (A',...,A) dependencies only, as the result of a binding relation between the Operator and the variable. A-movement and intermediate traces, on the other hand, are not subject to this effect due to their independently motivated idiosyncratic properties.

7. Conclusions

In the present chapter I have argued that the presence of *that*-t and anti-*that*-t effects is linked to the phenomenon of I-to-C movement. In particular, I have assumed that the association between the C and I positions is required for reasons independent of subject extraction. This association can take place in two different ways: either by (abstract) I-to-C movement, or given that complementisers can be expletive elements, by forming an

expletive chain. In the first case, C is spelled out as zero, while in the latter it is spelled out as *that*. I-to-C movement is the only option available in subject extraction, where I has to be in a position to c-command the subject trace so that Locality is satisfied. The expletive chain on the other hand is the only option in subject relatives. This is required so that no *Ordering effect* arises, i.e the Operator and the variable remain in distinct minimal domains. Under this proposal then, the anti-*that*-t effect is closely linked to the phenomenon of subject short movement. This analysis also allows us to provide an account of subject extraction in matrix interrogatives as well as in a number of other constructions (cf. the French and Scandinavian data for example). Finally, the theoretical implications of this analysis were considered. In that respect it was tentatively suggested that the *Ordering effect* is crucially relevant to (A',...,A) dependencies.

ENDNOTES

1. To be more precise, the configuration we get with I under C is as follows:

(i)
```
                CP
              /    \
          Spec      C'
                  /    \
                 C      IP
               /  \    /  \
              I    C  Spec I'...
```
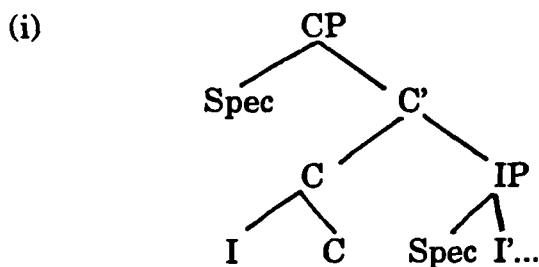
Kayne (1993) defines c-command as follows:

(ii)   X c-commands Y iff X and Y are categories and X excludes Y
          and every category that dominates X dominates Y.

Therefore I in (i) (asymmetrically) c-commands the spec,IP since I is a category and not a segment in this case. So the adjoined head/phrase is characterised by the property of c-commanding something else out of the head/phrase it is adjoined to.

   Rizzi and Roberts (1989) (cf. also Rizzi (1990), (1991)) argue that I under C cannot be a proper governor, because it does not govern the subject trace within its immediate projection. However, if by "immediate projection" we mean essentially c-command, and furthermore if we adopt Kayne's (1993) definition, then the configuration in (i) is a valid one. This point will also be discussed in section 6.3.1.

2. I leave aside for the time being the issue of why *that* cannot delete in complex NP constructions. Pesetsky (1991) offers an alternative explanation to this problem, whereby the zero form of C is interpreted as the result of abstract incorporation of C to the matrix V. Given that in Complex NP's there is an NP intervening between V and C, the zero form cannot be attested, since incorporation cannot take place. In Pesetsky's terms then, the absence of *that*-t effects in subject extraction when C is zero, will have to be interpreted as the result of proper government being satisfied, since after abstract incorporation of C to V has taken place, V can govern the subject trace in spec,IP.

3. There have been a number of alternative analyses for the Dutch data (see Bennis (1987) for references). The general problem is that there is no general agreement as far as the data is concerned. For example Maling and Zaenen (1978) refer to two dialects, Dutch A which allows long subject extraction, and Dutch B which does not. In the latter case the expletive *er* has to occur obligatorily, voiding thus a complementiser-t sequence. Since the properties of the expletive *er* and of the grammatical status of subject extraction in Dutch are not quite clear issues, I will not refer to the Dutch data.

4. Possibly the analysis that is based on the availability of two subject positions could be extended to those English dialects where *that*-t sequences are acceptable (cf. Sobin 1987). Rizzi (1990) suggests that in those dialects the morphological form *that* may also carry Agreement features. Given that we are not aware of the other properties of those dialects that may interact with the absence of the *that*-t effect, we will leave this issue open.

5. Notice crucially that relatives differ from complement clauses in that their time reference may be evaluated independently of that of the matrix clause (cf. Enç 1987; Hornstein 1990, among others). This raises the interesting question of whether we still we want to maintain an association between the C and I head. In this case C and I will be associated not because of the formation of a Tense dependency but in order to satisfy the Principle of FI only. In particular, if C is empty then it is natural to assume that I moves (abstractly) to fill and therefore license this position. If *that* is present, given that it is an expletive element, the C position will have to be linked to I once more to satisfy FI.

6. So far the *that*-t effect has been formulated in terms of c-command. In order to be consistent in our analysis we could adopt the definition of Locality given in terms of superiority/ ordering:

(i)   **Locality**
        Let A_i be in (X_i). $(A_1,...,A_n)$ is a dependency only if for all i, (X_i) and (X_{i+1}) are adjacent.

The crucial point is that the definition in (i) does not affect the analysis we have provided so far with respect to the *that*-t effect.

        This definition could probably enable us to account for the following data:

(ii)   *Who_i did you arrange for t_i to meet Peter?

Although *for* in C Case-marks the subject, and for that reason it could count as the addressing head, subject extraction is blocked. Suppose instead that we require that the relevant head is I because it defines the minimal domain (I) where the subject originally occurs. I will have to be included in the sequence albeit in a position higher than the subject trace. This can only be achieved if (I) is extended by incorporating I-to-C. If this is correct, then the ungrammaticality of (ii) is derived: I in this case cannot incorporate to C but it can only form an expletive chain with C, on the basis that *for* is an expletive element. As a result the subject is not c-commanded by I and Locality is violated.

        In that way we can also explain cases with locative inversion where a *that*-t effect is attested (Postal (p.c), attributed originally to Bresnan (1977)):

(iii) [To the congress]$_i$ I am not sure (*that) t$_i$ was given the power.

PP's do not require Case, nevertheless they seem to behave like other subjects with respect to extraction. The analysis proposed for the presence of *that*-t effects is maintained, if we assume the explanation given for (ii) above. Branigan (1992) postulates the existence of an additional projection (called ΠP) between CP and IP from where the subject is extracted. This is not a Case-marked position, and therefore it can accommodate locative PP's in subject position and also account for data like the one in (iii). However, if we adopt the Locality definition in (i) then there is no need for postulation a new functional projection for subjects.

7. Notice at this point that even if I-to-C movement takes place, **linear** ordering in the sense of Kayne (1993) between the Operator and its variable pertains. In other words the Operator still asymmetrically c-commands the subject trace. Kayne's account crucially eliminates the need for having two types of ordering, i.e linear and hierarchical by deriving the former from the latter. However, ordering has to be expressed in a more generalised fashion so that it accounts for minimal domains since dependencies hold across minimal domains. This issue of course requires further research which is beyond the scope of the present work.

8. Under this proposal we can also provide an explanation with respect to ECP effects in heavy NP-shift as in (i) below:

(i) a. *[t are intelligent] all the students who can solve this problem.
     b. I would like to introduce t to Mary all the students who can solve this problem.

Rizzi (1990) explains this subject/object asymmetry in (ia) and (ib) respectively in terms of a head-government violation: the subject trace in spec,IP fails to be head-governed because it is not in the immediate projection of I (a potential proper head-governor). Since the notion of head-government has been eliminated from our theory the ungrammaticality of (ia) is a straightforward example of an *Ordering effect*. In heavy NP-shift the subject moves from the spec,IP to an IP adjoined position, as shown in (ii):

(ii)

```
                IP
              /    \
            IP      NP_i
           /  \
         t_i   I'
              /  \
             I    VP
```
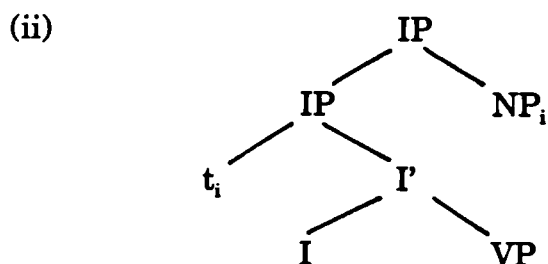
Suppose for present purposes that the structure in (ii) is the correct one for heavy NP-shift (but see Kayne (1993) for objections). What (ii) indicates clearly is that adjunction of this type creates a configuration where both the

moved NP and its trace in spec,IP are in the same minimal domain (I); hence the ungrammaticality. Note that movement is restricted to the same minimal domain either when adjunction takes place, as in (ii) above, or when incorporation is at stake as in the familiar example regarding the anti-*that*-t effect. Therefore we expect that in all these constructions an *Ordering effect* will arise ruling them out as ungrammatical as is in fact the case.

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CHAPTER THREE

Complementisers, Factivity, and Factive Islands

1. Introduction

It has been noted in the literature that complements to factive verbs are weak islands in that they block adjunct extraction (cf. Cinque 1990). These weak island effects are usually associated with the idiosyncratic properties of factives, and are attributed to an ECP violation. In most approaches an attempt is made to identify the semantics of factives and consider their implications for syntax, as these are evident from the impossibility of adjunct extraction. In the traditional literature factivity is regarded as a notion associated with the matrix predicate. Factive complements are treated as concealed DP's (Kiparsky and Kiparksy 1970). More recent approaches account for the properties of factives in terms of a nominal C, or in other cases of a definite C.

The extraction data discussed in the literature come mainly from English, or languages similar to English. The picture becomes more complicated though when Modern Greek (MG) data are taken into consideration. Crucially, factives in MG can be introduced by a special C, namely *pu*; in this case argument as well as adjunct extraction is blocked. This typological distinction between MG and English gives rise to two different patterns associated with factivity, as realised in terms of strong and weak islands respectively. Therefore any account of factive complements has to provide an explanation that will first consider the need for common semantic properties crosslinguistically, and second for the different locality

patterns as these are instantiated in English and MG. This is essentially the goal of the present work.

This chapter is organised as follows: section 2 presents the extraction data, by focussing on the differences between MG and English factives. In section 3 I discuss the different approaches to factivity and consider their implications for the syntactic properties of factives. I conclude, following Hegarty (1992b), that factive complements denote familiar content in the form of old information. In section 4 I discuss an alternative analysis of factives. In particular, in section 4.1 I provide a detailed discussion of the MG Complementiser system and its interactions with factivity. I argue that the C *pu* is [+definite], thus *pu*-clauses can be analysed as definite descriptions. In section 4.2 I discuss the English factives. Following Hegarty (1992b) I assume that C is specified for the familiarity feature. However, I argue that a [+F] C has operator status. The different features on C will then account for the parameterisation of factivity. Finally in section 5 I discuss factive islands, by first presenting some of the approaches given in the literature (section 5.1). In section 5.2 I propose an analysis formulated within the Locality framework of Manzini (1994a, in prep.) which derives the extraction patterns in English and MG exclusively from the properties of the C head in each case.

2. Factive complements: the extraction data

The examples below show an argument/adjunct asymmetry with respect to wh-extraction:

(1)   a.   What$_i$ did you point out/regret that Peter stole t$_i$?

        b.   *Why$_i$ did you point out/regret that Peter was fired t$_i$?

In (1b) construal of the adverbial element with the embedded clause is ruled out. The matrix predicate is characterised as factive. When the matrix predicate is non-factive any type of extraction is allowed:

(2)   a.   What$_i$ do you think that Peter stole t$_i$?
      b.   Why$_i$ do you think that Peter was fired t$_i$?

In (2b) the adverbial element can be construed with either the matrix or the embedded clause. Thus (1b) contrasts with (2) in terms of the possible readings. Argument extraction, on the other hand, is possible with either predicate, as the data in (1a) and (2a) show.

Let us now consider the following data from Modern Greek (MG):

(3)   a.   Nomizo *oti/ *pu* i Maria aghorase to spiti.
           think-1s that the Maria bought-3s the house
           "I think that Mary bought the house."

      b.   O Yannis metaniose *pu/ *oti* aghorase to spiti.
           the John regretted-3s that bought-3s the house
           "John regretted that he bought the house."

The complement clauses in (3a) and (3b) are introduced by the complementisers *oti* and *pu* respectively. Both complementisers correspond to the English *that*. Moreover, the data in (3) show that the C *oti* occurs with 'think' type predicates, while *pu* occurs with 'regret' type predicates; the latter are known in the traditional literature as factives (cf. Kiparsky and Kiparsky 1970). Thus as a first approximation we could draw the following generalisation: the distribution of *pu* vs. *oti*-clauses is regulated by the factive/non-factive divide. In other words the choice of complementiser signals different types of complement clauses. Note incidentally, that a distinction along those lines is found in other languages as well, such as Serbo-Croatian (cf. Christidis (1981) for references), Yiddish (Diesing 1990), and Krio

(Nylander 1985).

Suppose next that an element is extracted out of the complement clauses in (3), as in (4)-(5):

(4)   a.   Ti$_i$ nomizis oti aghorase i Maria t$_i$?
            what think-2s that bought-3s the Mary
            "What$_i$ do you think that Mary bought t$_i$?"

      b.   Jati$_i$ nomizis oti aghorase i Maria to spiti t$_i$?
            why think-2s that bought-3s the Maria the house
            "Why$_i$ do you think that Mary bought the house t$_i$?"

(5)   a.   *Ti$_i$ metaniose o Yanis pu aghorase t$_i$?
            what regretted-3s the John that bought-3s
            "What$_i$ did John regret that he bought t$_i$?"

      b.   *Jati$_i$ metaniose o Yanis pu aghorase to spiti t$_i$?
            Why regretted-3s the John that bought-3s the house
            "*Why$_i$ did John regret that he bought the house t$_i$?"

The examples in (4) involve wh-movement out of an *oti*-clause, while those in (5) involve wh-movement out of a *pu*-clause. In (4) both argument and adjunct extraction out of the *oti*-complement is grammatical. In (5), on the other hand, both argument and adjunct extraction out of the *pu*-clause gives rise to ungrammaticality. Note crucially that (5a) contrasts with its English equivalent in (1a) above, in that it does not allow for argument extraction. In all other respects the English and the MG data in (1)-(2) and (4)-(5) respectively behave alike.

There are two points that require an explanation concerning the data in (4)-(5): first, the different extraction patterns that arise in MG with respect to *oti* and *pu*-complements, and second, the asymmetry between MG and English regarding argument extraction out of factive complements, as in (5a). Descriptively we could say that *oti* complements, as opposed to the *pu*

ones, are not islands. Moreover, factive (i.e *pu-*) complements are strong islands in MG, but weak islands in English.

Note that the extraction pattern attested in (5) is also found in another language, namely Serbo-Croatian[1]:

(6) a. *Sta$_i$ si žalio *što* si kupio t$_i$?
    what aux-2s regret that aux-2s buy
    "What$_i$ did you regret that you bought t$_i$?"

  b. *Kada$_i$ si žalio *što* si sreo Mariju t$_i$?
    when aux-2s regret that aux-2s meet Mary
    "*When$_i$ did you regret that you met Mary t$_i$?"

Serbo-Croatian, just like MG, distinguishes between two complementisers: *da* and *što*. The C *da* is used with non-factives, while *što* is used with factives. What the data in (6) indicate is that *što*-clauses, like *pu*-clauses, are strong islands. Therefore, given the evidence from MG and Serbo-Croatian, it seems reasonable to assume that there is probably a correlation between the existence of a special Complementiser for factives and the strong islandhood of these complements. In other words, English and MG (as well as Serbo-Croatian) appear to represent the two values of a parameter associated with factivity.

However, the distinction of *pu* and *oti*-clauses as factives and non-factives respectively with the expected locality properties in each case is not absolute. Indeed there are predicates, which are standardly characterised as factives, that may take either an *oti* or *pu*-complement. Interestingly when the complement clause is introduced by the C *oti* adjunct, but not argument, extraction is blocked, as shown in (7) below:

(7) a. Thimame *pu /oti* ton sinandisa sto sinema.
    remember-1s that him-met-1s in the cinema
    "I remember that I met him in the cinema."

b. Pion$_i$ thimase oti sinandises t$_i$?
    whom remember-2s that met-2s
    "Who$_i$ do you remember that you met t$_i$?"

c. *Pion$_i$ thimase pu sinandises t$_i$?
    whom remember-2s that met-2s
    "Who$_i$ do you remember that you met t$_i$?"

d. *Jati$_i$ thimase *oti/pu* pighe sto Parisi t$_i$?
    why remember-2s that went-3s to-the Paris
    "*Why$_i$ do you remember that he went to Paris t$_i$?"

(7b) and (7c) differ minimally with respect to argument extraction, while in (7d) adjunct extraction is blocked irrespective of the complementiser chosen. In this case the *oti*-clause patterns with its English counterpart, as the translation shows. In other words the *oti*-complement in this case is a weak island. It seems therefore that the distinction between *pu* and *oti*-clauses cannot be absolutely defined along the factive/non-factive divide, since it is clear from the data in (7) that there may be factive predicates that can take an *oti*-complement. Alternatively a theory of factivity will have to be provided that can provide a unified account of the data exemplified in (5) and (7). For ease of reference though I will continue to refer to the *pu* and *oti*-clauses as factives and non-factives respectively, specifying *oti* factives where necessary.

The extraction patterns described so far are summarised below:

(8)

	Arguments	Adjuncts
pu	*	*
oti (factive)	OK	*
oti (non-factive)	OK	OK
that (factive)	OK	*
that (non-factive)	OK	OK

In the following section I will discuss the notion of factivity and how this correlates with complementation. The identification of the properties of factive complements will allow us to assign them the appropriate structure and consequently provide an explanation for the island effects they exhibit.

3. Factivity

3.1 Factive complements as Complex NP's.

Kiparsky and Kiparsky (1970) use the terms *factive* and *non-factive* with reference to the following two classes of predicates:

(9)   a.   *Factives*:

Verbs: regret, be aware (of), grasp, comprehend, take into consideration, bear in mind, ignore, make clear, mind, forget (about), deplore, resent, bothers,...

Adjectives: significant, odd, tragic, exciting, relevant,...

(10) b.   *Non-factives*:

Verbs: suppose, assert, allege, assume, claim, charge, maintain, believe, conclude, think,...

Adjectives: likely, sure, possible, true, false,...

According to this analysis factive and non-factive predicates have distinct semantic properties. In particular, the truth value of a factive complement is presupposed, while the truth value of a non-factive complement is merely asserted. This is illustrated by the following examples:

(11) a.   I regret that the earth is round.
       b.   I think that the earth is round.

In (11a) the speaker presupposes that the proposition "*the earth is round*" is true. In (11b), on the other hand, the speaker merely asserts that the relevant proposition is true.

The different semantic properties of the two embedded clauses in (11) are standardly tested on the basis of the scope of negative and question operators, as in (12) and (13) respectively:

(12) a. I don't regret that the earth is round.
      b. I don't think that the earth is round.

(13) a. Do you regret that the earth is round?
      b. Do you think that the earth is round?

In (12a) the truth value of the *that*-clause remains constant under the use of negation in the matrix clause. In other words, the embedded clause cannot mean: "*the earth is not round*". In (12b), on the other hand, matrix negation can take scope over the *that*-clause and change its truth value, giving rise to the following interpretation: "*the earth is not round*". Similar results are obtained when the question operator is used, as in (13). In (13a) the scope of the Q operator is restricted to the matrix clause. This is paraphrased as: "The earth is round. Do you regret it?". However, (13b) is paraphrased as: "Do you think that the earth is or is not round?". In other words, the truth value of the complement clause in (13b) remains underdetermined under the scope of the Q operator.

Kiparsky and Kiparsky (op. cit.) further argue that this set of semantic properties has syntactic correlations as well. These syntactic properties are as follows: factive predicates can have the noun 'the fact' as their object (cf. (14)); they can be replaced by gerunds (cf. (15)); and finally they do not allow for ECM constructions, as some of the non-factive predicates do (cf. (16)):

(14) a. I made clear the fact that I don't want to go.

b. *I assert the fact that I don't want to go.

(15) a. I regret having accepted your offer.

b. *I believe having accepted your offer.

(16) a. *I resent John to have been here.

b. I believe John to have been here.

On the basis of this evidence it is argued that the distinct properties of factive and non-factive complements are reflected in the syntax. The basic claim is that factive complements are dominated by an NP-node at D-structure. The lexical content of the NP might delete at S-structure. For example the D-structure of (17a) is as indicated in (17b):

(17) a. I regretted that John left so early.

b. I regretted [the fact that John left so early].

The structure assigned to the factive complement in (17) is the one below:

(18)

```
        VP
      /    \
    V        NP
           /    \
         N'       CP
```
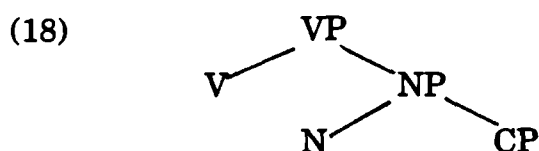

What (18) amounts to is that factive complements are essentially (concealed) NP's. If we assume the current DP analysis of Noun Phrases (cf. Horrocks and Stavrou 1985; Abney 1987) we derive the representation schematized in (19) below where the CP is dominated by a DP:

(19)   [DP the fact [CP that I left]]

To summarise, the analysis put forward by Kiparsky and Kiparsky (op.

cit.) draws a distinction between factive and non-factive predicates on semantic and syntactic grounds. Semantically, complements of factives are associated with truth presupposition, where truth presupposition is in turn defined in terms of (logical) truth values. Syntactically, these complements are assumed to be dominated by an (abstract) NP (or DP) node. Note that under this approach the notion of factivity is defined with respect to the matrix predicate, i.e it is not considered to be a property of the complement clause itself. The analysis by Kiparksy and Kiparsky has been subject to criticisms and modifications in the more recent literature. Alternative solutions will be discussed in the following sections.

3.2 Factives and the nominal C.

Zubizarreta (1983), following observations made by Rouveret (1980) regarding factive complements in Portuguese, assigns them a different structure. In particular, she argues that if factive CP's are dominated by an NP (or a DP in current terms) then they should resemble Complex NP's as far as extraction is concerned. In other words factive complements should give rise to a strong Subjacency violation when it comes to object extraction, contrary to fact as the English data in (20) below indicate (but recall that this does not hold for the MG data introduced by *pu* in (5) in section 2):

(20)   Who$_i$ did you regret that you saw t$_i$?

Thus Zubizarreta (op. cit.) argues that factive complements are not dominated by an NP/DP node, but instead have a nominal Complementiser. She then proposes the structures in (21a) and (21b) for factives and non-factives respectively:

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(21) a.   COMP'   b.   INFL"
          ┌─────┴─────┐   ┌────┴────┐
       COMP   S   COMP   INFL'
                                           ┌────┴────┐
                                          NP   INFL VP
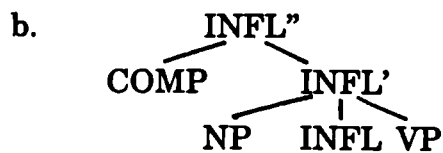
According to (21a) factive complements are projections of C, while non-factives are projections of Infl, as (21b) shows. Leaving aside for the time being the explanation for the extraction data, let us concentrate on the structures in (21) as such. The representations in (21) are rather difficult to translate to current terms, since it is standardly assumed that both C and I head their own maximal projections, i.e CP and IP respectively (cf. Chomsky 1986a). In that respect both structures in (21) would need to have CP status. Note though that the crucial point of this analysis can be maintained if we retain the idea that although both factive and non-factive complements are CP's they differ in that the former, but not the latter, have a nominal C. The presence of this particular C then makes factives more similar to NP's and the overall proposal very similar to the original one put forward by Kiparksy and Kiparsky (1970), while it eliminates the need for a DP projection. This analysis though will be ultimately rejected in section 5.1 when the extraction patterns out of factives are discussed.

3.3 Factives as definite descriptions

Melvold (1991) also analyses factive complements as CP's. However, she accounts for their semantic and syntactic properties in a slightly different way, in that she considers factive complements to be definite descriptions of events. She argues that due to their presuppositional reading, factives refer to an individual event. Non-factives, on the other hand are assertions and therefore can have a truth value as their extension. Note incidentally that the correlation between definiteness and truth presupposition was also mentioned by Kiparsky and Kiparsky (1970). Thus factive verbs select an event-type argument while non-factives select a proposition-type argument.

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This is illustrated by the following pair of sentences:

(22)   a.   John believes that he met Mary.

"John believes that there is some event or other in which he met Mary."

   b.   John regretted that he met Mary.

"John regretted the unique/individual event in which he met Mary."

Melvold (op. cit.) then argues that the semantics of factives are derived via an iota/definiteness operator in the spec,CP of the complement clause (see also Watanabe (1992) for an analysis along those lines). This (null) operator binds the event position (in the sense of Higginbotham (1985)) of the embedded V and the operator is licensed by the presence of a [+definite] C. The structure of factive complements is given in (23) below:

(23)
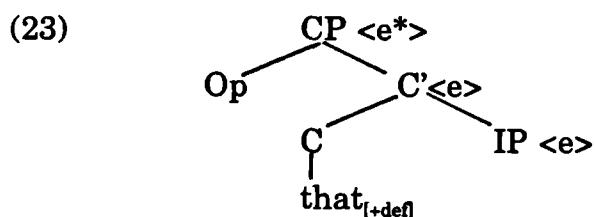
The asterisk in (23) indicates that the event position of the embedded V has been saturated at the CP level, that is at the point where it meets the (null) iota operator. As (23) shows factive complements have a closed position at the CP level. Theta-binding of this sort resembles theta-binding within DPs. Higginbotham (1985) argues that an NP has an open position so that it denotes a set of entities. The (logical) role of the definite determiner is to close this position, deriving therefore a definite interpretation, i.e "*the* dog" (cf. (24)):

(24)
$$DP<1^*>$$
$$|$$
$$D'<1^*>$$

D⁀————＼NP <1>
| |
the   dog
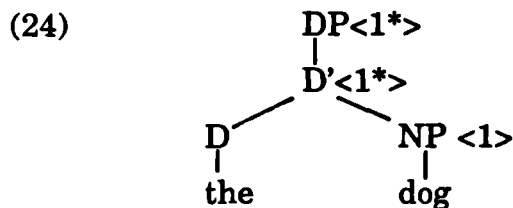
Consider next non-factive complements, that is proposition type arguments, which assert that an object or state of affairs exists. They differ from factives in that they give rise to an existential interpretation. The C position in this case is not [+definite] and consequently it cannot license an iota operator in the spec,CP. The relevant interpretation is derived by postulating an existential operator instead. However, binding of this type takes place at a much later stage, after all syntactic rules have applied, so possibly after LF. It is for this reason then, that adjunct extraction out of non-factive complements is always allowed. Accordingly in syntax, non-factive complements have an open position at the CP level (cf. (25)):

(25)
$$CP <e>$$
$$|$$
$$C' <e>$$

C⁀————＼IP <e>
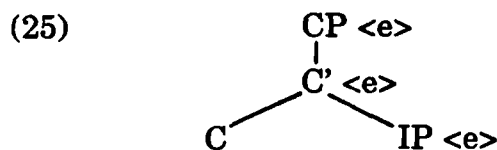
Note moreover that this is also the structure assigned to indefinite NP's. In the absence of a definite D the position remains open at the DP level:

(26)
$$DP <1>$$
$$|$$
$$D' <1>$$

D⁀————＼NP <1>
| |
a   dog
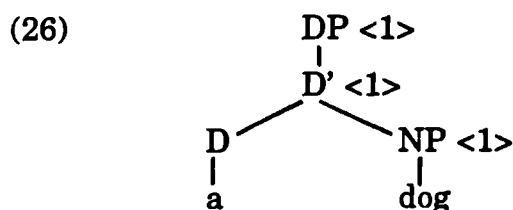
However, the problem that arises at this point is why the semantics of factives have to be satisfied in the syntax (either at S-structure or at LF), while those of non-factives can be satisfied at a different level. This seems to be a mere stipulation.

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A similar analysis in terms of a [+definite] feature associated with the C position has been proposed independently for the MG complementiser *pu* which is standardly assumed to introduce certain types of factive complements. Christidis (1986) argues on pragmatic grounds that *pu*-clauses are definite descriptions. In his analysis *pu* is treated as a sentential definite article. This idea is adopted and adapted in Roussou (1992, 1994) with the proviso that crosslinguistically factive complements have a definiteness/ iota operator in the spec,CP position. The operator then derives the semantics of factive complements, as in Melvold (op. cit.). However, unlike Melvold's analysis the [+/-def] specification on C is considered to be a parameterised property. Under this analysis the null operator is licensed by binding the event position of the embedded V.

To summarise so far, the approaches discussed in this section treat factive complements as definite descriptions. Note that what is being kept constant in all the analyses discussed in the last three sections is the resemblance of factive complements to DP's. This is accounted for either in terms of a concealed DP structure as in the Kiparskys' (1970) original analysis, or as a nominal feature on C as in Zubizaretta's (1983) proposal, or finally as a definiteness feature as in Melvold's (1991), Christidis' (1986) and Roussou's (1992, 1994) accounts. However, in the last three approaches the parallelism is restricted to definite DP's. This approach then puts factivity within the domain of definiteness, while making certain similarities between CP's and DP's more evident. First it appears to be the case that the [+definite] feature is not only restricted to D-class elements, but can occur on C as well. Secondly, the correlation between presupposition and definiteness which has already been discussed in the literature (cf. Heim 1982) with respect to Noun Phrases can extend to clauses as well, by assuming that CP's with a presuppositional reading can also be characterised as definite descriptions.

3.4 Familiar complements and factivity

Hegarty (1992b) also argues that factive complements are CP's which are characterised by some special feature. However, he attempts to provide an alternative approach to the issue of factivity. According to his analysis there are two ways of distinguishing factive and non-factive complements. One is to make use of their locality properties, i.e factives block adjunct extraction while non-factives do not, as in (27a) and (27b) respectively.

(27)　a.　*Why$_i$ did you point out that Mary resigned t$_i$?

　　　b.　Why$_i$ do you believe that Mary resigned t$_i$

The alternative is to distinguish them on the basis of their semantic properties: factives are associated with presupposition (cf. (28a)), while non-factives are assertions (cf. (28b)) (the exclamation mark below indicates pragmatic deviance):

(28)　a.　!John regretted that Mary left the college and Peter regretted that she didn't.

　　　b.　John told me that Mary left the college and Peter told me that she didn't.

The sentence in (28a) where a factive predicate is used is deviant. This is due to the contradictory status of the embedded clauses (affirmative vs. negative) that the speaker presupposes to be true in each case. In (28b), on the other hand, there is no presupposition involved, so no contradiction arises. Hence the absence of pragmatic deviance.

However, this clear-cut distinction between factives and non-factives regarding their syntactic and semantic properties is not always obeyed. As Hegarty points out there are predicates that are characterised as non-factives semantically but nevertheless block adjunct extraction, as in (29) below.

Accordingly, it might well be the case that a predicate has the semantic properties of factives without nevertheless creating an island for adjunct extraction, as in (30):

(29) a. They agreed that Peter destroyed the files.

   b. *Why$_i$ did they agree that Peter destroyed the files t$_i$?

(30) a. They found out that Peter destroyed the files.

   b. How$_i$ did they find out that Peter destroyed the files t$_i$?

On the basis of these data, Hegarty argues that the blocking effects on adjunct extraction in (27a) and (29b) are due to some property, marked as F for familiarity, shared by all these complement clauses.

Thus in familiar complements the speaker assumes that the proposition expressed is familiar to the listener. Familiarity is satisfied in either of the following ways (from Hegarty (1992b: 8):

(31) a. The content of the complement has already been established in the discourse.

   b. The content of the complement clause is background knowledge that the listener brings into the discourse.

In either of these cases pragmatic presupposition holds. Moreover, familiarity can be achieved without necessarily having presupposition. In this case then:

(31) c. The content of the complement clause has been established earlier in the discourse.

   d. The content of the clause is a point of discussion being evoked by linguistic or pragmatic factors.

This last type of property is the one standardly assumed with non-factive

predicates like *agree* which nevertheless exhibit syntactic properties of factives.

This kind of distinction between familiar and non-familiar complements offers a broader classification of predicates. In that respect it becomes clear that (i) factives are only a subclass of the familiar predicates and (ii) syntactic properties common to factives and some non-factives are explained under the presence of the F feature which unifies these two classes. The main claim is that in familiar complements the [+F] feature is borne by C. Crucially it is the presence of a +F C that blocks adjunct extraction. If this is true, it follows then that the need for postulating an iota/ definiteness operator is no longer required. As Hegarty points out the nature of this operator and its morphological realisation (why this operator is always null for example) have always been rather unclear. To be more specific, it is not quite clear what this operator binds. In Melvold's (1991) analysis the null operator is treated as an individual variable binder, on the assumption that it binds the event position of the Verb.

Hegarty (p.c) points out that there are predicates which seem not to have an event position. In corroboration he cites Kratzer's (1989) analysis which distinguishes between individual and stage level predicates. Kratzer argues that only stage level, but not individual level, predicates have an event position. Note though that individual level predicates also can appear with factive complements, as the example in (32) shows:

(32)   Mary pointed out [that Peter *knows* French]

In the absence of an event position, it is not clear what the definiteness operator binds in this case. Moreover, according to Kratzer (op. cit.) the event variable of a stage level predicate can be bound by an unselective binder, such as an adverb of quantification:

(33)   Mary pointed out [that when a Moroccan speaks French, she
            always speaks it well].

In this case the event variable is bound by the adverb *always* clause
internally, so it cannot be bound by the iota operator as well.

It seems therefore that an analysis à la Melvold that postulates an iota
Operator is problematic. On the other hand, the type of generalisation in
terms of familiarity (Hegarty 1992b) appears to be on the right track
although there are a couple of points that need to be clarified. For example,
the exact syntactic status of a Familiar complementiser is not clear. The
presence of an F feature has been postulated to account on the one hand for
the semantic properties of a class of predicates, and on the other hand to
explain opacity with respect to adjunct extraction. Notice though that at LF
the C head has to be syntactically licensed otherwise the construction will be
ruled out by the principle of Full Interpretation (FI)[2]. Suppose that the F
feature is licensed under selection by the matrix predicate. This is a natural
assumption to make, given that familiar complements appear with certain
classes of verbs (cf. also the case of selection of a [+*wh*] C in embedded
interrogatives). In this case familiarity will have to be treated jointly as a
property of the complement clause and of the matrix predicate. However,
there are predicates which can have both a [+F] and a [-F] complement. As
Hegarty (1992b) points out this is the case with the verb *know*:

(34) a.   What do you know about this?
      b.   I know the estimates are wrong.
      c.   I know that the estimates are wrong.

In (34b) the speaker supplies new information, while in (34c) the information
is old, an issue already existing in the discourse. The different
interpretations are derived by the presence or absence of the F feature in
each case. Thus familiarity remains a property of the complement clause,

that may either be triggered by the matrix predicate in the form of selection, or by contextual factors. In the latter case the F feature on C will have to be licensed in some other way, an issue that is not addressed in Hegarty's analysis. One more point crucially related to this issue of contextual triggering, is the following: at least in those cases where the F feature has certain syntactic effects, its presence must be licensed at a syntactic level; thus familiarity cannot be treated as a pragmatic property only.

In the following section I will provide an analysis of factivity providing evidence from the MG data. In particular, I will slightly modify the analysis of factives proposed in Roussou (1992, 1994). I will assume along with Hegarty (1992b) that factive complements denote familiar content, in the form of old information. Moreover, unlike Hegarty (op. cit.) I will assign an Operator-like status to the familiar complementiser and in that respect provide an account of the parametric properties of factives as exemplified in MG and English (cf. section 2).

4. Factive complements
4.1 The MG data
4.1.1 The MG Complementiser system

I will assume, following Roussou (1992, 1994), that factivity is a property of the complement clause and most notably of its C, and that the content of factive complements is that of old information (Hegarty 1992b). Crucially though I will argue on the evidence of MG that this type of interpretation can be derived syntactically in different ways. This distinction will be based on the MG data, especially *pu*-clauses, and their English counterparts. To be more specific, I will argue that the C *pu* is [+definite], while the equivalent English C (i.e *that*) bears the familiarity feature.

Let us start by offering a more detailed discussion of the MG Complementiser system. Consider the data below:

(35) a. Nomizo *oti/ *pu* aghorase to spiti.
         think-1s that bought-3s the house
         "I think she bought the house."

     b. O Yanis metaniose *oti/pu* aghorase to spiti.
         the John regretted-3s that bought-3s the house
         "John regretted that he bought the house."

     c. Thimithika *oti/pu* ixe aghorasi to spiti.
         remembered-1s that had-3s bought the house
         "I remember that he had bought the house."

As the above examples show there are predicates that take only *oti*-complements, as in (35a), or only *pu*-complements, as in (35b), or either, as in (35c). In particular the complementiser *pu* appears mainly with predicates that denote an emotive state (eg. regret, deplore, odd, tragic, etc.), as is the case in (35b) where an experiencer predicate is used. It may also be used with some verbs that denote a cognitive or other mental state as in (35c) and in this case the presence of an *oti*-complement is also possible. (See also Ingria (1981) and Mackridge (1988) for a classification of predicates.)

The C *pu* can also appear with perception verbs, as in (36):

(36)   Ton idha / akusa pu efevje.
         him-saw-1s/heard-1s that left
         "I saw/heard him leaving."

Perception verbs in MG may also subcategorise for complements introduced by the complementiser *oti* or the particle *na*:

(37)　a.　Idha oti efighe.
　　　　　saw-1s that left
　　　　　"I saw that he left."

　　　b.　Ton idha na fevghi.
　　　　　him-saw-1s prt leave-3s
　　　　　"I saw him leave."

Note crucially though that the interpretation varies according to the complement clause selected. In (36) for example where the C *pu* is used, the interpretation is that of familiarity. This is indicated by the deviant status of the following sentence:

(38)　!I Maria idhe ton Petro [pu efevje] ke o Yanis ton idhe [pu dhen efevje]
　　　 "!Mary saw Peter leaving and John saw him not leaving."

The deviance arises because the two embedded *pu*-clauses have a contradictory status (cf. also the English example in (28a)). Note, however, that an analysis of factivity along the lines of semantic presupposition as in Kiparsky and Kiparsky (1970) cannot go through in (36), since the content expressed by the complement is not something existing as background (presupposed) information but is the result of direct perception (Christidis 1981). Familiarity in this case is triggered by pragmatic/ linguistic factors in the immediate discourse[3]. Therefore in (36) above the relevant semantic notion is entailment and not presupposition, i.e the *pu*-clause entails that the person under discussion left. Moreover, the structure of the *pu*-complement in (36) is similar to what is often referred to in the literature as a pseudo-relative construction (cf. Cinque (1991), Guasti (1992) among others). So in this case it could be argued that *pu* is used because it is the complementiser that introduces relative clauses anyway (see (39a) below). On the other hand when the complement clause is introduced by *oti*, as in (37a), the perception verb has the interpretation of an epistemic predicate. Finally, when the *na*-complement is used the interpretation is that of a direct perceptual report, as in bare infinitivals in English (cf. Higginbotham 1983).

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Finally, the complementiser *oti* is used mainly with verbs of saying (tell, say, declare,...) and epistemic predicates. It is also used with predicates denoting a cognitive or mental state, which in most cases are treated as factives. These include verbs of the following type: point out, confirm, be aware, comprehend, forget, ignore, remember, etc. (see (35c) above)[4]. Thus the C *oti* can be used to introduce both non-factives as well as a certain class of factive complements[5].

Before we leave this section it is worth mentioning that the C *pu*, as opposed to *oti*, is not restricted to sentential complements only, but occurs in a number of other constructions, as the data below show:

(39)   a.   ***Relative clauses***
            O fititis *pu / o opios* sinandises.
            the student that/who met-2s
            "The student that/who you met."

       b.   ***Cleft constructions***
            Ine I SIMPERIFORA TIS *pu / *tin opia* dhen anexome.
            is the behaviour-hers that/the which not stand-1s
            "It is her behaviour that I cannot stand."

       c.   ***Matrix exclamatives***
            Ti orea *pu / *i opia* ine i Maria.
            what nice that/the which is the Maria
            "How nice Maria is!"

All the above examples are ungrammatical with the C *oti*. Relative clauses in MG can be introduced either by *pu* or by a relative pronoun. Cleft constructions and matrix exclamatives on the other hand, disallow the use of the relative pronoun. The above structures are assumed to involve some sort of predication, where the   subject of predication can be DP, as in (39a) and (39b), or   another XP, as in (39c). Leaving aside the exact structure of clefts and in particular of exclamatives, a topic whose detailed analysis is beyond the scope of the present work, it is worth noting that the

constructions are associated with presupposition. As Grimshaw (1979) points out they are essentially factives. This completes then the picture of the distribution of *pu*: if *pu* is used to introduce clauses that denote some sort of familiar content (where presupposition may be involved), then its use with the constructions in (39b-c) and consequently the exclusion of *oti* is straightforward. This of course leaves open the question of relative clauses, i.e why *pu* is used in relatives. We will come back to this issue in section 4.1.4.

To summarise, in this section I have outlined the distribution of the complementisers *oti* and *pu*. The C *pu* has a much wider distribution, since it can be used in complement clauses as well as in a number of other constructions such as relatives, clefts and exclamatives. In the following section, we will consider another type of construction where these two complementisers show an asymmetrical distribution.

4.1.2 Nominalised clauses

MG makes use of another construction where a CP may be preceded by the definite (neuter) article *to* (the). This is the case of *nominalised* clauses (cf. (40)):

(40) a. *To oti* perase tis eksetasis me efxaristise.
          the-nom that passed-3s the exams me-pleased-3s
          "The fact that she passed the exams pleased me."

      b. **To pu* perase tis eksetasis me efxaristise.
          the-nom that passed-3s the exams me-pleased-3s
          "The fact that she passed the exams pleased me."

      c. *To na* perasis tis eksetasis ine simantiko.
          the-nom prt pass-2s the exams be-3s important
          "For you to pass the exams is important."

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d. *To pote* tha fighi parameni agnosto.
the-nom when will leave-3s remain-3s unknown
"When he will leave remains unknown."

The above sentences show that the determiner *to* can precede CP's introduced by the complementiser *oti*, as in (40a), the particle *na*, as in (40c), or a *wh-*phrase, as in (40d). However, nominalisation cannot take place with *pu*. Thus *pu*-clauses resist nominalisation.

As far as their distribution is concerned, nominalised clauses occur in subject position, as the data in (40) indicate. They may also appear as complements of a preposition (cf. (41)):

(41) a. ..ektos *tu oti* perase tis eksetasis...
apart the-gen that passed-3s the exams
"..apart from the fact that she passed the exams..."

b. *..ektos *tu pu* perase tis eksetasis...
apart the-gen that passed-3s the exams
"..apart from the fact that she passed the exams..."

c. ..apo *to na fiji*...
from the-acc prt leave-3s
"..than to leave.."

d. ..apo *to pote* tha fiji..
from the-acc when will leave-3s
"..when he leaves.."

I will assume the following structure for nominalised clauses (Roussou 1991):

(42)
```
        DP
      /    \
    D       CP
          /    \
       Spec      C'
              /    \
            C       IP
```
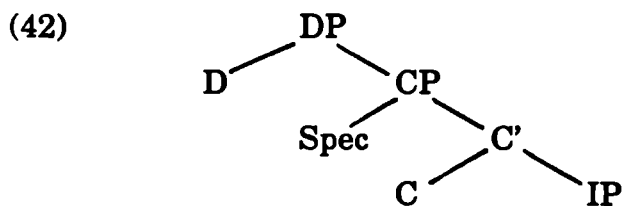
In (42) D takes a CP as its complement. The occurrence of nominalised clauses in certain structural positions raises the interesting question of what triggers the presence of the determiner. In that respect it has been argued that nominalization of a clause takes place for Case reasons (cf. Roussou (1991), and also Drachman (1985) for a similar account). In particular, the assumption is that clauses cannot be Case-marked, in the sense of Stowell's (1981) Case Resistance principle. Therefore in MG when a clause appears in a Case-marked position it has to be preceded by the definite article *to* ('the'), as in (40) and (41), so that Case is assigned to D. This should be considered as a parameterised property which is to a large extent defined by the Case-properties of the language in question.

Note incidentally that it is possible for D to be interpreted either as a real definite article (cf. (41a)) yielding a definite interpretation, or as an expletive element (cf. (41c-d) for example) where the interpretation is not definite. The possibility of having D as an expletive element is attested in other constructions as well, such as generic subjects or proper names (cf. (43)):

(43) a. *(I) falenes ine thilastika.
          the whales are-3p mammals
          "Whales are mammals."

      b. *(O) Petros ine filos mou.
          the Peter is-3s friend-mine
          "Peter is my friend."

In all the above examples, the definite article does not contribute to the interpretation of the Noun Phrase, either because a definite reading is incompatible with the semantics of the sentence, as in (43a), or because the NP has inherent reference, as in (43b). Nevertheless the determiner is used so that the Case assignment requirements on the NP are satisfied. A detailed account of these constructions and the role of D as an expletive element is

provided in Roussou and Tsimpli (1993, 1994) (see also Longobardi (1994) for a comparative analysis of the English and Italian data). For present purposes it suffices to say that the presence of an overt D in all the relevant constructions is regulated by the Case properties of MG.

The point that concerns us here is why *pu*-clauses cannot be preceded by D. If the presence of an overt D in MG is a prerequisite for Case assignment, then its absence in *pu*-clauses implies that the latter cannot appear in Case-marked positions. Consider the examples in (44) below:

(44) a. *[(To) pu efighe] me stenaxorese.
          the that left-3s me-upset-3s

b. Me stenaxorese [pu efighe].
    me-upset-3s that left-3s
    "It upset me that he left."

The Verb in the matrix clause is an experiencer predicate. Suppose that in (44) both arguments, the CP and the Experiencer (which is realised as an accusative clitic) are base-generated as internal arguments (Belletti and Rizzi 1988):

(45)
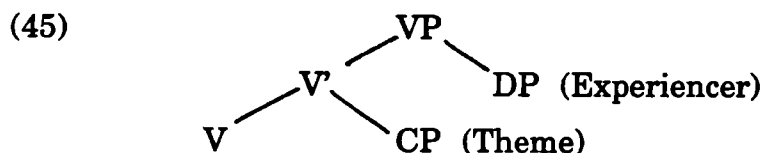
According to the analysis by Belletti and Rizzi, the Experiencer has inherent Case. If the Theme is a DP it has to move to the spec,IP (the structural subject position) where it is receives Nominative Case. However, as the ungrammaticality of (44a) shows the *pu*-clause cannot move to the subject position. The idea is that if it moves to the spec,IP it will have to be Case-marked and therefore be preceded by the D *to*. Notice crucially that even if D is absent, the structure is ungrammatical. Alternatively, the *pu*-clause

remains in a VP-internal position, and the result is grammatical. The subject position is then filled by a non-referential pro (MG is a pro-drop language and does not have overt expletives). If, however, the CP is externalised, then it has to be realised as a *to oti*-clause:

(46)   [*To oti* efighe] me stenaxorese.
         the that left-3s me-upset-3s
         "That he left upset me."

What the examples in (44) indicate is that *pu*-clauses are Case-resistant and can only appear VP-internally. As far as Experiencer predicates of the type in (44)/ (46) are concerned, it seems that *pu* and *to oti*-clauses are in complementary distribution. At this point, the obvious question is why *pu*-clauses resist nominalisation. In other words, what is the property of *pu* that distinguishes it from the complementiser *oti*.

Before we provide an answer to this question note that there is one more implication to be derived from the incompatibility of *pu*-clauses with nominalisation. On the assumption that *pu*-complements are factives, we notice that the original analysis by Kiparsky and Kiparsky (1970) which claims than an abstract NP/DP node dominates factive complements cannot go through. Otherwise we should expect to find the following structure for *pu* (factive)-complements:

(47)
```
            DP
          /    \
        D       CP
              /    \
            C        IP
            |
           pu
```
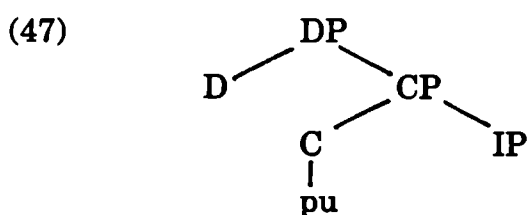
But note that if (47) is the correct structure, then we cannot explain why *pu*-clauses which are factives cannot cooccur with an overt determiner, since this option is available in MG. Therefore I conclude that the structure in (47) is indeed the appropriate one for *to oti*-clauses but not for *pu*-clauses, since the

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latter are Case-resistant[6]. In that respect the incompatibility of *pu*-clauses with nominalisation provides prima facie evidence for an analysis of factive complements as CP's, as has been suggested in the most recent literature (cf. section 3).

In the following section I will consider the idiosyncratic properties of the C *pu* that distinguish it from *oti*. I will argue that this analysis will: (i) explain why it is (im)possible for *pu* to occur in certain contexts, and (ii) provide an account of the parameter underlying the MG and English data as far as their locality properties are concerned.

4.1.3 The properties of *pu*-clauses

As has already been mentioned briefly in section 3.3 Christidis (1986) proposes mainly on the basis of the pragmatics of *pu*-clauses, that the complementiser *pu* behaves like a clausal determiner. He therefore suggests that *pu* is characterised as [+definite] and consequently the complement it heads is a definite description. In Roussou (1992, 1994) this idea was formalised and justified on syntactic grounds as well. In particular, the claim was that factives in general have a null operator in the spec,CP position whose content is identified as an iota/definiteness operator binding the event variable in the sense of Melvold (1991). When the complementiser *pu* is selected in MG, the null operator and the C agree in terms of definiteness (an instance of spec-head agreement). However, if the complementiser is *oti* (and the interpretation is factive) or *that* in English, then there is no spec-head agreement, given that the C position in this case is not specified for the [+definite] feature (the spec-head agreement requirement is not violated in this case, if it is considered to be a morphological property in the spirit of Chomsky (1992), Brody (1993)).

The different structures assigned to *pu* and *oti/that*-clauses were as

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in (48) below (cf. also (23) above):

(48)   a.

        CP <e*>
      /   \
    Op   C' <e>
              /   \
            C   IP <e>
            |
           pu$_{[+def]}$

       b.

        CP <e*>
      /   \
    Op   C' <e>
              /   \
            C   IP <e>
            |
          oti/that
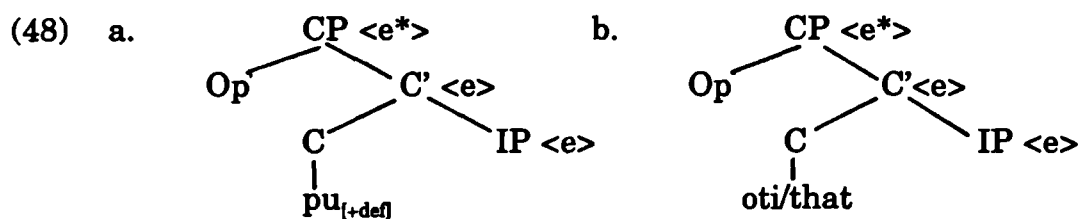
The reason for postulating the null operator was twofold: first to account for the blocking effects on adjunct extraction and second, to account for the factive interpretation attested in certain MG *oti*-clauses and the English factives. The parameterised specification on the C position, on the other hand, accounted for the blocking effects on argument extraction in *pu* factives. One problem is that under this approach *pu*-clauses appear to be overspecified with respect to definiteness/ factivity. The crucial point is that if their semantic properties can be derived directly by the definiteness of the C head, the presence of an operator seems to be redundant and its postulation for the opacity effects regarding adjunct extraction turns out to be a stipulation. Ideally then, we would like any blocking effects to be derived from the feature specification on the C head.

In the present work I will slightly modify the analysis proposed in Roussou (1992, 1994). In particular, I will retain the idea that *pu* is [+definite], while I will assume that there is no null operator involved in *pu*-clauses or in English factives, agreeing in that respect with Hegarty (1992b) and Varlokosta (1994)[7]. Given though that MG and English factives exhibit different locality patterns, the parameter will have to be attributed to distinct properties of the C head in each case. If the definiteness of *pu* is enough to block both argument and adjunct extraction, then it follows that the weak islandhood of English factives cannot be considered the result of definiteness as well. There must be some other sort of operator-like element that creates opacity for adjuncts only. The details of this approach will be discussed in section 5. The issue of the exact property associated with the

English C in factives will be dealt with in section 4.2.

Let us first consider the status of *pu* as a definite head. The empirical evidence provided so far favours the presence of a [+def] feature on the C *pu*. This is mainly based on the complementary distribution of *pu* and *to oti-*clauses in certain contexts, whereby the interpretation in each case is that of a definite description, so *pu* is treated as a D-like element. In order to detail the properties of *pu*-clauses we should first provide some basic assumptions about the structure and semantics of definite NP's.

Heim (1982) provides a detailed discussion of definite and indefinite Noun Phrases. According to her analysis, indefinites introduce (free) variables which are bound by an existential operator or by an adverb of quantification (i.e an unselective binder). Definites on the other hand are not bound. Within this framework Diesing (1992) argues that definite object NP's raise at LF and adjoin to IP which forms the restrictive clause of the sentence. Indefinites, on the other hand, are subject to two interpretations. Non-presuppositional indefinites stay within VP (the nuclear scope) and are bound by existential closure, while presuppositional indefinites raise and adjoin to IP, just like their definite counterparts. Crucially, in the analyses just mentioned the different interpretations assigned to definites and indefinites are triggered by the properties of the D head. Along the same lines, Manzini (1992) argues that in definite DP's D is the denotational head, which raises (abstractly) at LF to a scope position from where it binds a D-variable. In indefinites, on the other hand, the whole DP forms a denotational unit; therefore in this case we have a DP-variable which is bound by existential closure as in Heim (1982). Thus indefinites are basically interpreted as in-situ variables. This analysis is to some extent in accordance with Diesing's (1992) account, but does not require (abstract) raising of the whole definite DP.

With that much as background, let us consider the role of the C *pu* in

complement clauses. On the basis of the empirical evidence provided in section 4.1 we treated *pu* as a D-like element, and in particular one that is characterised as [+definite]. Given the above discussion, the function of *pu* turns out to be rather straightforward. As a definite D-like element it heads a definite phrase. Thus IP has a predicate function, in the same way that NP is the predicate of a definite D. The C *pu* is then considered to be the denotational head which binds a C variable at LF, in the sense of Manzini (1992). This accounts for the semantic interpretation derived in *pu*-clauses, i.e that of a definite description. Crucially, the [+definite] status of *pu* derives the appropriate interpretation for factives. As argued in Heim (1982), definite NP's are associated with old/familiar information. Extending this to definite CP's we expect that they will also be associated with old information. Therefore the familiarity content required of *pu*-clauses is derived, and their semantics are satisfied via the [+def] specification of C.

Notice that under this analysis we can also explain why *pu*-clauses, as opposed to *oti*-clauses, do not permit nominalisation, i.e they cannot be preceded by D. Recall that *pu*-clauses resemble DPs in terms of a definite interpretation. In factive complements it is the C *pu* that is the denotational head, while the IP has a predicate function. This is illustrated in (49):

(49)

```
          CP
          |
         C'
       /    \
      C      IP
      |
   pu[+def]
```
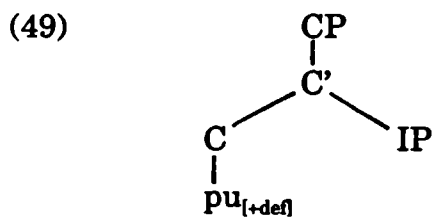
In the *to oti*-clauses (as well as in definite DP's) this role is carried out by the definite D, while the CP (or NP accordingly) provides the predicate (cf. (50)):

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(50)

```
            DP
            |
            D'
         ___/  \___
       D'          CP
       |        __/  \__
       |      C'        \
       |      |          IP
     to[+def] oti
```
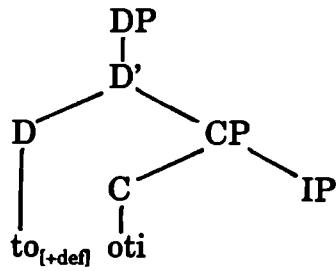
Suppose now that the *pu*-clause in (49) above was preceded by D:

(51)

```
          DP
        _/  \_
      D'       CP
      |     __/  \__
      |   C'        \
      |   |          IP
    to[+def] pu[+def]
```
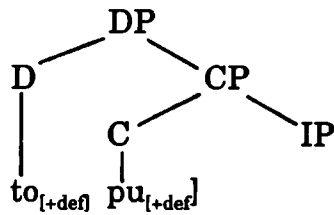
The structure in (51) is ill-formed. The CP cannot function as a predicate due to the presence of the complementiser *pu*. Thus there is no logical role for the definite D to carry out and the structure is ruled out as ungrammatical at the relevant level of interpretation. The incompatibility of *pu*-clauses with nominalisation is derived, in the same way that iteration of D's in NP's is excluded:

(52)   *The this book.

The ungrammaticality of (51) is standardly considered as a result of vacuous quantification (cf. Chomsky 1981, Higginbotham 1985).

4.1.4 The other uses of *pu*

Having established the status of *pu* as a [+definite] C let us now consider its use in other constructions as well. As was mentioned in section 4.1.1 the C *pu* is also used in clefts, exclamatives, and relative clauses. Its presence in the first two cases is straightforward, as is the exclusion of *oti* and of relative

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pronouns as well given that these constructions have the factive interpretation. However, the use of *pu* in relatives appears to be problematic at first, since these clearly cannot be considered as factives. There are two possibilities: either the C used in relatives is of a different nature, or *pu* in general is not characterised as definite. The first possibility is not desirable because we would like to provide a unified account of the complementiser under consideration. The second possibility can also be excluded, given the theoretical and empirical evidence provided so far. Note that if we consider the properties of relatives in more detail we will see that the presence of a definite C can be accommodated.

It is worth mentioning that in languages like MG which distinguish two C's of this type, the C used in factive complements is also the one that introduces relative clauses. This is for example the case in Yiddish, Serbo-Croatian and Krio (an English-based Creole language). In Yiddish the factive C used in relative clauses is *vos*, while the non-factive one is *az* (Diesing 1990). In Krio the C *wé* is used in both factive and relative clauses, as opposed to the non-factive *sé* (Nylander 1985). The same extends to the Serbocroation *sto* and *da* complementisers (see (6) in section 2). As the cross-linguistic evidence shows, those languages which distinguish two complementisers use the 'factive' C for relative clauses. It is natural to assume then that this correlation cannot be accidental.

Let us now consider the MG data in more detail. Notice that in MG when a relative pronoun is used it has to be preceded by the definite article:

(53) a.   O anthropos *(o) opios irthe...
            the man the who came-3s
            "The man who/that came..."

      b.   Enas anthropos *(o) opios na erxete kathe proi...
            a man   the who sub. be-coming-3s every morning
            "A man who will be coming every morning..."

In (53a) the head of the relative is a definite NP, while the one in (53b) is an indefinite. In either case the relative pronoun has to be preceded by the article otherwise the structure will be ungrammatical. Thus relative pronouns also need to be specified in some way for definiteness, irrespective of whether the head of the relative clause is definite or indefinite. This is morphologically manifested in languages like German for example where the relative pronoun has the same form as the definite article, i.e *der, die, das*. It seems therefore that there is some correlation between definiteness and relative clause formation.

Empirical support for this claim comes from the ungrammaticality of *there*-constructions within relative clauses. Heim (1987) for example, notes that relative clauses give rise to definiteness effects, as exemplified in (54) below:

(54)   a.   ??The men/many men who there were in the room were eating
            guavas.

       b.   *The men/many men, all of whom there were in the back room,
            ate guavas.

Relative clauses, whether restrictive (cf. (54a)) or appositives (cf. (54b)), disallow *there*-constructions, as the ungrammaticality of the above examples indicates. Crucially, Heim (op. cit.) argues that the definiteness effect cannot be attributed to the definiteness of the head of the relative clause. In both examples in (54) ungrammaticality obtains irrespective of whether the head is introduced by a strong (i.e definite) D (*the*), or a weak (i.e indefinite) D (*many*), and so the ungrammaticality has to do with the variable involved within the relative clause. Heim claims that in both restrictive and appositive relatives the trace is semantically interpreted as an individual variable. She tentatively concludes that this is the case with restrictives,

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while in appositives (non-restrictives) the relative pronoun itself is interpreted as the individual variable in the original trace position. The crucial point though is that in either case the trace is interpreted as a strong NP, i.e something associated with presupposition (cf. Milsark's (1977) distinction, and Diesing's (1992) account). Thus the relative operator need not agree in definiteness with the head of the relative clause.

The explanation for the realisation of the variable in appositives finds support from the relevant MG constructions where in fact a resumptive pronoun is used:

(55)   a.   O anthropos [o opios/ pu sinandisa t]...
               the   man the whom/ that met-1s
               "The man who/that/0 I met..."

        b.   O Yanis, [ton opio/ pu ton sinandisa]...
                the John the whom/ that him-met-1s
                "John, whom I met..."

(55a) is a restrictive relative clause, and (55b) is an appositive. In the latter case the resumptive pronoun *ton* (him) appears in the original trace position, and could then be interpreted as the overt realisation of the individual variable itself, in the sense of Heim (1987) (for a detailed analysis of the use of resumptive pronouns in MG relatives see Tsimpli (1994b)). What we should bear in mind is that both in restrictive and in appositive relatives the trace is interpreted as an individual variable (a strong NP), which can be represented either as an empty element, or as a resumptive pronoun respectively.

If this analysis is correct, it can explain why in the absence of a factive interpretation the C *pu*, but not *oti*, can appear in relative clauses. Recall that *pu* is characterised as [+definite]. Relative clauses introduced by a complementiser involve a null Operator in their spec,CP (Chomsky 1977).

This (null) operator is an individual variable, that is a strong NP, binder. Therefore *pu* agrees in definiteness with the Operator in its spec: an instance of spec-head agreement. So *pu* does not obtain a factive interpretation in relatives, since these are not complement clauses but involve some sort of predication. Instead it induces a spec-head agreement relationship, and its use in these constructions is derived. I expect that this analysis extends to the other languages mentioned in the beginning of this section, which pattern with MG in the use of a factive C in relative clauses.

Having provided an account of *pu*-clauses in their more general use, I will next turn to the case of *oti/that* factives and consider their relevant properties.

4.2 The case of English factives

In this section I will discuss the syntactic properties of *that* factive complements. The analysis extends to the MG *oti*-clauses in those cases where they are used as factive complements. Crucially we expect factive complements to exhibit the same semantic properties cross-linguistically. However, we also have to account for their different syntactic properties as the result of parameterisation. In other words, we need an analysis that will provide the same semantics for *pu* and *that/oti*-clauses, while being able at the same time to provide an explanation for their different locality patterns. So far we have assumed that the content of factive complements is interpreted in terms of familiar/ old information. In section 4.1.3 it was argued that in *pu*-clauses this is achieved by the presence of a D-like element in C. It has also been mentioned, earlier on in our discussion, that in *that/oti*-factive complements there is an F feature on C, as in Hegarty (1992b). A definite C in this case has to be excluded, given that it would create a strong island, contrary to fact. Thus the existence of different C's and consequently of different features should be considered a parameterised

property.

The analysis that will be offered shortly with respect to English factives differs from the one discussed in Hegarty (1992) in that it requires the F feature on the C head to be licensed syntactically, so that its presence at LF is justified under the Principle of Full Interpretation. Merely to say that a +F feature is required in the case of factives, only labels the problem. This actually can be viewed as a more general problem arising from the introduction of new features which underlie certain syntactic phenomena. If familiarity is not a property unique to factive complements, but is attested in other constructions as well, then the postulation of an F feature reduces to a property which can be considered a primitive notion of our grammar.

Note that familiarity in the sense of old information is the underlying characteristic of another construction as well, namely topicalisation (cf. (56)):

(56) a. The book, John gave to Mary.
      b. A present, John would never give to Mary.

The topicalised element can be either definite, as in (56a), or indefinite, as in (56b). In either case, however, the reading derived requires that the topicalised element is interpreted as something already established in the discourse. In other words the topicalised element is interpreted as old information (Prince 1981). The same process of topicalisation in MG involves the presence of a resumptive pronoun in the form of a clitic in the gap position. This structure is known as Clitic Left Dislocation (CLLD) construction (Cinque 1990). If the clitic is absent, the preposed element has to bear emphatic stress obligatorily and the process involved is syntactic focussing (Agouraki 1990, 1993; Tsimpli 1990, 1994a). In the latter case the preposed element is interpreted as new information. The relevant examples of CLLD and Focusing in MG are given in (57a) and (57b) respectively:

(57) a. To vivlio, *(to) dhiavasa.
          the book it-read-1s
          "The book, I read."

     b. To VIVLIO (*to) dhiavasa.
         the book (it) read-1s
         "I read THE BOOK."

Therefore it seems that the notion of familiarity/old information is present in nominal constructions as well, such as topicalisation (or CLLD in MG). One of the characteristics of Topicalisation that distinguishes it from wh-constructions is that the topicalised element is discourse bound, and so it does not have scope requirements itself. As Cinque (1990) notes it is an element in a A'-non-Operator position.

On the basis of these premises, let us return to the properties of *that/oti*-factive complements. Given that they denote old information, thus resembling topicalised elements, it seems natural to assume that they are also discourse bound. Suppose that this is precisely the function of a +F feature on C: it endows the C with an operator like status that binds the IP and gives rise to the familiar interpretation as required by the semantics of these complements. In other words, a +F C is nothing but a discourse binder, that binds the whole clause, and is considered to be a sentential operator. The idea of discourse binding was originally mentioned in Hegarty (1992a), but binding was actually associated with the event position, an account which turned out to be problematic (cf. section 3.4). The possibility of treating the Op as a sentential operator was mentioned briefly in a footnote. Notice that this account although quite similar to the one discussed in Melvold (1992) and Roussou (1992, 1994) differs from them in that: (i) it does not require binding of the event position, and (ii) it does not assimilate it to a definiteness/ iota operator. Finally, it makes factivity a property of the complement clause encoded on the C head. Thus the similarity with *pu*-clauses follows in its entirety.

Note that an analysis along those lines is in accordance with proposals made in the literature about the presence of a negative feature on C (cf. Laka 1990, Progovac 1992). This is also true of embedded yes/no questions, where the relevant feature is +Q. Interestingly, all these operators which can be realised as features on the C head are sentential operators. Leaving aside the different interpretations they give rise to, we notice that they all create certain syntactic effects. For example they all block adjunct extraction (cf. 58) or, as in the case of the Q and Neg Operators they can license Polarity Items (cf. (59))[8]:

(58) a. *Why$_i$ do you wonder whether Peter left t$_i$? (embedded yes/no question)

   b. *Why$_i$ did he deny that he stole the money t$_i$? (negative)

   c. *Why$_i$ did he regret that he left so early t$_i$? (factive)

(59) a. Peter wonders whether anyone left.

   b. Peter denied that he stole anything.

A final point to mention before we move on to the next section, is the parameterisation of factivity. The basic notion underlying factive complements is familiarity of content in the form of old information. Familiarity can be construed as a purely pragmatic notion, and in this case we expect to find no syntactic effects. However, it can also be a grammaticalised notion in the sense that it is encoded in the form of a feature on a functional head, which in the present work has been identified with C. Crucially though, familiarity can be derived syntactically either in the form of a definite feature, or in the form of an F feature. In the latter case, the C position functions as a discourse Operator that binds the clause. In the former case, definiteness can be expressed in two ways, according to the head that carries the definite feature. The standard assumption is that D is specified for definiteness. In the present work I have argued that the definite feature can also be borne by the C head. The latter is clearly a

parametric property and MG actually makes use of both options. When the definite feature is on D, the configuration that arises is a nominal construction, either with the form of a Noun Phrase, or with the form of a nominalised clause, and in a particular of a *to oti*-clause. Alternatively definiteness can be expressed directly on C, and this is morphologically realised in the form of *pu*. The complementary distribution of *pu* and *to oti*-clauses is further regulated by Case reasons.

Coming back to the parameterisation issue of familiarity as discourse binding or definiteness, we note that Spanish also makes use of both options. It differs from MG though in that in the absence of a special C, it allows for a construction that looks like a nominalised clause, i.e a CP being preceded by the definite article. This is illustrated in the example below, where the D used is *el* (from Zubizaretta (1983:89)):

(60)   Lamentamos *el* que Pedro no haya pasado el exámen.
        regret-1p the that Peter not have-3s passed the exams
        "We regret that Peter has not passed the exams."

I assume that the structure of the *el que*-clause is as in (61) (cf. also the MG examples in section 4.1.2):

(61) $[_{DP}$ $[_{D}$ el] $[_{CP}$ que [....]]]

As expected when *el* is absent argument extraction is possible, while when *el* is present it is not (Zubizaretta 1983). In the latter case we are dealing with a complex NP construction, which creates a strong island (cf. Chomsky 1986a). Leaving details aside, the crucial point is that it is possible for familiarity to be represented either as a definite or an F feature. Accordingly definiteness can be expressed in the form of a special C as in MG, or in the form of a nominalised clause as in both MG and Spanish.

To summarise the discussion so far, we have identified the C in

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that/oti-factives as a discourse binder, realised by the F feature. In *pu*-clauses, on the other hand, the C is characterised as [+definite], resembling therefore a definite D in nominal constructions. The presence of this feature can also explain why *pu* but not *oti* is used in other constructions such as clefts, exclamatives and relatives. The first two are essentially factives, while the latter involve an operator that binds an individual variable, i.e a strong DP. Under this approach, the crucial point is that in either case, i.e of *pu* as well as of *that/oti*-complements, the semantics of factives will be satisfied. So we have succeeded in deriving the semantic properties of factives, albeit keeping their syntactic properties apart as a result of parameterisation.

5. Factive Islands

Having provided an account of the properties of factive complements in their cross-linguistic manifestation we can now consider the extraction data in detail. As already mentioned in section 2, English factive complements are weak islands: they block extraction of adjuncts but not of arguments. In MG however, *pu*-factives are strong islands: they block extraction of both arguments and adjuncts. This is illustrated by the following MG examples and their equivalent English translations:

(62) a. *Ti$_i$ metanioses pu aghorases t$_i$?
          what regretted-2s that bought-2s
          "What$_i$ did you regret that you bought t$_i$?"

      b. *Jati$_i$ metanioses pu efighes t$_i$?
          why regretted-2s that left-2s
          "*Why$_i$ did you regret that you left t$_i$?"

Thus there is an asymmetry attested between MG and English factives as far as argument extraction is concerned. Recall that the MG pattern is

exemplified by at least another language, namely Serbo-Croatian, which also distinguishes between a factive and a non-factive complementizer (*što* and *da* respectively) (cf. (6) in section 2).

The preliminary conclusion we drew in section 2 was that there appears to be a correlation between the existence of a special C for factives and the strong islandhood of these complements. The next point is to account for this type of asymmetry.

5.1 Some previous accounts
5.1.1 Cinque's (1990) analysis

Before I present an account of the data in (62) I will discuss briefly some of the analyses put forward in the literature. To my knowledge the asymmetry of the MG-English type is first discussed in Roussou (1992). Most of the analyses put forward refer to the English data, where argument extraction is possible. The various approaches depend to a large extent on the structure adopted for factive complements. Rouveret (1980) argues that the C in factives is nominal, and therefore the adjunct cannot move to this position. Along the same lines, Kayne (1984) claims that factive verbs are not proper governors, so a trace in the embedded Comp cannot be properly governed, and an ECP violation arises. Zubizaretta (1983) also assumes that C in factives is nominal, and explains the ungrammaticality of adjunct extraction under a revised notion of the *i-within-i* filter. Problems with her analysis with respect to the structure of factives have already been discussed in section 3.2.

Coming to more recent approaches, it is worth mentioning the analysis put forward by Cinque (1990) who assumes that factive complements although selected by the Verb (i.e they are theta-marked), are not L-marked. Thus in structural terms, they are not sisters to V but are adjoined higher

up. This is illustrated as in (63) below:

(63)

```
            VP
      V'         CP
      |
      V
```
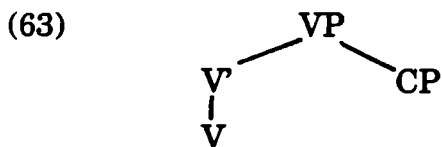
In (63) the CP is not L-marked by a [+V] category so it counts as a barrier to movement, and an ECP violation arises; hence the ungrammaticality. A'-dependencies of arguments on the other hand, involve binding; thus the presence of one barrier does not block argument extraction. The problem with this analysis, apart from the technical definitions of barriers, is that it still cannot account for the contrast between MG and English. Moreover, it does not provide any explanation as to why the factive clause cannot be a sister to V since it is nevertheless treated as a complement. The basic evidence that Cinque offers comes from the extraction data. However, given the general differences attested between factives and non-factives a more elaborate analysis is in need (see also Hegarty (1992a&b) for criticisms).

5.1.2 Factive islands as *wh*-islands

Rooryck (1992) reduces factive islands to *wh*-islands. He assumes that the matrix predicate in this case selects a [+wh] C. However, this C is not overtly realised as a *wh*-element. The empirical evidence offered for this claim comes from the fact that factives can take complements introduced by a *wh*-phrase. The impossibility of adjunct extraction is accounted for as follows: when adjuncts pass through the spec,CP they pick up the *wh*-value of the embedded C (as a result of some sort of spec-head agreement). This *wh*-feature though is incompatible with the *wh*-specification of the matrix C and ungrammaticality arises. However, this approach does not explain why the [+wh] feature cannot be overtly realised on C, and moreover how the complementiser *that* which is standardly assumed to be [-wh] can in certain

contexts bear the [+wh] specification. Finally, note that once again this analysis cannot provide an explanation for the MG data.

Melvold (1991) proposes that there is an empty operator in the spec,CP. The account she provides is formulated within the theory of extraction of Lasnik and Saito (1984). The presence of the operator blocks antecedent government, yielding an ECP violation. The assumption is that the null operator is present at LF only, otherwise its presence at S-structure would block argument extraction as well, violating Subjacency. Melvold actually assumes that for those speakers who might find argument extraction unacceptable, the null operator is present at S-structure. We could probably follow a similar analysis for MG with *pu*-clauses: the null operator is already present at S-structure in the spec,CP and it blocks argument extraction as well. In English on the other hand it is present at LF only.

Crucially, this approach is based on the existence of two locality principles, namely Subjacency and the ECP. In particular ECP is a condition on representations, so it operates at LF, while Subjacency is a condition on derivations and therefore it operates at S-structure (cf. Huang (1982) for example). In other words there is a disjunction between Subjacency and ECP which originates from the postulation of two different levels: S-structure and LF. Note, however, that within a representational framework (Chomsky 1993, Brody 1993) Subjacency will also have to be treated as a condition on representations (see also Manzini (1992) for a unification of Subjacency and ECP under a single Locality Principle). Therefore a distinction along the lines of Melvold cannot hold. Moreover, the postulation of a null operator was considered to be rather undesirable on both conceptual and empirical grounds (cf. section 3.4).

5.1.3 Hegarty's (1992b) analysis

Hegarty (1992) derives the ungrammaticality of adjunct extraction out of factive ('familiar' in his terminology) complements directly from the presence of the F feature on C. His account is built on the notion of minimal domains of Chomsky (1993) by making use of the effects of head movement. Movement of a head X into Y creates a configuration where the minimal domain of X, i.e (X), is fused into that of Y. Moreover, head movement is triggered by feature checking. Extended domains of this type play an important role in the formation of A'-dependencies. If C is specified as +F, according to Hegarty, I (or actually the V+I complex) does not raise to C, since C and I (or V) do not share this feature. Consequently no feature checking needs to take place. Thus there is no trigger for head movement, and as a result the domain of I does not extend to C:

(64)
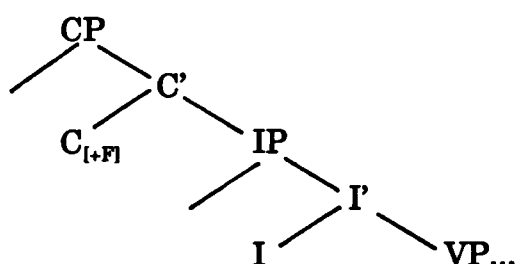
In other words, the head dependency is blocked at the C position, and this is sufficient to block adjunct extraction. Under this proposal then, it seems that the feature specification on C can block A'-dependencies of adjuncts, but not of arguments. Presumably this is because adjuncts are not related to a head (either in the form of referentiality, or Case-marking). So arguments are expected to extract freely, as is indeed the case with English factives (cf. (1)-(2) in section 2).

The crucial point in Hegarty's (1992b) analysis is that he attempts to account for blocking effects in the formation of A'-dependencies on the basis of properties of heads. However, what still remains unclear is how argument

extraction will be blocked in the MG *pu*-clauses. The basic point is that a [+definite] head blocks both argument and adjunct extraction. Even if we assume that the extended domain cannot include the C position, the opacity with respect to argument extraction remains unexplained.

5.1.4 Varlokosta's (1994) analysis for MG and English

An attempt to solve the asymmetry between English and MG, as exemplified in (62), is made in Varlokosta (1994). The explanation provided is based on Diesing's (1992) account, where it is argued that presuppositional NP's (either definites or indefinites) raise outside VP and adjoin to IP (the restrictive clause). In languages which do not show overt scrambling, raising of this type takes place at LF. Non-presuppositional (indefinite) NP's, on the other hand, remain inside VP (the nuclear scope), where they are bound by existential closure. Assuming that *pu*-complements have a presuppositional reading, it follows that at LF they have to raise outside VP and adjoin to IP. The LF representation is illustrated in (65) below:

(65)
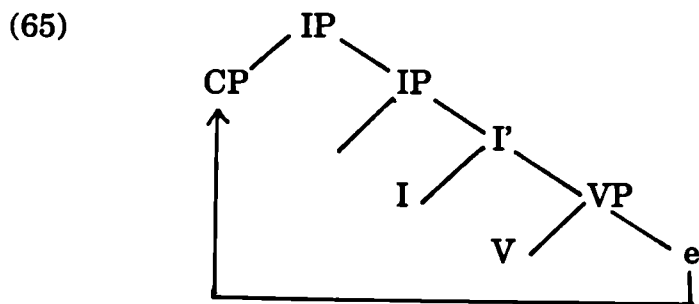
The strong islandhood effects of *pu*-complements follow: the island created is reduced to a left branch configuration, as in the case of subject clauses.

In English factives on the other hand, argument extraction is only apparent. The idea is that the wh-element occurring in clause initial position is in fact interpreted as a scope marker, along the lines of *wh*-medial scope markers in German (McDaniel 1989). The original gap position involves a

null operator which moves to the spec,CP of the embedded clause. The *wh*-marker in clause initial position, and the embedded null operator form an extended chain, given that the null operator needs to be identified. This is illustrated in (66) below:

(66) $[_{CP}$ Wh-scope marker$_i$....$[_{CP}$ Op$_i$.....t$_i$]]

English, but not MG, allows for (66), given that it allows for parasitic gaps as well, where islandhood is also avoided due to Chain composition (cf. Chomsky 1982):

(67)   Which book$_i$ did you review t$_i$ [Op$_i$ without reading e$_j$]?

Note, however, that there are a couple of problems as far as the explanation for the English data is concerned. First, it is not clear how the semantics of English factives will be satisfied, if they remain in situ. This is an important point, given that factives have to exhibit similar properties cross-linguistically, for purely interpretational reasons. The second problem arises with the actual technical implementation of this analysis, and in particular with the possibility of argument extraction out of English factives due to the possible construction in (66). Note that although parasitic gaps are marginal in MG, they can become acceptable if they are filled by a resumptive pronoun, as in (68) below:

(68)   Pio vivlio$_i$ petakses t$_i$ [xoris na *to* dhiavasis]?
            which book threw-(away)-2s without prt it read-2s
            "Which book did you throw away without reading?"

Thus on the assumption that MG makes use of the resumptive pronoun strategy in the position of the parasitic gap, the question is why this strategy cannot extend to argument extraction out of factive complements. In other words the original gap could be filled by a resumptive pronoun, which would ultimately be associated with the wh-phrase in clause initial position:

(69)   *Pio vivlio$_i$ metanioses pu *to* aghorases?
           which book regretted-2s that it bought-2s
           "Which book did you regret that you bought?"

However, as the ungrammaticality of the example in (69) shows, the construction is not rescued by the presence of a resumptive pronoun. Thus the analysis proposed by Varlokosta (op. cit.) with respect to the contrast between MG and English factives turns out to be problematic.

The other problem is the use of *oti* with certain factive complements. As mentioned earlier in our discussion, when *oti* is used, argument extraction is allowed, while adjunct extraction yields ungrammaticality. The conclusion we reached was that *oti*-factives behave like their congeneric English complements. Thus since the distinction of factives and non-factives by the use of different C's in MG cannot be absolute, the locality pattern of *oti*-complements also requires an explanation. If argument extraction in this case is accounted for in the same way as in English, i.e in terms of an extended A'-chain, then the immediate question once again is why this option cannot be made available in *pu*-clauses.

Finally, even if we assume that *pu*-clauses reduce to a left branch configuration at LF, the problem remains, given that parasitic gaps are allowed within subject clauses (another instance of a left-branching island). These examples are noted by Frampton (1990) and Manzini (1994a):

(70)   A man Op$_i$ that friends of e$_i$ admire t$_i$

In other words, parasitic gaps can circumvent subject islands, but not those created by a definite D:

(71)   *A man Op$_i$ that the friends of e$_i$ admire t$_i$

On the basis of the above evidence I conclude that the strong

islandhood of *pu*-clauses cannot be reduced to their structural position at LF, but will have to be attributed to the [+definite] specification of C. Note that *pu*-clauses might ultimately raise and adjoin to IP for interpretational reasons, although whether this actually takes place at LF or at a different level (possibly LF', as in Pesetsky (1991)) remains open. Crucially though their islandhood properties cannot be considered as merely configurational.

Having provided a brief discussion of various approaches to the locality behaviour of factive complements, I will next provide an explanation that is based on the parametric properties of factives, as these were outlined in sections 4.1 and 4.2.

5.2 Factive islands revisited

In the present work factivity has been identified as a property of the C head which may be realised in the form of a [+definite] head, as in *pu*-clauses, or in the form of a [+F] feature, as in *that/oti*-factives. In either case adjunct extraction is blocked. One immediate consequence of this approach is that we have to allow for adjunct A'-dependencies to be blocked by heads, as is expected with factive complements. Thus the analysis that will be provided agrees in that respect with the one put forward by Hegarty (1992b). · Additionally for *pu*-clauses we have to allow for this property to block A'-dependencies of arguments as well.

5.2.1 The theoretical background

An analysis along these lines then has to account for A'-dependencies on the basis of the properties of heads, or to be more specific of head-dependencies. This is in fact the approach taken in Manzini (1994a, in prep.). Under the unification of Subjacency and ECP into a single locality principle, Locality is

defined as follows (from Manzini (1994a)):

(72) *Locality*

Let A_i be in (X_i). If $(A_1,....,A_n)$ is a dependency, then for all i, (X_i) and (X_{i+1}) must be adjacent.

Adjacency of minimal domains is defined as follows:

(73) (X) and (Y) are adjacent iff there is no (Z) such that some member of (Z) contains (X) and does not contain (Y), or vice versa.

(X) and (Y) denote the minimal domains of X and Y respectively. (73) essentially requires minimal domains to satisfy certain configurational requirements. Let us illustrate this point with the following schema:

(74)
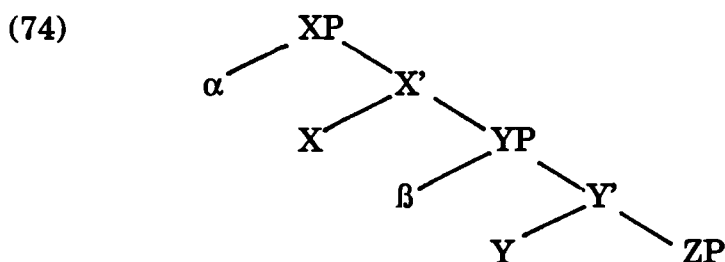
In (74) (X) and (Y) are adjacent, since there is no other minimal domain (Z) intervening between these two. Moreover, the structure in (74) also tells us about the relationship of X and Y, since (X) and (Y) are defined by their respective heads.

On the basis that minimal domains enter in the formation of dependencies, Manzini (1994a) formalises c-command in terms of minimal domains as in (75) below (see also chapter 2):

(75)   (Y) is superior to (X) iff there is no node that dominates a member of (Y) and does not dominate (X).

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Locality effects then are derived under the combination of the Locality Principle in (72) and the superiority requirement in (75).

Consider next phrasal dependencies. In A'-dependencies the trace occurring in the domain of a head forms the foot of a chain whose head is an Operator. The trace and the operator can be linked via a head-chain. Note that heads relate to each other for reasons independent of phrasal dependencies. For example, V relates to I for the reasons outlined in Chomsky (1993) and elsewhere. Additionally, I relates to C as the result of the need for temporal evaluation of the clause (Stowell 1982, Enç 1987, Manzini in prep.). In embedded clauses C relates to the matrix V under selection, while V also relates to its I and so on. Note crucially that in all the sub-dependencies formed each head relates to its immediately adjacent head. Adjacency of heads then implies adjacency of minimal domains. In that respect Locality, as defined in (72), is satisfied. Thus superiority as in (75) crucially refers to immediate superiority of minimal domains.

Let us now see how this approach distinguishes between strong and weak islands. Strong islands are standardly assumed to be configurational (cf. Chomsky (1986a), Cinque (1990), Rizzi (1990), among others). This is indeed the case with subject and adjunct islands for example. The example in (76) refers to a subject island:

(76)   a.   *What$_i$ did [that John bought t$_i$] annoy you?

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b.
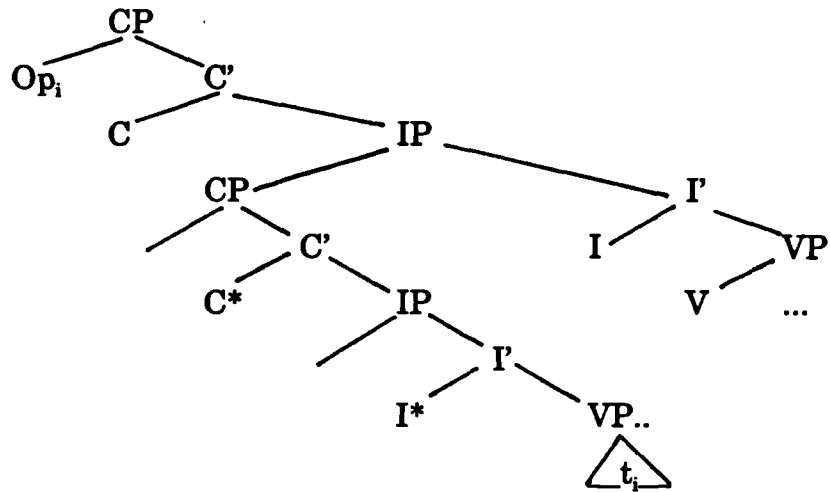
Within the subject clause (I*) is adjacent to (C*). The same holds for the matrix clause, where for example (V) is adjacent to (I). However, (I) is not superior to (C*) since there is at least one node within (I), i.e I', that dominates members of (I) but not of (C*). Therefore superiority is violated and as a result the dependency lininkng the Operator in spec,CP and the variable within the subject clause is not well-formed. So ungrammaticality arises as expected.

Much the same extends to adjunct islands:

(77) a.   *Who$_i$ did Mary go home [without meeting t$_i$]

b.
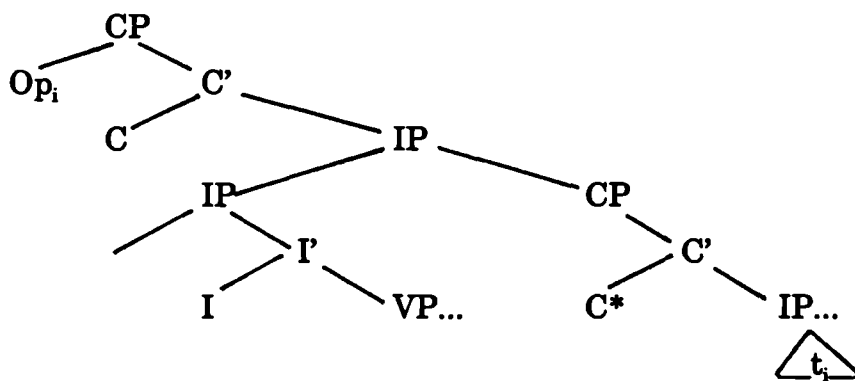
In (77) (I) is not superior to (C*) since there is at least one node, namely I',
that dominates members of (I) but not of C. Once more then the superiority
condition is violated and ungrammaticality arises as expected.

Weak islands, on the other hand, satisfy the configurational
requirements. Consider a wh-island for example:

(78)   a.   What$_i$ do you wonder how$_j$ to repair t$_i$ t$_j$?

       b.   *How$_j$ do you wonder what$_i$ to repair t$_i$ t$_j$?

       c.
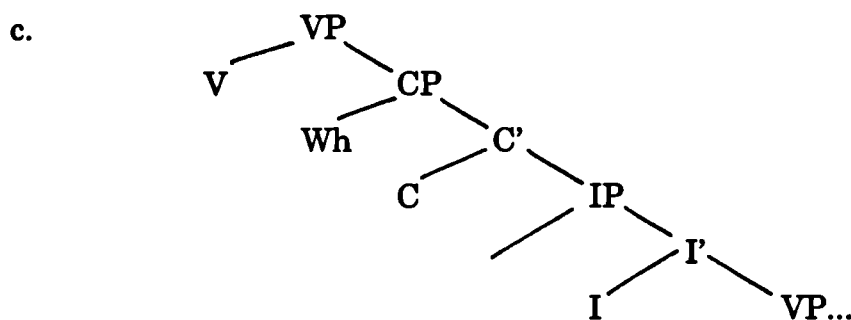
In the above example (I) is adjacent to (C), (C) is adjacent to (V) and so on.
So Locality, as well as Superiority, are satisfied. However, adjunct extraction
gives rise to ungrammaticality. The standard assumption is that the presence
of a wh-operator in the embedded spec,CP blocks antecedent government by
the Operator in the matrix clause in the sense of Relativised Minimality (cf.
Rizzi 1990). The argument/adjucnt asymmetry is attributed to the
idiosyncratic properties of these two classes of elements. In particular,
arguments but not adjuncts bear a special relationship to a head which in
the Locality framework is formalised in terms of Case marking (in Rizzi
(1990) and Cinque (1990) this is interpreted as referentiality). Thus in all
these frameworks it is correctly predicted that argu ments are not sensitive
to intervening operators. Adjunct variables, on the other hand, are not Case-
marked, hence not visible, and can only be licensed (and identified) by being
linked to an Operator.

Suppose that the A'-dependency in (78) includes the embedded C head as well, in order to avoid a Locality violation. C in this case is specified as [+wh], due to spec-head agreement with the *wh*-phrase in its spec. In essence then C has the properties of an Operator. The ungrammaticality of (78b) then can be easily explained, on the basis that a *wh*-island, as in (78b), gives rise to the following configuration:

(79) $*[_{CP}$ Op$_1$ .....$[_{CP}$ Op$_2$ .....t..]]

(79) is ill-formed, because there are two Operators, namely Op$_1$ and Op$_2$ binding one trace. Thus the ungrammaticality of (78b) can be interpreted as some sort of a violation of the Bijection Principle which requires a one to one correspondance between traces and operators. In other words, under (79) the trace is bound by two operators at the same time, giving rise to a violation of the Principle of Full Interpretation (FI). Thus the different locality behaviour of arguments and adjuncts with respect to weak islands is explained.

5.2.2 Strong and weak factive islands

Let us now see how this analysis can account for factive islands, by considering the case of *that/oti*-factives which are weak islands:

(80)   a.   *Why did you regret that Peter left?

b.

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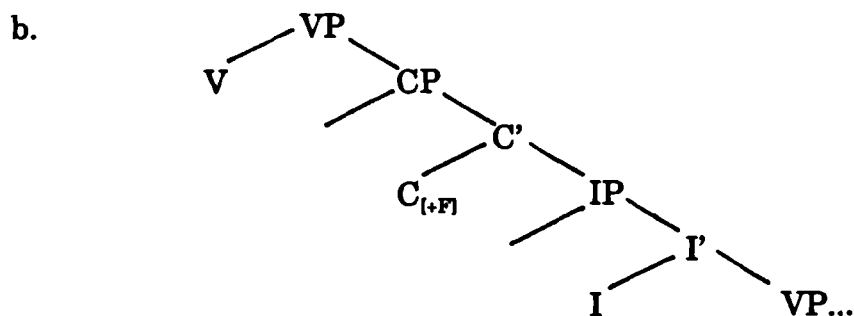
According to the analysis provided here the C position of the complement clause is specified for the +F feature. Moreover, the +F C is considered to be a discourse binder, i.e it is assigned Operator-like status. On the assumption that adjunct A'-dependencies are based on head-dependencies, the ungrammaticality of (80) is straightforward. The extended Chain which links Op and its trace includes the embedded C position as well according to the Locality principle. Given that the embedded C has an operator feature, the result is that it will bind the original adjunct trace. Consequently, a configuration where both the embedded C as well as the operator in the matrix CP bind one variable. So ungrammaticality arises, as a result of a FI violation. If the C head is left out, then Locality will be violated, and the result will be ungrammatical again.

Let us next consider *pu*-clauses. I will repeat the data in (62) for ease of reference:

(81) a. *Ti$_i$ metanioses pu aghorases t$_i$?
          what regretted-2s that bought-2s
          "What$_i$ did you regret that you bought t$_i$?"

      b. *Jati$_i$ metanioses pu efighes t$_i$?
          why regretted-2s that left-2s
          "*Why$_i$ did you regret that you left t$_i$?"

Athough *pu*-clauses are strong islands, they cannot be treated in the same way as subject and adjunct islands because they occur in a complement position, as illustrated in (82) below:

(82)

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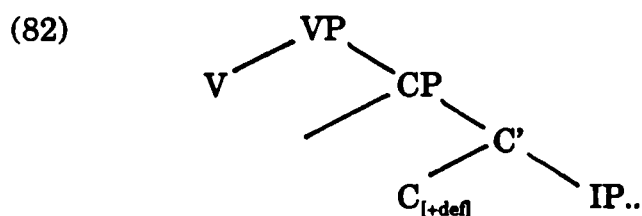
In (82) a link between the embedded C and matrix V positions is established, since (C) is adjacent/superior to (V) and the configurational requirements are satisfied. Thus, *pu*-clauses appear to be problematic at first consideration.

Note crucially that the same pattern regarding extraction holds for one more type of construction, namely definite (or specific) DP's:

(83) a. *Who$_i$ did you see [the pictures of t$_i$]?

b. *Where$_i$ did you see [the pictures t$_i$]?

(83a) contrasts with (84a). In the latter case argument extraction takes place out of an indefinite DP and the result is considerably better. Adjunct extraction is nevertheless blocked:

(84) a. Who$_i$ did you see [a picture of t$_i$]?

b. *Where$_i$ did you see [a picture t$_i$]?

What creates a strong island in (83) then is the presence of a definite D. In other words, what both definite DP's and *pu*-clauses have in common is the [+definite] feature. It is not accidental then, that the two types of strong islands that appear in complement position are specified as [+definite]. Therefore whatever accounts for the ungrammaticality of (83a) can explain the ungrammaticality of (81a) as well.

So far the complementiser *pu* has been identified as a D-like element, and particularly as a definite D, and it has been argued that it is interpreted as an operator, in the same way that a definite D is. The operator status of C (or D) then is sufficient to block adjunct extraction, exactly as a [+F] C blocks movement of this type. In other words, the adjunct variable will be bound both by the operator in C, i.e *pu*, that participates in the head-dependency as well as by the matrix operator. Hence the ungrammaticality.

The question then is why argument extraction out of a definite DP/CP is also blocked. Manzini (in prep.) assumes, as in Rizzi (1990) and Cinque (1990), that A'-dependencies of arguments involve binding. The argument trace then behaves like a pronoun: if the binder is an operator, it will be interpreted as a variable. This parallels the case of bound pronouns when they are within the scope of a quantifier. Given that the nature of the A'-dependency is different in this case, it follows that arguments are not sensitive to intervening operators. However, they are sensitive to definite heads. The explanation provided for the blocking effects a definite D has is as follows: the definite D due to its denotational properties is interpreted as an argumental variable itself. Locality requires that the Operator and the trace are linked via a sequence of heads. Suppose that for (83a) a dependency is formed that includes the D head as well. The problem is that this dependency includes two pronoun-like elements, that is the D variable and the argument-variable. Consequently these two will have to co-refer. However, they do not, since they are not identical elements, and therefore ungrammaticality arises.

The same explanation can extend to *pu*-clauses as well. Since we have identified *pu* as a definite element, it will have to be treated as an argumental variable due to its denotational properties. When we form a dependency that links the operator and its trace, the C position has to be included, otherwise Locality will be violated. As in the case of definite DP's this results in a dependency with two pronoun-like elements which have to corefer. However, they do not and the result is ungrammatical. This account then explains the impossibility of argument extraction out of a *pu*-clause. Thus the asymmetry between *pu*- and English factives is solved.

Note that the ungrammaticality obtained when an argument is extracted out of a *pu*-clause seems to be weaker than the one resulting from extraction out of any other type of strong island such as a subject or adjunct clause. Within a framework that distinguishes between Subjacency and ECP

we would have to interpret this ungrammaticality as a Subjacency violation. Indeed this is expected and predicted within the Locality framework as well. Note that A'-dependencies are built up on head (sub-) dependecies. Arguments can extract freely as long as the configurational requirements imposed by adjacency/superiority of minimal domains are satisfied. The absence of these configurational requirements is precisely what gives rise to strong islands, as in subject and adjunct clauses. In other words, the underlying notion of the Locality Principle is violated and the result can lead to uninterpretability. In strong islands created by definite heads, on the other hand, the ungrammaticality derived is of a different type, given that adjacency/superiority of minimal domains is respected. Thus the problem is not structural but internal to the binding relationship. To be more specific, Locality can in principle be satisfied, but the ungrammaticality arises due to the properties of the elements involved in the dependency, since a chain with two prononminal non-identical elements is created. A similar account extends to weak islands: structurally the dependency is well-formed, but ungrammaticality is derived only in the intervention of other operators.

To summarise the discussion so far, I have argued that the different locality patterns attested between *pu-* and *that/oti*-clauses can be derived on the basis of the distinct C's involved in each case. Crucially the relevant C's have an operator like status. Given that A'-dependencies of adjuncts can be built up on head-dependencies the opacity to adjunct extraction out of a factive complement is attributed to the intervention of an Operator realised on the C head. The impossibility of argument extraction out of *pu*-clauses, on the other hand, was attributed to the presence of a [+definite] C, in the same way that a definite D blocks extraction of arguments.

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6. Conclusions

To conclude, in the present chapter I have provided an account of factivity and consequently of the properties of factive complements. The content of factive complements has been identified as old/familiar information (Hegarty 1992b). The main idea put forward is that factivity is regarded as a property of the complement clause and in particular of the C position. The differences between MG and English with respect to factive complements, have been accounted for by assigning different properties to the Complementisers used in each case. To be more specific, the C *pu* has been analysed as a [+definite] head, following therefore the proposal made by Christidis (1986) and Roussou (1992). This feature specification also accounts for the use of *pu* in other constructions, such as clefts, matrix exclamatives and relatives. On the other hand the C *that*, as well as the C *oti* in their factive uses were considered to be specified for a familiarity feature, following a proposal made by Hegarty (1992b). However, in the present work the [+F] C has been attributed an Operator status. The presence of an Operator in the C position then both in the *pu* as well as in *that/oti* factives accounts for the opacity effects with respect to adjunct extraction. Argument extraction out of *pu*-clauses, on the other hand, was considered to be a result of definiteness on the C head. The crucial point is that the analysis of factives discussed in the present work succeeds in deriving the common semantic properties of factives as well as accounting for their parameterised properties regarding extraction.

ENDNOTES

1. I'm grateful to Vlad Žegarac for providing me with these data.

2. Hegarty (p.c) argues that this feature does not have to bind anything. It could be treated as an Agr, or tense feature.

3. This is denoted by the fact that perception verbs impose restrictions on the tense and aspectual properties of their complements. Therefore the event denoted by the *pu*-complement is interpreted as parallel to that in the matrix clause.

4. Terrel (1976) argues that emotive predicates are associated with strong presupposition, while cognitive/mental state predicates have weak presupposition, and can be considered as semi-factives. If this true, then *pu*-clauses have strong presupposition, while *oti*-(factive)-clauses have weak presupposition.

5. The C *pu* can also be used with verbs like "say" which do not belong to any of these classes. The construction is grammatical, provided the matrix predicate is focussed or it involves a yes/no question. This is shown by the following examples in (i):

(i)   a.   Sou ipa oti/*pu efije.
                you-told-1s that left-3s
                "I told you that he left."

        b.   Sou IPA pu efije.
                 you-told-1s that left-3s
                 "I did tell you that he left."

        c.   Sou ipa pu efije?
                 you-told-1s that left-3s
                 "Did I tell you that he left?"

The contrast between the sentence in (ia) and those in (ib-c) indicates, that focussing or questioning in the matrix predicate can license the presence of the C *pu*. The interpretation we have in (ib) is "He left and I did tell you that", and in (ic) is "He left. I did tell you that, didn't I?" In (ib-c) the content of the embedded clause is presupposed. Therefore in the above cases, the presence of the *pu*-complement is not triggered by selection, but by the presence of a Focus or Question Operator.

6. There is an alternative possibility though. We could maintain that there is an abstract DP node but in this case *pu* moves to the D position, due to the definiteness feature. This alternative was suggested to me by Tsimpli (p.c) (also cited in Roussou (1992)).

7. Varlokosta (1994) offers empirical support for the absence of a null operator based on the distribution of the pronoun *idhios*.

8. The generalisation about the Q and Neg Operators is also mentioned in Agouraki (1993). However, she does not clearly identify the presence of these sentential/ propositional operators with the C positions.

CHAPTER FOUR

Complementisers and the Subjunctive

1. Introduction

It is often assumed that the Inflectional (I) head can be specified for the +/-
finite feature (cf. Stowell 1981, 1982) where a [-finite] feature specification
is usually associated with infinitival clauses. However, a distinction along
those lines is not universally attested. In particular, as is well-known there
are languages that do not possess infinitives. A case in point is that of the
Balkan group of languages, where the use of infinitives is either very limited
as for example in Albanian, or non-existent as in Modern Greek (MG) (cf.
Joseph 1983). Interestingly, these languages make use of the subjunctive in
the corresponding English or Romance infinitival constructions. Along with
what is historically this loss of the infinitive, we also find the use of
subjunctive particles as part of the verbal complex; this is a commonly
attested property among the Balkan languages.

The first question that arises concerns the idiosyncratic properties of
the subjunctive. In that respect the main issue in the literature is whether
subjunctives have tense properties of their own or not (cf. Picallo (1985) and
Kempchinsky (1986) for different proposals). If subjunctives are specified for
tense, then as expected they have to be distinguished from their indicative
counterparts. If, on the other hand, they do not have tense properties of their
own, then they resemble (covert) infinitivals. This issue appears to be crucial
in languages like MG where there are no infinitives. On the other hand,
languages like Italian make use of both subjunctives and infinitivals and the

syntactic properties of these two constructions are quite distinct. Thus it appears to be the case that the subjunctive must have properties of its own which distinguish it from both the indicative and the infinitive. An important issue closely related to the tense properties of the subjunctives concerns the phenomenon of obligatory disjoint reference between the matrix and the embedded subject of a subjunctive complement in Romance languages, but not in the Balkan group where coreference is indeed possible (cf. Kempchinsky 1986, Terzi 1992, among others). Thus an adequate account of the subjunctive has to take into consideration first its idiosyncratic properties and secondly its parametric instantiations.

This chapter is organised as follows: in section 2 I discuss the data from MG, focussing on the distribution of subjunctive clauses. Section 3.1 provides a review of the literature with respect to the nature and status of the subjunctive particle *na*. In section 3.2 an analysis along the lines of I-to-C movement in *na*-clauses is supported by empirical and theoretical evidence. In section 4.1 I discuss the tense properties of subjunctive clauses, assuming along with Kempchinsky (1986) that subjunctives do not have an anaphoric tense in the sense of Picallo (1985). In section 4.2 the subjunctive/indicative distinction is drawn along the lines of Manzini (1994b) who assumes that a subjunctive tense forms a dependency with a (matrix) sentential operator. This is sufficient to derive the peculiar semantics of subjunctives. In section 5.1 I discuss the tense restrictions attested with epistemic modals and *na*-clauses. In this light I also consider *na*-complements to epistemic predicates, based on the idea that the epistemic predicate in this case has a modal reading (Veloudis 1985). In section 5.2 I argue that the epistemic modals have an expletive Tense which forms a dependency with the embedded tense, allowing therefore for independent time reference of the embedded *na*-clause, and in section 5.3 I consider briefly the use of present tense as an expletive Tense. In section 6 I concentrate on the interaction of the subjuntive with pronominals, and in particular on the phenomenon of subject obviation as attested in Romance but not in Balkan subjunctive complements. In section

6.1 I present some of the accounts that have been put forward, and in section 6.2 I argue that the requirement for disjoint reference is forced by the presence of an overt C. The possibility of coreference, on the other hand, in languages like MG, Albanian and Romanian follows from the fact that in the absence of an overt complementiser I-to-C movement takes place. Finally in section 6.3 I consider some cases where coreference is possible in the Romance subjunctives.

2. The distribution of *na*-complements.

A property of the Modern Greek complementation system, shared to a greater or lesser extent by all Balkan languages, is the lack of infinitives and the use of the subjunctive in the corresponding infinitival Romance (and English) constructions. This typological difference is illustrated by the examples in (1a) and (1b) from MG and Italian respectively:

(1)   a.   Thelo na figho.
                want-1s prt leave-1s
                "I want to leave."

        b.   Voglio andare.
                 want-1s go
                "I want to go."

As (1a) shows subjunctive clauses in MG are introduced by the particle *na*.

Na-clauses occur as complements to the following classes of verbs: volitionals, modals, aspectuals, causatives, perception and experiencer predicates, as the relevant examples in (2a-f) show:

(2) a. Thelo na kerdhisi i Maria.
         want-1s prt win-3s the Maria
         "I want Mary to win."

     b. Prepi na fighis.
         must-3s prt leave-3s
         "You must/should leave."

     c. Arxise na grafi.
         started-3s prt write-3s
         "He started writing."

     d. Ton ekana na klapsi.
         him-made-1s prt cry-3s
         "I made him cry."

     e. Ton idha na klevi.
         him-saw-1s prt steal-3s
         "I saw him steal."

     f. Xerome na sas vlepo eftixismenus.
         am-glad prt you-see-1s happy
         "I am glad to see you happy."

The classification exemplified in (2) is based essentially on the semantic
properties of the matrix predicate. The term "volitionals" is used in the sense
of Kempchinsky (1986) to include verbs of 'wanting', such as *want* and *hope*,
as well as verbs of 'influence' such as *order*, *beg*, etc. Modals, aspectuals,
causatives and some of the volitionals subcategorise for a *na*-complement
only.

Perception verbs (cf. (2e)) may also subcategorise for a complement
introduced by *oti* or *pu*, as in (3a) and (3b) respectively:

(3) a. Idha oti klevi.
         saw-1s that steal-3s
         "I saw that he steals."

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b. Ton idha pu ekleve.
   him-saw-1s that was stealing-3s
   "I saw him stealing."

When the complement clause is introduced by *oti* the perception verb has the meaning of an epistemic predicate. Experiencer predicates may also subcategorise for a *pu*-complement, as in (4) below:

(4)   Xerome pu sas vlepo eftixismenus.
        am-glad that you-see-1s happy
        "I'm glad that you are happy."

Furthermore *na*-clauses can occur as matrix clauses, as in (5a); in this case the interpretation is necessarily modal. They also occur in (restrictive) relatives when the head of the relative clause is an indefinite NP, as in (5b), and finally in embedded interrogatives, as in (5c):

(5) a. Na pliroso?
        prt pay-1s
        "Shall/can I pay?"

    b. Thelo ena aftokinito to opio na ine fthino.
        want-1s a car the which prt is cheap
        "I want a car that is cheap."

    c. Dhen ksero ti na kano.
        not know-1s what prt do-1s
        "I don't know what to do."

Thus the examples in (5) show that *na*-clauses are not restricted to complement positions only, but have a much freer distribution.

Although the distribution of *na*-clauses is rather straightforward, the status of *na* itself is a rather controversial issue. In particular, *na* has been characterised either as a complementiser (see Agouraki (1991) for a recent account and references), or as an inflectional element and in particular as the

subjunctive marker itself (Ingria 1981, Veloudis and Philippaki-Warburton 1983, Rivero 1987, among others). In the following section I will consider both of these alternatives, concluding that *na* is the subjunctive marker, but that it moves to the C position.

3. The relation of the I and C heads in *na*-clauses
3.1 The categorial status of *na*

Before I discuss the different analyses referring to the status of *na*, I will make some brief comments on its diachronic development. The particle *na* originated in medieval Greek (in approximately the 9th century A.D) from the complementiser *ina* which in Classical Greek introduced purpose clauses and selected the subjunctive (cf. Tzartanos (1953) and also Joseph (1983) for the loss of the infinitive along those lines). Note incidentally that the MG *na* is also used with purpose clauses, as in (6):

(6)   Irtha na se dho.
          came-1s prt you-see-1s
          "I came to see you."

Early phonological changes in the vowel system of Greek made the endings of the indicative and subjunctive forms identical. *Na* then became the sole element to distinguish between the indicative and the subjunctive. It is at this point then that opinions differ as to whether *na* retained its original function as a complementiser, or was in fact re-analysed as an inflectional element and in particular the subjunctive marker.

Among the most recent analyses, Agouraki (1991) argues that *na* is a complementiser. Moreover, she argues that due to the occurrence of the morphological changes mentioned above, there is no subjunctive in MG, and therefore *na* selects for indicative mood just like the complementisers *oti* and

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pu. However, *na*-clauses differ from *oti/pu*-clauses regarding the +/-Tense Dependent (TD) feature. More precisely, according to her analysis, the 'indicative' in *na*-clauses is [+TD] with respect to the tense of the matrix predicate, while *oti/pu* clauses are [-TD]. In the latter case the time reference of the complement clause can be independent of that of the matrix clause. Although this could be true for most cases, there are indeed *na*-clauses which do have 'independent' time reference, as the examples below show:

(7) a.   Elpizo na efighe.
          hope-1s prt left-3s
          "I hope she left."

     b.   Dhen nomizo na pighe sti dhoulia simera.
          not think-1s prt went-3s to-the work today
          "I don't think she went to work today."

On the other hand, the distinction between [+/-TD] clauses is not clear, given that even in *oti*-clauses for example, the time reference of the embedded clause will have to be evaluated with respect to that of the matrix clause, in the sense of Enç (1987):

(8)   Mu anakinose oti efighe i Maria.
          me-announced-3s that left-3s the Mary
          "He announced to me that Mary had left."

In (8) the time of Mary's leaving is situated in the past not only with respect to the utterance time but also with respect to the time reference of the matrix predicate (i.e the time of announcing). It seems therefore that tense dependencies of this type are evident not only in *na*- but also in *oti/pu*-clauses.

Let us next consider an analysis that treats *na* as an inflectional element (Ingria 1981, Veloudis and Philippaki-Warburton 1983, Tsimpli 1990, Terzi 1992, Philippaki-Warburton 1992, among others). According to

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this account although *na* is used to introduce complement clauses along with the C's *oti* and *pu*, it does not display properties typical of a complementiser. The first argument comes from word order phenomena. In particular, the verb has to attach to *na* and no element, apart from negation and clitics, can intervene between them (cf. (9)), while this is not true of *oti/pu*-complements as the examples in (10) show:

(9)   a.   Efxome na min to fai o Yanis.
            wish-1s prt not it-eat-3s the John
            "I wish John didn't eat it."

        b.   *Efxome na o Yanis erthi.
            wish-1s prt the John come-3s
            "I wish John came."

(10)   a.   Nomizo oti efighe o Yanis.
            think-1s that left-3s the John
            "I think that John left."

        b.   Thimame pu o Yanis mu eleghe istories.
            remember-1s that the John me-was telling-3s stories
            "I remember that Yanis was telling me stories."

Secondly, *na*, unlike *oti* and *pu*, may occur in matrix clauses (cf. 5a) above. Thirdly, *na*, but not *oti* for example, can cooccur with a wh-phrase, as in relative clauses and embedded (or matrix) interrogatives, as the examples in (5b-c) above show. Relative clauses in MG may also be introduced by the C *pu*:

(11)   Thelo mia gramatea pu na kseri Aglika.
            want-1s a secretary that prt know-3s English
            "I want a secretary who knows English."

If *na* is a complementiser, then its cooccurrence with another C should give rise to ungrammaticality contrary to fact, as (11) indicates.

Based on this evidence then, it seems reasonable to conclude that *na* is not a complementiser but the subjunctive marker itself.

3.2 I-to-C movement in *na*-clauses.

An issue related to the nature of *na* is its structural position. In particular, if we assume that *na* is a complementiser, then it can only be under C. If, on the other hand, we treat *na* as an inflectional element then its position has to be specified. It is standardly assumed in the recent literature that *na* is the head of a Mood Phrase (MP) which is an independent projection postulated between CP and IP in the clause structure (Tsimpli 1990, Philippaki-Warburton 1990, Terzi 1992, Rivero 1994). Thus, the structure assigned to *na*-clauses is schematically represented in (12) below:

(12)

```
            CP
         /      \
        C        MP
              /      \
          Spec        M'
               \    /    \
                M         TP/AGRP..
                |
                na
```
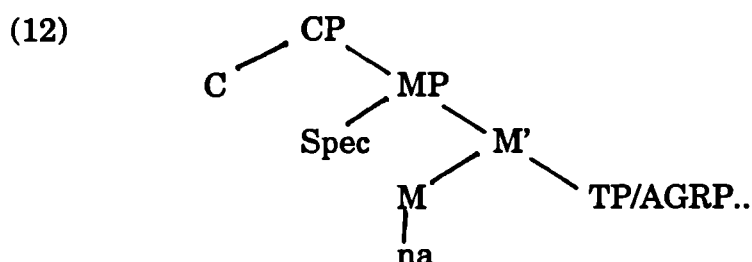
An analysis along those lines has also been proposed for a number of other Balkan languages that make use of a subjunctive marker. For example Motapanyane (1991, 1994) argues that the subjunctive marker *să* in Romanian is the head of an MP. Similarly the Albanian particle *të* has also been analysed as the head of MP (Terzi 1992, Turano 1994):

(13) a.   Ion vrea să mănince.   (Romanian)
            John want-3s prt eat-3s
            "John wants to eat."

      b.   Jani do të hajë.   (Albanian)
            John want-3s prt eat-3s
            "John wants to eat."

Note that Romanian and Albanian also have at their disposal a special complementiser for subjunctive complements, namely *ca* and *që* respectively, as opposed to their corresponding indicative C's *că* and *se*:

(14) a. Ion vrea ca/*că să mănince.   (Romanian)
          John want-3s that prt eat-3s

     b. Jani do që/*se të hajë.   (Albanian)
         John want-3s that prt eat-3s
         "John wants (him/her) to eat."

MG, unlike Romanian and Albanian, does not have the alternative of a subjunctive complementiser along with the subjunctive particle *na*. The default assumption in this case is that the C position is not lexically filled (cf. Philippaki-Warburton and Veloudis 1984). Note, however, that under the principle of Full Interpretation (FI) the empty C position will have to be licensed at LF. Suppose that C in *na*-complements is an expletive element. A standard assumption in the literature (cf. Chomsky 1986b, Chomsky 1991, Chomsky and Lasnik 1992, among others) is that expletives must be associated with a contentive element in order for them to satisfy the principle of FI. In that respect then it can be argued that the empty C is associated with I, hence with M as well as with Tense/Agreement. At least abstractly then, since C is radically empty, the *na*+V complex incorporates to C, forming the [*na*+V, I] chain. The structure is illustrated in (16) below:

(15)   [CP [C *na*+V] [IP [t_i]]]
              ↑_____|

For ease of reference I will follow the IP notation and refer to this type of movement as I-to-C movement, since I is a cover term for inflectional elements, the M head being one of them.

A piece of evidence supporting the I-to-C movement analysis in *na*-

clauses, comes from conditionals. In MG, conditionals are introduced by the particle *an*. In some cases, however, (in a more colloquial style) *na* may be used instead of *an*. Notice crucially that when the C *an* is present, *na* is excluded (and vice versa), as the example in (16b) shows:

(16)   a.   Na ton dhis, tha ton lipithis
            prt him-see-2s will him-sorry-2s
            "If you see him, you'll feel sorry for him."

       b.   An (*na) ton dhis, tha ton lipithis
            if (prt) him-see-2s will him-sorry-2s

The ungrammaticality of (16b) can be accounted for if the presence of an overt C blocks movement of the *na*+V complex to the C position. A similar situation is found in English counterfactuals where the auxiliary moves to C, as is evident from the fact that subject-Aux inversion takes place:

(17)   a.   (*If) Had I been there, I would have sorted it out.
            If I had been there, I would have sorted it out.

       b.   (*If) Were you to go, you should have told me.
            If you were to go, you should have told me.

As the ungrammatical versions of the examples in (17) show the presence of *if* in C blocks movement of the Auxiliary, itself an instance of I-to-C movement. Consequently subject-auxiliary inversion fails to apply.

Going back to the MG data, note that an analysis along these lines can furthermore explain the incompatibility of *na* with the complementisers *oti* or *pu* in complement clauses (the presence of *na* in *pu*-relatives will be discussed in section 4.1). Once again the idea is that the presence of an overt complementiser blocks movement of the *na*+V complex to C, and ungrammaticality follows:

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(18)   *Pistevo oti na nikisi.
         believe-1s that prt win-3s
         "I believe that he will win."

The sentence in (18) becomes grammatical only when either *oti* or *na* is used:

(19) a.   Pistevo oti tha nikisi.
            believe-1s that will win-3s

      b.   Pistevo na nikisi.
            believe-1s prt win-3s

To summarise the discussion so far, it has been argued that in *na*-complements I-to-C movement takes place. This type of movement is necessitated by both theoretical and empirical considerations. An analysis of this type unifies in a way the two conflicting analyses about *na*, i.e the one that treats *na* as a C and the one that treats it as the subjunctive marker, by proposing an independently motivated I-to-C movement of the *na*+V complex. The possibility of I-to-C movement in *na*-clauses has been proposed before on different grounds and for only certain *na*-complements though (cf. Efthimiou 1989, Terzi 1992, Varlokosta 1993). I will come back to some of these analyses when I discuss the absence of subject obviation in MG subjunctives.

Recall that, like MG, the other Balkan languages lack infinitives and make use of the subjunctive instead. A comparative analysis of these languages appears to support the claim that in *na*-clauses I-to-C movement takes place. A similar account has indeed been proposed for Romanian (Motapanyane 1994) and for Albanian and Arbëresh (Turano 1994). The empirical motivation for postulating I-to-C movement in those languages comes from word order facts and in particular from the obligatoriness of VSO order in subjunctive complements when there is no overt complementiser. This is shown in the examples below:

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(20) a.   Dua të lexojë Maria.
           want-1s prt read-3s Maria.
           "I want Mary to read."

      b.   *Dua Maria të lexojë.
           want-1s Mary prt read-3s

In (20a) there is no complementiser present and the V-complex moves from the I to the C position. This movement leaves the subject behind in the spec,IP, yielding therefore the VSO order (cf. (21)):

(21)
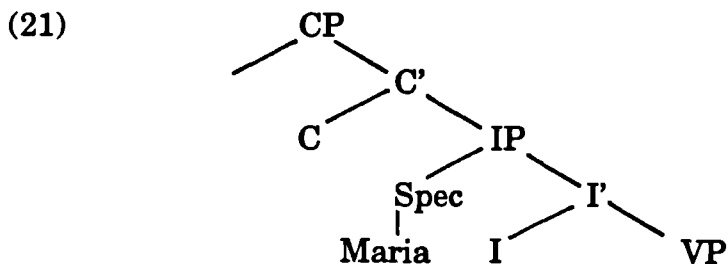
The ungrammaticality of (20b), on the other hand, is due to the fact that the *të*+V complex has failed to move to C. However, (20b) becomes grammatical when the subjunctive C *që* is used, as in (22a):

(22) a.   Dua që Maria të lexojë.
           want-1s that Mary prt read-3s

      b.   *Dua që të lexojë Maria.
           want-1s that prt read-3s Mary

As the contrast between (22a) and (22b) shows when *që* is used the *të*+V complex remains under I; hence the SVO order.

A similar situation with respect to word order is attested with *na*-clauses in MG where the subject follows the *na*+V complex:

(23) O Yanis theli na fai i Maria ta mila.
the John want-3s prt eat-3s the Mary the apples
"John wants Mary to eat the apples."

Assuming that *na*+V moves to C, the subject is left behind in the spec,IP.
Note that the SVO order is also acceptable but then the subject has to be
interpreted either as a dislocated or focussed element, as in (24a) and (24b)
respectively:

(24) a. O Yanis theli, i Maria, na fai ta mila.
the John want-3s the Mary prt eat-3s the apples
"John wants Mary to eat the apples."

      b. O Yanis theli i MARIA na fai ta mila.
the John want-3s the Mary prt eat-3s the apples
"It is Mary that John wants to eat the apples."

I-to-C movement in the Balkan subjunctives is reminiscent of the V-2
phenomenon. It is standardly assumed that in the Germanic languages V
moves to C giving rise to the V-2 order in matrix clauses, as in (25a) (cf. den
Besten 1983, Travis 1984, among others). V-2 is disallowed in embedded
clauses (at least for some dialects) when there is an overt C, as in (25b):

(25) a. Das Buch hat Peter gelesen.
the book have-3s Peter read
"Peter has read the book."

      b. Ich sagte (*daß) Peter hat das Buch gelesen.
I said-3s that Peter have-3s the book read
"I said that Peter read the book."

The ungrammatical version of (25b) parallels the Albanian example in (22b)
above, where there is an overt C, and I-to-C movement is blocked.

Motapanyane (1994) also offers a theoretical argument to support the

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idea of I-to-C movement in the Balkan subjunctives. In particular, she assumes that the C position in this case is specified for the [+C, +I] features. C stands for propositional and I for predicational in the sense of Rizzi (1990) (cited in Motapanyane (op. cit.)). I-to-C movement is triggered under the requirement of feature checking in the spirit of Chomsky (1993). Therefore I must move to C to check the [+I] feature. In that respect, subjunctive complements are like root CP clauses in V-2 languages (cf. (25a)). Under the analysis proposed here, however, I-to-C movement follows from the operation of the principle of Full Interpretation (FI), i.e the requirement linking the empty C with a contentive element, namely I. Both analyses reduce to the same thing essentially: the properties of the C and I system and the way these two positions are associated. I would like to argue though that the relation between C and I is not sufficiently accounted for by the postulation of a combination of features.

As we have seen, Motapanyane's basic claim is that C in the Balkan subjunctive complements is [+C, +I], hence the requirement for I-to-C movement and the idiosyncratic properties of these complements. However, a potential generalisation is lost, in that in Albanian and Romanian there is the possibility of an overt subjunctive C which in this case has to be characterised as [+C, -I]. At least in this case then I-to-C does not take place since there is no [+I] feature to be checked. Thus subjuctive complements within the same language will receive different properties. Another related issue concerns the more general association of the C and I heads which is not clearly restricted to subjunctives only (see also chapter 2 for the relationship between C and I). If the association of these two positions turns out to stem from some general principles, then it is expected to extend in some way or another to indicative complements as well. I will come back to this issue in the following section.

To conclude, in the present section I have argued that in MG the *na*+V complex moves to C. This is interpreted as an instance of I-to-C movement

and is dictated by the principle of FI. Further evidence for this type of analysis comes from the other Balkan languages, for which an analysis of this type has also been proposed. In the following section I will consider the properties of the subjunctives and especially their tense properties in more detail.

4. The subjunctive

4.1 The tense properties of the subjunctives

So far I have discussed the status of *na* as the subjunctive marker. Let me next turn to the tense properties of *na*-, i.e subjunctive, clauses. Consider the following examples:

(26)   a.   Thelo na grapso / *egrapsa.
                 want-1s prt write-perf-1s/wrote-1s
                 "I want to write."

        b.   Tha thelo na grapso / *egrapsa.
                 will want-1s prt write-1s/wrote-1s
                 "I will want to write."

        c.   Ithela na grapso/ *egrapsa.
                 wanted-1s prt write-perf-1s/wrote-perf-1s
                 "I wanted to write."

As the above sentences show, the verb in the *na*-clause cannot be inflected for past tense. Instead it remains uninflected with respect to tense despite the morphological changes of the matrix V which is specified for Present in (26a), future in (26b) and past tense in (26c). The embedded V is inflected for agreement and perfective aspect though. It can also be inflected for imperfective aspect, giving rise to an iterative reading, as in (27):

(27)   a.   Thelo na grafo.
              want-1s prt write-imp-1s

       b.   Tha thelo na grafo.
              will want-1s prt write-imp-1s

       c.   Ithela na grafo.
              wanted-1s prt write-1s

Morphological tense restrictions of this type hold for the complements of most of the volitional predicates, as well as of the aspectuals, causatives and perception verbs. On the basis of data similar to those in (26)-(27) Philippaki-Warburton and Veloudis (1984) argue that *na*-complements are essentially [-Tense] clauses. Picallo (1985) makes a similar claim with respect to the Romance subjunctives. She argues, though on different grounds, that the Tense of the subjunctive is anaphoric to that of the matrix clause. Therefore the conclusion is that subjunctives cannot have 'independent' time reference.

Going back to the MG data, note that it is not always true that the embedded V in *na*-clauses cannot be inflected for past tense. This claim is apparently falsified by sentences like the following:

(28)   a.   Elpizo na jirise noris xthes to vradhi.
              hope-1s prt come-back-3s early yesterday the night
              "I hope that he came back early last night."

       b.   Pistevo na pighe sto jiatro.
              believe-1s prt went-3s to the doctor
              "I believe/hope that he went to the doctor."

The examples in (28) show that there are indeed predicates that allow their *na*-complement to be inflected for past tense. The question that arises then with respect to (26)-(27) is whether the lack of morphological tense

necessarily corresponds to absence of syntactic tense in the *na*-clause.

Kempchinsky (1986) argues against the claim that the Tense of the subjunctive is anaphoric, or to be more precise that it is more anaphoric than the one in indicative complements. Following Enç's work on this topic (appearing as Enç (1987)), she argues that it is a general property of complement clauses that their time reference is evaluated (partially or exclusively) with respect to that of the matrix predicate. Therefore tense dependencies are not restricted to subjunctive complements only but extend to indicatives as well. For this purpose let us consider the following example from MG:

(29)   O Petros mu ipe [oti efighe i Maria].
            the Peter me-told-3s that left-3s the Mary
            "Peter told me that Mary (had)left."

In (29) the complement clause is in the indicative. The past tense is interpreted as past regarding the time of the matrix clause and also as past regarding the utterance time. This is known as the 'shifted' reading. The English translation (but not the MG) allows for one more reading whereby the time reference of the embedded clause is simultaneous to that of the matrix but still past regarding the utterance time; this is known as the 'simultaneous' reading. Crucially though, in no case is the reference time of the embedded clause directly linked, or 'anchored' in Enç's terms, to the utterance time. In other words, indicatives in embedded clauses do not have independent time reference either, where by independent time reference we mean direct linking to the utterance time. Furthermore, while this is true of complement clauses, it is not true of relative clauses, as the English example in (30) shows:
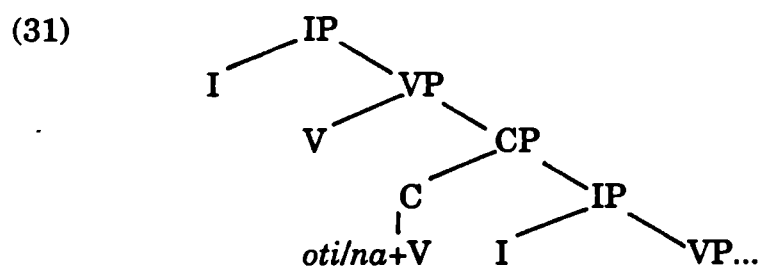
(30)   I met the woman who is pregnant.

In (30) the reference time of the relative clause is directly linked to the

utterance time.

Thus based on the different properties of examples similar to the ones in (29) and (30), the generalisation has been drawn that T-anchoring obeys locality constraints. The theory developed in Enç (1987) for example requires Tense to be anchored within its governing category. Hornstein (1990), on the other hand, accounts for Sequence of Tenses (SOT) phenomena as the result of government by the matrix verb. The embedded I has to reach the C position somehow, so that it is linked to V and from there to the matrix T, given that the matrix V will independently correlate to its own I. On the other hand, government is not satisfied in relative clauses, as these are essentially adjuncts. Thus SOT is not obligatory. In a similar vein Manzini (in prep.) formalises these phenomena in terms of a head-dependency crucially linking the embedded C and the matrix V position.

T-anchoring then involves a relation between the C and I positions. In this light I shall assume that the embedded T has to enter a configuration where it is locally related to the matrix predicate. In order to do so, the embedded C position will have to be included, so that locality is satisfied. This holds for both subjunctives and indicatives, as the following schema shows:

(31)

```
            IP
       ___/    \___
      I          VP
             __/   \__
            V         CP
                   _/   \__
                  C        IP
                  |      _/  \__
            oti/na+V    I      VP...
```

Assuming that the (non-factive) C *oti* is an expletive element, then it follows that in *oti*-complements the C and I positions are linked via an expletive chain of the (C_i, I_i) type (cf. the discussion in chapter 2 for the English *that*).

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This account provides an explanation as to why *na* may cooccur with the complementiser *pu* in relative clauses only, as the example in (32) below illustrates:

(32)   Thelo mia gramatea pu na kseri Aglika.
            want-1s a secretary that prt know-3s English
            "I want a secretary who knows English."

Although I-to-C movement cannot take place in this case, given that the C position is already filled by the complementiser *pu*, the result is grammatical. The grammaticality of (32) is accommodated under the assumption that relatives have different tense properties from complement clauses. Recall that relatives can have independent time reference in that they can be directly linked to the utterance time. Therefore the embedded T need not enter a locality configuration with the matrix V. Consequently the *na*+V complex can remain under I without violating the Principle of FI.

In summary, in the present section, I have argued that *na*-clauses cannot be analysed as [-Tense]. This was argued to be the case for the following reasons: first because there are cases where the verb in the *na*-clause can be inflected for tense. Secondly, lack of independent time reference cannot characterise subjunctives, if we interpret it as direct linking of an embedded T to the utterance time. In that respect both indicative and subjunctive complements pattern alike in that they require the formation of a dependency with the matrix T, as has been argued by Kempchinsky (1986). In the following section I will then consider what the differences between subjunctives and indicatives may actually be.

4.2 The subjunctive/indicative distinction

Let us consider the following data:

(33) a. Thelo na grapso.
          want-1s prt write-1s
          "I want to write."

      b. Ithela na grapso.
          wanted-1s prt write-1s
          "I wanted to write."

Subjunctive complements to volitionals, as in (33), have traditionally been analysed as embedded imperatives (cf. Jacobs 1981, Huntley 1984). Indeed they have the effect of switching the time reference of the embedded clause to the future, i.e posterior to the matrix time (Kempchinsky 1986). This is due to the semantics of those predicates, which seem to embed an abstract modal operator, as has been proposed in the traditional literature (cf. Lakoff 1968). The fact that the na-clause denotes futurity becomes evident when there is a verb like 'elpizo' (hope) that subcategorises for either a na- or oti-complement, as in (34a) and (34b) respectively:

(34) a. Elpizo na fighi.
          hope-1s prt leave-3s
          "I hope he leaves."

      b. Elpizo oti tha fighi.
          hope-1s that will leave-3s
          "I hope he will leave."

As (34b) shows, when oti is used the embedded V is marked for future, indicated by the presence of the future marker tha. Thus, the indicative and the subjunctive complements in (34) have quite similar interpretations in terms of time reference.

Nevertheless the sentences in (34) are not synonymous. As noted by Lightfoot (1975) despite the similarities between the future and the subjunctive their distribution is regulated by the presence vs. absence of existential presupposition respectively. In other words, in (34b) the future

particle *tha* gives rise to an existential reading, while the subjunctive particle *na* in (34a) gives rise to a non-existential reading. Distinctions of this type between indicatives and non-indicatives have been discussed in the literature from a semantic/pragmatic point of view. The idea is that indicatives refer to an actual world, while non-indicatives refer to possible worlds (cf. Farkas (1992a), and for the MG data see Veloudis and Philippaki-Warburton (1983) and Rouchota (1991)). Closely related to this type of formulation is the analysis that attributes to non-indicatives the lack of a referential index (Huntley 1984).

Going back to the syntax of subjunctives, Manzini (1994b, in prep.) argues that the subjunctive T corresponds to an indefinite, hence to a free variable in the sense of Heim (1982). A subjunctive T then is licensed by a sentential operator, such as negation, question, conditional, as well as necessity and possibility operators; hence the non-existential interpretation. In other words a subjunctive T is like a polarity item in that it needs to be licensed by a sentential operator. An indicative T, on the other hand, is to be compared to an existential quantifier/positive polarity item. Alternatively, it is possible that both an indicative and a subjunctive T are bound by existential closure, the difference being that the former is outside the scope of an intensional operator, while the latter is inside it. Although this formulation differs from the one put forward by Lightfoot (1975), it preserves the same intuition with respect to the properties of the subjunctive. Syntactically, licensing of the subjunctive requires the formation of a (head) dependency between the operator in the matrix clause and the embedded T, i.e (Op,....,T). This dependency must satisfy locality, otherwise ungrammaticality arises.

Assuming then that the subjunctive is an indefinite bound by a sentential operator, the modal reading attested in matrix subjunctives follows:

(35) a.   Na fighis.
           prt leave-2s
           "You may/shall/must leave."

      b.   Na efighe araghe?
           prt left-3s possibly
           "Can it be the case that he left?"

      c.   Na erxotane tora o Yanis!
           prt came-3s now the John
           "I wish John would come."

In (35a) the utterance has imperative force, while in (35b) it expresses possibility and in (35c) it is interpreted as an optative. I will assume that the subjunctive in those contexts is triggered by the presence of a modal operator. This can then explain why in most of the cases subjunctives in matrix contexts encode modality. Finally, this can also explain why *na*-clauses appear with modals, given that the latter are essentially lexicalised operators (cf. (2b) in section 2, and also the discussion in section 5).

There is one point of clarification to be made with respect to the use of the subjunctive in matrix contexts. Apart from the possibility of having the interpretations in (35) there are a couple of other cases where the matrix subjunctive does not give rise to a modal reading. This is shown by the following examples:

(36) a.   I Maria na klei, na fonazi, ke o Yanis na min prosexi.
           the Mary prt cry-3s, prt shout-3s and the John prt not pay
           attention-3s
           "Mary was crying, and shouting, and John was not paying any
           attention."

      b.   I Maria na pi psemata! Adhinaton!
           the Mary prt tell-3s lies. Impossible
           "Mary telling lies! Impossible!"

(36a) is a narrative, while in (36b) the *na*-clause is used in a construction known as "syntactic isolation". Crucially in neither of these cases is the interpretation modal. Note that constructions of this type can also be found in other languages albeit in the form of a prepositional infinitival, as in the European Portuguese example in (37a) below (from Raposo (1989: 280)), and the Italian example in (37b):

(37) a. [Os meus alunos a copiar(em) no exame]! Que horror!
          "My students copying in the exam! How awful!"

      b. Maria a piangere, a urlare, e Gianni che non la badava.
          "Mary was crying and shouting and John was not paying any attention to her."

(37a) is a case of "syntactic isolation", as is the MG (36b), while the Italian (37b) is a narrative corresponding to the MG (36a). Both the Portuguese and the Italian constructions involve the presence of the preposition *a* and an (optionally inflected for EP) infinitival. Raposo (1989) analyses prepositional infinitival constructions (PIC) of this type as small clauses, where the *a*-phrase forms the predicate and the NP preceding it is the subject of predication.

Extending Raposo's analysis to the MG data in (36) we could assume that the *na*-clause and the NP preceding it form a small clause of some type. The difference with the Portuguese data is that the small clause in this case does not have the status of a PP, but of a CP probably. This is a possible alternative and has been argued for similar constructions in other languages as well (cf. Cinque (1991) for example for an analysis of pseudo-relatives as CP small clauses). If the *na*-clauses in (36) are indeed small clauses we expect them to exhibit certain properties, such as the impossibility of subject inversion:

(38)   ??Na klei i Maria, na fonazi,...
           prt cry-3s the Mary, prt shout-3s

Inversion fails since the NP 'i Maria' is the subject of the whole small clause
and not of the *na*-construction. The subject of the *na*-clause is a pro instead.
A discussion of the exact structure and properties of these constructions is
beyond the scope of the present work.

Going back to the licensing of the subjunctive by a sentential operator,
we notice that this is indeed the case in a number of other constructions.
Consider the following examples:

(39) a.   Dhen thimame na efighe.
            not remember-1s prt left-3s
            "I don't remember him leaving."

      b.   Dhen idha na efighe.
            not saw-1s prt left-3s
            "I didn't see (notice) him leaving."

      c.   Dhen nomizo na efighe.
            not think-1s prt left-2s
            "I don't think that he left."

In all the examples in (39) negation is present and the embedded clause is
introduced by *na*. The same holds if there is a question operator (cf. (40)):

(40)   Thimase na efighe?
            remember-2s prt left-3s
            "Do you remember him leaving?"

Interestingly though, when negation (or question) is absent the
sentences in (39), as well as in (40), become ungrammatical. The grammatical
versions must have the embedded clause introduced by the complementiser
oti (cf. (41)):

(41) a. Thimame *na / oti efighe.
remember-1s prt/that left-3s

b. Idha *na / oti efighe.
saw-1s prt/that left-3s

c. Nomizo *na / oti efighe.
thought-1s prt/that left-3s

Thus the contrast between the data in (39) and (41) shows that the subjunctive in (39) is triggered by the presence of negation (or question in (40)) in the matrix clause, which is a sentential operator. In the absence of the relevant operator ungrammaticality arises, as is indeed the case in (41). The subjunctive is then excluded and the only alternative is to use an indicative complement clause.

In summary, we have considered the difference between subjunctives and indicatives, in the light of the analysis of subjunctives put forward by Manzini (1994b), concluding in favour of its applicability to MG. In the following section I will consider the properties of the epistemic predicates that allow for a subjunctive complement in more detail.

5. Epistemic predicates and subjunctive complements
5.1 The tense sequences of epistemic modals

Before we discuss the properties of epistemic predicates which allow for a subjunctive complement, let us first consider the presence of the subjunctive with modals, as in the following examples:

(42) a. Prepi na fighi.
must-3s prt leave-3s
"He must/should leave."

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b.   Bori na fighi.
        might-3s prt leave-3s
        "He may/can leave."

The modals 'prepi' and 'bori' in (42) are ambiguous between the epistemic
and non-epistemic (i.e root) reading. In particular, the modal 'prepi' in (42a)
can be interpreted as in (43):

(43)   a.   It must be the case that he leaves.   (Epistemic)
        b.   He is obliged to leave.   (Non-epistemic)

Similarly, the modal 'bori' in (42b) can be interpreted as in (44):

(44)   a.   It is possible that he leaves.   (Epistemic)
        b.   He is able to leave./   (Non-epistemic)
                He is allowed to leave.

In (44b) the interpretation can be that of ability or permission. In either case
though the modal has the non-epistemic reading.

        Note crucially that in (42) both the matrix and the embedded V are in
the present tense. Suppose next that the modal is inflected for past tense:

(45)   a.   Eprepe na fighi.
                must-3s prt leave
                "He was obliged to leave."

        b.   Boruse na fighi.
                could-3s prt leave-3s
                "He had the ability/was allowed to leave."

Interestingly the sentences in (45) are no longer ambiguous. As the English
translation indicates the presence of past tense in the matrix clause blocks
the epistemic reading. Consider next the alternative case where the
embedded V is inflected for past tense, as in (46):

(46) a. Prepi na efighe.
          must-3s prt left-3s
          "It must be the case that he left."

      b. Bori na efighe.
          might-3s prt left-3s
          "It is possible that he left."

The pattern in (46) is the reverse of that in (45), in that the presence of past tense in the embedded clause allows for the epistemic reading only. If, on the other hand, we inflect both the matrix and the embedded clause for past tense, then the result is ungrammatical, giving rise to uninterpretability:

(47) a. *Eprepe na efighe.
          must-3s prt left-3s

      b. *Boruse na efighe.
          could-3s prt left-3s

It follows that neither reading is available in (47).

The tense possibilities discussed so far are summarised in (48) below:

(48) a. **Epistemic**   -   *Na*-clause
          Present   -   present
          Present   -   past
          *Past   -   past
          *Past   -   present

      b. **Non-epistemic** -   *Na*-clause
          Present   -   present
          *Present   -   past
          *Past   -   past
          Past   -   present

Thus the sequence present-present allows for both the epistemic and the non-epistemic reading. On the other hand, the sequence present-past allows for

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the epistemic reading only, while the sequence past-present allows for the non-epistemic interpretation only.

A similar situation is attested with the epistemic predicates that take a subjunctive complement. Recall that the subjunctive after epistemic predicates is licensed only in the presence of sentential negation (or question) in the matrix clause. In other words, it is the Neg (or Q) operator that triggers the *na*-complement, since epistemic predicates, unlike volitionals, do not embed any modal operator. Note, however, that negation itself is a necessary but not sufficient condition for the presence of the subjunctive in some of the examples in (39). There is one more condition that needs to be met for the licensing of the subjunctive, namely that the matrix V be in the present tense (this does not hold for the verb 'idha' (saw) in (39b) though). If this condition is not met the result is ungrammatical, even if there is tense agreement between the matrix and the subjunctive V's, as in (49):

(49)　　　　*Dhen thimithika na efighe.
　　　　　　not remembered-1s prt left-3s

The subjunctive in (39) will then have to be interpreted as the result of a conspiracy between negation and the present tense specification in the matrix clause. So the question is why present tense turns out to be crucial for the licensing of the subjunctive.

The same results hold for other cases of epistemic predicates, which can nevertheless license the subjuctive in the absence of an operator such as negation. But even in this case the requirement is that they are inflected for present tense:

(50)　a.　　Pistevo/ *pistepsa na fighi.
　　　　　　believe-1s/believed-1s prt leave-3s
　　　　　　"I believe/*believed that he will leave."

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b.   Fandazome/ *fandastika na fighi.
        imagine-1s/imagined-1s prt leave-3s
        "I imagine/*imagined that he will leave."

As the ungrammatical versions of the examples in (50) show the matrix predicate cannot be inflected for past tense. Crucially, when the matrix predicate is in the present tense, the embedded V can be inflected for past tense, as (51) below shows:

(51) a.   Pistevo na efighe.
            believe-1s prt left-3s
            "I believe that he left."

      b.   Fandazome na efighe.
            imagine-1s prt left-3s
            "I imagine that he left."

However, when the complementiser *oti* is used, then the tense specification of the matrix V is irrelevant. Moreover, it is possible for both the matrix and the embedded verbs to be inflected for past tense:

(52) a.   Pistevo oti tha fighi / efighe.
            believe-1s prt will leave-3s/left-3s
            "I believe that he will leave/left."

      b.   Pistepsa oti tha fighi / efighe.
            believed-1s that will leave-3s/left-3s
            "I believed that he would leave/had left."

Thus subjunctive complements to epistemic predicates allow for the following tense alternations:

(53)   **Matrix**   ·   *Na*-**clause**
           Present   -   present
           Present   -   past
           *Past   -   present
           *Past   -   past

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According to (53) the only possible sequences are present-present and present-past. Note crucially that these are also the grammatical sequences attested for epistemic modals in (48a) above.

The data discussed so far then fall into two classes: the first class involves epistemic modals, while the second involves epistemic verbs that take a subjunctive complement. The common properties of these two classes of predicates are: first that they must be inflected for present tense, and secondly that the *na*-clause can be inflected for past tense. Veloudis (1985) notes that the combination of these two characteristics is found systematically with predicates that encode epistemic modality. This includes expressions such as "apokliete" (it is impossible), "fenete/miazi" (it appears/ seems), "ine pithano/apithano" (it is possible/impossible), etc., as opposed to non-epistemic expressions such as "epitrepete" (it is allowed), "prokite" (it is going to), "ine anageo/ aparetito" (it is necessary), etc. According to his analysis epistemic modality can be derived in different ways, either by using a modal as in (45), or by using epistemic verbs such as 'remember', 'believe', 'think', etc (cf. the examples in (38) and (39) above) which under certain conditions can function as 'subjective epistemics' in the sense of Lyons (1977).

The conditions that need to be satisfied with epistemic verbs are: first, the matrix predicate cannot be inflected for past or future; second, it has to be in the indicative; thirdly, it does not take an object, and finally there is no adverbial present, unless it is one compatible with the epistemic reading (for example 'personally'). Regarding verbs like 'remember' in the examples in (38) it is clear that to some extent negation may also contribute to the derived reading. The interpretation in this case is "I can't tell for sure", i.e one that has an implicit epistemic modal. A similar interpretation is derived when the question operator is used, as in (39) above. On the basis of these data Veloudis (1985) suggests that it is the presence of epistemic modality in the matrix clause which allows for past tense specification in the embedded clause. To be more precise, the claim is that the embedded

subjunctive clause exhibits independent time reference.

Thus, assuming that in all the above cases with epistemic modality the *na*-clause has indeed independent time reference, the question is why the matrix V has to be in the present tense. This issue will be considered in the following section.

5.2 Epistemic modality and *na*-clauses

In all the cases discussed so far, that is with epistemic modals and epistemic verbs, the matrix verb has to be in the present tense while the embedded clause can be inflected for past tense. In this section I would like to suggest that the restricted tense pattern attested in these constructions between the matrix and the embedded verb is due to the presence of an expletive matrix tense. Consequently the embedded tense (i.e the *na*-clause) acquires matrix scope and contributes to the temporal evaluation of the sentence. Hence the independent time reference it exhibits. The analysis that I will put forward should be considered as a tentative solution, since a more adequate explanation would require a detailed account of Tense as such.

Kratzer (1981) provides a discussion of the different semantic properties of epistemic and non-epistemic modals. She argues that these two types of modality are based on different premises: "if we use an epistemic modal, we are interested in what else may or must be the case, *given everything we know already*." (1981: 52). With non-epistemics on the other hand, "we are interested in what can or must happen, given *circumstances of a certain kind*." (1981: 52). Thus non-epistemic modality can somehow be more dependent on the special conversational circumstances, while this is not the case for epistemic modality. In Iatridou's (1990) terms possibility and necessity, as expressed for example by the MG modals 'prepi' and 'bori' in their epistemic reading, are notions which are not sensitive to time. Her

argument is based on the incompatibility of past tense with adjectives like 'possible', as in (54) below:

(54) a. It is possible that John stole the tapes.

  b. #It was/ will be possible that John stole the tapes.

On the basis of the oddness of (54b) (indicated by the # sign) Iatridou (op. cit.) argues that the matrix predicate is temporally independent (as a point of clarification: Iatridou refers to this modality as metaphysical and she uses the term 'epistemic' in a slightly different way). She then suggests that these predicates lack a time variable, since they do not change over time. Thus in her terms the present tense in (54a) is pleonastic in that it has no semantic function.

Based on these premises then, let us assume that syntactically epistemic modals, as opposed to non-epistemics, have an expletive Tense. Recall that it is with epistemic modals that the embedded *na*-clause has independent time reference, while this possibility is blocked with non-epistemics. Recall also that the time reference of the embedded clause is evaluated with respect to that of the matrix clause (Enç 1987, Hornstein 1990). However, if the matrix clause has an expletive tense, then temporal evaluation fails, unless there is some other mechanism to ensure that tense anchoring takes place. Consider the requirement for establishing a tense dependency between the matrix and the embedded clause in the sense of Manzini (in prep.). Under this configuration the matrix and the embedded T form a head-dependency of the $(T_1,...,T_2)$ type, as illustrated in (55) below:

(55) $[..T_1..[..V..[..C..[..T_2..]]]]$
             |_____|

Note that in the presence of an epistemic modal in the matrix clause the head of the dependency, i.e T_1, is an expletive element. The foot of the

dependency, on the other hand, i.e T_2, is not an expletive but instead has the properties of a contentive element.

The requirement for temporal interpretation of the embedded clause now follows: the T-dependency is headed by an expletive element, and consequently the temporal evaluation of the clause has to be carried out by the embedded T. Thus the formation of an expletive chain essentially has the effect of allowing the embedded T to be directly linked to the utterance time so that the clause is temporally evaluated. Thus the independent time reference of the embedded clause attested with expletive modals is accounted for. Alternatively, we could assume that the matrix and the embedded clause form a single proposition in terms of their tense properties (see also Rizzi (1978), Burzio (1986) and Zubizarreta (1982), among others for analysis epistemic modals as raising predicates). Note that morphologically it is only present tense that is compatible with an expletive T, at least in MG (but see Iatridou (1990) for the Basque data). This can then explain why the sequences where the epistemic modal is inflected for past tense are excluded, since we have to assume that (morphological) past tense cannot function as an expletive element. This is probably due to the fact that past tense can be interpreted as a deictic element as it denotes an interval (Partee 1984), while this is not necessarily true for the present tense. We will come back to the realisation of an expletive T as present shortly.

Non-epistemic modals, on the other hand, do not have an expletive T. If a dependency is formed between the matrix and the embedded clause, it follows that the embedded T will be evaluated with respect to the matrix T, as is standard for complement clauses. Therefore the na-clause cannot have independent time reference. This can now explain why past tense is excluded with epistemic modals. In other words, if past subjunctive in MG requires matrix scope, then the presence of tense in the matrix clause blocks scope of the subjunctive. Thus the sequences present-past and past-past are excluded under the epistemic reading of the modal. This is also expected on the basis

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that non-epistemic modality has the effect of switching the time reference of the embedded clause to the future (cf. Kratzer 1989).

In this light there is one further point to make with respect to the order of modals in a sentence. Note that when two modals co-occur their relative order is fixed, so that the epistemic modal precedes the non-epistemic one. This is illustrated by the following MG example:

(56)   a.   Bori na eprepe na fighi.
            may prt must prt leave-3s
            "It is possible that he must have left."

       b.   *Boruse na prepi na fighi.   .
            could-3s prt must prt leave-3s
            "*He could must have left."

Picallo (1985) argues, on the basis of the Romance data, that modals in their non-epistemic (i.e root) reading are analysed as VP elements. Epistemic modals, on the other hand, are base-generated in INFL. Thus under her analysis the order where the epistemic modal precedes the non-epistemic one is well-formed because the former is under I and the latter is under V. However, if the non-epistemic precedes the epistemic modal then the construction is ill-formed, since it would imply that I is lower than V in the clause structure. Hence the ungrammaticality of sentences like the one in (56b).

Note though that this analysis is rather difficult to maintain for the MG data, since the two modals occur in different clauses anyway as the presence of *na* indicates. In our terms instead the order in (56a) is straightforward on the assumption that epistemic modals, as opposed to non-epistemics, have an expletive Tense. In (56a) the epistemic modal is first, thus the dependency formed between the matrix and the first embedded T has the expletive T as its head (i.e the epistemic). This is a well-formed

dependency, since the expletive is the head and the contentive element (the argument) is the foot. This type of ordering of modals is reduced to a well-formedness condition on chains which is essentially derived under FI, in the sense that expletive chains must be headed by the expletive (cf. Chomsky 1986b). Consider next (56b). The dependency formed between the matrix and the embedded T is ill-formed because the foot of the chain in this case is an expletive T. This formation violates FI and the ungrammaticality of (56b) follows.

Let us now consider epistemic predicates like 'think', 'believe', 'remember' in their modal reading. Recall that these predicates exhibit properties of epistemic modals and in particular they have to be in the present tense, while the embedded na-clause can be inflected for past tense. In other words, the na-clause has independent time reference. On the basis of these premises then it seems natural to assume that the tense of those predicates in their modal reading is also an expletive. Consequently, the formation of a T-dependency between the matrix and the embedded clause will be interpreted as an expletive chain. Therefore the temporal interpretation of the clause is carried out by the na-complement, in the sense that the embedded T can now be directly linked to the utterance time. Thus the independent time reference of the na-clause is once more derived.

5.3 Some notes on the use of present tense

The use of morphological present tense with epistemic modals and consequently its realisation as an expletive element appears to be connected to its more general properties, as these have been argued for in the recent literature (Enç 1991, Zagona 1992, among others). In particular, Enç (1991) argues that the present tense morpheme does not exist in English, as the distinct properties of stative and non-stative (i.e events) predicates show in (57) below:

(57) a.   Mary knows/believes the facts.

      b.   Mary sings.

      b'.   Mary is singing.

The verb 'know' in (57a) is stative. In this case its Tense can be linked to the utterance time so that the situation described by the predicate holds at the moment of speech. The same holds for the verb 'believe'. The verb 'sing' in (57b), on the other hand, is non-stative. In this case the reading where the situation holds at the moment of speech is not derived, and the sentence has a generic/habitual reading. T-anchoring to the moment of speech (the present progressive) is achieved when the verb *be* plus the present participle is used, as in (57b'). This is due to the fact that *be* itself is a stative predicate.

Based on these data Enç (1991) claims that non-statives have a temporal argument that needs to be bound. However, in the absence of a present tense morpheme, binding of the temporal argument cannot take place, and the only alternative is for the variable (i.e the one introduced by the temporal argument) to be bound by a generic (or quantificational) operator. However, statives (of which epistemics are a sub-class), do not require their temporal argument to be bound. Therefore the absence of a present tense morpheme will not induce a generic reading. The problem that arises of course is that in this case we have to allow for the temporal variable to be left unbound, a configuration which violates FI. If, on the other hand, we assume that statives do not have a temporal argument, possibly in the sense of Iatridou (1990) for (epistemic) modals, the problem is that we cannot explain the formation of past tense with statives. In other words, if the past tense morpheme must bind an argument, binding should fail in the absence of such an argument, again giving rise to a FI violation. This means that past tense forms of statives could not be attested, contrary to fact, since it is possible to say: "Mary knew the answer", clearly locating the situation described by the sentence in an interval prior to the utterance time.

The main idea underlying Enç's (1991) analysis is that present tense appears to be somehow morphologically underspecified. This is a property attested in other languages as well. In MG for example, present tense does not make use of any special morpheme, and its morphological make-up consists of the stem of the verb inflected for imperfective aspect and agreement. Moreover, in the absence of an analogous 'be+V' progressive form, the present tense of non-statives is always ambiguous between its present progressive and habitual reading (cf. Tsimpli 1992, Tsimpli and Roussou 1993, Roussou and Tsimpli 1993), while at the same time it allows for a modal interpretation, as illustrated in (58) below:

(58)   I Maria traghoudhai kala.
          the Mary sing-imp-3s well
          "Mary is singing well/ Mary sings well/ Mary can sing well."

In essence then, the morphological underspecification of present tense appears to provide the default form for its use as an expletive T with epistemic modals. The problem that remains is twofold: first, exactly how the expletive tense is realised syntactically, that is whether there is a tense variable or not, and how epistemic modals differ from stative predicates if that is the case. The second problem is of a more general nature and concerns the interaction of morphology with syntax, as realised in the case of present tense for example. Both of these issues require further investigation which is beyond the scope of the present work, and are left open to future research.

To summarise, in the last three sections I have argued that the presence of independent time reference found in na-complements to epistemic modals and predicates is the result of the formation of a dependency between the embedded and the matrix T which is an expletive. Expletive T is associated with epistemic modality only and has the effect of forming a single temporal proposition between the matrix and the embedded clause. Moreover, the requirement for the realisation of expletive T as present in languages like

MG and English was considered on morphological grounds only, leaving further issues open.

In the following section I will turn to a rather different topic and discuss the interaction of subjunctive with pronominals, a phenomenon which has attracted considerable attention in the literature.

6. Coreference and disjoint reference in subjunctive clauses.

Having outlined some of the properties of the subjunctive let us now turn to the interaction of subjunctive with pronominals. It is well-known in the literature (cf. Meireles and Raposo 1984, Picallo 1985, Kempchinksy 1986, Rizzi 1989, among others) that in the Romance languages subjunctive complements to volitional predicates give rise to subject obviation effects. In other words they disallow coreference between the matrix and the embedded subject. This is illustrated by the following Italian example:

(59) a. *Voglio che io vada.
          want-1s that I go-1s

      b. Voglio andare.
          want-1s go
          "I want to go."

As (59b) shows coreference is possible only when the complement clause is an infinitival.

Note though that coreference is possible in the Balkan languages (Kempchinsky 1986, Farkas 1992b, Motapanyane 1991, 1994, Terzi 1992, among others). This is illustrated by the following examples from MG, Albanian and Romanian, in (60a), (60b) and (60c) respectively:

(60) a.   O Yanis theli na fai.
            the John want-3s prt eat-3s

      b.   Jani do të hajë.
          · John want-3s prt eat-3s

      c.   Ion vrea să mănince.
            John want-3s prt eat-3s
            "John wants (him/her) to eat."

In all the examples in (60) there is no complementiser involved. Recall, however, that Albanian and Romanian make use of a subjunctive complementiser as well, *që* and *ca* respectively. Interestingly when the subjunctive C is present then coreference with the matrix subject is blocked (Terzi 1992, Motapanyane 1994):

(61) a.   Jani do që të hajë.
            John want-3s that prt eat-3s

      b.   Ion vrea ca să mănince.
            John want-3s that prt eat-3s
            "John wants him/her to eat."

On the basis that MG lacks a subjunctive C, we could predict that coreference will always be possible, as is indeed the case.

Thus, the phenomenon of subjection obviation in the Romance languages and its absence in the Balkan ones is a clear case of parameterisation. In the following section we will consider some of the proposals that have been put forward.

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6.1 Some previous accounts

6.1.1 Subjunctive as an anaphoric T

Let us first start with proposals which refer to subject obviation in Romance. The best-known analysis is probably that suggested by Meireles and Raposo (1984), Picallo (1985) and Rizzi (1989) among others which attributes the ungrammaticality of (59a) to the tense dependency formed between the embedded and the matrix clause. In particular, Picallo (1985) argues that the subjunctive T has the properties of an anaphor and therefore must be bound by the closest T which in this case is the matrix T. The formation of this dependency has the effect of extending the binding domain of the embedded subject to the matrix clause. Given that the embedded subject is a pronominal (either overt or null, i.e a pro) it has to be free within its local domain according to Principle B of Binding Theory. Thus the only grammatical option is for the embedded subject to be disjoint in reference from the matrix subject, otherwise the sentence is deviant as in (59a).

Two problems arise with this account. The first concerns the coreference possibility attested in the Balkan subjunctive complements. If the tense of the subjunctive is anaphoric cross-linguistically, then we should expect similar effects to arise, contrary to fact, as the Balkan data in (60) indicate. On the other hand, if tense dependencies extend to indicative complements as well, as argued by Kempchinsky (1986), then subject obviation should be attested in indicative complements also, again contrary to fact.

Along similar lines Terzi (1992) argues that the presence of an overt C in Romance, and in some of the Balkan languages, gives rise to subject obviation effects, while its absence in the Balkan languages only allows for coreference. When disjoint reference is obligatory, the null subject is a pro; when coreference is available, on the other hand, there is control and the subject is a PRO. The two possible representations for the sentence in (62)

below are illustrated in (63):

(62) a. I Maria theli na fai.
the Mary want-3s prt eat-3s
"Mary wants (him/her) to eat."

(63) a. I Maria$_i$ theli [$_{CP}$ na fai [$_{IP}$ pro$_{*i/j}$ [$_I$ t ...]]]
↑_____|

b. I Maria$_i$ theli [$_{CP}$ C [$_{IP}$ PRO$_{i/*j}$ [$_I$ na fai ...]]]
↑_____x_____|

(63a) is the structure for disjoint reference, while (63b) is the structure that allows coreference. Terzi's (1992) assumption is that the C position in subjunctive complements contains a non-lexical subjunctive operator which is required in order to satisfy the anaphoric properties of the subjunctive. Obviation arises whenever this operator incorporates into a lexical C in the form of an overt complementiser. In (63a) I-to-C movement also has the effect of lexicalising the empty operator which then turns into a proper governor. In MG, I-to-C movement is the only way of lexicalising the operator since there is no subjunctive complementiser available. In (63b), on the other hand, I-to-C movement has not taken place and coreference is possible. The subject is realised as PRO which is licensed in this position in the absence of any overt lexical material in C (i.e of a C proper governor). Thus the PRO Theorem is not violated.

According to Terzi's analysis MG also exhibits subject obviation effects as the structure in (63a) shows, but these are concealed by the availability of the alternative representation in (63b). The same explanation extends to Romanian and Albanian. Furthermore in these languages when there is an overt subjunctive C, as in (61) above, coreference is excluded since a lexical C is a proper governor and PRO is disallowed according to the PRO Theorem. Thus the generalisation derived under this approach is that the presence vs. absence of an overt C gives rise to disjoint reference and coreference

respectively.

Note that this approach raises some theoretical and empirical problems. Consider first the presence of PRO in (63b). Terzi's analysis is crucially based on the distinction between proper and non-proper governors. However, this distinction can no longer hold within the minimalist framework (cf. the discussion in chapter 2). Therefore the major condition on the distribution of PRO disappears. The implications are clear: either PRO does not exist, or its licensing conditions (and properties) have to be re-considered. Although these are issues open to future research, the relevant point to notice here is that if the distinction among proper and non-proper governors does not hold, then the claim that *na*-clauses do not allow for I-to-C movement whenever there is coreference will have to be reformulated. Secondly, Terzi argues that I-to-C movement takes place so that the subject in spec,IP is assigned nominative Case (see also Varlokosta (1993)). Note though that in Chomsky's (1993) minimalist framework movement can only take place for the sake of the moved element (the principle of Greed). Therefore the *na*+V complex can only move to C for its own independent reasons. Recall that in the analysis proposed in the present work I-to-C movement takes place under the principle of FI. In other words I-to-C movement is independently required. Being in this position I is probably able to assign Case to the embedded subject. Crucially, though, movement is not motivated for pure Case-considerations of the subject. Thus this account has conceptual advantages over the one proposed by Terzi (1992).

There is one final point to be made which actually refers to the empirical evidence that underlies the existence of the two compatible structures in (63). Terzi claims that subject obviation effects do arise in *na*-complements, although concealed by the possible structure in (63b), i.e the control structure. Her argument is that the presence of an overt pronoun coreferential with the matrix subject is ruled out. The relevant example is the one below:

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(64)   O Yanis$_i$ theli na fai aftos$_{*i/j}$ to rizogalo.
               the John want-3s prt eat-3s he the rice pudding
               "John wants him to eat the rice pudding."

As the indices show in (64) the pronoun 'aftos' cannot refer to the matrix subject. However, it is not clear that coreference is impossible. There are speakers of MG, myself included, who find coreference possible in (64). Thus I do not consider the above example as strong evidence for the presence of subject obviation effects in MG.

6.1.2 Subjunctive as a non-anaphoric T

Kempchinsky (1986) argues that subjunctive complements involve a null subjunctive operator in the spec,CP (S' in her analysis) under selection by the matrix verb. At LF I moves to C so that the operator is identified under spec-head agreement, as illustrated in (65) where the CP notation is used:

(65) $[..V_i$ $[_{CP_i}$ Op$_i$ $[_C$ I$_i]$ $[_{IP}$ pro $[_i$t]...]]]

I-to-C movement extends the binding domain of the subject to the matrix clause, since this is the minimal category containing a governor, i.e I (now under C), and a subject. Therefore the embedded pronominal subject must be disjoint in reference from the matrix subject, so that Principle B is obeyed.

In Romanian, as well as in the other Balkan languages, on the other hand, the operator in spec,CP is identified by the subjunctive particle să which also moves to C at LF (along with V+I):

(66) $[..V_i$ $[_{CP_i}$ Op$_i$ $[_C$ să$_i$+V+I $[_{IP}$ pro $[_i$t]...]]]

As (66) shows in Romanian it is only *să* that is coindexed with the matrix verb. Although I also moves to C along with the subjunctive particle it does not bear the same index as V, since it does not function as the identifier of the subjunctive operator in spec,CP. Consequently the binding domain does not extend to the matrix clause; hence the possibility of coreference. Therefore the parameter between Balkan and Romance subjunctives is reduced to the presence vs. absence of a subjunctive particle respectively.

Although Kempchinsky's analysis seems to be on the right lines, the problem that arises with respect to the presence of a subjunctive operator is that it should block adjunct extraction out of a subjunctive complement. Consider the following MG example:

(67)   Jiati$_i$ thelis [na fighis t$_i$]?
            why want-2s prt leave-2s
            "Why$_i$ do you want to leave t$_i$?"

As the grammaticality of (67) shows adjunct extraction is possible. If adjuncts are sensitive to intervening operators, then the grammatical output in (67) indicates that there should be no intervening operator in the spec,CP, contrary to what Kempchinsky (1986) claims. Moreover, the presence of a *wh*-phrase in the embedded spec,CP should/the disallow subjunctive in embedded interrogatives, again contrary to fact, as the MG example in (68) shows:

(68)   Anarotieme [ti$_i$ na tu po t$_i$.]
            wonder-1s what prt him-tell-1s
            "I wonder what to tell him."

Therefore, the problem that arises is with respect to the presence of a subjunctive operator.

Having discussed briefly some of the explanations put forward for the presence and absence of disjoint reference effects, I will next provide an

analysis that accounts for contrast between the MG (and consequently for the Romanian and Albanian) and the Romance data. This will be discussed in the following section.

6.2 Pronominals and the subjunctive revisited.

The explanation that will be provided for the presence vs. absence of subject obviation is based on the idea that disjoint reference is forced when there is an overt C, while coreference is associated with complementiser-less constructions. This is considered as an adapted generalisation along the lines of Terzi (1992) and Motapanyane (1994). In particular, I will argue that it is I-to-C movement that allows for coreference, while the presence of an overt C forces disjoint reference.

Before I provide an analysis let me summarise briefly the basic points that underlie the phenomenon. First, the subjunctive is attributed to the presence of a sentential (intensional) operator which forms a dependency of the (Op,...,T) type. In the case of lexical predicates, such as volitionals for example, that are inherently modal, licensing of the subjunctive falls essentially under s-selection by the matrix predicate, while licensing of the subjunctive by any other operator, such as negation or question, does not involve selection. Crucially though in either case subjunctive is triggered by the presence of an operator. Second, disjoint reference is a subject-to-subject relation. Under any account of the properties of the subjunctive I this is expected given that subjects bear a special relationship to I, standardly formalised in terms of spec-head agreement (or Case-marking). Thus subjects are expected to be sensitive to any type of dependencies formed by the I head.

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6.2.1 The Romance and Balkan subjunctives

Based on these premises we can now consider disjoint reference in the Romance subjunctives, as indicated by the contrast between (69a) and (69b) in the Italian example below:

(69) a.   *Voglio che io vada.
             want-1s that I go-1s
             "I want to go."

      b.   Voglio che tu vada.
             want-1s that you go-2s
             "I want you to go."

In (69) there is an overt complementiser. The matrix predicate is a volitional which lexically embeds an operator. Suppose that the dependency formed starts from the matrix V (the lexicalised operator) and includes the embedded C and I heads, i.e (V, C, I). The link between V and I is mediated by the presence of the C head. This is schematically represented in (70) below:

(70)
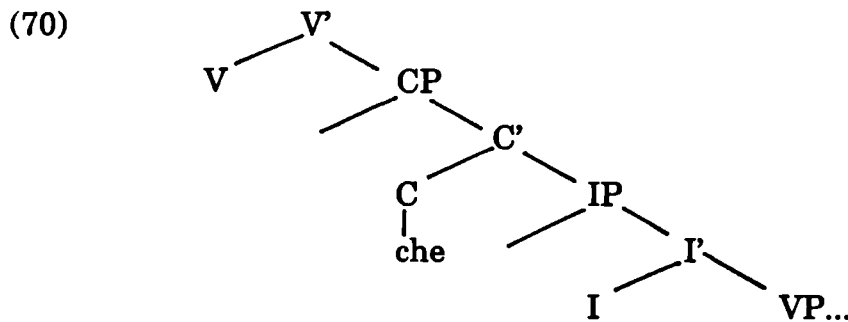
Let us assume that C is an expletive element which forms an expletive chain with the embedded I, i.e [C, I] (cf. chapter 2). In (70) then V is related to I via an expletive C, so that in fact the dependency formed between V and I includes the following two sub-chains: [V, C] and [C, I]. The matrix V, the licenser of the subjunctive I, is furthermore related to its own I for independent reasons, i.e feature checking in the sense of Chomsky (1993),

forming therefore the sub-chain [I, V]. Consequently the (Op,..,T) dependency extends to the matrix I, so that it takes two pronominal I's along, as illustrated in (71) below:

(71) $[_{IP}$ I $[_{VP}$ V $[_{CP}$ C $[_{IP}$ I]]]]

Suppose next that the embedded subject in (70) is a pronominal. According to Binding Principle B, pronominals have to be free locally. Let us assume that locally is interpreted as within the same dependency. On the assumption that in (69) the dependency is of the (I, V, C, I) type the requirement for disjoint reference follows. The matrix subject now serves as a potential local antecedent. If the two subjects are coindexed then Principle B is violated and ungrammaticality arises as is indeed the case in (69a). Therefore coreference is excluded and disjoint reference is the only grammatical option. This is more or less the analysis proposed in most of the current approaches (Picallo 1985, Kempchinsky 1986, Manzini 1994b).

The same account extends to Albanian and Romanian when the subjunctive complementiser is used. Recall that Albanian and Romanian make use of a subjunctive C, të and că respectively. Recall also that when the complementiser is used coreference is excluded. Let us assume that the complementiser is an expletive element and that it needs to be coindexed with I so that FI is satisfied. This gives rise to the formation of an expletive chain, which is in fact morphologically manifested in these languages by the choice of a different complementiser for the subjunctive I. Rivero (1989), though based on different assumptions, also analyses this type of special selection between C and I as one of morphological agreement. Therefore the presence of an expletive C included in the dependency has the effect of extending the local domain of the subject to the matrix clause and disjoint reference is forced, exactly as in the Romance contructions.

Having considered disjoint reference effects in the Romance languages, let us now turn to the Balkan subjunctives where coreference is possible, as the MG example below indicates:

(72) Thelo na figho.
    want-1s prt leave-1s
    "I want to leave."

Recall that in the absence of an overt complementiser, I-to-C movement takes place under the operation of FI. The I head incorporates both the subjunctive particle and the verbal complex. This is schematically represented in (73) below:

(73)
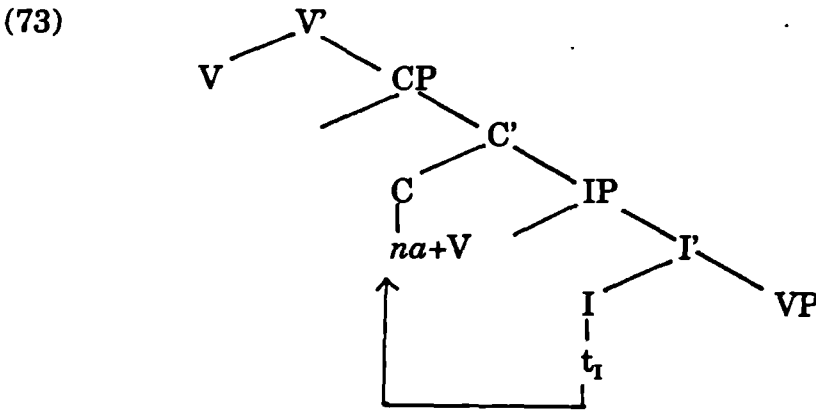
As (73) shows the matrix V is not linked to the embedded I via an expletive C in this case, since it is the verbal complex itself that is under C. On the other hand, I movement to C forms a dependency of the [I, t_I] type. Assuming as before that the matrix V correlates to its own I we have also another dependency starting from the embedded C, where actually the subjunctive I resides, extending up to the matrix I. This is illustrated in (74) below:

(74) $[_{IP}$ I $[_{VP}$ V $[_{CP}$ $[_{C}$ na+V] $[_{IP}$ pro $[_{I}t_I]..]]]]$

The difference between (71) and (74) then should be considered responsible

for the parameter between Romance and Balkan. In particular, in (74) the (sub-) dependency that links the matrix I with the embedded C position is essentially the one that licenses the subjunctive. Thus, since the subjunctive is licensed at the C position, there is no reason for extending it to include the embedded I, which now forms part of the lower (sub-) dependency. Consequently, the crucial dependency is the (I, V, C) one. Crucially the embedded subject is part of the [I, t_i] dependency within which it has no c-commanding antecedent. Binding Principle B is then satisfied and the embedded subject is allowed to corefer with the matrix subject. This account though similar to the Kempchinsky's (1986) analysis has the advantage of eliminating the need for postulating an operator in the embedded spec,CP (or C itself). It also differs from Terzi's (1992) account in that it avoids the postulation of different representations for coreference and disjoint reference, as well as the stipulative distinction into proper and non-proper head governors.

The Romance and the Balkan data discussed so far show that the locality properties of the subject depend on the dependencies formed by the I head. Thus in the Romance subjunctive complements the presence of an expletive C and the formation of an expletive chain induces subject obviation, while I-to-C movement in the Balkan subjunctives allows for coreference. In either case the local domain of the subject with respect to binding is determined to some extent by the properties of the I head. That subjects exhibit different locality patterns on the basis of the I head is also found in the formation of A'-dependencies, and in particular in subject extraction out of an embedded clause which in many languages gives rise to the so called *that*-t effect.

Recall that in English subject extraction is grammatical as long as C is realised as zero (cf. (75)):

(75)   Who$_i$ do you think (*that) t_i left?

Assuming that the zero form reflects (abstract) I-to-C movement, as argued in chapter 2, extraction leads to grammaticality because I is in a position to c-command the subject trace. If C is realised as *that* then I cannot c-command the trace in spec,IP, hence the *that*-t effect. This type of approach is crucially based on the expletive status of C which requires elimination of this position at LF under FI. The principle of FI is satisfied either by moving I-to-C, or by forming an expletive chain between C and I under coindexation. In a similar way the presence vs. absence of subject obviation depends on the type of chain formed between I and C, or in other words on the properties of the C and I system: coreference is possible when there is I-to-C movement, while disjoint reference is forced when there is an overt (expletive) C. The parallelism of course cannot be extended any further since in the case of subjunctives the embedded subject does not form an A'-dependency.

To conclude, in this section it has been argued that the parameter differentiating Romance and Balkan subjunctives, as far as disjoint reference is concerned, depends on the association of the C and I positions. In the Romance case the presence of an overt C forces the formation of an expletive chain and induces subject obviation. However, in the Balkan case I-to-C movement takes place, thus allowing for the embedded subject to corefer with the matrix subject, since these two belong to different dependencies.

6.2.2 Coreference in the Romance subjunctives

The discussion so far has attributed the parameter between Romance and Balkan to the different possibilities of associating the C and I positions. Thus the presence of an overt C in Romance is always expected to give rise to subject obviation. However, this is not always true as the Spanish data in (76) show (Kempchinksy 1986):

(76) a. Luisa$_i$ no cree que pro$_{i,j}$ comprenda el problema.
          "Luisa doesn't believe that she understands the problem."

      b. Maria$_i$ dudaba que pro$_{i,j}$ fuera la mas apta para el puesto.
          "Maria doubted that she/he was the best one for the job."

In (76a) there is an overt negative element, i.e 'no', in the matrix clause, which licenses the subjunctive, while in (76b) there is a negative verb, i.e 'dudaba'. As the indices show, coreference with the matrix subject is allowed in either case. These data appear problematic, since we would expect that the formation of a dependency from the matrix operator to the embedded subjunctive I would induce disjoint reference for the reasons provided with respect to the example in (69a) above, contrary to fact.

Kempchinsky (1986) argues that the different pattern attested between sentences like the one in (69a) where there is a volitional predicate and the one in (76a), where there is a sentential operator, reduces to the presence vs. absence of selection by the matrix V respectively. The reason for this distinction is that verbs take arguments and can thererfore have a Complete Functional Complex (CFC) in the sense of Chomsky (1986b). Sentential operators on the other hand, do not have CFC. Coindexation with the matrix V under selection will ultimately result in coindexation with the matrix I since IP is the CFC of the verb. However, coindexation between the sentential operator and the embedded I does not have such effects because operators do not have a CFC. In other words, the distinction is drawn on the basis of lexicalised vs. non-lexicalised operators. Note though that this approach still leaves the data in (76b) where there is a negative verb unaccounted for. If negative verbs embed a negative operator which licenses the subjunctive we would expect to find the same effect as with volitionals, namely obligatory disjoint reference. However, coreference is possible according to Kempchinsky (op. cit.). So the only possibility is to assume that there is some sort of lexical decomposition at some level, so that negation which is realised as part of the verb attains the status of a sentential

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operator, in a way similar to (76a). This is not an adequate account though, because one could claim that the same happens with volitionals for examples, which also embed a modal operator. So if the operator acquires (at the relevant level of representation) sentential status, we would expect coreference to be possible, leaving therefore the ungrammaticality of (69a) above unexplained.

Let us first consider the example in (76b) which involves a negative verb and assume along with Kempchinsky (1986) that the subjunctive that appears with verbs like 'dudar' (to doubt), 'negar' (to deny) and 'ignorar' (to ignore) in Spanish is indeed due to the fact that these verbs are inherently negative. Moreover, I will assume, following Laka (1990), that negative verbs involve the presence of a negative feature in the embedded C, as illustrated in (77) below, where [+N] indicates the negative feature:

(77) $[..[_{VP} [_V$ dudaba$]$ $[_{CP} [_{C[+N]}$que$]$ $[_{IP}$ pro...$]]]$

A negative C then has the properties of a sentential operator. If this assumption is correct, then we expect that it will block adjunct extraction, as is indeed the case (from Kempchinsky (op. cit.):

(78)   *Por que$_i$ duda ese geologo que murieron los dinosaurios t$_i$?
            "*Why$_i$ does the geologist doubt that the dinosaurs died t$_i$?"

The ungrammaticality of (78) indicates that the embedded clause is an island for adjunct extraction, in a way similar to *wh*-islands. Leaving technical details aside, it suffices for present purposes to say that the (head) operator in the embedded C blocks binding of the adjunct variable by the operator in the matrix spec,CP, hence the ungrammaticality (see chapter 3 for a more technical discussion with respect to factive islands).

Furthermore, a negative C can license a polarity item (PI) in the embedded clause, as in (79):

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(79)   Dudo que ella haya dicho nada de interes.
             "I doubt that she has said anything interesting."

The licensing of the PI in (79) follows from Laka's (1990) analysis in that it
is attributed to the properties of the embedded C. As Kempchinsky (op. cit.)
points out in a footnote, these verbs cannot license a Polarity item within
their own clause, as the ungrammaticality of (80) indicates:

(80)   *Dudo nada de lo que me ha dicho.
             "I doubt anything/nothing that she has told me."

In that respect the Spanish data resemble their English counterparts in (81):

(81)   a.   *She denied anything.

       b.   She denied that she stole anything.

It is then the presence of a negative feature on C in the syntax which
licenses the PI in the embedded clause in (81b), exactly as in the Spanish
(79) (cf. Laka 1990).

In this light let us now consider the coreference facts in (76b). Recall
that a subjunctive is triggered by the presence of an operator. According to
what was said so far, when the matrix predicate is a negative V, the relevant
operator is syntactically realised in the form of a negative feature on the
embedded C head. It is then this C that forms a dependency with the
embedded subjunctive I, i.e (C, I). In other words, the (Op,...,I) dependency
is restricted within the embedded clause, and does not extend to the matrix
clause. So the matrix I is not included. If this dependency defines the local
domain of the subject we notice that within the embedded clause the subject
does not have a c-commanding antecedent. Therefore it is free to corefer with
the matrix subject and the grammaticality of (76b) is derived. In other words
the presence of the subjunctive within an island has the effect of removing
disjoint reference.

This analysis then leaves out the data in (76a) where the negative operator is in the matrix clause. The dependency linking the embedded I and the matrix operator would also include the matrix I, giving rise to disjoint reference, contrary to fact once more. Note though that we could tentatively suggest that the negation in this case does not have matrix scope, but is interpreted as some sort of a constituent negation instead, giving rise to the following reading: "Louisa believes that not she understands the problem". If this is correct, then the dependency does not include the matrix I and coreference is possible for the reasons outlined above with respect to negative verbs. Alternatively we could assume that these constructions involve neg-lowering, in a way similar to the English examples in (82):

(82) a.   I don't believe that she left.
      b.   I believe that she didn't leave.

(82a) can be interpreted as in (82b) where the negation has narrow scope. Once again if the Spanish sentence in (76a) involves neg-lowering, then the dependency is restricted within the embedded clause. Therefore the embedded subject is allowed to corefer with the matrix subject. The alternatives outlined so far should be considered as tentative solutions, the reason being that the data themselves are not clear enough. The crucial point though is that under this account we do not have to assume as in Kempchinsky (1986) that there is a difference with respect to subject obviation according to the presence of a lexicalised or of a non-lexicalised operator. The possibility of coreference in the Spanish examples in (76) is therefore attributed to the formation of an (Op,..,T) dependency restricted within the embedded clause, so that the matrix I is not included.

To summarise, in the last two sections it has been argued that the Romance and Balkan languages represent the two values of a parameter associated with the interaction of the subjunctive with pronominals. The parameter has been essentially reduced to the presence vs. absence of an

overt C. In the Romance languages the presence of an expletive C requires that the subjunctive dependency extend to the matrix clause, so that it ends up taking along the matrix I. Consequently coreference is excluded. In the Balkan languages, on the other hand, I-to-C movement may take place. This allows for the formation of two sub-dependencies: one from the embedded C to the matrix I and the other starting from the embedded I to C. Thus the presence of the subject inside the lower dependency allows for coreference with the matrix subject. The possibility of coreference in certain Romance constructions is attributed to the presence of the subjunctive inside an island, so that the subjunctive dependency is restricted within the embedded clause and therefore does not force disjoint reference.

7. Conclusions

To conclude, in the present chapter I have discussed the relationship of the C position with the subjunctive I. I have argued that in MG subjunctive complements the na+V complex moves to C (an instance of I-to-C movement) under the operation of the principle of FI. I have also assumed, following Kempchinsky (1986) that subjunctive complements do not have an anaphoric tense, since a tense dependency between the embedded and matrix I is independently required in complement clauses (Enç 1987). The subjunctive/indicative distinction, on the other hand, was drawn along the lines of Manzini (1994b) where it is argued that a subjunctive T is an indefinite variable bound by a sentential operator. The applicability of this analysis has been successfully extended to the MG data. With respect to the presence of the subjunctive with epistemic verbs, I have argued that this is expected since in this case the matrix V is implicitly modal (cf. Veloudis 1985). The possibility of independent time reference in the subjunctive complement with epistemic modals and epistemic verbs was attributed to the fact that the matrix Tense is an expletive element. Finally, as far as the

phenomenon of disjoint reference is concerned, I have argued that it is forced in the Romance subjunctives due to the presence of an expletive C in the embedded clause. The possibility of coreference in the Balkan subjunctives, on the other hand, was attributed to the availability of I-to-C movement. The cases where coreference is possible in the Romance languages received an independent explanation.

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