Selecting complementizers

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Abstract

The present article considers complementizers in their dual capacity of being selected by a matrix predicate and of selecting a clause. With respect to the first point, selection may also be satisfied non-locally by some other element in the matrix clause, such as negation, question or tense/modality. Based on data from Modern Greek (MG) and English, it is shown that both local (by the predicate) and non-local (by another head) selection is best understood once we consider the lexical properties of the complementizers involved. Following Manzini & Savoia (2007a, b) on Romance, it is argued that MG (and English) complementizers are nominal elements of different sorts (indefinites, polarity items or definites) whose distribution and interpretation is determined accordingly. With respect to the second point, it is argued that complementizers like MG *oti/pu* 'that' or *an* ('if') merge outside the embedded clause and operate over (a) proposition(s), while *na* (and English *to*) merges inside its own clause, leaving the proposition open and interacting with control and raising phenomena. This approach has implications for the role of interpretable features and Agree in the grammar.

Keywords: complementizers, nominals, selection, (in)definites, Merge, Agree.

1. Introduction

Complement clause selection is typically realized on the lexical complementizer and/or the embedded inflection. The latter can be expressed in terms of finiteness (finite vs. non-finite forms) or mood choices (e.g. indicative vs. subjunctive). Consider the following examples from Modern Greek (MG) and their English translations:

(1)   a.   Ksero   *oti/*an* o   Janis elise   to   provlima.

           know-1s that/if the John solved-3s the problem

           "I know *that/*if* John solved the problem."

       b.   Anarotjeme *an/*oti* o   Janis elise   to   provlima.

           wonder-1s   if/that the John solved-3s the problem

           "I wonder *if/*that* John solved the problem."

c. Xerome *pu/*oti* o Janis elise   to provlima.

   am-glad that the John solved-3s the problem

   "I'm glad *that* John solved the problem."

d. Thelo *na/*oti* liso   to provlima.

   want-1s prt/that solve-1s the problem

   "I want *to/*that* (I) solve the problem"

In (1a), a verb like *ksero* (know) selects the complementizer *oti* and excludes *an*. The same holds for *that* vs. *if* in the English translation of (1a). The examples in (1b) show the reverse pattern: the interrogative verb *anarotjeme* (wonder) selects *an/if* and excludes *oti/that*. Example (1c) shows that MG distinguishes between two declarative Cs, namely *oti* and *pu*. This distinction is usually drawn along the factive vs. non-factive divide: *pu* is factive, while *oti* isn't (see Christidis 1986, Roussou 1994, Varlokosta 1994). No such distinction holds in English, as the same element, namely *that*, is used to introduce both factive (emotive) and non-factive complements. Finally in (1d), the complement clause is introduced by the element *na* while *oti* (as well as *an*) is excluded, in more or less the same way that its English counterpart is necessarily introduced by *to* and not by *that* (or *if*). Note that MG, unlike English, has finite complements only. *Na* is typically characterized as the 'subjunctive' particle followed by a fully inflected verbal form for tense, aspect and agreement. The nature of *na* as a 'subjunctive' (modal) particle or a complementizer has been a debatable issue (see Roussou 2000). It is worth mentioning that MG has no verbal subjunctive morphology; thus, the form following *na* is morphologically the indicative (see Lightfoot 1979, Tsangalidis 2002). *To*-complements, on the other hand, are characterized as 'infinitives', although English has no infinitival morphology. Strictly speaking, the verb following *to* is the bare stem; in the absence of any inflection the *to*-clause qualifies as non-finite.

Complement clause selection is not a one-to-one relation, since the same predicate may take different types of sentential complements. Consider for example the verb *ksero* (know) in (1a), which may take a complement introduced by *na* or even by *an* in contrast to (1a):

(2) a. Ksero *na* aghapao.

      know-1s prt love-1s

      "I know (how) to love."

   b. Dhen ksero *an/oti* elise   to provlima.

      not   know-1s if/that solved-3s the problem

"I don't know *if/that* he solved the problem."

c. Kseris   *an/oti* elise   to provlima?

    know-2s if/that solved-3s the problem

    "Do you know *if/that* he solved the problem?"

Two things happen when *na* is present in (2a): first, the verb *ksero* becomes associated with a dynamic modal reading, i.e. I have (acquired) the ability to do something, and second, the complement clause exhibits control. None of these two properties is available with the *oti*-complement in (1a). In this particular context then, *na* can affect not only the interpretation of the matrix verb but also that of the embedded subject. The examples in (2b-c) are interesting as they clearly contrast with (1a) where the complementizer *an* is excluded. As has already been pointed out in the literature, the embedded interrogative in this case is licensed through the presence of negation or question in the matrix clause (Adger & Quer 2001; for an early discussion, see Bresnan 1972). The examples in (2) show that a matrix predicate may either freely (cf. (1a) and (2a)) or in association with some other higher element (cf. (2b-c)) select for different types of complement clauses.

    Another interesting case arises with an epistemic verb like *pistevo* (believe). As the examples in (3) show, *pistevo* can take a complement introduced either by *oti* or *na*. Descriptively, the presence of *oti*, as opposed to *na*, implies a higher degree of certainty regarding the content of the embedded clause with respect to the matrix subject:

(3)   a.   Pistevo   *oti/na* elise   to provlima.

          believe-1s that/prt solved-3s the problem

          "I believe (/hope) that he solved the problem."

   b.   Pistepsa   *oti/*na* elise   to provlima.

          believed-1s that/prt solved-3s the problem

          "I believed that he had solved the problem."

The contrast between (3a) and (3b) shows that the choice of *na* is not without restrictions. The *na*-complement is possible to the extent that the matrix verb is in the present tense; past tense blocks *na*, leaving *oti* as the only grammatical option. That tense or modals can affect the type of the complement clause is of course not new (see Bresnan (1972: chapter 1) for English). Selection of *na* by an epistemic predicate is not free (cf. *ksero* in (2a)), but is determined by the inflectional properties (e.g. tense) of the matrix predicate.

The picture presented so far is rather indicative of the 'complexity' of clausal complementation that falls under the more general notion of selection, which has been a long-standing issue in generative grammar. For example, Bresnan (1972) argues against a transformational approach (see Rosenbaum 1967) and in favor of a phrase-structure rule of complementizer insertion. Under this approach, the type of complementizer that appears in syntax is encoded on the selectional (subcategorization) requirements of the predicate. Grimshaw (1979) argues that semantic and syntactic selection, i.e. s- and c-selection respectively, should be kept apart, since the same semantic information can be expressed differently in syntax (NP and/or CP). On the other hand, Pesetsky (1982, 1991) argues for the elimination of c-selection, on the grounds that it can be derived independently by other properties of grammar, such as Case. This brief historical excursus suffices to point out that selection is not a new problem.

The data in (1)-(3) are interesting for the interaction of syntax with the lexicon and semantics. A verb like *ksero*, for example, may appear with either *oti*, *na*, or *an*. The choice between *oti* and *na* does not seem to be restricted, although certain restrictions on the interpretation of the matrix predicate and the embedded subject arise. On the other hand, *an* is only available when matrix negation/question is present, with the apparent effect of 'suspending' the selectional requirements of *ksero*. The relevant questions then are as follows: first, how does syntax interface with the lexicon regarding clausal complementation? Second, how is non-local selection in (2b-c) and (3) formally expressed? In minimalist terms, selection is satisfied at the point of external Merge, say between matrix V and C. Since complement clause selection can be determined by some other element in a long-distance fashion, one expects that in this case it is not (external) Merge but Agree that is at stake. So the question is how Agree is implemented in this case, i.e. what features are involved and what role V plays, if any. Finally, if complement clause selection can be determined in a top-down fashion, how is it compatible with a bottom-up derivational syntactic model?

The aim of the present paper is to focus on the data in (2)-(3) (in the light of (1)) and provide an answer to the above questions by investigating the properties of the complementizers involved. Section 2 discusses embedded interrogatives under proposition-taking predicates, as in (2b-c). I assume, following Adger & Quer (2001) and Oehl (2007), that the embedded interrogative in this case involves an indefinite (polarity sensitive) element, which is nothing else but the complementizer itself (MG *an*, English *if*) (see Manzini & Savoia (2007a, b) on Romance). This is a property shared by both locally (1b) and non-locally (2b-c) selected embedded interrogatives, while their differences arise from the

element that licenses them (an interrogative verb vs. a propositional operator respectively). The parallelism between clausal and nominal complements allows us to reduce the former to the latter, by treating complementizers as nominal elements (and therefore dispensing with c-selection). Section 3 considers the alternations in (2a) and (3). The choice of *na* over *oti* is further illustrative of the position these elements occupy in the clause structure. In particular, it is argued that *oti* (but also *pu* and *an*) merges outside the embedded clause, while *na* merges inside it. The same is argued to hold for *that* (and *if*) vs. *to* in English. The idea then is that *oti* and the like take a propositional complement, while *na* and the like leave the embedded proposition open, with certain effects regarding the realization and interpretation of the embedded subject. Section 4 discusses the general implications of the current approach for clausal complementation and selection. I argue that 'top-down' switching effects are only apparent, since they are partly determined by the lexical properties of the complementizers. In this respect, the dependencies formed can be read either bottom-up or top-down, as is indeed the case in representational models. Moreover, there is no need to invoke extra features, such as abstract uninterpretable ones, in order to create a dependency (under Agree) between two lexical items. In this context, (non-) local selection can be viewed as the interpretative effect of (multiple) applications of Merge. The current approach also has implications for the architecture of the left periphery of the clause, since it is based on the idea that complementizers can merge outside the embedded clause. If this is correct, then the projection of multiple C positions will have to be determined independently of the lexical properties and presence of complementizers. Section 5 concludes the discussion.

2. Selected and unselected embedded questions

2.1 The 'interrogative' complementizer

Let us start with the complement clauses in (1b) and (2b-c), which can both be formally characterized as embedded interrogatives, on the basis that they are introduced by the complementizer *an* in MG and *if* in English (we leave aside *whether* for the time being). As already mentioned, the matrix predicate differs in each case: *anarotjeme* (wonder) in (1b) is an inherently interrogative verb, while *ksero* in (2) isn't. Furthermore, while *anarotjeme* can directly license an embedded interrogative, *ksero* can only do so provided a matrix propositional operator such as negation or question is available.

Adger & Quer (2001), discussing data of this type in English and Catalan, call the complement in (2b-c) an Unselected Embedded Question (UEQ), as opposed to the Selected Embedded Question (SEQ) in (1b). They next argue that UEQs and SEQs differ syntactically:

while the latter are simple CPs, the former are CPs dominated by a (null) D. The two structures are given in (4) below:

(4) a. (I wonder) [_CP_ if [_IP_ John solved the problem]]   SEQ
     b. (I don't know) [_DP_ D [_CP_ if [_IP_ John solved the problem]]]   UEQ

The structure in (4b) is justified on the grounds that UEQs have the semantics of polarity sensitive items: they are available with a propositional-selecting predicate like *know* to the extent that they are licensed by a matrix operator such as negation or question. This is more or less the picture found with polarity items such as *any*: "I didn't see anyone", "Did you see anyone?" vs. "*I saw anyone". The null D in (4b) then, being the equivalent of an indefinite element, turns the *if*-clause into a clausal polarity item. Adger & Quer further argue that *whether*-clauses are simple CPs, as in (5a). Thus, unlike *if*-clauses, they are not polar:

(5) a. [*whether*_+D_ C [_IP_ he was guilty]].
     b. John admitted [*whether*/**if* he was guilty].
     c. John admitted [*what* the problem was].

The different status of *whether* allows it to distribute like other wh-clauses, as shown in (5b) and (5c). Without getting into the details of their analysis, it is sufficient to note that in languages like MG, which only have the equivalent of *if* (for example both *if* and *an*, unlike *whether*, can introduce conditionals), the option in (5b) cannot arise (see the end of section 3.2 for a discussion of *whether*).

Regarding the semantics of embedded interrogatives, Adger & Quer take the rather standard view that embedded yes/no questions introduce the set of their possible (or mutually exclusive) answers (Hamblin 1973, Kartunnen 1977). Thus the *if*-clause in (6a) has the semantics given in (6b) (their (82)-(83)):

(6) a. I wonder [_α_ if the customer is drunk]
     b. [[α]] = {p, ¬p}, where p = 'the customer is drunk'

The denotation in (6b) is common to both selected and unselected embedded questions, to the extent that it is contributed by *if* (or MG *an*). The D heading the UEQ operates over a set of

propositions. Being a generalized quantifier, D (and its complement) raises at LF and adjoins to v/VP. This ensures that an individual variable is left in the complement position, consistent with the selectional properties of the matrix predicate, which is non-interrogative. Within their analysis, the semantics of selected and unselected embedded questions overlap up to the point where *if* is present, while any differences arise from further merging D in UEQs. D in combination with the matrix predicate ensures that the interpretation of the complement clause is not strictly-speaking a question.

A point of clarification is relevant here. As Adger & Quer show, not all proposition-selecting predicates allow for an UEQ in the presence of a matrix propositional operator, as the following examples show:

(7)   a.   John assumed/claimed/maintained that the customer was drunk.

       b.   *John didn't assume/claim/maintain if the customer was drunk.

According to the authors (p. 125), these predicates "signal the subject's epistemic commitment to the truth or falsity of the embedded proposition", which in Ginzburg's (1995) terms are characterized as True/False (TF) ones. On the other hand, verbs like *know* express no such commitment and are therefore compatible with a complement that introduces a set of propositions. In terms of their analysis, this kind of distinction is a lexical-semantic one. Note that the same effect is attested in MG as well. More precisely, verbs like *ipotheto* (assume), *ipostirizo* (claim) and the like cannot embed an unselected question despite the presence of a designated matrix operator, exactly as in (7b). Instead, they only take an *oti*-complement.

There are two points worth noting regarding the analysis of Adger & Quer: first, there is no difference between selected and unselected embedded questions up to the point where *if* is merged. Second, at least some complement clauses can be associated with a nominal head. This latter proposal goes back to earlier analyses that treated complementation as an instance of nominalization (see Rosenbaum (1967), and Kiparsky & Kiparsky (1971) on factives). Regarding embedded questions, the nominal/quantificational character of the *if*-complement is not inherent, but contributed by an external D-layer, which happens to be null in English but can be overt in other languages, e.g. Basque. Note though that D is required as a function of the properties of the matrix predicate and the propositional operator. In a way, the projection of D anticipates the merger of a higher element, and in this respect it brings in a look-ahead property. Recall that negation/question does not require the presence of an UEQ,

as it is equally compatible with a *that*-complement. On the other hand, the presence of an UEQ introduced by *if* requires some propositional operator to license it.

Based on similar data in German, Oehl (2007) argues against the presence of a D-layer in UEQs and in favor of a unified structure for both selected and unselected embedded questions as CPs. In his analysis, the complementizer *ob* (the equivalent of English *if,* and MG *an*) has the semantics of a non-veridical operator (in the sense of Giannakidou 1998), which leaves the embedded proposition without a truth-value. The *ob(/if/an)*-clause then introduces a disjunction (i.e. a set) of propositions, as already shown in (6b). What makes UEQs different is not inherent to their structure but stems from the selecting predicate. A proposition-taking predicate can bear a variable as part of its lexical specification. When present, this variable requires licensing by a propositional operator. Given that V forms a dependency with the embedded C as well, the dependency starting in C extends to include the matrix operator. On the other hand, in selected interrogatives, the formation of a dependency between a verb like *ask* and the embedded Q (non-veridical operator) suffices, as there is nothing special about the matrix verb that would require further licensing.

Despite differences, both approaches converge in assuming that an element like *if* or *ob* (or *an* for that matter) introduces a set of propositions, and that the particular properties of UEQs are closely related to the lexical semantics of the predicates involved. For Oehl (2007), any instances of polarity regarding the embedded interrogative involve the matrix predicate, while for Adger & Quer (2001) they are represented on the embedded clause through merger of (indefinite/polar) D.

In what follows, I will maintain the idea that embedded interrogatives have a unified structure, arguing that the complementizer *an* (and *if*) itself is a polarity item which requires the formation of a dependency with a lexical item of a certain type.

2.2. 'Interrogative' complementizers as indefinites
Suppose that any instance of indefiniteness/polarity associated with embedded interrogatives is directly attributed to the element *an* in MG or *if* in English. If this is correct, then there is no need to structurally distinguish between a selected and an unselected embedded question (in the spirit of Oehl (2007) and *pace* Adger & Quer (2001)). The differences between the two types of embedded questions will then have to be attributed to the lexical properties of the matrix predicate involved in each case. At the same time, we can maintain a parallel between indefinite nominals (and more specifically polarity ones) and their clausal counterparts (along with Adger & Quer (2001) and *pace* Oehl (2007)). The basic difference

rests on the kind of variables involved; more precisely, an indefinite nominal ranges over (a set of) individual variables, while an indefinite 'complementizer' ranges over (a set of) propositional variables.

The correlation between complementizers and nominals has already been pointed out in the literature (see Kayne (1982) for an early proposal). More recently, Manzini & Savoia (2003, 2007a, b) have argued that Romance-type complementizers are essentially nominal elements, taking the embedded clause (proposition) as their complement. For example, the Italian *che* can be construed as either a wh-phrase or a complementizer, as shown in the following examples:

(8)　　a.　*Che* fai?

　　　　　　what do-2s

　　　　　　"What are you doing?"

　　　　b.　*Che* lavoro fai?

　　　　　　what job do-2s

　　　　　　"What job do you do?"

(9)　　　　So　　*che* fai　　questo.

　　　　　　know-1s that do-2s this

　　　　　　"I know that you do this."

As a wh-phrase in (8), *che* binds an individual variable (ranging over the set of things in (8a) and over the set of jobs in (8b)). As a complementizer in (9), *che* binds a propositional variable. Manzini & Savoia (2007b), drawing on data from various Italian dialects, consider interrogative complementizers in detail and provide further evidence for their nominal character (and also how they may interact with modality, finiteness, etc.). In a similar vein, Roberts & Roussou (2003) argue that the element *that* in English can be construed as either a demonstrative or a complementizer, depending on whether it ranges over individuals or propositions. A similar proposal has been put forward by Kayne (2008) who argues that the complementizer *that* is nothing else but the relative pronoun *that*.

Suppose then that there is no categorial distinction between the complementizer and the demonstrative/relative *that* or *che*. In both cases, we are dealing with a single lexical item which has the option of taking different types of variables as its complement, with no consequences for its categorial status. If this is correct, nominal complementizers of the

above kind can project independently in the clause structure, without being the realization of a C position. According to Manzini & Savoia (2007a, b), the C head(s) is part of the extended projection of the verb, and as such can only be reserved for verbal elements; the nominal complementizer on the other hand is merged outside the embedded clause.[1]

If Romance, English/Germanic and MG complementizers at least are construed as nominal elements, then the postulation of an additional D position to render the clause they head a nominal-like constituent becomes superfluous. Going back to the embedded interrogatives, the assumption will be that the heads *if* and *an* in English and MG respectively (and presumably *ob* in German, *si* in Italian) are indefinite nominals, and more precisely polarity items. If this is correct, then both selected and unselected embedded interrogatives are embedded under a nominal head, namely the complementizer. The obvious question that arises is how the individual differences between SEQs and UEQs are captured. It is at this point that selection by the relevant predicate plays a crucial role. Recall that the two readings do not arise in isolation, but through the relation of the complement clause with the matrix predicate along with other elements, where relevant.

Consider first the case of a SEQ, as in (10a), with the structure in (10b). Some clarifications are necessary before we proceed: first, the standard assumption is that the verb in MG is in I; second, we can assume that there is a C position (as a verbal scope position) available, but strictly-speaking its presence is irrelevant at this point; finally, N simply stands for the position corresponding to the internal argument, which can be realized as a Noun or a D element (see Manzini & Savoia 2007a, b)[2]:

(10) a. Rotisa *an* efije.

    asked-1s if left-3s

    "I asked *if* he had left."

   b.

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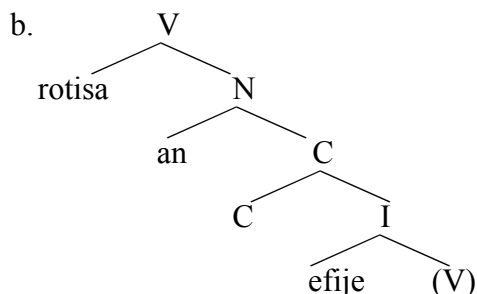
[1] Kayne (2000) makes a similar claim regarding (some) prepositional complementizers, which are taken to merge outside the embedded clause, and more precisely above the matrix V. The required word order is derived under a number of derivational steps involving massive remnant movement.

[2] We will come back to this point in section 4, where the correlation between the above structure and the articulated C periphery comes into play.

A verb like *ask* incorporates an interrogative operator as part of its lexical semantics. The binding requirement of the element *an/if* is directly satisfied at the point where it merges with the matrix verb, thus in a local fashion. Due to this dependency, the embedded clause headed by *if* is interpreted as an interrogative, in the sense that it refers to a question (Bayer 2004).

Consider next the case of a UEQ, as in (11a), with the structure given in (11b):

(11)   a.   Dhen ksero an efije.

not know-1s if left-3s

"I don't know *if* he left."

   b.   (Neg)

dhen   I

ksero   V

(ksero)   N

an   C

I

efije
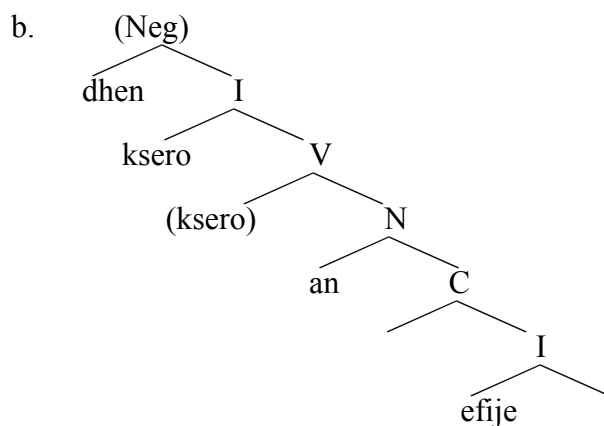
Unlike *ask, know* does not (lexically) incorporate an interrogative element. So at the point were *ksero/know* is merged, the polarity property supplied by *an/if* remains unbound. Merger of negator *dhen* at a later stage fulfils this role and the sentence is well formed. Binding in this case is satisfied non-locally. Note also that the structure in (11b) correctly ensures that there is no interrogative reading of any sort associated with the complement clause.

Given the above discussion, both selected and unselected embedded questions have the same internal structure. Their distinct properties and distribution arise from the predicate that embeds them. In this respect there is no need to postulate abstract features or layers to derive their differences. The simplest assumption is that if they look the same, then presumably they also have the same structure, and any additional differences will have to be attributed to the presence of other elements in the higher clause, which can yield different interpretations. In other words, at least in languages like MG and English the distinction between selected and unselected embedded questions is to some extent an interpretative one. The syntactic computation plays a crucial role by allowing different elements to bind the indefinite to which the complementizer corresponds under (recursive) applications of Merge.

It is interesting to mention at this point that in Romance the UEQ may be introduced by the declarative complementizer *que/che* followed by the verb in the subjunctive mood. Adger & Quer (2001) provide the following examples from Catalan and Spanish (their (104) and (105) respectively):

(12) a. Han   confessat *que* s'hagin/*s'han endut diners (o no)?
          have-3p confessed that SE.have.subj/ind-3p taken money or not

      b. Han confessat *si* s'han endut diners (o no)?
          have-3p confessed if se.have.subj-3p taken money or not
          "Did they confess if they took the money (or not)?"

(13) a. Reconocieron *que* tuvieran/tenìan las llaves (o no)?
          admitted-3p that have.subj/ind.impf-3p the keys or not

      b. Reconocieron *si* tenìan las llaves (o no)?
          admitted-3p if have.subj-3p the keys or not
          "Did they admit if they had the keys or not?"

The subjunctive in (12a) and (13a) is not available when the intended interpretation is that of a disjunction of propositions, indicated by the presence of 'or not' at the end of the sentence. Based on similar data from Italian, Manzini (2000) argues that the subjunctive in Romance has the properties of a polarity item, and as such requires licensing by a designated operator (matrix question in (12) and (13)). On these grounds, the overlap of *che*+subjunctive with *if*-clauses in the above contexts comes as no surprise, even though this overlap may not be exhaustive. If *si* is present, then polarity is represented by means of a distinct head, mainly the complementizer, in the main branch of the clause. On the other hand, if subjunctive mood is present, then polarity is represented through inflection (cf. Baker & Travis 1997), and more precisely specialized agreement on the embedded predicate. In the latter case, the relevant morpheme is realized word-internally (as part of V in I).

The complementizer *que* is not sensitive to mood selection, or to put it differently it does not have to agree with inflection in terms of mood. The dependency established between the embedded inflection and the matrix operator includes (under locality) the complementizer and the matrix predicate. The different points in the tree (as well as lexical items) where indefiniteness/polarity is realized can also predict that despite similarities, the two constructions do not (or need not) have exactly the same distribution. As Adger & Quer

(2001) observe, the availability of the subjunctive in the relevant contexts is more restricted compared to that of *si*. On the similarities side, the indefinite (polarity) property is expressed through a nominal element: either a complementizer or (specialized) pronominal agreement (i.e. the one associated with the subjunctive mood in Romance).

Before leaving this section, note that some proposition-selecting predicates may be compatible with an embedded interrogative, without the presence of a propositional operator. The following examples from Oehl (2007) (his (40)) illustrate this:

(14) a.   Most people doubt *if* there is life on Mars.
  b.   NASA forgot *if* there was life on Mars.
  c.   To many people it is all the same *if* there is life on Mars or not.
  c.   In fact, it matters *if* there is life on Mars or not.

According to Oehl, this is due to the fact that these predicates allow for their complements not to be assigned a truth-value. The same holds for MG as well. For example, verbs like *amfivalo* (doubt), *ksexno* (forget) and the periphrases *mu ine to idhjio* (it's all the same to me), and *ine simantiko* (it's important) can appear with the complementizer *an* without the need for a matrix propositional operator. Perhaps *ksexno* and its English counterpart can do so in the sense that they incorporate negation, so just like interrogative verbs which also incorporate an operator, they can license the embedded 'interrogative' due to this feature. This is not the case for the other predicates though. Assuming with Oehl (2007) that their lexical properties allow them to take a complement that corresponds to a set of propositions, we can view this licensing taking place locally as in the case of selected questions. The crucial difference though is that in the absence of any question operator as part of their lexical semantics, the complement clause cannot refer to a question, as is indeed the case. So the predicates in (14), although proposition-taking ones, have the ability to license their *if/an*-complement locally, exactly like interrogative predicates.

In short, in the present section I have considered selected and unselected embedded questions, arguing for a unified structure. Their distribution stems from the fact that they are embedded under a polarity-type element, namely *if/an*. In this configuration, the embedded clause corresponds to a set of propositions. The polarity status of the 'interrogative' complementizer is satisfied either locally or non-locally. Local selection requires an interrogative predicate, while non-local selection requires a designated propositional operator in the context of a proposition-selecting predicate.

In the next section I turn to the data in (2) and (3), showing further differences between the various complement clauses and how these are derived on the basis of the properties of the complementizers introducing them.

3. Declarative and modalized complements

3.1 The properties of 'oti' and 'pu' in relation to 'that'

The previous section focused on the complementizer *an*, and its English counterpart *if*. As shown above, a verb like *know*, which typically selects for the declarative complementizer *oti* (*that*) may also appear with *an/if*, provided a matrix propositional operator is present. Consider once again the following pair of sentences:

(15) a.   O Janis kseri *oti/*an* efighan.

the John know-3s that left-3p

"John knows that they left."

b.   O Janis dhen kseri *oti/an* efighan.

the John not know-3s if left-3p

"John doesn't know if they left."

In (15a) only *oti* is possible, while in (15b) *an* may appear as well, due to the presence of negation. Each complementizer in (15b) gives rise to a different reading: when *oti* is present, the complement clause can be factive, in which case negation cannot take scope over it, on the assumption that the truth of a factive complement is presupposed (Kiparksy & Kiparsky 1971). When *if* is present, on the other hand, there is no factive reading and negation can scope over the embedded clause.

Note that factivity in (15b) is derived as a function of the verb *ksero* (*know*) along with negation and the complementizer *oti*. Absence of negation, as in (15a), can only trigger a weak factive reading (i.e. one that can easily be denied: 'I know that he left, but this may not be the case') despite the presence of the other two elements. On the other hand, an epistemic matrix verb, like *pistevo* (believe), removes the factive reading completely, despite presence of negation and *oti*, as shown in (16):

(16) a.   O Janis dhen pistevi   *oti* i Maria efije.

the John not believe-3s that the Mary left-3s

"John doesn't believe that Mary left."

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b.   Mary left or Mary didn't leave.

Factivity in (15b) then is not attributed to the presence of *oti*, but to its combination with a particular verb along with negation (or question).

MG makes use of another declarative complementizer, namely *pu*, which is used to introduce factive complements. Consider the following example:

(17)   Thimame *oti/pu* dhjavaze poli.
        remember-1s that read-3s much
        "I remember that he used to read a lot/I remember him reading a lot."

A verb like *thimame* (remember) can take either *oti* or *pu* as its complement. A factive reading can be available with *oti* presumably due to the semantics of the matrix predicate (we remember/recall events that have somehow taken place). However, while the content of the *oti*-complement can be denied, e.g. 'I remember that he used to read a lot, but this may be a wrong recollection', no such continuation is possible when *pu* is present, without yielding a pragmatically odd output. In the context of a verb like *thimame*, the distinction between an *oti*- and a *pu*-complement can be viewed in terms of weak vs. strong presupposition respectively, in the sense of Terrell (1977). Incidentally, note that while English does not possess two different (declarative) complementizers, it can express the 'strong' presuppositional reading via an alternative construction, namely the Acc-*ing* infinitive, as shown in the English translations of (17) (see Roussou & Roberts 2001).

The three constructions above with *ksero*, *pistevo* and *thimame* show that the complementizer *oti* cannot be characterized as factive. Any factive interpretation associated with the *oti*-complement is not inherent to it, but derived as a function of the matrix verb along with *oti* and/or a propositional operator. The complementizer *pu*, on the other hand, is factive; as such it is a excluded from a non-factive context such as the one in (16), for example. The question to be answered is what sort of properties *oti* and *pu* (and their English counterpart *that*) encode. Let us start with *oti*. Recall from our discussion in the previous section that the complementizer *that* is the same element as the demonstrative, thus ranging over a propositional or individual variable respectively. While the distribution of *oti* is quite similar to that of *that*, it differs from *that* in two ways: first, it has no apparent equivalent in the nominal domain, and second, it cannot introduce relative clauses. The only possible exception seems to be the case of the free relative *oti* (neuter, 'whatever'), which in standard

spelling is orthographically distinguished from the complementizer *oti* through the presence of a comma after *o*, i.e. *o,ti*. This is meant to be consistent with its historical development out of the definite/demonstrative article *o* followed by the indefinite/interrogative pronoun *ti*, as is also the case with the complementizer *oti*. Of course, no such information is synchronically available (strictly speaking *o,ti* = 'the thing', or 'the what').[3] Despite these differences, we can assume that *oti*, just like *that*, is also a nominal element. As a complementizer it binds a propositional variable, or more precisely it ranges over a set of propositions. If this is correct, then both *that* and *oti* have properties similar to indefinites. Unlike *if* and *an* though, they lack any polarity properties and therefore their distribution is freer in this respect (cf. indefinite *something* vs. *anything*).

Despite similarities, (nominal) declarative complementizers do not have to fully overlap in terms of their feature specification. This is evident by the fact that English *that* is a demonstrative (and relative) element; Italian *che* (and French *que*) is a wh-(and relative) element, etc. Similarly, MG *pu* is a relative/interrogative adverb meaning 'where' and appears not only in complement clauses but also in relatives (like *that* and *che*) and interrogatives.[4] In standard spelling, interrogative *pu* is marked with the acute (or the circumflex in the older orthographical notation), while the complementizer and relative one bears no stress marking. However, this distinction is simply a technical device that reflects the focus reading associated with interrogative *pu*, as is the case with all wh-elements in MG. On the assumption that we are dealing with a single lexical item throughout, we can take *pu* to be a locative pronoun (see Christidis 1986), which can bind either an individual variable (*qua* a wh/relative-word) or a propositional variable (*qua* a complementizer). Perhaps its dual nature is best manifested in relative clauses, where it can appear instead of a relative pronoun, very much like English *that* (and Italian *che*):

(18) a. O fititis *pu* sinandises (ine filos mu).

　　　　 the student that met-2s　 is friend mine

　　　　 "The student that you met (is my friend)."

　　 b.　 O fititis *ton opio* sinandises (ine filos mu).

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[3] The element *hoti* in Ancient Greek had a more limited distribution as a complementizer, given that complementation was primarily expressed through non-finite forms (infinitives, participles). However, *hoti* could appear with verbs of seeing, knowing, thinking or saying (in quotations). It could also appear in elliptical constructions (e.g. answers to questions) replacing the whole embedded clause, as in *dhe:lon de hoti* = 'it is obvious that *x*', where *x* stands for the elided embedded IP (Liddell & Scott 1889/1997: 574, entry for *hoti*).

[4] *Pu* developed out of the relative adverb *(h)opou* = 'where', appearing first in relatives, causatives and temporal clauses before spreading to complementation. For a full discussion, see Nicholas (1998).

the student the whom met-2s   is friend mine

"The student who you met (is my friend)."

The complementizer *pu* and the relative pronoun *ton opio* are in complementary distribution (*ton opio pu or *pu ton opio), exactly as *that* and *which* are in Modern English. As already mentioned, the relativizing property is restricted to *pu* and excludes *oti*. Perhaps this difference has to do with the fact that *pu* can bind either an individual or a propositional variable, while *oti* is restricted to the latter. For example, in (18a) *pu* binds the individual variable which corresponds to the object gap inside the relative clause.

A further refinement regarding the properties of *pu* is required, in order to account for its specialized presence in factive complements. According to Christidis (1986), *pu* is construed as the equivalent of the definite article in the nominal system.[5] It is this property that allows *pu* to be associated with factivity. More precisely, *pu* locates the proposition it embeds to a given point of reference (temporally, causally, etc.), thus yielding the presuppositional effect associated with factive complements. If the definiteness character of *pu* is inherent to it, we expect that all *pu*-clauses carry a factive interpretation (i.e. *pu* binds a single proposition). However, not all factive complements are introduced by *pu*. As we saw above with respect to (15b) and (17), *oti* may also be present in this context (triggering weak presuppositionality); in these cases factivity is directly derived by the properties of the matrix clause. This is further supported by the data in (19) and (20). In (19), a factive predicate like *paradhexome* (admit), *antilamvanome* (realize) and the like, can only take an *oti*-complement:

(19) a.   O   Janis (dhen) paradextike *oti*   eklepse ta lefta.

          the John   not   admitted-3s that stole-3s the money

          "John admitted (/didn't admit) that he had stolen the money."

    b.   O   Janis (dhen) antilifthike *oti* tu eklepsan ta lefta.

          the John   not   realized-3s that his stole-3s the money

          "John realized (/didn't realize) that someone had stolen his money."

Pu is unavailable in these constructions, despite the factive reading involved. In (20) the alternation between *pu* and *oti* with some experiencer predicates triggers different readings:

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[5] The definiteness property of *pu* is adopted by Roussou (1994), Varlokosta (1994), and Roussou & Roberts (2001).

(20) a.   O   Janis xerete   *pu/*oti* efijes.

              the John be.glad-3s that   left-2s

              "John is glad that you came."

     b.   O   Janis anisixi   *pu/oti* efijes.

              the John worry-3s that   left-2s

              "John worries about the fact/that you left."

An experiencer predicate like *xerete* in (20a) excludes *oti*, while *anisixi* in (20b) can take either *oti* or *pu* as its complement. Crucially, in the latter case the factive reading arises only when *pu* is present: in this case, your leaving is taken for granted (background information). When *oti* is present, on the other hand, no such information is available: the worry is expressed about something that may have happened. The data in (19) and (20) then support the claim that the relation between *pu* and factivity is that of a one-way implication.

     In short, *pu* is the only definite complementizer in the system of MG complementation; *oti* is an indefinite, while *an* is a polarity element. English only has an indefinite (*that*) and a polar (*if*) complementizer, and lacks a factive/definite one. Note that the English pattern is also attested in some Northern Greek varieties which also show no distinction between a factive and a non-factive complementizer. In these grammars, *pu* is the only declarative complementizer, appearing with both factive and non-factive predicates where Standard MG has *oti* instead (see Nicholas 1998, 2001 for a thorough discussion), as well as in relative clauses:[6]

(21) a.   Pistepsane *pu* borune na iremisune.

              Believed-3p that can-3p prt calm.down-3p

              "They believed that they could calm down."

     b.   Venetsianikos tin leghane *pu* ine.

              Venetian   her tell-3p that is

              "They were telling her that it (the mirror) is Venetian."

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[6] The data below are from the Constantinople variety and are cited in Roussou (2006: 98-99).

In these varieties *oti* has become obsolete, and *pu* has the same distribution as English *that* and Italian *che*. On the basis of the preceding discussion, *pu* in this case does not have a definite feature but is a simple indefinite.

Going back to the distribution of *pu* in Standard MG, it is perhaps worth mentioning that in a rather limited way, *pu* may appear as the complement of verbs which do not otherwise select for it, provided they are focused. This is the case of the verb *ipa* 'told' or *ematha* 'learnt', in the examples below (focus indicated with small capitals):

(22) a.   Su IPA   pu efije o Janis?
           you tell-1s that left the John
           "Did I tell you that John left?"
      b.   EMATHES pu efije   o Janis?
           learn-2s that left-2s the John
           "Did you learn (hear) that John left?"

These constructions are not very productive, in the sense that they are restricted to a very small set of verbs, which not only have to be focused but also be in the past tense. Despite their limited distribution though, they are interesting because they show that in the absence of a factivity property incorporated in their lexical semantics, they can nevertheless take *pu* as their complement once focus is present. Focus has the effect of turning the complement clause to background (familiar) information (see Hegarty 1994). So in (22a-b) what is taken for granted is that John left, and the question is whether the hearer has been informed about this fact. The alternation between *pu* and *oti* in (22) is a bit reminiscent of the one between *oti* and *an* in embedded interrogatives, in the sense that an otherwise unavailable complementizer becomes available once some other element is present in the matrix clause. The relevant element in (22) is focus on the matrix predicate.[7] The definite quantification contributed by *pu* is then compatible with the presuppositional character of the complement clause, triggered by focus.

Regarding the position of *oti*, *pu*, as well as *that* in the clause structure, we can assume the schema already provided in (10a) and (11b). Following the analysis suggested for the polarity complementizers *an* and *if*, the declarative ones also merge as arguments of the main verb under the N position from where they take the embedded clause (CP/IP) as their

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[7] The tense of the matrix verb in (22) is the aorist, which is past perfective. The combination of these two properties gives rise to a specific temporal interpretation and is also found in episodic sentences.

complement. The individual differences regarding the various types of complement clauses are primarily attributed to individual lexical differences of the complementizers that introduce them. In all three cases, the embedded clause corresponds to a proposition. The indefinite complementizers operate over a set of propositions (typically represented in terms of their possible truth-values). What distinguishes *oti/that* from *an/if* is that the latter are polarity sensitive. On the other hand, the definite complementizer *pu* binds a single propositional variable (typically corresponding to a single truth-value).

Having considered the interrogative and declarative complementizers, I next turn to the discussion of the element *na*, whose status as a complementizer has been debatable.

3.2 The element 'na' in relation to 'oti' and 'pu'

Let us take a *believe*-type predicate like *pistevo* (believe) or *nomizo* (think) which can alternate between an *oti*- and a *na*-complement, as in (23):

(23) a. Pistevo/nomizo   *oti* efije   noris.
          believe-1s/think-1s that left-3s early
          "I believe/think that he left early."

      b. Pistevo   *na* efije noris.
          believe-1s prt left-3s early.

      c. *(Dhen) nomizo *na* efije   noris.
          not   think-1s prt left-3s early
          "I don't think that he left early."

      d. *Pistepsa/dhen nomisa   *na* efije   noris.
          believed-1s/not thought-1s prt left-3s early

      e. Pistepsa   *oti* efije   noris.
          believed-1s that left-3s early
          "I believed that he had left early."

The epistemic predicates *pistevo* and *nomizo* can take either an *oti*-complement, as in (23a), or a *na*-complement as in (23b-c). The *na*-complement of *nomizo* in (23c) further requires the presence of matrix negation. More restrictions apply regarding the availability of *na*: the matrix verb must be in the present tense; no such requirement holds when *oti* is selected, as the contrast between (23b) and (23e) shows. As also pointed out by Giannakidou & Quer (1997), the agreement of the matrix verb is preferably 1st person (or 2nd person, in the case of

a question, e.g. *Pistevis na efije?* = "Do you believe that he left?"). Thus the availability of *na* in the context of an epistemic predicate appears to be highly sensitive to the inflectional properties of the matrix clause.

Another interesting property of the constructions in (23b-c) is that the embedded verb can inflect for past tense. This option is generally found in matrix *na*-clauses, and also with the complements of epistemic modals, as in (24):

(24) a. Eprepe   *na* fiji.
          should-3s prt leave-3s
          "He should (was obliged to) leave."
      b. Prepi   *na* efije.
          must-3s prt left-3s
          "He must have left/It must be the case that he left."

In (24a) the modal inflects for past tense, while the embedded verb is in the present tense. The modal in this case expresses obligation (deontic modality). In (24b), on the other hand, the modal is in the present tense, while the embedded verb is in the past tense. In this case the deontic reading is blocked, and the modal is construed as an epistemic one (see also Iatridou 1990). Veloudis (1985) argues that when verbs like *pistevo* or *nomizo* take a *na*-complement, they exhibit properties of epistemic modals, allowing for their complement clause to bear independent temporal reference. This is consistent with the fact that epistemic modality expresses the speaker's attitude/evaluation of the proposition expressed by the complement clause (Palmer 1979); so, strictly-speaking it is not part of the embedded clause. In some cases, this reading is corroborated by other elements, such as negation or question, as in (23c). Roussou (1999), partly building on Iatridou (1990), argues that the dependency formed between the matrix and the embedded Tense in this case is of the expletive-associate type: the two elements are part of the same dependency, but the referential content is determined by the embedded T (the associate). Leaving the details of this analysis aside, what is worth bearing in mind is that the availability of *na* with epistemic predicates is conditioned by matrix inflection/tense (along with negation or question).

On the other hand, a predicate like *ksero* (know), and verbs of knowing in general, can take a *na*-complement without any obvious restrictions:

(25) a. O Janis kseri   *oti* tha fiji.

the John know-3s that fut. leave-3s

"John knows that he'll leave."

b.　　O　Jani kseri/iskere　　*na* dhjiavazi.

the John know/knew-3s prt read-3s

"John knows/knew (how) to read."

The verb *ksero* is compatible with either an *oti*-complement, as in (25a), or a *na*-complement as in (25b) (or an UEQ introduced by *an*; cf. (2b)). The choice between the two is rather free in this case. However, when *na* is present, *ksero* acquires a dynamic modal reading (I know how to = I'm able to) and the embedded subject is obligatorily bound by the matrix one (control). Neither of these two effects arises when *oti* is present. Control is not independent of the fact that the matrix predicate and the *na*-clause in (25b) form a single event (the event of knowing how to write; see Varlokosta 1994, Roussou 2007a, b). In other words, the *na*-complement in this case gives rise to a restructuring effect, which is most evident in the interpretation of the embedded subject.

　　Note that the typical control contexts in MG are those introduced by *na* (see Terzi 1992). However, while control requires a *na*-complement, not all *na*-complements trigger control. This is easily shown if we look at the examples in (24b-c): an epistemic predicate does not give rise to control, despite the presence of *na*. On the other hand, a verb of knowing does, as shown in (25b). This indicates that *na* creates a potential control context syntactically, but the ultimate interpretation cannot be determined independently of the lexical properties of the selecting predicate (e.g. whether some form of restructuring is possible or not). Finally, there are some verbs, like *thimame* (remember), which exhibit a mixed behavior: they may or may not trigger control when a *na*-complement is present, depending on their tense specification. Consider the following examples:

(26)　a.　　(Dhen) thimithike　　*na* klidhosi/*klidhose tin porta.

　　　　not　remembered-3s prt　lock-/locked-3s　the door.

　　　　"He remembered/didn't remember to lock the door."

　　b.　　(Dhen) thimate　　　*na*　klidhosi tin porta.

　　　　not　　remember-1s prt lock-3s　the door

　　　　"He remembers/doesn't remember to lock the door."

　　c.　　?(Dhen) thimate　　　*na* klidhose　tin porta.

　　　　　not　　remember-3s prt locked-3s the door

"He doesn't remember having locked the door."

In (26a-b) the matrix predicate may be in the present (*thimate*) or past tense (*thimithike*), while the embedded predicate is necessarily in the present tense. Matrix negation is not necessary for the licensing of the *na*-complement. The embedded subject is obligatorily bound by the matrix one; thus this configuration yields a control context. In this respect, the *na*-complement has the same effect as with the verb *know* in (25b). If, however, the embedded clause bears past tense, then control no longer arises, since the embedded subject can have disjoint reference. The presence of negation (or question for that matter) is preferred. The pattern in (26c) is like the one we get with epistemic predicates, as in (23b-c) above. Note that the different readings associated with the *na*-complement in (26) are also reflected in their English translations. For example, the control complement in (26a-b) translates as a *to*-clause, while the non-control one as an *–ing* clause. Disjoint reference in English would take the form of an Acc-*ing* construction, i.e. "He remembers *him* locking the door". The examples in (26) show that control arises as a function of the properties of the embedded clause and the matrix predicate (under its lexical properties or its syntactic modification).

The data in (23) and (25)-(26) are quite revealing regarding the complexity of complement clause selection. More precisely, the alternation between *oti* and *na* can be conditioned by properties of the matrix clause (inflection, negation or question) with concomitant effects on the temporal interpretation of the embedded clause (without affecting the subject in this case). If no such conditions hold, and the presence of *na* can be directly made available through the lexical properties of the matrix predicate, the dependency established between the verb and *na* can affect the reference of the embedded subject and tense, yielding event unification. At the same time, predicates have a variable behavior with respect to complement selection, as they may take different types of complement clauses compatible with their lexical semantics with or without the modification of some other element. Syntax plays a crucial role as it provides the means to express a range of interpretations, not encoded in the lexicon.

Having discussed the broad distributional properties of *na*-complements, the next question has to do with the lexical specification of *na* itself. More precisely, whether *na* is a nominal and where it merges in the clause structure. Both issues are important for the categorization of *na* as a complementizer or some other element. So far we have seen that *oti*, *pu* and *an* merge outside the complement clause (usually as internal arguments of the matrix

predicate). The question then is whether *na* also shares this property. Since the distribution of *na*-clauses roughly overlaps with that of *to*-clauses in English, the answer we provide for the status of *na* can turn out to extend to *to* as well.

The rather fragmentary presentation of the data so far shows that *na* has properties not shared by the declarative and interrogative complementizers. This point is also reflected in the debate regarding the nature of *na* as a mood/modal element (Philippaki-Warburton 1992, 1998, Rivero 1994) or a complementizer (Agouraki 1991, Tsoulas 1993), or both (Roussou 2000). Incidentally, the problems arising with *na* are generally attested in the other Balkan languages as well, which also lack infinitives and use what is typically characterized as a 'subjunctive' marker followed by a finite form. As already pointed out in section 1, MG has no subjunctive morphology.[8] At the same time, *na* subsumes a distribution shared partly by the Romance subjunctive and partly by the infinitive. Thus on the basis of the comparative evidence it cannot be simply characterized as a 'subjunctive' marker or an 'infinitival' marker for that matter.

In order to account for the syntactic status of *na*, let us first consider its lexical properties. The element *na* also appears in presentational contexts, as in (27):

(27)   *Na* o Janis/tos!
          prt the John/he
          "There is John! /There he is!"[9]

Na in (27) can be followed either by a full DP or a clitic. On the basis of its (synchronic) distribution, Christidis (1985, 1990) argues that presentational and subjunctive *na* are one and the same deictic element. More precisely, he argues that the 'presentational' use locates an element outside the linguistic context, while the 'subjunctive' use locates the clause with respect to the speaker, the speech time, etc., (see also Christidis & Nikiforidou 1994, Veloudis 2001). Its modal character then arises from this latter property.

Following Christidis (1985, 1990), we can treat *na* as a nominal, and more precisely as a locative head, therefore resembling English *there*. This analysis implies a departure from what has been standardly assumed, namely that *na* is a mood/modal particle. In present terms,

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[8] Some Balkan languages, for example Albanian, may show some subjunctive verbal forms especially when these are preceded by the particle *të*, which is the equivalent of *na* (Manzini & Savoia 2007a).
[9] The pronominal element in this phrase looks like a nominative (subject) clitic. MG has no subject clitcs, with the possible exception of the elements that appear in this construction, or in questions like: "pun' tos?" = "where is he?" (pun = pu +ine) (see Joseph 1994 for a discussion).

the 'mood' characteristic is only secondary and is derived from somewhere else, such as the domain where *na* merges and/or the predicate selecting it (see also Manzini & Savoia (2007a) on Albanian *të*). If modality is represented in the C system and more precisely in the lower C head (what Rizzi (1997) calls Fin), then the interaction of *na* with modality can be captured under the assumption that *na* merges in a position within the domain of the lower C, as in the following schema:

(28)   [*na* [$_C$ [$_I$ ….]]]

According to (28), *na* is not inherently modal but can interact with a modal head.

Recall that the complementizer *pu* has also been treated as a locative element, since it corresponds to the locative relative/wh-adverb 'where'. When *pu* introduces a clause it takes a proposition as its complement, thus merging outside the clause it embeds. As such it binds a propositional variable. On the other hand, if *na* relates to (the lower) C, as shown in (28), then it is part of the complement clause. The next question is whether this difference in the merging site also has implications for the kind of complement *na* takes, i.e. whether the clause it heads qualifies as a proposition or an (open) predicate. The answer to this question can come from the interaction of *na* with the embedded subject, as already seen in the case of control. Recall that control requires the presence of *na*; this means that *na* mediates the binding relation between the embedded subject and a matrix argument, provided of course it is embedded under a control-type predicate, i.e. one that allows restructuring to take place (for more details see Roussou 2007a, b).

The interaction of *na* with the subject can also be manifested in non-control contexts: when *na* is present, the lexical subject (if available) can only appear before *na* or in a post-verbal position, but not in a preverbal one, as shown below:

(29)   theli   [(o Janis) na (*o Janis) fiji   (o Janis)]
       want-1s the John prt   the John leave-3s the John
       "John wants to leave."

Note that the *na*-clause in (29) could also appear as a matrix one, with the same restrictions regarding the subject. The clause-initial position where the DP subject *o Janis* appears is identified as a topicalized or focused one (in the absence of any further information, either is possible). The post-verbal position is freely available in MG, as is typical of pro-drop

languages. The preverbal position, i.e. the one below *na*, is the one associated with the I (or T) head and corresponds to the position where the Extended Projection Principle (EPP) in its traditional sense (Chomsky 1982) is satisfied. What the pattern in (29) shows is that *na* interacts with the projection or more precisely the independent lexicalization of the EPP position (or property) in the I/T domain. Given the nominal character of *na* and its resemblance to the English *there* (cf. (27)), a possible conclusion we can draw is that the reason why *na* interacts with the EPP is because *na* itself can correspond to an EPP satisfier, and thus some form of a 'subject'. This interaction further supports the assumption that *na* merges inside and not outside the embedded clause. Just like *there*, *na* also lacks referential properties itself. In this respect, the EPP slot it corresponds to can only be the equivalent of a variable (see Manzini & Savoia (2007a) on Albanian *të*), which gets bound by a matrix argument when *na* is embedded under a control predicate, or not otherwise. Note that the referential options of *na* are always restricted by the presence of agreement in the embedded clause. For example in (29) above, the embedded verb inflects for 3rd person singular (present, perfective). The DP matches in features with the agreement realized on the embedded verb; in the particular example, the content of *na* is identified by the dependency formed between the DP and the agreement on the verb. The reference of the variable provided by *na* then is always grammatically constrained by finite inflection. If agreement in languages like MG is a mode of satisfying the EPP word-internally, the effect of *na* is to re-open this position (thus turning the proposition to a predicate). It is this property of *na* that mediates control: if the *na*-clause is embedded under a control predicate, restructuring at the interpretative component brings the variable introduced by *na* in the domain of the matrix clause where it gets bound by a matrix argument. For a more detailed discussion of control the reader is referred to Manzini (2007), Manzini & Savoia (2007a) and Roussou (2007a, b).

Before we proceed to the interaction of *na* with the other complementizers, it is worth considering the implications of the above approach for English *to*. Recall that *na*-clauses roughly have the same distribution as *to*-clauses. The element *to* is standardly characterized as the infinitival marker. English, unlike Romance or German, has no infinitival morphology; the verbal form that follows *to* is the bare stem. *To* also plays a dual role in English: it introduces complement clauses but is also a locative preposition, as in "*to the market*" or in datives, as in "John gave the book *to Mary*". In *to*-clauses, a lexical subject is possible but only in a clause-initial position, as in (30):

(30)   Mary wants [*Peter* to (**Peter*) leave (**Peter*)]

A post-verbal subject is independently excluded in English. As argued by Roberts & Roussou (2003: Chapter 3), *to*, like *na*, can also be associated with a modal reading. If this is correct, then we can assume that *to* also merges in a (nominal) position above (the lower) C. Any modal reading then contributed to the *to*-clause will be secondary and not inherent to *to*. Furthermore, *to* has the same effect as *na* regarding the projection and interpretation of the EPP in the I/T system. Lacking referential content it introduces a variable whose reference is determined either by a matrix argument (control) or arbitrarily. The crucial difference regarding the subject between *na*- and *to*-clauses is that the latter lack any finite inflection. Thus there is no morphological agreement present to grammatically constrain the referential options of the variable introduced by *to*. This goes along with the following two facts: first, control appears to be more pervasive in English than in MG (that is, less sensitive to the semantics of the selecting predicate), and second, absence of a binder gives rise to an arbitrary interpretation (e.g. in matrix *to*-clauses "To be rich!"). Once again, the discussion at this point can only be brief; for a fuller discussion the reader is referred to Roussou (2007a, 2008).

Going back to *na*, the question that arises is the following: if *na* differs from the complementizers *oti*, *pu*, and *an*, why can it not cooccur with them? In the approaches that take *na* as a mood particle (Philippaki-Warburton 1992, 1998) the incompatibility of *na* with *oti* and *an* is accounted for in terms of selectional restrictions. More precisely, the complementizers under consideration select for indicative mood, so *na* as the subjunctive morpheme is excluded. Although there may indeed be a selectional requirement, it is not so obvious that this can be described in terms of mood. First, there is no morphological indicative-subjunctive distinction in MG and *na* is not the same as subjunctive morphology. Second, the equivalent of *oti* in Romance (*che/que*) is not selective to mood (see section 2), so in principle this option is available.

Consider next an alternative way of capturing this restriction, which is based on the lexical properties of the elements under consideration. Recall that *oti*, *pu* and *an* take a proposition as their complement (varying in the types of quantification they trigger). If *na* cannot be embedded under these elements, then this may be due to the fact that the *na*-clause does not qualify as a proposition, i.e. as a clause whose EPP position has been syntactically saturated. Recall that *na* has the effect of re-opening the EPP slot, which has been otherwise saturated by agreement on the verb. As a result, the clause it heads cannot correspond to a proposition but to a predicate variable. This kind of variable then is incompatible with the

propositional variable required by the complementizers *oti*, *pu* and *an*, hence the ungrammaticality. Similar considerations can extend to the incompatibility of *that* or *if* with *to* (cf. **I think that to leave* or **I wonder if to leave*). Both *that* and *if* require a propositional variable; the *to*-clause instead corresponds to a predicate variable. Thus the *to*-clause cannot qualify as a complement to these two complementizers, and the result is ungrammatical as expected (for a discussion see Roussou (2008)).

Note that, while *pu* is incompatible with *na* in complement clauses as expected on the assumption that in this case it requires a propositional variable, it is compatible with *na* in relative clauses:

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

The presence of *na* inside a relative clause depends on a number of factors. For example, there has to be an intensional context (provided by *thelo* in (31)), the head of the relative clause has to be an indefinite, and the embedded verb must be imperfective (Veloudis 1983/1984). Leaving aside the details of these constructions, which form a topic of their own, let us focus on what makes *pu* and *na* compatible in this case. Recall that *pu* can bind either an individual or a propositional variable. In relative clauses, *pu* is associated with an individual variable, and in this respect it does not 'care' whether the complement clause is a proposition or a predicate. So *na* can be available, as long as the conditions regulating its presence are independently satisfied.

A similar effect is found with *whether* in English. While *if* can only take a finite clause (a proposition) as its complement, *whether* is indifferent to finiteness. In present terms it is equally well compatible with either a proposition or a predicate variable, as is also the case with other wh-phrases (see also section 2):

(32)   a.   John wonders *whether* he should leave.
       b.   John wonders *whether* to leave.
       c.   John wonders *what* he should do/to do.

In section 2, we saw that *whether* is not polarity sensitive like *if*. This is accounted for on the basis that *if* is an indefinite complementizer, while *whether* is a wh-phrase. The former takes

a propositional complement, while the latter is neutral to this property, and therefore can also appear with a non-finite (predicate) complement. This difference is also manifested by the fact that *if* also introduces conditionals, while *whether* doesn't. Like the other wh-phrases, *whether* requires a variable, but it does not constrain the nature of this variable (proposition vs. predicate) as long as the latter is compatible with the feature specification of the wh-phrase. This approach goes through without making any claims about the status of *whether* as a head or a specifier (cf. Kayne 1990). In fact this distinction is irrelevant in the context of the present discussion.

To summarize, in this section I have considered the distribution of the complementizers *oti* and *pu* (and English *that*) in relation to the element *na* (and English *to*). It was argued that *oti* and *pu* merge outside the embedded clause and take a propositional complement; while *oti* and *that* are indefinites and therefore range over a set of propositions, *pu* is definite and ranges over a single proposition. Unlike the previous elements, *na* merges inside the embedded clause and interacts with the embedded subject (it is an EPP satisfier and can mediate control where relevant). The alternation between *oti* and *na* was shown to depend on the lexical properties of the selecting predicate, which can be modified by some other element in the matrix clause (tense, negation or question).

4. Remarks on (non-) local selection

The discussion in the preceding sections showed that the selection of the complementizer is primarily determined by the nature of the selecting predicate, which in some cases can be further modified by some other element in the matrix clause, such as a propositional operator or tense. In particular, embedded interrogatives can appear with propositional-selecting predicates, which are compatible with a set of propositions as their complement, provided there is a propositional operator present. According to the present approach, the requirement for a designated operator in the matrix clause stems from the polarity character of the complementizer (*an/if*) that introduces the embedded clause. Declarative complements in MG can be introduced by either *oti* (an indefinite) or *pu* (a definite), depending largely on whether the selecting predicate is a factive emotive or not. Factive non-emotive predicates typically take *oti* and are associated with some notion of weak presupposition. Focus can be an additional element that satisfies the properties of the definite complementizer *pu* in those cases where the selecting predicate is clearly non-factive. Finally, an *oti*-complement may also alternate with *na* in a variety of contexts, yielding different effects depending on the selecting predicate. Predicates like *know* (and verbs of knowledge in general) can take a *na*-

complement; in this case, the combination of the lexical properties of the verb along with those of *na* give rise to a dynamic modal reading and control. Epistemic predicates, on the other hand, are very selective and can take a *na-*, as opposed to an *oti-*, complement only when they appear in the present tense (with or without a propositional operator).

The above patterns show that non-local selection is sensitive to the selecting predicate. In this respect, any association between the propositional operator or matrix tense and the complementizer necessarily involves the selecting predicate as well. So it is lexical semantics that determine what is or can be available in the first place. As Adger & Quer (2001: 125) put it, these restrictions are attributed to fine lexico-semantic properties "in much the same way as certain verbs require inanimate subjects, or edible objects". Interestingly, a subset of proposition-selecting predicates that can take an UEQ as their complement can also take a *na-* complement (verbs like *ksero* 'know', *thimame* 'remember', *vlepo* 'see', *antilamvanome* 'realize' *katalaveno* 'understand/realize', etc.). So presumably, there is a set of predicates that are compatible with any type of complement clause. Another set of predicates can only take a complement introduced by *oti* or *na*, excluding UEQs; this is the case of epistemic predicates like *pistevo* 'believe', *nomizo* 'think' and the like. And of course some predicates can only appear with a SEQ, as is the typical case of interrogative predicates, or only with a *na-* complement, as is the case with volitionals, modals, aspectuals, and most future referring predicates (see Roussou (2006) for a discussion concerning MG).

The central idea pursued in the present paper has been that complementizers in MG (but also English, Germanic and Romance in general) are nominal elements, which either appear exclusively in complement clauses or have another use as well (cf. *pu* in MG, *that* in English or *che* in Italian). Based on their distribution, they split into two categories: (a) those that directly merge as an argument of the verb and take the embedded clause as their complement, and (b) those that merge in a position (left periphery) inside the embedded clause. Category (a) includes complementizers like *oti*, *pu*, and *an* (*that* and *if* in English) Category (b) includes the element *na* (*to* in English). As already mentioned, this approach solves a number of problematic issues regarding the status of *na* as a particle or a complementizer, as well as its interaction with control (and raising) phenomena.

In some Balkan languages the clause introduced by the relevant 'mood' particle can be further embedded under a (specialized) complementizer. This is the case in Romanian and

Albanian. Consider the following Romanian examples (from Dobvovie-Sorin 2001, her (22a) and (25a) respectively):[10]

(33) a.   Vreau *ca* mâine   *să* vină   Ion.
            want-1s ca tomorrow prt come.sub-3s Ion
            "I want John to come tomorrow."
     b.   Stiu   *că* vine   Ion mâine.
            know-1s that come-3s John tomorrow
            "I know that John comes tomorrow."

The element *să* corresponds to the MG *na*. Romanian, unlike MG, though distinguishes between a 'subjunctive' complementizer *ca* and an 'indicative' one *că*. The former can embedded a *să* complement, while the latter cannot. Leaving aside the interaction of *ca* with the subject in volitional contexts at least (see Dobrovie-Sorin 2001), in present terms, *ca* just like *că* can be taken to merge outside the embedded clause, i.e. as an argument of the verb, further taking the embedded clause headed by *să* as its complement. In the absence of a mediating complementizer, *na*-complements in MG directly merge with the matrix predicate.

    It is interesting note that this approach also has implications for the articulation of the left periphery. If typical complementizers merge outside their complement clauses, then there is no complementizer position as such inside the embedded clause. The co-occurrence of a complementizer and a particle simply corresponds to two positions in different parts of the syntactic structure: outside and inside the complement clause respectively. One implication is that in a sequence of complementizers or complementizer-like elements, only one of them can merge outside the complement clause, while the rest will merge in nominal positions inside the left periphery of the complement clause. The distribution of these elements will be determined on the basis of their lexical specification. The view of the left periphery then becomes as follows: assuming that the articulated C positions of Rizzi, such as Fin and Force, are scope positions targeted by the verb (or inflection) (see Manzini & Savoia 2007a, b), complementizer-like elements (including particles) appear above or in between these two (or more) positions. The exact position depends on their lexical specification, exactly as is the case with the distribution of clitics in the C domain. This is only a suggestive approach, whose implications will have to be worked out separately. At this point it suffices to say that

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[10] For similar data in Albanian and some Southern Italian dialects see Manzini & Savoia (2007).

an alternative view of complementizers and particles can provide us with an alternative view not only of sentential complementation but of the properties of the left periphery as well.

The lexical specification of each element in category (a) or (b) also determines the interpretation of the embedded clause and its distribution with respect to the selecting predicate. As already shown, being an indefinite, *an* introduces a set of propositions. Being a polarity item it requires an operator that would license it, as is typical of polarity items. This property can be provided either directly by the lexical semantics of the selecting predicate (interrogatives) or by some other element in the matrix clause. The complementizer *oti* is also an indefinite and as such introduces a set of propositions, but is not a polarity item and therefore it does not require any further licensing. Finally, *pu*, being a definite element, introduces a single proposition. Thus although all three complementizer merge in the same position (call it N), they give rise to different syntactic and interpretative effects due to their individual lexical properties. On the other hand, *na* (also a nominal, and more precisely a locative one) occupies a different structural position, namely inside the embedded clause, affecting the lexicalization and interpretation of the embedded subject.

This alternative view of sentential complementation also has implications for the role of c-selection raised in section 1. In particular, if the complementizers under discussion are nominal elements, the distinction between CP and NP complements, formally expressed under c-selection, simply does not arise. In a way then, c-selection reduces to some notion of s-selection, as indeed argued by Pesetsky (1982, 1991), with the additional advantage that there is no need to invoke a separate mechanism such as Case to regulate the different types of complements. In this respect, the analysis proposed here is more minimalist and relates complementation types to the lexical properties of the elements that introduce them.

According to what we have said so far, selection (local or non-local) is sensitive to the feature specification of the elements involved. For example, the polarity complementizer *an* requires binding by a designated operator, which is provided either by the matrix predicate or independently. If no such element is available, the result is ungrammatical. Note that under this approach there is no need to invoke any additional features beyond the ones the lexical items already contain. More precisely, there is no need to postulate uninterpretable features, as diacritics that enforce Agree, in order to ensure that certain elements get together for the purposes of interpretation. In fact, as is shown immediately below, the postulation of such features creates unnecessary complications.

To illustrate the above point, consider again the case of an UEQ, as in (34):

(34) O   Janis *(dhen) kseri   *an* perase   tis eksetasis.

the John   not know-3s if passed-3s the exams.

"John doesn't know if he passed the exams."

Suppose, following Chomsky (2001, 2004), that uninterpretable features are indeed necessary for establishing a relation between two lexical items *α* (Probe) and *β* (Goal). In (34) the negator *dhen* is the Probe and the complementizer *an* is the Goal. Agree succeeds, provided feature matching between the uninterpretable feature of the Probe and the corresponding interpretable feature of the Goal takes place. Moreover, the Goal also needs to bear an uninterpretable feature of some sort that would make it visible for the purposes of Agree. With respect to (34), the relevant configuration would be roughly as in (35):

(35) [*dhen*$_{uF}$ [$_{I/V}$ kseri [*an*$_{iF}$/$_{uF'}$ [$_{I/V}$ perase tis eksetasis]]]]

The features *i*F and *u*F are the interpretable and uninterpretable version of F respectively, while *u*F' is the feature that makes the Goal active/visible. The obvious question that arises is what the nature of F and F' is. Consider first *u*F' of the Goal: it cannot be *u*Neg, since question and other operators also license *an* in this context. Suppose then that *u*F' is a general operator feature, namely *u*Op, which basically means that *an* needs to Agree (thus form a dependency) with a propositional operator. Consider next the nature of *u*F of the Probe, which has to match the *i*F of the Goal *an*. One option is to call it C, after the Complementizer *an*. The *u*C feature of *dhen* (Probe) matches the *i*C of *an* (Goal), which has itself become visible due to the presence of the *u*Op feature it bears, and Agree between the two elements is established. At this point, we are making use of categorial features, but the same argument could go through, even if some other features was postulated.

Although the above implementation seems to work out technically, it has a number of undesirable implications. First, negation does not only Agree with complementizers, but also with polarity items such as *kanis* (anyone). Perhaps this problem can be solved, if, following the present approach, we take the relevant feature to be N and not C, on the grounds that complementizers are also nominal. Second, the presence of a *u*N/C feature on the Probe *dhen* should be optional. For example, negation does not necessarily require the formation of a dependency (binding under Agree) with a nominal/complementizer element. This is indeed the case in simple negative clauses, as in "John did*n't* pass the exams" = "It is not the case that *John passed the exams*". Crucially then, the postulation of an uninterpretable feature on

the Probe in (35) reflects a property of the Goal. In other words, it is the Goal, which by being a polarity item, requires the presence of the relevant feature on the Probe so that the former will receive an interpretation. It thus looks as if we are dealing with an inverse Probe-Goal Agree relation: it is the lower element (Goal) that 'probes' for a higher one.

A third problem that arises in (35) involves the number of elements that enter Agree. According to this configuration, the negator *dhen* agrees with the complementizer *an*, bypassing the matrix predicate. However, as shown in the discussion in sections 2 and 3, the matrix predicate plays a crucial role, as not all predicates exhibit the same complementation properties. If this is correct then, Agree will have to take place in two steps. The first will involve the complementizer and the selecting predicate. The question that arises at this point of course is to what extent Agree is relevant in the case of first Merge. If Agree is the mechanism that satisfies interpretation, then it would have to be present in every step of Merge. Since in this particular case the matrix predicate does not directly select for an embedded interrogative, i.e. *an*, Merge does not suffice. Suppose then that V, or perhaps *v*, bears a uF that allows it to Agree with *an*. The nature of this feature can be accounted along the same lines as argued for uF on the negator, namely uN (or C). However, unless we assume that this feature is always present irrespectively of the complement clause (see Adger (2003: 83-87) on selection), the problem that arises is the following: uN/C on v/V will have to be postulated in anticipation of the relevant operator that will appear at a later stage in the derivation. If this is correct, the postulation of a feature of this sort requires a look-ahead property in the grammar. On the other hand, if selection involves Agree, more or less as in Adger (2003), then the element *an* will also have to bear an uninterpretable feature X of some sort that would activate it as a Goal. In DP complements this feature is Case; in sentential complements though the nature of this feature is not so obvious. In order to solve this problem, we are forced to invoke a feature of some sort, whose nature is not very obvious. Thus the postulation of uninterpretable features as prerequisites for Agree gives rise not only to a duplication of features, but also to *ad hoc* solutions.

Since the complementizer ultimately has to be bound by the operator, there is a second step in Agree. This step either directly involves the operator (Probe) and the complementizer (Goal) along the lines described above, or it involves the operator and the matrix predicate. Consider the following configuration:

(36)   [dhen$_{u\text{N}}$ [kseri [~~kseri~~$_{u\text{N}}$ [*an*$_{i\text{N}/u\text{X}/u\text{Op}}$ [perase tis eksetasis]]]]]

If negation Agrees directly with *an*, then we have multiple instances of Agree of the same element (*an*) with two Probes (negation and the verb). This appears to be desirable to the extent that *dhen* is the item that essentially licenses *an*, while at the same time, the predicate allows for *an* to appear in the first place. With respect to the latter, recall that depending on the lexico-semantic properties of the matrix predicates the higher operator may or may not be relevant. For example, if the matrix predicate is an interrogative like *ask*, then the presence of a higher operator becomes irrelevant for the licensing of *an*. If the matrix predicate is *know*, as in (36), then the operator is relevant. This pattern seems to indicate that the Agree relation between negation (and the operator in general) and the complementizer cannot be direct but has to take along the matrix predicate. So the multiple instances of Agree are essentially decomposed to two separate steps.

The picture that arises so far is the following: Agree is required to relate the complementizer, the predicate and the designated operator, by creating pairs of elements, along the path of successive applications of Merge, i.e. (*dhen*, V), (V, *an*). The problem that arises has to do with the postulation of uninterpretable features in order for Agree to take place. As already mentioned, this requirement brings in a look-ahead property and/or a duplication of features whose nature is not always well-defined or understood. Suppose then we only maintain the first conclusion, namely that there is an Agree relation between the operator, the predicate and the complementizer. The simplest approach would take this relation to derive directly from the interpretable features of the lexical items involved. More precisely, if *an* is a polarity item it will have to be bound by some designated operator. If this property is not satisfied locally under selection, it is done so by some other higher element, such as negation (or question, etc.). Similarly, the selecting predicate requires an internal argument of some sort (here a nominal), and depending on its lexical semantics it may or may not be restrictive to the properties of this argument (whether it is interrogative or not). Finally, negation, being an operator, binds all variables available within its scope.

According to the above, each instance of Merge satisfies interpretability, while Agree is an operation that relates to the interface, is sensitive to successive applications of Merge, and determines which features are compatible with each other for the purposes of interpretation. Keeping to our exemplary case in (35), the presence of *an* in the context of a verb like *ksero* (know) is not therefore the result of a top-down switching effect, affecting the selectional requirements of the matrix verb. Instead it stems directly from the properties of *an* as an indefinite/polarity item, which requires binding. In this respect, the dependency formed can be read both ways, i.e. bottom-up (from *an* upwards) or top-down (from *dhen* downwards).

Although this may not be a feasible result in purely derivational models, it can be achieved in representational ones.

To summarize, the discussion in the present section aimed at showing that a study of sentential complementation can have interesting implications not only for the nature of complementizers but also for the architecture of grammar, arguing against the postulation of uninterpretable features and in favor of defining Agree as an interface (and not a derivational) requirement.

5. Conclusions

In the present paper, I have considered the distribution and properties of the MG complementizers *oti*, *pu* and *an*, as well as of the 'particle' *na*. The discussion involved those constructions where the same predicate may select different types of complement clauses under certain conditions. It was then argued that we gain a better understanding of these patterns, once we focus on the lexical properties of the complementizers/particles involved. In particular, an analysis that treats them as nominal elements can offer us a better insight regarding their distribution, with implications regarding the distinction between c- and s-selection. Complementizers may differ in their inherent lexical specification as well as on the type of complements they embed (propositional or not). It was further shown that this kind of approach can provide us with a clearer picture of the data without postulating unnecessary machinery, such as uninterpretable features.

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