# Subject–verb Inversion in Greek: Implications for Head Movement and Typology[*]

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## Abstract

The empirical domain of investigation in this paper is the phenomenon of 'obligatory (subject–verb) inversion' in Greek, whereby a subject cannot intervene between a fronted interrogative phrase and the inflected verb in constituent questions. The paper examines three accounts of the phenomenon that have been proposed in the literature and provides a host of evidence against two of them, which employ T–to–C head movement. I also show

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that the third analysis (Anagnostopoulou 1994), which relies on Relativized Minimality (Rizzi 1990, 2001), is not entirely satisfactory and I propose to supplement it with a condition requiring PF (linear) adjacency between the verb group (V+clitics+preverbal particles) and the covert interrogative $C_{[+Q]}$ at PF. Having established the fact that this requirement is distinct from V–to–T verb movement I (i) argue that 'normal' head movement belongs to narrow syntax (contra Chomsky 2001), and (ii) examine the typology of inversion, by considering the similarities and differences of the Greek inverted orders to these of other languages.

Keywords: head movement, obligatory inversion, Greek, adjacency, T–to–C movement

# 1.  Introduction

In this paper, the phenomenon of *obligatory inversion* (that is, subject–verb inversion in constituent questions) will be examined in an attempt to answer the following major question:

(1)  Does Greek exhibit T–to–C movement in obligatory inversion contexts?

This is a question of importance, given the fact that the Greek verb moves at least as high as T[1] in declaratives in order to pick up (or—alternatively—check) its inflectional features, but it is questionable whether it proceeds to C in interrogatives, despite the obligatory V–S order exhibited in them.[2]

If indeed the covert interrogative complementizer in Greek is a

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[1]  In the rest of this paper I will follow Iatridou (1990), Chomsky (1995) and Spyropoulos (1999) (in the literature on Greek) in assuming an AGR-less functional hierarchy (but see Guasti & Rizzi 2002), although this assumption is not crucial to the proposals made here.

[2]  See the discussion in Theophanopoulou-Kontou (2002: 165).

bound question morpheme [Q] (see Baker 1970; Radford 1997; Roberts & Roussou 2002) that needs a host, then head movement to C should be obligatory in Greek. If, however, this is not the case, then two questions arise: (i) How is the Q element/[wh]-feature of C accommodated in Greek, and (ii) what gives rise to subject–verb inversion in interrogative contexts in Greek?

These two issues will be examined in this paper, and will prompt a re-examination of obligatory inversion in Greek and a new approach to the phenomenon, in which it will be claimed that obligatory inversion is not the effect of a single cause, but it is brought about by the interplay of two independent factors:

(2) a. the Relativized Minimality effects that left-dislocated preverbal subjects induce with respect to A'-movement, and

  b. an adjacency requirement between the clause-typing interrogative complementizer (henceforth, $C_{[+Q]}$) and the phonological phrase of the verb group).

The present analysis of obligatory inversion will have important consequences for both the status of head movement in syntactic theory and the overall typology of inversion:

The status of head movement has been a debated topic in current syntactic research (see, among many others, Chomsky 2000, 2001; Koopman & Szabolcsi 2000; Boeckx & Stjepanović 2001; Zwart 2001; Lambova 2002) with opinions divided as to whether it belongs to the narrow syntactic component or to the phonological one (PF). I assume in this paper that if two different relations of proximity holding between successive syntactic heads are distinguished, one sensitive to hierarchical relations and displaying the 'traditional' characteristics of head movement (mostly the Head Movement Constraint (HMC)), and the second being subject to constraints pertaining to linearization only, then we should attribute the former

to narrow syntax and the latter to PF. If such a distinction can be made, and it will be the aim of this paper to show that it can, then there is evidence for the existence of strictly syntactic head movement (although the existence of PF operations relating phonological phrases and—possibly—heads with each other is also evidenced).

As for the overall typology of (obligatory) subject–verb inversion, it will be noted that obligatory inversion is obtained (a) by movement of the verb to C when $C_{[+Q]}$ is a bound affix, and (b) by C-verb group adjacency when $C_{[+Q]}$ is a particle. Of course, a third option is also realized, according to which (c) $C_{[+Q]}$ is an autonomous head, i.e., an interrogative complementizer. These three options correlate with differing degrees of tolerance with respect to *wh*-verb adjacency. Violation of this adjacency gives a *-violation in the case of T–to–C movement, it gives a ?-violation in the case of linear C-verb group adjacency, and no ungrammaticality when $C_{[+Q]}$ is an autonomous head.

This paper is structured as follows. In section 2, I present the core facts of obligatory inversion in Greek and specify the three major accounts of the phenomenon that have been offered in the literature. Section 3 is an interlude introduction to clause structure in Greek that will be helpful for the rest of the discussion. Section 4 is devoted to the examination of the possible causes of obligatory inversion in Greek and the problems they exhibit. In section 5, I present the core proposal of this paper. In sections 6 and 7 the implications of the proposal for head movement and typology (respectively) are presented. Section 8 concludes the article.

## 2. Obligatory Inversion: The Descriptive Alternatives

*Obligatory* (or triggered) *inversion* (cf., Torrego 1984, Suñer

1994, Uriagereka 1999, Zubizarreta 2001 among others), is obtained in structures where a subject may not intervene between a fronted *wh*-phrase and the inflected verb in a constituent question, exemplified below:

(3) a.  I          maria          aghapai      ton   ilia.
        the        Maria.NOM  love.3SG   the   Ilias.ACC
        'Maria loves Ilias.'

   b.  Pjon           aghapai        i        maria?
       who.ACC     love.3SG      the       Maria.NOM
       'Who does Maria love?'

   c.  I          maria          pjon        aghapai?
       the        Maria.NOM  who.ACC  love.3SG
       'Who does Maria love?'

   d.  *Pjon         i          maria          aghapai?
       who.ACC    the        Maria.NOM   love.3SG
       'Who does Maria love?'

(3a) is a normal SVO declarative in Greek. After object *wh*-fronting, the subject surfaces either on the right of the verb, as in (3b), or before the preposed *wh*-element (as in (3c)[3]). The order *wh*-element–subject–verb (shown in (3d)) is ungrammatical. This is, of course, a well-known pattern in Romance, as we can see in the parallel examples (4a) to (4c):

(4) a.  Che cose   (*Maria)   ha      detto    (Maria)?
        What        Maria      has     said     Maria
        'What has Maria said?'

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[3]  In this case the subject occupies a CP-adjoined or even CP-external position. This is tolerable in Greek. Consider cases where the left-dislocated subject precedes an embedded complementizer:

 (1)  panta    pistevame    o   janis        oti   tha     ghinotan      spudheos.
      Always  believed.1PL  the  Janis.NOM  that  would  become.3SG  important
      'We always believed that John would become important.'

<div align="right">(Italian, Rizzi 1996)</div>

b. A quien    (*Juan)   visito   (Juan)?
   Who        Juan      visited  Juan
   'Whom did Juan visit?'

<div align="right">(Spanish, Ordoñez 2000)</div>

c. Qui    (*en Joan)   veu   (en Joan)?
   Who    the Joan     see   the Joan
   'Who does Joan see?'

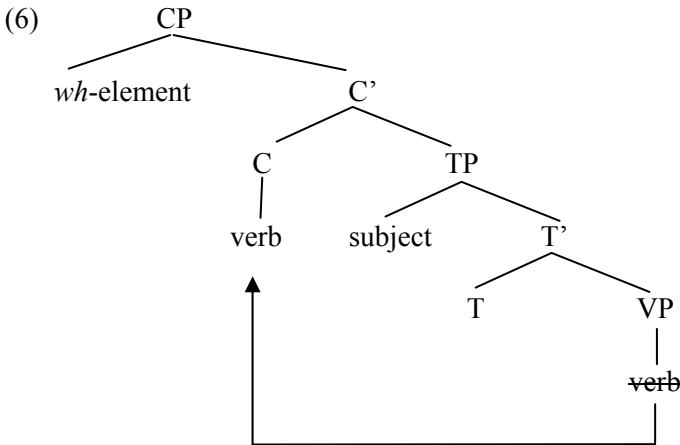<div align="right">(Catalan, Ordoñez 2000)</div>

The phenomenon is termed *obligatory inversion* in order to be distinguished from so-called *free inversion*, a term attributed to cases of optional positioning of the subject in postverbal position in declaratives of null subject languages (cf., Burzio 1986, Brandi & Cordin 1989):

(5) Aghapai    I      maria       ton    ilia.
    love.3SG   the    Maria.NOM   the    Ilias.ACC
    'Maria loves Ilias.'

I will not be concerned with free inversion in this paper; the reader is referred to rich bibliography in Greek discussing the placement of the subject in inverted declaratives (Philippaki-Warburton 1985; Alexiadou 1999, among others). I will, nevertheless, use this term in subsequent sections, where it will be proposed that obligatory inversion in Greek questions is actually a subcase of free inversion.

Let us return to obligatory inversion. As far as I know, there are three ways to explain the facts in (3-4). First of all, cases like these have been explained as a consequence of overt I–to–C (or T–to–C, in more recent terms) verb movement (Rizzi 1996). In this view, the subject occupies its canonical preverbal position ([Spec, TP] or, as we will see, [Spec, TopP] in Greek) and the verb moves past it all
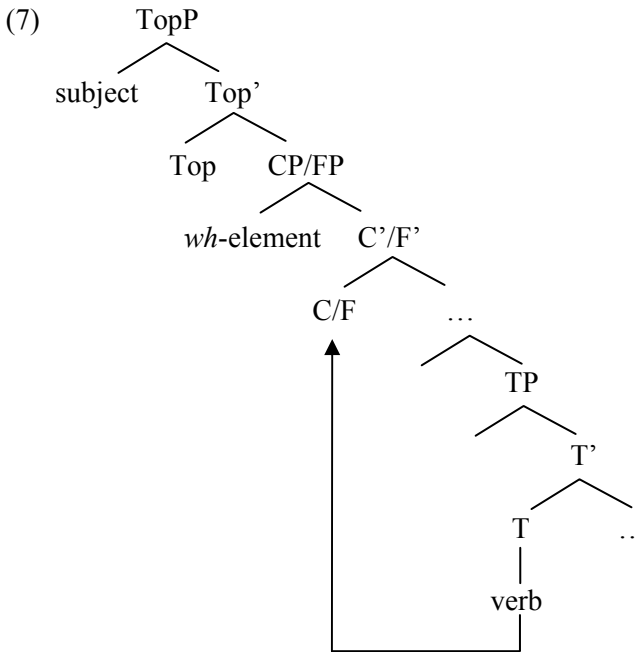
the way up to C. According to this account, obligatory inversion is akin to the verb second phenomenon of Germanic languages, which is supposed to involve fronting of a constituent to [Spec, CP] followed by T–to–C movement (den Besten 1983).[4]

(6)

```
            CP
      _____|_____
     |             |
 wh-element        C'
              _____|_____
             |           |
             C           TP
             |        ___|___
           verb      |       |
                   subject   T'
                          ___|___
                         |       |
                         T       VP
                                 |
                                verb
```

A second way to explain the facts in question might not employ subject–verb inversion at all (in the sense of actual movement of one of the two elements). This view makes use of the well-known fact that preverbal subjects in Greek (as in other languages, see Barbosa 1995) do not occupy the canonical [Spec, TP] position but are Clitic Left Dislocated Elements, i.e., elements occupying a base-generated position in the left periphery (presumably, in [Spec, TopP]). If we now assume that the projection that hosts topics is consistently situated higher than the projection that contains the question morpheme (C/F(ocus)) in Greek, then we derive the desired result: a subject can precede the wh-element or follow the verb in a
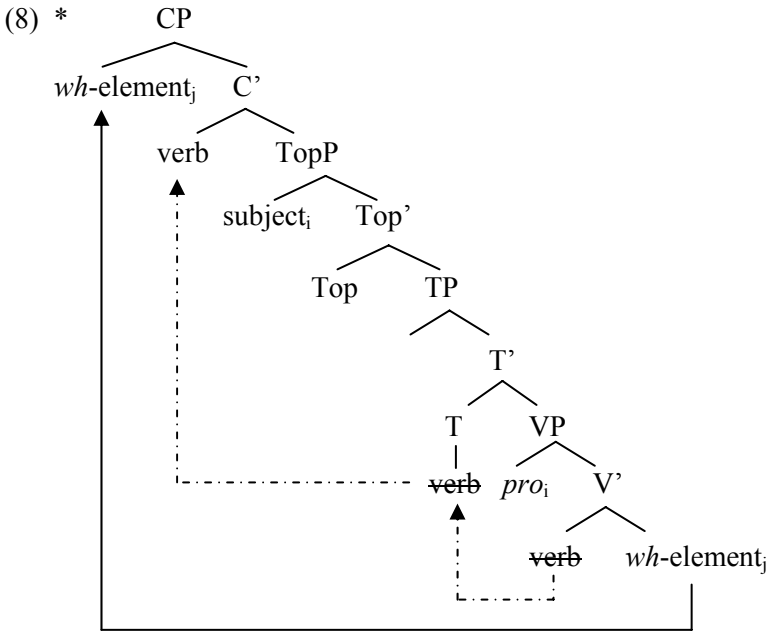
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[4] In (2) and subsequent tree-diagrams and other examples I follow the (by now standard) minimalist convention of representing silent copies ('traces') of moved elements in strikethrough font.

constituent question, but it can never intervene between them, so according to this explanation, (7) represents (3c).

(7)

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            TopP
           /    \
     subject    Top'
               /    \
            Top      CP/FP
                    /      \
              wh-element   C'/F'
                          /      \
                       C/F        …
                        ↑        /   \
                        |       TP
                        |      /   \
                        |          T'
                        |         /   \
                        |        T     …
                        |        |
                        |      verb
                        |_____|
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If we follow this alternative we might again suppose that T–to–C movement is operative in Greek. So, although the two first accounts differ in the exact positioning of the subject, they converge as to the presence of T–to–C/F movement (even if this is not a necessity but a possibility in the latter construction). A third way to account for 'obligatory inversion' does not involve verb movement to C at all. According to this explanation, 'obligatory inversion' is a sub-instance of free inversion, that is, the verb in (3b) moves as high as T only and the subject occupies its VP-internal position. What bans the sequence wh-element–subject–verb in (3d) is a prohibition on A'-movement across an A'-specifier (the left dislocated subject). So,

according to this view, the phenomenon is a case of relativized minimality violation (in the sense of Rizzi 1990), with the A'-subject prohibiting the formation of the A'-chain, as we see in (8).

(8) *



If this explanation is true, then (3c) is licit because the subject is situated in a higher projection than the one that hosts the moved *wh*-element and, therefore, it does not interfere with A'-movement. The subsequent sections will be devoted to discussion of these three alternatives. If the first or the second is correct, then Greek exhibits T–to–C alongside V–to–T head movement. In such a case (i) there is no way for us to check whether these two instances of head movement are both phonological or both syntactic, and (ii) Greek obligatory inversion is akin to 'residual verb second' in Romance, as described by Rizzi (1996).

However, I will show that an analysis endorsing T–to–C faces severe empirical defects, as observed also by Anagnostopoulou (1994), and I will partially support the third account of the phenomenon, attributing a major part of obligatory inversion phenomena to a Relativized Minimality effect. This will open up the question of what prompts and what prohibits head movement, since it will be argued that the verb cannot move any further than T in Greek due to (a) the lack of inflectional triggers and (b) the blocking effects of preverbal particles.

However, I will also depart from Anagnostopoulou's account in claiming that Relativized Minimality alone cannot capture all the peculiarities of Greek obligatory inversion which is also caused by a requirement of linear adjacency between the head containing the covert question morpheme/particle and the phonological group comprising the inflected verb and the elements phonologically attached to it (particles and clitics).

# 3. Greek Clause Structure

In this section I present some basic characteristics of clause structure in Greek that will be relevant to our discussion in the subsequent sections. As is well known, Greek is a null subject language with rich verbal inflection. Almost all possible word orders are tolerated in Greek, but the VSO and SVO are the predominant ones, with VSO being more unmarked (Philippaki-Warburton 1985) and, hence, assumed to be 'basic'. Subjects may appear on either side of the verb and, when overt, in VS(O) structures they are said to occupy their VP-internal base position. On the other hand, subjects in SV(O) structures have been shown to exhibit topic-like properties and differ in a number of crucial respects from 'legitimate' [Spec, TP] subjects of other languages. It has thus been proposed (Philippaki-Warburton 1987, Tsimpli 1990, Alexiadou & Anagnostopoulou
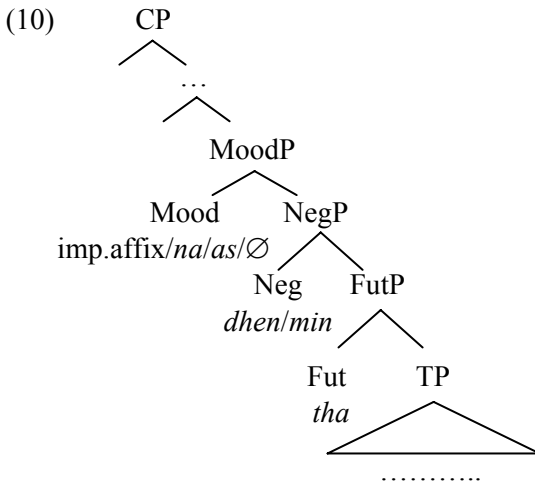
1999, Spyropoulos 1999, Spyropoulos & Philippaki-Warburton 2001) that they occupy a peripheral position ([Spec, TopP] or left-adjoined to some high functional projection) and are coindexed with an argumental *pro*.[5]

(9)  $[_{TopP}$ subject$_i$ . . . $[_{TP}$ . . . $[_{VP}$ *pro*$_i$ $[_{VP}$ . . . ]]]]

This topicalized position differs from the canonical [Spec, TP] position, among others, in the fact that it is an A'-position instead of an A-position. This fact will become relevant later on in this paper.

A further characteristic of Greek syntax that will prove useful in our discussion is the fine structure of the left periphery. Apart from the required Focus and Topic projections and the projection of the complementizer (CP), Greek is assumed to have projections that host a number of preverbal particles which end up phonologically attached to the verb stem. These are the Mood particles *na/as* (marking the subjunctive), the particles *dhen* and *min* marking negation and the future particle *tha*. Although it has been proposed that these particles are part of the verbal inflection, akin to bound morphemes by some researchers (Joseph 2002), in this article I will follow the analysis of Philippaki-Warburton & Spyropoulos (1999), who offer ample evidence for their being particles and not affixes. The structure of these particle layers, as proposed in Philippaki-Warburton (1998) is the following:

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[5]  And possibly, in Spyropoulos and Philippaki-Warburton's system also with a null subject clitic in [Spec, TP] (but see Kotzoglou 2001 for some counterarguments).

(10)

```
              CP
             /\
             ...
            /\
          MoodP
          /\
       Mood    NegP
   imp.affix/na/as/∅  /\
                  Neg    FutP
               dhen/min  /\
                      Fut    TP
                      tha   /\
                         ………..
```

If we now follow standard practice by supposing that a focus projection is situated between CP and MoodP and a Topic projection is found below the focus one, then we have the following structure:

(11)  $[_{CP} [_{FocP} [_{TopP} [_{MoodP} [_{NegP} [_{FutP} [_{TP} \ldots ]]]]]]]$[6]

What remains is a higher topic projection which will accommodate pre-complementizer topics in Greek, since topics can appear on either side of a complementizer (see also footnote 3):

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[6] See Roussou (2000) for a novel account adopting and extending proposals by Rizzi (1997) concerning the left periphery. I think that Roussou's claims are not incompatible with the core proposals put forth in the present paper since Roussou's proposal also: i) distinguishes between the particle status of mood elements such as *na* (and even *tha*, in her analysis) and the affixal imperative ending, and ii) attributes the unavailability of negative imperatives to a blocking effect of negation.

(12) Ksero     (i   matina)      oti (i   matina)
     know.3SG  the matina.NOM  that the Matina.NOM
     enthusiazete            efkola.
     grow-enthusiastic.3SG     easily
     'I know that Matina grows enthusiastic easily.'

So, it will be assumed in the rest of the paper that clause structure in Greek is as follows:

(13)  [TopP [CP [FocP [TopP [MoodP [NegP [FutP [TP . . . ]]]]]]]]

## 4. Accounts of Inversion

Let us now turn to the examination of the three accounts of obligatory inversion that I discussed in section 2. A first step would be to reduce them to two for our purposes. This move becomes almost straightforward once we take into consideration the similarities of the first two explanations of inversion presented. The first one requires movement of the *wh*-element in [Spec, CP] (or whatever the relevant position for moved *wh*-phrases is), and movement of the verb to the head of this projection. Inversion in Greek applies when the subject remains either in its base ([Spec, VP]) or its left dislocated ([Spec, TopP]) position:

(14)  [CP *wh*-element [C' verb [TopP subject . . . [TP ~~verb~~ . . . [VP subject]]]]]

So, (14) is the structure attributed to cases like (3b). Cases like (3c) can be explained in this account if we assume the existence of a pre-CP topic projection that may host 'subjects' (as in (13), cf., footnote 3).

The second way of explaining obligatory inversion effects, which I presented in section 2, resembles the first one in every

respect apart from having a topic projection lower than the landing site of the verb. That is, this position assumes that (3b) can have only the following structure:

(15)  $[_{CP}$ *wh*-element $[_{C'}$ verb $[_{TP}$ ~~verb~~ . . . $[_{VP}$ subject]]]]

In other words, proponents of this solution would claim that the projection that hosts *wh*-elements in matrix clauses is necessarily lower than the one that hosts left dislocated subjects (and, for that reason, SVO subjects).

A possible argument for the existence of a low topic projection that hosts subjects might come from the fact that complementizers in embedded questions can precede (as well as follow) SVO subjects, as we saw in (12). Moreover, as we shall see below, preverbal subjects seem to be marginally tolerated between a fronted *wh*-element and the inflected verb if the fronted element is an adjunct:

(16) ?Pote   o   pantelis       kerdhise    to   propo?
     when   the   Pantelis.NOM   won.3SG   the   pools.ACC
     'When did Pantelis win the pools?'

If the account of the 'subject–above–focus/*wh'* projection (presented in (3c)) were true, then sentences like (16) would be completely ungrammatical, since the landing site of the *wh*-element should always be lower than the position of the preverbal subject. So, I conclude that this account falls short of explaining the Greek data.

## 4.1. Residual T–to–C and Verb Raising

In effect, then, I have reduced the possible explanations of obligatory inversion in Greek to two, one explaining the phenomenon as a consequence of verb movement and the spec–head relation and a second claiming that it is the intervention of the

subject in the A'-chain of the *wh*-element that creates ungrammaticality. The first analysis is directly influenced by verb second phenomena in Germanic languages, and more specifically by the work of den Besten (1983). As mentioned in section 2, this analysis maintains that the inflected verb moves from T–to–C (possibly via other intermediate head projections) and thus it remains adjacent to the *wh*-element which is fronted in [Spec, CP]. The subject remains in its derived [Spec, TP] position, as shown in (17).

(17)  $[_{CP}$ *wh*–element $[_{C'}$ verb $[\ldots [_{TP}$ subject $[_{T'}$ ~~verb~~ $[_{VP} \ldots ]]]]]]$

(see also (2))

If we wish to be in accordance with the Greek descriptive apparatus presented in the previous section, then in the above structure the position of the subject is [Spec, TopP].

(18)  $[_{CP}$ *wh*-element $[_{C'/Foc'}$ verb $[\ldots [_{TopP}$ subject $[\ldots [_{TP}$ ~~verb~~ $[_{VP} \ldots ]]]]]]]$

The essence of the argument is the same, of course under either interpretation.

Let us now see closely what would force T–to–C movement in this account. The original proposal by Rizzi relies on the postulation of a criterion, the 'so-called' *wh*-criterion, forcing the spec–head relation between an operator and the inflected verb:

(19)  *Wh*-criterion
    a. A *wh*-operator must be in a Spec–head configuration with a $[+wh]$ $X^0$.
    b. A $[+wh]$ $X^0$ must be in a Spec–head configuration with a *wh*-operator.

(Rizzi 1996: 64)

In Rizzi's account, it is assumed that the verb (more specifically,

T/I which is incorporated on the verb) has a [+*wh*] feature that needs to be checked against a raised operator. This requirement drives T–to–C movement.

However, the spec–head relation is no longer a viable theoretical tool within the minimalist program. In the more recent versions of minimalism, it is supposed that the alleged spec–head relation is actually the relation between a probe that seeks satisfaction of a certain feature and a goal that remains 'active' in the derivation and can satisfy the feature of the probe. Movement of the goal to the Spec of the probe is not triggered by any specific 'Spec–head' requirement, but by the presence of an EPP- (or, more recently Chomsky 2004, OCC-(urence)) feature on the probe. So, let us suppose that interrogative C contains (either intrinsically of via T–to–C) an uninterpretable *wh*-feature (*u*wh) that needs to be eliminated by Spell-Out and it also has an EPP-feature. Then it probes for a phrase that contains an interpretable *wh*-feature. By long-distance Agree, the *wh*-feature of the probe is satisfied and subsequently the *wh*-phrase becomes a Spec of the probing head ([Spec, CP]) because of the EPP-feature. This explains the second clause of the *wh*-criterion (19b) in minimalist terms.

However, (19a) remains unaccounted for, because this clause requires of the moved *wh*-element to act as a probe and trigger T–to–C.[7] Such a situation is theoretically untenable within minimalism since (a) once movement to Spec, CP has taken place narrow syntactic movement to C is countercyclic, (b) movement after a probe-goal relation is triggered by an EPP-feature; we cannot assume that such a feature is present on the moved *wh*-phrase (and if it were it would be strange if it could target heads and move them to its right).

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[7] Recall that for Rizzi the *wh*-feature on the verb is generated on T (I, in Rizzi's system) rather than C. If it were on C, T–to–C movement would not be motivated in (17).

So, following Rizzi's system has brought us to a difficult situation. An [*u*wh] feature on C is required so that it can trigger the *wh*-dependency (and, via EPP, the *wh*-movement), but (i) if this feature is on C then it cannot trigger T–to–C movement, (ii) if it is on T, then there is no theoretically satisfactory way within the minimalist program for us to account for T–to–C either, since this feature is the one that triggers *wh*-movement to [Spec, CP] and it is not the case that the phrase moved to [Spec, CP] induces T–to–C so that the [*u*wh] will be brought in a Spec–head relation with it.

The theoretical solution, which is by no means novel, is to assume that T–to–C is not driven by the *wh*-criterion but by an independent requirement of the interrogative C head. Suppose, in other words, that C hosts a Q element with clause-typing properties (akin to a covert interrogative complementizer) and that this element is also a bound morpheme.[8] Then, T–to–C movement would be triggered by the need of this morpheme to be accommodated, in the same way that Tense, Agreement, Aspect and other morphemes trigger head movement. The existence of a Q element is obvious in languages where it is overt like Japanese (although in these languages Q is not a bound morpheme, but an autonomous head). We might then assume for the time being (seeking to 'save' the T–to–C account) that the interrogative C head in Greek might contain a [Q] morpheme and it also comes with two kinds of features: [*u*wh] and [EPP]. The Q needs to a host (as a bound morpheme), while the [*u*wh]-feature probes the first available *wh*-phrase in its domain and EPP$_C$ triggers pied-piping of the *wh*-phrase to [Spec, CP].[9] This account might explain the data in (2).

However, a number of complications arise once we consider the

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[8]   As in Baker (1970), Radford (1997), Roberts & Roussou (2002).
[9]   I am setting aside the possibility that head movement might work in an EPP-triggered fashion as well (in other words, that C might have another EPP-feature triggering verb movement, as in Matushansky 2006). Even if this is so, the argumentation put forth here is not affected.

case more closely. First of all, as observed by Anagnostopoulou (1994), there is a contrast between the ungrammatical sentence in (3d) and the considerably better (20), where the *wh*-element that is fronted is D-linked (in the sense of Pesetsky 1987).

(20) ?Pjon        apo  tus    filus          su
     which.ACC  of   the    friends.ACC  your.GEN
     o    nikos        dhen   kalese        sto   parti?
     the  Nick.NOM  NEG    invited.3SG   at    party.ACC
     'Which of your friends didn't Nick invite at the party?'

If we assume that the ungrammaticality of (3d) is caused by the local relation between [Spec, CP] and the head C, where T has raised, then we are left with no place to accommodate the subject in (20), which is a sentence considerably better than (3d). What is more, we do not seem to have an explanation for the contrast between the two judgments (* vs ?) holding in the case of non-D-linked versus D-linked *wh*-elements. Thus, the 'residual verb second' account faces problems.

A second complication concerns the pattern of embedded frontings. Unlike V2 in the Germanic languages, which show a root/nonroot asymmetry with respect to T–to–C, Greek shows obligatory inversion even in embedded contexts, as we see in (21):

(21) a. Dhen  ksero       pjon         skeftete       i
       NEG  know.1SG   whom.ACC   thinks.3SG   the
       roksani.
       Roxanne.NOM
   b. *Dhen  ksero        pjon         i     roksani
       NEG   know.1SG   whom.ACC  the   Roxanne.NOM
       skeftete.
       thinks.3SG
       'I do not know who Roxanne is thinking of.'

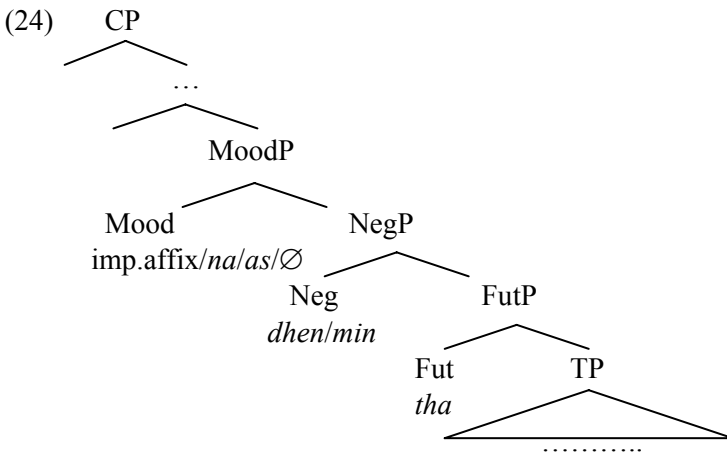In this respect, Greek obligatory inversion differs from English residual verb second:

(22) a.  *I do not know who.ACC likes Roxanne.NOM.
     b.  I do not now who.ACC Roxanne.NOM likes.

Thirdly, parentheticals can intervene between the fronted *wh*-element and the verb, as in (23), contrary to expectations.

(23) Pjon        lipon   pantreftike   i     mirsini?
     whom.ACC    well    married.3SG   the   Myrsine.NOM
     'Who did Myrsine marry?'

If we assume (with Cardinaletti 1997) that parentheticals cannot attach to an intermediate projection, then we have to admit that the *wh*-element and the verb cannot be in a Spec–head relation in the structures under consideration.

Moreover, my main objection to T–to–C in Greek is based on the order of preverbal particles in Greek. The structure I assume, as I said in section 3, is that of (24=10):

(24)      CP
          /\
         ...
        /  \
         MoodP
         /  \
     Mood     NegP
     imp.affix/*na*/*as*/∅
              /  \
          Neg     FutP
          *dhen*/*min*
                 /  \
             Fut     TP
             *tha*
                    ...........

What is interesting for our discussion is the fact that if obligatory inversion is derived by head movement to C, then the preverbal particles do not appear to block T–to–C movement. When a negated verb is questioned, or when a verb in the subjunctive mood is questioned, the relevant particles appear on its left, as in non-inverted orders:

(25) a. Pjon       [dhen tha apolisi]   o    petros?
        whom.ACC  NEG  will fire.3SG    the  Peter.NOM
        'Whom will Peter not fire?'
    b. Se    pjon       [na      dhosi]    o
        to    whom.ACC   SUBJ    give.3SG   the
        tachidhromos    to    ghrama?
        postman.NOM    the   letter.ACC
        'To whom should the postman give the letter?'

First of all, this state of affairs is strange, if we assume a theory of incorporation such as Baker's (1985, 1988) where the order of the incorporated elements is the mirror image of the order of their respective projections. In other words, if we assume a T–to–C movement account of obligatory inversion in Greek, with the verb moving head–to–head up to C, then we should expect the order of morphemes with respect to the verb stem to be a mirror order of their hierarchical projections. If this were so, then we should expect the exponents of Mood, Negation, Future to appear on the right of the verb stem.

However, the situation is completely different in the Greek 'verb group' [10]: we find some 'low' inflectional elements which are normally attached to the right of the stem (such Aspect, Tense, Agreement, etc.), and a number of preverbal elements which exhibit

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[10] I call here 'verb group' the inflected verb plus its phonological paraphernalia (particles and clitics).

a completely different behaviour, they are left attached/adjoined to the verb. If we wish to maintain the idea that I have entertained in the last couple of paragraphs, that is, that preverbal elements are also affixes picked up by verb movement, then we have to ask why they are not attached to the right of the verb stem, as low inflectional affixes do.[11] If, on the other hand, we want to give to these particles the status of autonomous preverbal heads, then we should ask why they do not induce Head Movement Constraint effects (in (25), for example) and we should also account for the fact that they end up phonologically attached to the verb. Both of these problems are avoided if we assume that T–to–C movement does not exist in Greek.

Preverbal particles lead us to a further observation concerning T–to–C. We can see in (24) that Mood (or C in Rivero 1994, 2001) accommodates the imperative suffix. Note here that in T–to–Mood movement negation does act as a blocker:

(26) a. Dhose      sto      niko          to   vivlio!
         give.2SG  to-the  Nick.ACC  the  book.ACC
         'Give the book to Nick!'

     b. *Dhose    mi      sto      niko          to      vivlio!
         give.3SG  NEG    to-the  Nick.ACC  the    book.ACC
         'Don't give the book to Nick!'

So, we are left with a puzzle. Negation seems to permit T–to–C in questions (appearing on the left of the verb), but block T–to-Mood in imperatives. If both (25) and (26) are instances of head

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[11] Of course, a strictly lexicalist approach to verb formation might be adopted with verbs fully inflected in the beginning of the derivation but, even then, the fact that (i) the way the two aforementioned domains are configurationally distinct (above and below TP) and (ii) the different placement of their exponents with respect to the verb stem cannot be accidental (see on this Philippaki-Warburton & Spyropoulos 1999).

movement, then the different patterning of NEG with respect to blocking of movement cannot find a principled explanation. On the other hand, an account that rejects T–to–C in Greek questions does not seem to face any problem with these data. Since the exponent of imperative mood in Greek is not a particle but a bound affix I assume that it triggers head movement which is subject to the HMC, whereas the non-movement T–to–C relation in (25) is not.

A further puzzle for the T–to–C account concerns the placement of pronominal clitics. These are normally proclitic with respect to the verb.

(27)  To          ksero.
      it.ACC      know.2SG
      'I know it.'

and they follow negation and the Future particle:

(28)  Dhen   tha    to      vro.
      NEG    FUT   it.ACC   find.1SG
      'I won't find it.'

Clitics are generally assumed to target either T itself or TP[12] (or a projection near it). Interestingly, clitics appear on their usual (proclitic) position in obligatory inversion contexts, a fact that indicates that they are carried along with T if we wish to maintain a T–to–C movement solution:

(29)  Poses        iposchesis       tu          edhoses?
      how-many   promises.ACC   him.GEN   gave.2SG
      'How many promises did you give to him?'

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[12] See Philippaki-Warburton et al. (2002, 2004).

On the other hand, clitics appear to the right of the verb in imperatives:

(30) a. Kita        me!
        look.3SG    me.ACC
     b. *Me         kita!
        me.ACC      look.3SG
        'Look at me!'

Again, if (the alleged) T–to–C and T–to–Mood were both instances of the same operation of head movement, we would expect clitics to pattern alike with respect to the directionality of their attachment. If cases like (30) are derived through clitic attachment on the verb and subsequent verb excorporation from the V+clitic bundle for verb movement to a higher head, then it is curious that this does not happen in (29), if (29) involves T–to–C movement.

So, evidence from the effects of D-linked *wh*-elements on the grammaticality of inversion, a well as the consideration of the distribution of particles and clitics lead us to the conclusion that obligatory inversion in Greek does not involve T–to–C movement. The subject does not occupy the left dislocated position it has in normal SVO in Greek, but rather the thematic [Spec, VP], as in 'free inversion' VSO constructions.

Therefore, no verb movement to C takes place in Greek constituent questions. The verb moves as far as T, in order to pick up the inflectional affixes and subsequent verb movement is blocked by the preverbal particles. Verb movement to Mood takes place only in imperatives, triggered by the inflectional morphology (that is, the imperative suffix). This instance of verb movement is blocked by an intervening negation head and leaves the clitic in a position to the right of the verb (I assume with Philippaki-Warburton et al. 2002, 2004 that clitics target the periphery of TP).

A possible counterexample to this proposal might be argued to

derive from the behaviour of the periphrastic verb forms in Greek. These are formed by the auxiliary verb *echo* (have) plus a non-finite perfective form of the verb:

(31)  Echo        potisi                ta     luludhja.
      have.1SG  water.1PERF.ACT  the   flowers.ACC
      'I have watered the flowers.'

In (31), it is generally assumed that the auxiliary verb moves as far as T and the main verb raises above VP, a least as far as VoiceP, through AspP (since it inflects for both). In any case, the main verb raises above the base position of the subject and lower than TP. Now, if we assume that in obligatory inversion the inflected part of the periphrastic forms stays in T, then we have a difficulty in explaining forms like (32).

(32)  Pjon              ichan       ta     pedhja
      who.ACC        had.3P1    the   children.NOM
      dhjaleksi               ja    arxigho        tus?
      chose.3PERF.ACT  for   leader.ACC    their
      'Whom had the children chosen as their leader?'

A T–to–C account seems to be supported by (32), since in this account the subject *ta pedhja* occupies its [Spec, TopP] position without problems. On the other hand our account (which argues that the inflected verb moves no higher than T in obligatory inversion) seems to face a problem in accommodating the subject. However, this is not a real problem, since the subject can intervene between auxiliary and verb in declarative instantiations of the periphrastic forms, as in (33):

(33) a. Mia fora ki   enan  kero iche    i
         one time and a      time had.3SG the
         alepu    epithimisi        ligho faghaki.
         fox.NOM desire.3PERF.ACT some  food.ACC
         'Once upon a time the fox had desired some food.'
     b. Sto    eksoteriko    echun    i   elines
         in-the abroad       have.3PL the Greeks.NOM
         simiosi                spudhees  epitichies.
         registered.3PERF.ACT great      successes.ACC
         'The Greeks have registered great successes abroad.'

It seems, therefore, that the possibility of having a subject position between T and Voice exists independently at least for a number of speakers of Greek. Therefore, the data in (32) do not provide evidence against the view that argues that the verb stays in T in obligatory inversion, in other words, they do not suggest that the aspectual verb has crossed over the position of the preverbal subject.

Let us recapitulate briefly. I argued against T–to–C movement, based on a number of diagnostics, the most prominent of which made use of the functional hierarchy between TP and CP in Greek. However, the problems I noted previously remain. If obligatory inversion in Greek is a subcase of free inversion, then why is it obligatory? I have adduced evidence that the postverbal position of the subject is the same with the one in free inversion situations, but since I have rejected T–to–C movement, we cannot explain why a subject cannot intervene between the *wh*-element and the verb.

## 4.2. Relativized Minimality

A second solution to this puzzle which has been offered in the literature hinges on the position of the preverbal subject. Anagnostopoulou (1994) notes the contrast between (3d) and (20)

that we saw before. Anagnostopoulou argues that D-linked *wh*-phrases do not trigger inversion (for her sentences like (20) are completely grammatical). This leads Anagnostopoulou to the conclusion that obligatory inversion is a consequence of the prohibition on A'-movement over an A'-specifier (as in (34), also (8)), that is, the left dislocated subject in Greek SVO (see also Zubizarreta 2001). If no movement takes place, as happens in the case of D-linked elements, Relativized Minimality is obeyed and no ungrammaticality arises.

(34)  [$_{CP}$ *wh*-element$_i$ [$_{TopP}$ subject [$_{TP}$ . . . [$_{VP}$ . . . t$_i$ ]]]]

However, there are a couple of problems with this kind of solution as well. First of all, it predicts that the sequence D-linked(*wh*)–subject–verb is completely grammatical, while it is slightly odd, according to my judgment. Moreover, it predicts that *wh*-extraction across an embedded subject should give the same ungrammaticality as *wh*-movement across a matrix subject, which is not correct. Consider (35):

(35) a. *Pjon        i      marina          thimithike?
        who.ACC   the   Marina.NOM    remembered.3SG
        'Who did Marina remember?'

    b. ?Pjon        nomize       o    Janis        oti
        who.ACC   thought.3SG  the  John.NOM    that
        i       marina            thimithike?
        the    Marina.NOM     remembered.3SG
        'Who did John think that Marina remembered?'

    c. Pjon         nomize       o    janis        oti
        who.ACC    thought.3SG  the  John.NOM    that
        thimithike            i     marina?
        remembered.3SG     the   Marina.NOM
        'Who did John think that Marina remembered?'

If obligatory inversion was a consequence of Relativized Minimality, then (35a) and (35b) should not differ with respect to the degree of ungrammaticality, since both of them involve movement over a preverbal subject (matrix in (35a), embedded in (35b)). However, this is not so. Of course (35c), with both subjects in the postverbal A-position, is grammatical. So, we are led to the conclusion that Anagnostopoulou's solution is not entirely satisfactory. Moreover, this kind of solution does not recognize the contribution of the interrogative complementizer to the problem of obligatory inversion. In other words, it explains the phenomenon as stemming from the interference of a preverbal subject with the A'-movement of a phrase. However, *wh*-movement of a phrase (or an operator) takes place also in relative clauses in Greek. In relative clauses, however, no obligatory inversion effects are observed, although the *wh*-element crosses over the A'-subject. Sentence (36a) is well-formed (or, for some speakers, slightly awkward compared with its VS equivalent), although the object *wh*-element crosses over the subject, see (36b).

(36) a. O      petros       thimate       ekina
       the   Peter.NOM   remember.3SG   those.ACC
       [ta opia      i    gonis          tu    ksechnun].
       the which.ACC the  parents.NOM   his   forget.3PL
       'Peter remembers the things that his parents forget.'
    b. O petros thimate ekina [ta opia i gonis tu ksechnun ~~ta opia~~].

I conclude that the 'Relativized Minimality account' provides a good explanation of some aspects of obligatory inversion, but it also fails to account for:

(37) a. the asymmetry between fronting of a *wh*-element over a matrix preverbal subject and fronting of a *wh*-element

over an embedded preverbal subject, and

b. the lack of 'obligatory inversion' effects in relative clauses.

# 5. Proposal

## 5.1. Obligatory Inversion as the Effect of Two Factors— The role of C$_{[+Q]}$

Let us take the two problems just noted as a point of departure for our proposal. Point (37b) cannot receive an explanation couched in the nature of either the *wh*-elements participating in A'-movement in interrogative and relative constructions, or of the blocking effect of preverbal topics (at least not totally), since it is generally assumed (cf., Chomsky 1977) that the same kind of A'-movement takes place in both relatives and interrogatives. So, the absence of obligatory inversion effects in relativization leads us to the conclusion that obligatory inversion effects have to do (at least partially) with the properties of the (covert) interrogative complementizer, which is not present, of course, in relative clauses.

A similar conclusion can be drawn from the data in (35), that is, the asymmetry (37a). Let us repeat (35a-35b) as (38a-38b) and add (38c-38d) to the picture:

(38) a. *Pjon       i     marina          thimithike?
       who.ACC  the   Marina.NOM    remembered.3SG
       'Who did Marina remember?'

   b. ?Pjon       nomize      o    janis        oti
       who.ACC   thought.3SG the  John.NOM   that
       i      marina           thimithike?
       the    Marina.NOM   remembered.3SG
       'Who did John think that Marina remembered?'

   c. *O    janis        rotise        pjon
      the    John.NOM    asked.3SG    who.ACC
      i     marina        thimithike.
      the    Marina.NOM   remembered.3SG
      'John asked who Marina remembered.'

   d. O    janis        rotise        pjon
      the    John.NOM    asked.3SG    who.ACC
      thimithike        i     marina.
      remembered.3SG   the   Marina.NOM
      'John asked who Marina remembered.'

The generalization that emerges from data (38a-38d) is that fronting of a *wh*-element across another *wh*-element is bad (38a-38c), but it is considerably worse if the preverbal subject that induces the Relativized Minimality effects belongs to an interrogative clause (i.e., to the clause where the *wh*-element lands, examples (38a) and (38c)), than if the preverbal subject belongs to a declarative clause (out of which the *wh*-element raises, example (38b)). It seems, then, that the left dislocated subject both induces the alleged Relativized Minimality effect (which I regard as a weak ungrammaticality (question mark-?) effect) and somehow produces a strong ungrammaticality effect when found in interrogative clauses, that is, clauses with a [+Q] Complementizer ($C_{[+Q]}$).

Let us, therefore, accept as a working hypothesis that (i) Relativized Minimality effects and (ii) the presence of a left dislocated element after the covert clause typing $C_{[+Q]}$ are the two causes of the effect of obligatory inversion. The former is well known since Rizzi (1990) and, in the case of movement of arguments over other *wh*-material, it gives rise to weak ungrammaticality effects, since arguments are theta-marked.[13] As

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[13] In GB terms, movement of an argumental *wh*-element over another A'-element produces weak ungrammaticality, since it is a subjacency violation but not an ECP violation.

for the latter, there is no other obvious way for us to interpret it than as a requirement of the C head to be adjacent to the clausal heads it dominates (that is, the heads of the functional hierarchy presented in (10)). An obvious way to formulate this would be to capitalize on the T–to–C relation, even without movement, but this would not do for our purposes. I noted in previous sections that preverbal elements host their own projections between C and T and are able to induce HMC effects, so they should act as blockers of a narrow-syntactic T–to–C relation. On the other hand, the preverbal particles (and the clitics) attach onto the verb stem phonologically, that is, I assume, at PF. I claim, thus, that the requirement of adjacency does not hold between the clause-typing $C_{[+Q]}$ and T, but between $C_{[+Q]}$ and the rest of the verb group as a phonologically collapsed whole.

This proposal, though novel, can be theoretically justified, I believe. Let us consider that functional elements, such as C, Neg, T, etc., might have three instantiations: they might be syntactically bound elements, i.e., bound affixes, such as T, Asp, Voice in Greek. If affixal, these elements require narrow syntactic head movement and fail to induce HMC effects, since they end up phonologically incorporated on the verb stem. If Baker's mirror principle holds (and there is empirical evidence that, at least for some languages, it does), then incorporated elements attach invariably to the right of the verb stem. A second option for any functional element is that of complete independence. This is the case with declarative complementizers in Greek, English, etc., and with interrogative [+Q] Complementizers in Chinese. These elements do not induce head movement, do give rise to HMC effects and need not (in fact, cannot) become phonologically attached to the verb stem at any point in the derivation. A third kind of functional elements, I assume, is that of particles. Here, I agree with Philippaki-Warburton & Spyropoulos (1999) that particles have an intermediate status between totally autonomous elements and affixes. I assume that particles in Greek are the occupants of the functional heads of Negation, Future, Mood

(apart from the affixal imperative) and $C_{[+Q]}$. I also assume that particles are autonomous heads in narrow syntax, giving rise to HMC effects (see (26b)), but they are also phonologically dependent in that they need a host at PF. So, they attach on the verb post-syntactically, their attachment being subject to a requirement of linear adjacency and not to the mirror principle.

So, I have concluded that the status of the interrogative complementizer is subject to parametric variation across languages. It might be a completely autonomous head, as in Chinese, a phonologically dependent particle, as in Greek, or even an affix, in other languages (e.g., English). I will return to this tripartite distinction in section 7. The requirement that $C_{[+Q]}$ needs to be phonologically attached in Greek might seem strange at first, given the fact that it is covert and, at first sight, it does not seem to have any phonetic content. However, I assume that it contributes to the interrogative intonation, so it really does have a phonetic effect on the sentence.[14]

## 5.2. Checking the Proposal—the Empirical Coverage

Having discussed the role of $C_{[+Q]}$, let us now turn to our proposal. In effect, this article argues that:

(39) Obligatory inversion violations in Greek are the cumulative effects of:
   a. a Relativized Minimality effect created by left dislocated preverbal subjects which block *wh*-extraction, and
   b. the requirement of linear adjacency between the non-overt interrogative complementizer particle $C_{[+Q]}$ and the rest of the verb group.

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[14] This is supported by the fact that obligatory effects are also evidenced in instances of contrastive focalization. I assume that in those cases, again, an F head which contributes bearing the strong stress needs to find a phonological host.

> I assume that each of these factors on its own gives rise to
> mild ungrammaticality (?-judgments). [15]

Proposal (39a) predicts that if (39b) is violated but no movement across a topic is evidenced (e.g., in the case of D-linked wh-phrases or in if the subject is postverbal), then the effect is weak ungrammaticality. Proposal (39b) predicts that when (39a) is violated (let's say, by *wh*-movement across the left dislocated subject of a lower, declarative clause), but the *wh*-element ends up in an interrogative clause which obeys the adjacency requirement between $C_{[+Q]}$ and the rest of the verb group, then again the effect is mild ungrammaticality. Let us now check these predictions:

Sentences which involve a moved *wh*-phrase with $C_{[+Q]}$ adjacent to the verb group (that is, the verb plus particles and clitics) without violation of Relativized Minimality (i.e., no subject interveners in any instance of *wh*-movement) are grammatical, as in (40):

(40) Pjon          idhe       o    petros?
       whom.ACC    saw.3SG    the  Peter.NOM
       'Who did Peter see?'

In this case, (39a) is satisfied because the subject *o petros* is postposed and, therefore, it does not intervene to *wh*-movement, and (39b) is satisfied since the covert $C_{[+Q]}$ following *pjon* is adjacent to the verb *idhe*.

Moreover, sentences containing involve an unmoved *wh*-phrase (in other words, directly merged in its derived position, D-linked) with $C_{[+Q]}$ adjacent to the verb group are grammatical (of course in this case the question of Relativized Minimality is irrelevant since no

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[15]   The mild ungrammaticality effect is explained in the case of (39a) (as a weak island effect, see footnote 13), but it remains unexplained as far as (39b) is concerned.

movement occurs). [16]

(41) Pjon      apo tus filus      tu idhe    o   petros?
     which.ACC of    the   friends.ACC his saw.3SG the Peter.NOM
     'Which of his friends his did Peter see?'

In this case, as well, both requirements of (39) are satisfied.

Now, sentences with a preposed unmoved(/D-linked) *wh*-phrase with $C_{[+Q]}$ non-adjacent to the verb group are deviant.

(42) ?Pjon      apo tus filus      su   o   nikos
     which.ACC of    the   friends.ACC your the Nick.NOM
     dhen kalese      sto parti?
     NEG invited.3SG at    party.ACC
     'Which of your friends didn't Nick invite at-the the party?'

In (42), requirement (39a) is satisfied, since the *wh*-phrase *pjon apo tus filus tu* is partitive, and hence D-linked, and it does not violate Relativized Minimality. (39b) is, nevertheless, violated by the intervention of the subject o nikos between $C_{[+Q]}$ and the verb group. Since only one of the two requirements of (39) is violated, mild ungrammaticality ensues.

Sentences which involve a moved *wh*-phrase with $C_{[+Q]}$ adjacent to the verb group with violation of A'-minimality (necessarily due to an embedded topicalized subject) are again slightly deviant.

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[16] I am aware that D-linking vs. non-D-linking difference has, recently, been explained not with resort to movement vs. non-movement, but as an effect of movement of an element which contains 'more functional structure' than the potential intervener in work by Rizzi (2001), Starke (2001). Nevertheless, I keep describing D-linking here in terms of lack of movement for convenience, though the current proposal fares equally well with the novel view of D-linking as well.

(43) ?Pjon      nomize      o   janis      oti
     who.ACC  thought.3SG  the  John.NOM  that
     i    marina         thimithike?
     the  Marina.NOM  remembered.3SG
     'Who did John think that Marina remembered?'

In this case, (39a) is violated, since the non-D-linked *wh*-phrase *pjon* crosses over the embedded Left Dislocated subject *i Marina*. (39b) is, however, respected, since the subject is postposed in the interrogative clause and it does not disrupt the required $C_{[+Q]}$-verb group adjacency.

Finally, sentences containing a moved *wh*-phrase with $C_{[+Q]}$ non-adjacent to the verb group with violation of Relativized Minimality are ungrammatical (this is the core case of obligatory inversion).

(44) *Pjon      I    maria         aghapai?
     who.ACC   the  Maria.NOM   love.3SG
     'Who does Maria love?'

Here, both requirements of (39) are violated. Let us summarize the results below:

(45)

|  | Minimality respected | Minimality violated |
|---|---|---|
| C-verb group adjacency | √ (40, 41) | ? (43) |
| No C-verb group adjacency | ? (42) | *(44) |

It seems, then, that the empirical data are compatible with our proposal. So, under our interpretation, the ungrammaticality judgment attributed to examples like (3d)—the classic examples of obligatory inversion—stems from the cumulative effect of two independent violations: the violation of Relativized Minimality on

the A'-movement of the *wh*-element and the violation of the PF adjacency requirement between the Q particle and the phonological word constituting the verb group.

## 5.3. Loose Ends

### 5.3.1. Fronting of Adjuncts

Let me now consider two problems that this proposal faces. The first one is shared, as far as I can tell, by all accounts of obligatory inversion. Therefore, it does not constitute evidence for or against any of the proposals concerning this phenomenon. I am referring to the fact that if the *wh*-element that is fronted is an adjunct instead of argument, then the sentence improves in grammaticality:

(46) a. *Pjon      i    sula       ghnorise sto     parti?
         whom.ACC the  Sula.NOM met.3SG  in-the  party
         'Whom did Sula meet in the party?'
     b. ?Pote i    sula       ghnorise ton  aleksandhro?
         when  the  Sula.NOM met.3SG  the  Alexander.ACC
         'When did Sula meet Alexander?'

It is difficult to explain the above contrast, since it is not obvious why fronting of an adjunct should fare better than fronting of an argument. On the contrary, fronting of an adjunct across a left dislocated subject should give even worse ungrammaticality than fronting of an argument, since—in somewhat traditional terms—adjunct extraction is not only subject to subjacency (as argument extraction is) but also to the ECP. So, whereas extraction of an argument over an A'-element (as in (39a)) gives a ?-violation, adjunct extraction should result in severe ungrammaticality as a violation of (39a) on its own (even without taking into account (39b)). In other words, Relativized Minimality effects should rule

out adjunct extraction completely, but this does not happen. Let us try to single out the reason why (46b) is not completely ungrammatical by resorting to the following contrast:

(47) a. ?Pote    i        sula          ipe        oti
        when     the     Sula.NOM    said.3SG    that
        pire       proaghoghi      o    aleksandhros?
        took.3SG  promotion.ACC  the  Alexander.NOM
        'When did Sula say that Alexander got a promotion?'
    b. Pote    ipe       i     sula         oti    o
       when    said.3SG  the   Sula.NOM    that   the
       aleksandhros       pire         proaghoghi?
       Alexander.NOM     took.3SG    promotion.ACC
       'When did Sula say that Alexander got a promotion?'
    c. Pote    ipe        i      sula         oti   pire
       when    said.3SG  the    Sula.NOM    that  took.3SG
       proaghoghi        o     aleksandhros?
       promotion.ACC    the   Alexander.NOM
       'When did Sula say that Alexander got a promotion?'
       (assuming an embedded reading of the temporal adverb
       *pote* in all three sentences)

As we see, mild ungrammaticality arises only when the $C_{[+Q]}$-verb group adjacency is interrupted, as in (47a), that is, when (39b) is violated, but not when the *wh*-element crosses over a left dislocated subject, as in (47b). So, it seems that adverbs pattern with D-linked elements in being exempt from the requirement to obey Relativized Minimality in obligatory inversion contexts.

We might then speculate that adjuncts can be directly merged in [Spec, CP] and need not be moved from their VP-internal positions, so they escape movement over left dislocated preverbal subjects (case (39a)). This might be due to the fact that adjuncts are not obligatorily selected by the verb and need not be present in the VP,

which constitutes the kernel of thematic role assignment.

However, this account, while it could explain the empirical facts presented above, is not strong enough theoretically. It is well known that adjunct extraction out of weak islands produces strong ungrammaticality in languages like English:

(48) *When did who speak?

Adjunct *wh*-phrases cannot escape strong islands in Greek:

(49) *Pote se      tromakse      to   gheghonos oti
     when  you.ACC frightened.3SG the  fact         that
     i    katerina      iche kakes parees?
     the  Katerina.NOM  had  bad   companies
     'When did the fact that Katerina had bad companies frighten you?'
     (assuming an embedded reading of the adverb *pote*)

If adjuncts could be directly merged in [Spec, CP], then we would expect (48-49) to be well-formed. So, I have to leave the issue of adjunct fronting open for future research.

## 5.3.2. The Position of Parentheticals

Let us now briefly examine another potential problem for our account. As I noted in (23), repeated here as (50), parentheticals like *lipon* can intervene between C and the verb group.

(50) Pjon         lipon pantreftike   i   mirsini?
     whom.ACC     well  married.3SG   the Myrsine.NOM
     'Who did Myrsine marry?'

The grammaticality of (50) is strange for our account, since *lipon*

seems to disrupt the required linear adjacency between $C_{[+Q]}$ and the verb group, so (50) should get a ? as a violation of (39b). At first approximation, we might argue that all accounts concerning parentheticals in syntax capitalize on their relative 'independence' from the sentence in which they occur. Parentheticals seem to be in a 'different tier' with respect to intonational properties of the sentence. It is no wonder, then, that they do not appear to disrupt the C-verb group relation. [17] However, since this explanation is somewhat speculative, let us offer yet another, more syntactic one.

The difference between (50), where a parenthetical disrupts the C-verb group sequence and (3d) where a subject does might well have to do with the different positions that the two respective elements occupy. Parentheticals are adjuncts to some maximal projection, while left dislocated subjects are specifiers of the TopP phrase. This difference explains why syntax is blind as to the presence of *lipon* in (50). If we assume with Bobaljik (1994), Chomsky (2004) that adjuncts get linearized after PF, then we can explain why they do not interfere with C-verb group adjacency.

# 6. Implications for Head Movement

Let us now turn to the theoretical implications that my proposal has for verb movement and head movement in general.

I have argued that two different operations involving heads can be evidenced in Greek, that is: successive cyclic head incorporation, evidenced in V–to–T head movement triggered by inflectional affixes, and the PF phonological merger of particle heads and clitic with the inflected V–T complex. [18] As for the latter, I have provided

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[17]   Cf., Bobaljik (1994: 11 footnote 8)

[18]   For similar conclusions, pointing towards the existence of two different mechanisms for combining heads, see also Roberts (1994), van Riemsdijk (1998), Philippaki-

evidence that it belongs to the PF component.

The question that arises concerns the placement of the former, that is, whether head movement takes place in narrow syntax or PF. Evidence for syntactic head movement would be to show that the V–to–T relation is either facilitated or blocked by structures that are present only in narrow syntax and not at PF. Similarly, evidence for the claim that head movement belongs to PF might be derived if we show that structures that are present at PF block head movement, or structures that are elided at PF facilitate its application.

In this paper, I have already argued that the blocking effects of negation on head movement constitute a clear argument for narrow syntactic head movement. Recall that the negation particles *dhen/min* induce HMC effects on T–to–Mood movement, triggered by the inflectional nature of the imperative suffix:

(51) a. Dhose      sto      niko      to   vivlio!
        give.2SG    to-the  Nick.ACC  the  book.ACC
        'Give the book to Nick!'
     b. *Dhose      mi      sto    niko      to   vivlio!
        give.3SG    NEG     to-the Nick.ACC  the  book.ACC
        'Don't give the book to Nick!'

On the other hand, the PF-relation between the $C_{[+Q]}$ and the V–T complex is not interrupted by the presence of intermediate heads, which are also part of this phonological relation, i.e. the verb group formation. Now, since at PF the preverbal particles and the V–T have collapsed, there is no Neg head projected hierarchically as such. This head has been cliticized onto the V–T complex head. So, if head movement took place at PF negation would not create HMC effects on T–to–Mood movement, as it does not create such effects

Warburton & Spyropoulos (1999), with different conclusions, sometimes, from the ones I am reaching here.

on the PF T–to–C relation. However, it does.

I conclude that the behaviour or preverbal particles with respect to blocking of head movement provide evidence that affix-triggered head movement in Greek cannot belong to PF and, therefore, it must be a part of narrow syntax.

# 7. Implications for Typology: Patterns of Inversion

Let us now turn to the implications that our analysis of obligatory inversion has for the overall typology of constituent questions.

I have argued that apart from being an autonomous head (as in (52) from Mandarin Chinese) or an affix that triggers T–to–C movement (as in English (53)), the Q-element on C might also be a particle, in the sense of Philippaki-Warburton and Spyropoulos (1999). This option is realized in Greek.

(52)  Hufei  mai-le     na-yi-ben-shu       ne?
      Hufei   buy-ASP  which-one-CL-book   Q
      'Which book did Hufei buy?'

                                        (Cheng 1991)

(53)  Who did$_i$+Q Jonathan t$_i$ admire?

In other words Q (when it is a particle) may have the status of an autonomous head in narrow syntax, but need to be phonologically attached to the 'verb group' at PF. It, therefore, does not trigger obligatory inversion on its own, but it needs to be linearly adjacenct to the verb group at PF (which is, as I have argued, one of the two factors that give rise to the obligatory inversion effect in Greek).

Now, given that some languages are sensitive to Relativized

Minimality effects of preverbal subjects in obligatory inversion contexts, but not to the requirement of linear adjacency between C and V, we can assume that these two requirements can be found dissociated, i.e., that the nature of complementizers (bound affix/ particle/autonomous head) is one of the parameters that give (or do not give) rise to obligatory inversion effects, while the presence vs. absence of a preverbal subject (e.g., Zubizarreta 2001) is the other issue involved in the phenomenon.

So, the overall typology of *wh*-inversion might be along the lines of the following table. Languages in which preverbal subjects induce Relativized Minimality effects, such as Spanish and Greek, for example, divide as to the nature of the Q-element (particle vs. autonomous head). Languages in which preverbal subjects do not give rise to A'-intervention effects (such as English and Mandarin Chinese) also differ as to whether Q is an autonomous head realized in isolation or a bound affix triggering T–to–C movement:

(54)

|  | A'-subjects | no A'-subjects |
|---|---|---|
| Q-bound morpheme | ?? | English |
| Q-autonomous head | Spanish | Chinese |
| Q-particle | Greek | ?? |

Of course more work needs to be done towards the confirmation of the existence of the proposed dichotomy as to the nature of obligatory inversion (with the hope of filling the question marks in the above table). I hope that the examination of Greek obligatory inversion has shed some light on this problematic area.

# 8. Conclusions

In this paper, I tried to provide an account of obligatory subject–verb inversion in constituent questions in Greek. First of all, I examined the traditional T–to–C account of inversion and I concluded that in Greek we do not need to employ T–to–C movement in order to account for the *wh*-verb adjacency.

Following Anagnostopoulou (1994), I argued that the T–to–C account fails to capture the effects of D-linked *wh*-phrases on the amelioration of obligatory inversion effects and that (contrary to expectations) Greek does not exhibit a root/nonroot asymmetry in obligatory inversion. Moreover, I acknowledged the blocking effects that preverbal particles (especially negation) should exhibit if indeed T–to–C head movement were operative in Greek, and also the peculiar facts of clitic placement in the constructions under consideration.

All these facts led to the conclusion that verb movement in Greek stops where inflectional affixes stop, which is on T (or on Mood in imperatives). Preverbal particles are full heads which block head movement in all instances (as we saw with respect to the imperative). Their ultimate phonological cliticization on T is a PF requirement operating under linear adjacency. There is narrow syntax T–to–Mood movement in Greek. Seeking to explain obligatory inversion, I observed that Anagnostopoulou's (1994) account, according to which left dislocated preverbal subjects induce Relativized Minimality effect on A'-movement must hold. However, I also concluded that this requirement produces only weak ungrammaticality.

The effects of obligatory inversion in Greek can, therefore, be attributed to two independent factors: i) intervention effects on phrasal *wh*-movement caused by the left dislocated subject, plus ii) a requirement of PF linear adjacency between $C_{[+Q]}$ and the phonological phrase consisting of the verb and its particles. This

requirement stems from the particle nature of the interrogative complementizer, which needs a host at PF.

As far as head movement is concerned, the fact that elements present on head positions in narrow syntax but absent (cliticized on T) at PF (such as negation) seem to act as blockers of head movement (HMC effects on T–to–Mood) lends support to the view that head movement does not belong to PF but to narrow syntax (since these heads do not block the PF–relation between $C_{[+Q]}$ and the verb group). This study also offers a new way to look at the crosslinguistic patterns of obligatory inversion. It has been acknowledged that in some languages obligatory inversion is triggered by the affixal nature of the interrogative complementizer ($C_{[+Q]}$) which needs a host in narrow syntax (and triggers T–to–C head movement). It is also acknowledged that obligatory inversion might be forced by the A'-status of preverbal subject in null subject languages. However, a third option is realized in Greek, with obligatory inversion being forced by both the requirement for linear $C_{[+Q]}$-verb group adjacency at PF (prompted by the particle nature of Q) and the A'-status of preverbal subjects.

# References

Alexiadou, A. 1999. On the Properties of some Greek Word Order Patterns. In A. Alexiadou, G. Horrocks, & M. Stavrou (eds.), *Studies in Greek Syntax* 45-65. *Studies in Natural Language and Linguistic Theory*. Dordrecht: Kluwer Academic Publishers.

Alexiadou, A. & E. Anagnostopoulou. 1999. EPP without Spec, IP. In D. Adger, S. Pintzuk, B. Plunkett, & G. Tsoulas (eds.), *Specifiers: Minimalist Approaches* 93-109. Oxford: Oxford University Press.

Anagnostopoulou, E. 1994. *Clitic Dependencies in Modern Greek*. Ph.D. Dissertation. Salzburg: University of Salzburg.

Baker, C. 1970. Notes on the Description of English Questions: The Role

of an Abstract Question Morpheme. *Foundations of Language* 6, 197-219.

Baker, M. 1985. The Mirror Principle and Morphosyntactic Explanation. *Linguistic Inquiry* 16, 373-415.

_____. 1988. *Incorporation: A Theory of Grammatical Function Changing*. Chicago, IL: University of Chicago Press.

Barbosa, M. 1995. *Null Subjects*. Ph.D. Dissertation. Cambridge, MA: Massachusetts Institute of Technology.

den Besten, H. 1983. On the Interaction of Root Transformations and Lexical Deletive Rules. In W. Abraham (ed.), *On the Formal Syntax of Westgermania* 47-131. Amsterdam: John Benjamins Publishing Company.

Bobaljik, J. 1994. What does Adjacency Do? *MIT Working Papers in Linguistics* 22, 1-32.

Boeckx, C. & S. Stjepanović. 2001. Head-ing toward PF. *Linguistic Inquiry* 32.2, 345-355.

Brandi, L. & P. Cordin. 1989. Two Italian Dialects and the Null Subject Parameter. In O. Jaeggli & K. Safir (eds.), *The Null Subject Parameter* 111-142. *Studies in Natural Language and Linguistic Theory.* Dordrecht: Kluwer Academic Publishers.

Burzio, L. 1986. *Italian Syntax: A Government-binding Approach. Studies in Natural Language and Linguistic Theory*. Dordrecht: Kluwer Academic Publishers.

Cardinaletti, A. 1997. Subjects and Clause Structure. In L. Haegeman (ed.), *The New Comparative Syntax* 33-63. *Longman Linguistics Library*. London & New York: Longman.

Cheng, L. 1991. *On the Typology of Wh-questions*. Ph.D. Dissertation. Cambridge, MA: Massachusetts Institute of Technology.

Chomsky, N. 1977. On Wh-movement. In P. Culicover, T. Wasow, & A. Akmajian (eds.), *Formal Syntax* 71-132. New York: Academic Press.

_____. 1995. *The Minimalist Program. Current Studies in Linguistics*. Cambridge, MA: MIT Press.

_____. 2000. Minimalist Inquiries: The framework. In R. Martin, D.

Michaels, & J. Uriagereka (eds.), *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik* 89-155. Cambridge, MA: MIT Press.

_____. 2001. Derivation by Phase. In M. Kenstowicz (ed.), *Ken Hale: A Life in Language* 1-52. Cambridge, MA: MIT Press.

_____. 2004. Beyond Explanatory Adequacy. In A. Belletti (ed.), *Structures and beyond: The Cartography of Syntactic Structures* 3, 104-131. Oxford: Oxford University Press.

Guasti, M. & L. Rizzi. 2002. Agreement and Tense as Distinct Syntactic Projections: Evidence from Acquisition. In G. Cinque (ed.), *Functional Structure in DP and IP* 167-194. *Oxford Studies in Comparative Syntax*. Oxford: Oxford University Press.

Iatridou, S. 1990. About Agr(P). *Linguistic Inquiry* 21.4, 551-577.

Joseph, B. 2002. Defining 'Word' in Modern Greek: A Response to Philippaki-Warburton and Spyropoulos 1999. In G. Booij & J. Marle (eds.), *Yearbook of Morphology 2001,* 87-114. Dordrecht: Kluwer Academic Publishers.

Koopman, H. & A. Szabolcsi. 2000. *Verbal Complexes. Current Studies in Linguistics.* Cambridge, MA: MIT Press.

Kotzoglou, G. 2001. First Notes on Greek Subjects. *Reading Working Papers in Linguistics* 5, 175-199.

Lambova, M. 2002. Is Head Movement Syntactic: Evidence from Bulgarian. *MIT Working Papers in Linguistics* 43, 89-102.

Matushansky, O. 2006. Head Movement in Linguistic Theory. *Linguistic Inquiry* 37, 69-109.

Ordoñez, F. 2000. *The Clausal Structure of Spanish: A Comparative Study. Oustanding Dissertations in Linguistics*. New York: Garland Publishing.

Pesetsky, D. 1987. Wh-in-situ: Movement and Unselective Binding. In E. Reuland & A. Meulen (eds.), *The Representation of (In)definiteness* 98-129. Cambridge, MA: MIT Press.

Philippaki-Warburton, I. 1985. Word Order in Modern Greek. *Transactions of the Philological Society 1985,* 113-143.

_____. 1987. The Theory of Empty Categories and the Pro-drop Parameter in Modern Greek. *Journal of Linguistics* 23, 289-318.

_____. 1998. Functional Categories and Modern Greek Syntax. *The Linguistic Review* 15.2, 159-186.

Philippaki-Warburton, I. & V. Spyropoulos. 1999. On the Boundaries of Inflection and Syntax: Greek Pronominal Clitics and Particles. In G. Booij & J. Marle (eds.), *Yearbook of Morphology 1998,* 45-72. Dordrecht: Kluwer Academic Publishers.

Philippaki-Warburton, I., S. Varlokosta, M. Georgiafentis, & G. Kotzoglou. 2002. On the Status of 'Clitics' and their 'Doubles' in Greek. *Reading Working Papers in Linguistics* 6, 57-84.

_____. 2004. Moving from Theta-positions: Pronominal Clitic Doubling in Greek. *Lingua* 114.8, 963-989.

Radford, A. 1997. *Syntactic Theory and the Structure of English: A Minimalist Approach*. Cambridge: Cambridge University Press.

Rivero, M. 1994. Clause Structure and V-movement in the Languages of the Balkans. *Natural Language and Linguistic Theory* 12.1, 63-120.

Rivero, M. 2001. Last Resort and V Movement in Balkan Languages. In M. Rivero & A. Ralli (eds.), *Comparative Syntax of Balkan Languages* 200-223. Oxford: Oxford University Press.

Rizzi, L. 1990. *Relativized Minimality: Linguistic Inquiry Monographs*. Cambridge, MA: MIT Press.

_____. 1996. Residual Verb Second and the Wh-criterion. In A. Belletti & L. Rizzi (eds.), *Parameters and Functional Heads: Essays in Comparative Syntax* 63-90. Oxford: Oxford University Press.

_____. 1997. The Fine Structure of the Left Periphery. In L. Haegeman (ed.), *Elements of Grammar: Handbook of Generative Syntax* 281-337. Dordrecht: Kluwer Academic Publishers.

_____. 2001. Relativized Minimality Effects. In M. Baltin & C. Collins (eds.), *The Handbook of Contemporary Syntactic Theory: Blackwell Handbooks in Llinguistics* 89-110. Oxford: Blackwell Publishers.

Roberts, I. 1994. Two Types of Head Movement in Romance. In D.

Lightfoot & N. Hornstein (eds.), *Verb Movement* 207-242. Cambridge: Cambridge University Press.

Roberts, I. & A. Roussou. 2002. The Extended Projection Principle as a Condition on the Tense Dependency. In P. Svenonius (ed.), *Subjects, Expletives, and the EPP* 125-155. Oxford: Oxford University Press.

Roussou, A. 2000. On the Left Periphery: Modal Particles and Complementisers. *Journal of Greek Linguistics* 1.1, 65-94.

Spyropoulos, V. 1999. *Agreement Relations in Greek.* Ph.D. Dissertation. Reading: University of Reading.

Spyropoulos, V. & I. Philippaki-Warburton. 2001. 'Subject' and EPP in Greek: The Discontinuous Subject Hypothesis. *Journal of Greek Linguistics* 2, 149-186.

Starke, M. 2001. *Move Dissolves into Merge: A Theory of Locality.* Ph.D. Dissertation. Geneva: University of Geneva.

Suñer, M. 1994. V-movement and the Licensing of Argumental Wh-phrases in Spanish. *Natural Language and Linguistic Theory* 12.2, 335-372.

Theophanopoulou-Kontou, D. 2002. *Genetiki Sintaksi: To Protipo tis Kivernisis ke Anaforikis Dhesmefsis [Generative Syntax: The Government and Binding Model].* Athens: Kardhamitsa Publications.

Torrego, E. 1984. On Inversion in Spanish and some of its Effects. *Linguistic Inquiry* 15.1, 103-129.

Tsimpli, I. 1990. The Clause Structure and Word Order in Modern Greek. *UCL Working Papers in Linguistics* 2, 226-255.

Uriagereka, J. 1999. Minimal Restrictions on Basque Movements. *Natural Language and Linguistic Theory* 17.2, 403-444.

van Riemsdijk, H. 1998. Head Movement and Adjacency. *Natural Language and Linguistic Theory* 16.3, 633-678.

Zubizarreta, M. 2001. The Constraint on Preverbal Subjects in Romance Interrogatives: A Minimality Effect. In A. Hulk & J. Pollock (eds.), *Subject Inversion in Romance and the Theory of Universal Grammar* 183-204. Oxford: Oxford University Press.

Zwart, C. 2001. Syntactic and Phonological Verb Movement. *Syntax* 4.1, 34-62.