Focus movement vs. focus in-situ in Greek: a prosodic approach
Can we dispense with focus movement at LF?

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0. Abstract

In a language like Greek, Focus properties determine the distribution of arguments. It is argued that subjects stay in SpecVP, as part of the focus domain. Likewise, they may be base-generated or raised to Spec IP as part of the topicalization process. The view on focus adopted here is that information focus is rightmost for prosodic convergence. This analysis on focus leads to a number of questions regarding my assumptions concerning the exact formulation of this constraint. A very common view on focus is to assume that focused constituents must be licensed at the specifier of a functional projection (Focus Phrase), which in most analyses appears at the left periphery of the sentence. In the analysis I am developing here, the exact reverse effect is obtained: focused constituents appear at the rightmost position in the sentence. As it will be shown later in this chapter, the two approaches are not incompatible, but they operate on two different kinds of discourse objects. Nevertheless, it is important to be clear for the type of focus I will discuss, and why I am defending an in-situ analysis of focus rather than an analysis that involves raising to a functional projection. One crucial aspect I will be concerned with is to demonstrate that the in-situ analysis is incompatible with an approach claiming that in-situ focused constituents move at LF to the specifier of a FocusP.

1. Introduction

The structure of this chapter is organized as follows:

In section 2, I will briefly discuss theories of focus movement (Horvath 1986 and Brody 1990) and theories of focus in-situ (Rooth 1985). I will first discuss some of the problems with the former and explain how the latter theories account for the evidence in favor of movement.

In section 3, I will recall the main facts of the distribution of focus in Modern Greek. I will emphasize the point that for a proper identification of what constitutes the focus of the sentence, one needs to take into account both syntactic and prosodic factors.

Section 4 will discuss the predictions made by an LF-movement analysis of focus in Greek. I will argue that such an analysis makes a wrong prediction, hence it is not desirable. The existence of contrastive focus-movement in Greek will not be taken into account in favor of the need for moving foci at LF. Section 5 will show that these constructions are not an alternative for focus in-situ, hence they should not be taken as a mere overt counterpart of a movement that normally is done in the overt syntax.

Let me emphasize, for the sake of clarity, that in this paper I will be looking at information focus: that is focus that conveys new information. The remark is important, since the term focus is often used with a variety of meanings, rendering discussion of phenomena and identification of scope of research quite difficult (Givon 1990 for classification of examples of several constructions involving focus-related aspects). I am interested in this study of focus that is normally associated with a high pitch accent (Selkirk 1984, among others) or phrasal prominence (Zubizaretta 1998) and that can be identified in question-answer pairs and correction contexts. This type of focus is often called information focus. That is, it is focus in the sense that it conveys new information without altering the truth-value of the sentence (Vallduvi 1990, among others). This

excludes from the current discussion contrastive focus and focus involving uniqueness or exhaustive listing in the sense of Szabolcsi 1981. In the last section I will present some tests to distinguish the several types of focus, and show that they do not necessarily intersect. The behavior of contrastive focus will be shown to be different both in distribution and in meaning. Below I provide examples of each of the constructions involving foci, in order to specify which will be the topic of this chapter.

(1) Focus constructions
a. *In situ:*
   Efage to glyko <u>i Maria</u>
   Ate   the sweet Mary
b. *Syntactically marked focus:*
   Johnson DIED
   JOHNSON died
c. *Focus preposing:*
   <u>Tin Eleni</u> ida
   It was Helen I saw

(1a) will be the topic of this chapter. I will not talk about (1b) in this chapter, which is discussed in Uriagereka (1995), Reinhart (1995,1997), among others, since its discourse characteristics are different from (1a) (see section 5). I will argue for (1c) explaining that focus preposing in Greek is not an argument for movement of foci at LF.

2. Focus movement vs. in-situ approaches

Focus is represented in different ways in different languages. While a language like English displays focus in situ, as in (2), a language like Hungarian seems to require movement for licensing focused constituents:

(2) I saw JOHN

(3) a. (from Horvath 1995):
      AZ UJSAGOT dobtam el
      The newspaper threw-I away
   b. * Eldobtam AZ UJSAGOT

Chomsky (1976) has argued, on the basis of the contrast in (4), that even in English focused elements need to be moved. Chomsky showed that focus as in (4b) induces weak-cross-over effects just like other operators do e.g. in (5):

(4) a. His$_i$ mother saw John$_i$
   b. *His$_i$ mother saw JOHN$_i$

(5) * Who$_i$ does his$_i$ mother like?

According to Chomsky, the most natural way to explain the parallelism between (4b) and (5) is to assume that, at LF, focused constituents move establishing an operator-variable relation with their traces, yielding a structure like (6b) for a sentence like (6a):

(6) a. Mary loves JOHN
   b.[$_S$ JOHN$_i$ [$_S$ Mary loves t$_i$]]

This accounts for the weak cross over effects in a rather natural way. The LF-representation of (4b) is a violation of Koopman and Sportiche's (1982) bijection principle in the same way the overt syntax of (5) is

(7)   * [$_S$JOHN$_i$ [$_S$ his$_i$ mother loves t$_i$]]

(8) Bijection Principle:
    There is a bijective correspondence between variables and A-bar positions.

Given (8), the problem with (7) is that 'John' is binding two variables: the pronoun and the trace, yielding a violation of the bijection principle. The weak-cross-over argument together with the existence of overt focus movement in Hungarian led linguists to assume that languages with focus in-situ like English need to move focused constituents at LF.

2.1. Problems with movement theories of focus

Movement theories of focus have been criticized in Rooth (1985), von Stechow (1990) among others, on the basis of the failure to account for the lack of ECP and subjacency effects, multiple foci and crossing paths at LF. I will briefly discuss the three problems.
    First of all, Focus displays a lack of ECP and subjacency effects. If focus involves movement, focusing should be impossible within a barrier for extraction. That is not the case as it can be seen from the following examples:

(9) *Focus on an embedded subject: (that-trace effects are expected):*
    Mary thinks that JOHN will go to the movies

(10) *Focus within an adjunct*
    Mary arrived late because she was SICK

(11) *Focus within shifted Heavy NPs:*
    I read yesterday all the books MY teacher recommended.

(12) *Focus insideWh-islands:*
    I wonder what to write with THIS PEN

(13) *Focus inside a complex NP:*
    John announced a plan to steal FIVE cars tonight

(14) *Focus within a coordinate structure:*
    John saw Mary and ALL the other students

Any movement approach to focus predicts that these sentences should be ungrammatical, since ECP effects (and subjacency) are assumed to be operative at all levels of representation (May 1985, Huang1982, Koster 1987, Baker 1995). If alternatively, one would assume that ECP is not operative at LF, one would miss the empirical generalization that may be drawn considering LF movement, namely the similarities with overt movement.
    Another problem with assuming that focused constituents move at LF (on a par with wh-movement) is the existence of multiple foci:

(15) a. JOHN saw MARY
    b. John gave the BOOK to BILL

The problem with these sentences is different depending on the theory of focus movement assumed. If it is assumed, as Brody (1990) does, that focused constituents enter a Spec Head agreement relation with a Focus head and that Hungarian is the overt counterpart of English, this would imply that a head has multiple specifiers. This in turn predicts a lack of adjacency between the foci and the element lexicalizing the head (V in Hungarian, according to Brody 1990). However, multiple focus movement is not possible in Hungarian:

(16) (*from Kiss 1995*):

Evat Janos varta a mozi elott.
Eve-acc John waited the cinema in-front-of
Eve, JOHN waited for her in front of the cinema.

If multiple specifiers are permitted, sentence (16) might incorrectly yield the English interpretation in (17). A uniformization with wh-in situ is not possible, since the post verbal PP in (16) is not interpreted as focus.

(17) JOHN waited for EVE in front of the cinema.

The third problem comes from the fact that focus movement may create crossing paths at LF. This argument obviously does not go through in theories for crossing paths (e.g. Chomsky 1995). I will not take a position with respect to whether the theory should or should not allow for crossing paths. In case it should not (Kayne 1994), these cases remain problematic. The creation of crossing paths at LF arises in a focus movement analysis for a sentence like (18):

(18) Who did JOHN wait for?

This sentence should be ungrammatical because moving JOHN at LF would induce a crossing path, which is an ill-formed path according to (Pesetsky1982, Kayne 1994):

JOHN who did t wait for t?
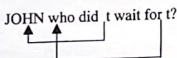
These three types of evidence should be enough to discard an analysis of focus in terms of movement. However, there is still the evidence from WCO-effects and the distribution of focus in Hungarian. I will return to these problems after finishing the discussion of the focus-movement analyses.

2.2. The nature of focus movement
The preceding section pointed out some problems known from the literature for the movement analysis of focus. It is also important to determine the exact nature of this movement: focus movement establishes an operator variable relation, but why should be

such a relation? And if there is movement, where do focused constituents move?
    Two widely accepted theories of focus movement are ones advocated by Brody (1990) and Horvath (1986, 1995). In this section, I will discuss the major properties and aspects of both theories showing that they are not empirically adequate.
    Brody (1990) argues that there is a Focus Phrase, where focused constituents move in order to satisfy the focus-criterion, parallel to Rizzi's (1991) wh-criterion:

(19) Focus-criterion:
a. At S-structure and LF, the Spec of an FP must contain an +f phrase.
b. At LF, all +f –phrases must be in an FP.

The source of cross-linguistic variation is then whether (19a) is satisfied overtly (Hungarian) or covertly (English). As noted in Horvath (1995), this approach to focus is not satisfactory since it does not account for the fact that languages other than English and Hungarian codify focus in positions that are not either the base-position or the leftmost position of the sentence.
    Horvath (1995) proposes that focus is either assigned like any other grammatical feature (e.g. Case) by a non-lexical head or freely assigned. The need for V-adjacency in Hungarian comes from the need to lexicalize the functional head that assigns the focus feature (which Horvath claims to be I° in Hungarian). Her formulation of the focus parameter is given in 20. The conditions in (20,1-4) determine what type of manifestation of focus can be found in different languages:

(20) Focus parameter:
1. nature of the feature:
    (i)   freely occurring, i.e. not transferred   vs.   (ii) assigned by a specific X°
              category from another category (English)   (Hungarian)
2. what X° functional category of the clause is the assigner, i.e. the source of the feature
3. whether the feature-assigning category needs to be lexicalized
4. the mode/nature of the process of feature assignment:
    (i)   feature transfer   (ii) Spec-head agreement

Horvath's focus parameter has the advantage of accounting for crosslinguistic differences on the representation of focus without crucially resorting to an additional functional projection, making the set of primitive categories of the theory simpler. However, relying on a specific functional projection for assigning of focus creates problems for cases in which focus surfaces in isolated constituents.
    Greek is a language in which syntax and prosody play a role in the identification of focus. In accordance with Horvath's formulation it might be expected that in Greek, focus is assigned (like in Hungarian) by a specific functional projection (C, I, etc). This, however is problematic for cases in which there is focus without a clausal functional projection associated to it, like in the following examples:

(21)A: tha agoraso ena ble autokinito
    B: Ena BLE i ena MAURO?
        A BLUE car or a BLACK car?

In order to explain the occurrence of focus in B's utterance, one has to assume that the functional projection responsible for focus-assignment at the sentence level plays some

role at the NP level. That is, one has to assume that the category that assigns focus to a constituent of the sentence, whatever its nature is, also has to occur inside DP. Although there are theories suggesting that the same array of (extended) functional projections identifiable for VPs is present at the NP level (Kayne 1994), it seems quite difficult to explain the distribution of focus in the same terms.

Another problem for a theory based on functional projections is how to explain focus on prefixes like in (22), where only part of a word is contrasted.

(22) A: O Janis anakalipse to mystiko.
    John discovered the secret
  B: ANAkalipse i APOkalipse?
    Discovered or uncovered?

Even if there were a functional projection assigning focus, it is not clear what configuration would legitimate governing within the word-boundaries, which would enable government of the prefix alone, excluding the rest of the world.

On a more conceptual level, it remains unexplained under Horvath's approach why there is a correlation between functional projections and focus. Under her proposal, focus is a grammatical feature as any other with the difference that it cannot be inherent to lexical items. Though his proposal is attractive as far as it explores the similarities between focus and other grammatical configurations, is not very clear why focus should be compared with nominative case, as Horvath does. (In my proposal I will give an alternative account for the idea that +Focus is a feature encoded in the grammar). There is a crucial difference between these two types of features: nominative case is always assigned every time a certain syntactic configuration is met. Hence, it is a purely structural relation, whose existence depends on a set of syntactic requirements. By contrast, focus is a basically discourse-related relation. It must be marked in the structure, but it is not the case that every time a certain configuration is created, focus will appear. That is, there is a difference in terms of predictability that should be taken into account when proposing to derive focus from a given syntactic configuration.

2.3. In situ theories

One of the most widely accepted theories of focus in-situ is Rooth's (1985). Rooth proposes a semantic theory of focus, according to which no focus-movement is required: given a sentence where focus can be identified, a set of alternatives is construed. The set of possible alternatives is constrained within a certain contextual domain reminiscent of Jackendoff's (1972) P(resupposition)-set.

Rooth (1985) accounts for Chomsky's (1976) weak-cross-over independently of focus movement. Rooth claims that the bound variable readings require λ-abstraction, so that the pronouns or noun phrases can be interpreted as bound variables and not as free variables. A mechanism enabling this to happen is already available in the grammar: Quantifier Raising (1985). In other words, it is not necessary to have focus movement as an independent rule of the grammar: like all NPs, focused NPs may be QR-ed but need not. However, if a bound variable reading is intended, QR is obligatory. In that case, LF-evaluation constraints are operative, and weak-cross-over configurations are ruled out. Rooth's approach does not yet explain why deaccenting (that is, removing the stress from the focused constituent) obviates the WCO effects, but it is empirically superior to Chomsky's since it excludes the obligatoriness of WCO with focus (see also Vallduvi 1990 for discussion). Adopting Rooth's approach allows for dismissing the weak-cross-over argument as evidence in favor of focus movement. At best, we can keep it as

evidence for QR.

However, Rooth's theory of interpretation of focus in situ does not say anything concerning languages like Hungarian, in which focused constituents move to a specifier position. Also, it does not explain the behavior of languages like Greek where focus can stay very low in the structure.

Since Rooth's analysis is not complete enough to take care of the facts, I will keep it as a semantic approach to focus. Syntax together with prosody will enable an identification of the focus set of constituents for a given sentence. The identified focus-set will be operated on by semantics. Provided that there is an algorithm permitting a correct identification of focus, semantics may apply over the material identified as focus.

3. The distribution of focus in Greek

In Haidou (2000) I have shown that arguments in Greek have a quite free distribution, ands that the distribution is conditioned by the information (or topic- focus) structure of the sentence. Summarizing the general pattern, the data indicate that focused material is rightmost. In the next paragraphs, I will present the relevant data again, making my assumptions on sentence intonation clearer.

3.1. Position of the focused constituents

In Haidou (2000) I noted that different word orders in Greek correlate to different intonation structures. This has been noted several times in the literature on Greek (Alexiadou & Anagnostopoulou 1997,1998, Philippaki –Warbuton 1997, Tsimpli 1995, 1997 and others). To each of the possible word orders listed in (23), a different felicity context is associated. In (23), I also indicate the position each constituent occupies in the clausal structure, according to the conclusions reached in previous work.

(23) SVO: subject in Spec IP/TP, object in base position
    VSO: subject in Spec VP, object in base position
    VOS: subject in Spec VP, object adjoined to VP
    OSV: subject in Spec IP/TP, object topicalized
    OVS: subject in Spec VP, object topicalized

(24) Object focused:
    A: Ti espase o Janis?
      What broke John?
    B: O Janis espase to PIATO or
      Espase o Janis to PIATO or
      To PIATO espase o Janis
      John broke the plate

(25) Sentence focused:
    A: Ti sinevi?
      What happened?
    B: Espase oJanis to piato
      Broke John the plate

(26) Subject and object focused:
    A: Kaneis den espase tipota
      Noone broke anything

B: O JANIS espase to PIATO
John   broke the plate

(27) Subject is focused:
    A: Pjos espase to piato?
        Who broke the plate?
    B: O JANIS espase to piato
       John   broke the plate or
     Espase to piato O JANIS
     Broke the plate John

For the moment, I will not discuss in detail the cases in which the object appears in sentence initial position. I will leave that until section 4. For the time being, it is enough to say that for objects to appear in sentence-initial position, they have to have been referred in previous discourse and/ or have some contrastive force:

(28) Ton Jani, ton thimame.
    John,   I remember him
(29) Ton Jani thimame (oxi ton Giorgo).
    It is John I remember (not George)

Summarizing, in terms of information structure, all constituents that convey new information appear to the right in the default form and constituents that convey information previously mentioned in the discourse appear at the left periphery of the sentence.

3.2. Intonation

It is a well-known fact that focus is normally associated with high stress. In order to get a clear idea of the correct way to interpret focus, it is necessary to investigate where prominence appears in the sentences. By doing so, I will also be able to clarify the sentence stress assignment I am assuming in this paper.

    Frota (1995) has argued in favor of representing focus in Portuguese as a phonological category that is freely assigned. Part of her arguments is based on the behavior of clitics.

    The domain of Frota's argumentation is narrow or contrastive focus and not information focus (though of course they may coincide in structural position). Actually, Frota (1997) suggests that two types of prominence may be necessary to describe the two types of focus marking. What is relevant is that independently of the type of focus looked at, Frota's claim appears to be correct: focus (contrastive and information) is marked phonologically in Portuguese.

    If the distribution of stress in each word order discussed above is concerned, evidence may be found in favor of Frota's claim: there is one-to-one correspondence between the first focused constituent of the sentence and its most prominent stress.
Consider the examples from Greek in (30) below, where capital letters indicate high stress:

(30) a Espase o PAULOS to parathiro
       Broke Paul   the window
    b. *ESPASE o Paulos to parathiro
    c. * Espase o Paulos TO PARATHIRO.

(30) is a VSO sentence in which subject and object are the informative parts of the sentence. In that case, both have to appear in the right periphery of the sentence. The object and the subject is the first focus that appears and it bears the most prominent stress of the sentence (the assumption being that focus propagates from the object to the material within the VP domain). Conveying the same information by means of the same word order and with other stress patterns is not possible under information focus (30b,c).

    In (31), only the subject is focus (VOS). In that case the subject bears the heavier stress, though it is not heavier than the neutral stress present in unmarked VSO sentences.

(31) Efage to glyko i Maria
    Ate   the sweet the Mary

In SVO sentence, the most natural intonation is the rightmost prominence without a very heavy stress (assuming that the subject is topicalized):

(32) I Maria efage to glyko
    Mary ate   the sweet.

The literature on prosody often distinguishes between neutral stress and heavy stress (see e.g. Chomsky and Halle 1968). This distinction has been criticized by Selkirk (1984), among others, who claims that there is no empirical advantage in proposing such a distinction. Selkirk's argumentation is based on focus projection. Focus projection is the term given to the fact that neutral stress on e.g. sentence final object may yield an interpretation in which only the object is focused, or the VP is focused or the whole sentence is focused. Selkirk claims that not only neutral sentence-final stress projects allowing an interpretation in which there is focus on sentence-final only, on the VP or on the whole sentence. Selkirk claims that heavy stress in a non-final constituent also permits focus-projection in the sense just explained. If Selkirk's observations are applied to the Greek case, it is expected that sentences (31,32) to be an appropriate answer to any of the questions in (33):

(33) a. What happened? (*Sentence-focus*)
     b. What did Paul do? (*VP-focus*)
     c. What did Paul break? (*Object-focus*)

This is indeed correct. However, differently from Selkirk's claim for English, a distinction between neutral stress and marked stress is relevant for the identification of focus in Greek. Crucially, every time there is a high stress in the sentence on a non-final constituent, there cannot be a projection of focus in the language. (34) is not a legitimate sentence for expressing VP focus. Since high stress is only necessary on constituents that are not in absolute sentence-final position, this invalidates Selkirk's claim: marked stress does not project.

(34) Espase O PAULOS to parathiro
    Broke   Paul   the window

Selkirk claims that stress on XP, which is a constituent of YP, will enable percolation of stress to YP. If focus projection would apply in these terms, (34) could be a felicitous

answer to (33b), with focus on the whole VP, since the subject is VP-internal. In other words, the subject corresponds to XP and the VP to YP in Selkirk's algorithm. Hence, stress on the subject should project to VP. Now, this is not true, though it is predicted by Selkirk's theory.

Note that even neutral stress does not project if there is a change in the unmarked word order of the language. Hence, a VOS sentence is not a legitimate answer to a question that requires something else than the subject to be in focus:

(35) a. Ti ekane o Paulos?
　　　 What did Paul do?
　　 b. espase o Paulos to parathiro.
　　　 broke　Paul　the window
　　 c.* espase to parathiro o Paulos

Although the sentence's main stress falls on the rightmost constituent in both cases, and in both cases the rightmost constituent is VP-internal, focus projection is not allowed. Actually, even the English cases, which Selkirk presents as possible cases of focus-projection without rightward prominence are difficult to evaluate. Selkirk claims that (36) may have VP focus:

(36) (from Selkirk 1984)
　　　Did John give a BOOK to Bill?

Selkirk claims that (37) is an appropriate answer for this sentence:

(37) No, he grew a pot of NARCISSUS for him.

In (37), the verb and the NP contrast with give a book in (36). Selkirk concludes from this that prominence on the NP may give VP focus. It seems, though, that this is not a very accurate conclusion, since if there were a VP-focus in (36), the sentences in (38) might as well be appropriate answers, since (38a) and (38b) involve alternatives to the focused VP:

(38) a. No, he grew a pot of NARCISSUS for Mary
　　 b. No, he killed Mary.

Now, (38a,b) are not appropriate answers to (36), presumably because in (36) there is no VP focus. Actually, Selkirk acknowledges that for (36) to involve VP-focus, **"John, Bill, and, say, Bill's recent birthday are old information in the discourse"**. If Bill is old information, it is difficult to understand how it can be maintained that the whole VP is in focus. In other words, I am suggesting that the idea that VP-focus is involved comes from the fact that grow X for Y and give X to Y are minimally different in the relevant context. No new information is added by replacing give and grow. In this sense, the only new information is the NP, and the VP-focus is only apparent. The use of a proper name in the question may also determine the impression that there might be VP-focus even without Bill being focused. Proper names never convey absolute new information, If instead of a definite, someone is used, a VP focus interpretation never arises unless there is rightward prominence.

(39)A:　What did John do?
　　 B: * John gave a BOOK to someone
　　　　 John gave a book to someone

Speakers who accept (39B) might report that the DP a book clearly must have contrastive force. We have thus a case of overlap of two types of focus: a contrastive focus on the DP and an information focus on the VP. Since the two types of focus may be distinguished in semantic terms (cf. last section of this chapter), the behavior of one should not be used as evidence for the other.

Summarizing, it is thus possible to interpret the stress pattern of (37) in different terms: since the pronoun is old information (it refers to Bill), it must not be heavily stressed. In the context given, grew a pot of narcissus for him and give a pot of narcissus to him are equivalent. Hence, the only new information which is contrasted is the DP object. The VP-focus arise only if the identity between grow X for Y and give X to Y in the 'birthday' context is not acknowledged. The fact that not any VP may replace the one in the question confirms that in this case there is no VP-focus.

Another argument used by Selkirk in favor of projection of marked stress comes from sentences like (40):

(40) (from Selkirk 1984):
　　　For them it is in TERMS of metrical trees that ...

Selkirk's reasoning goes as follows: the PP in terms of metrical trees is in a position normally occupied by focused constituents. Therefore, the whole PP is in focus, though part of it may be old information. Since the prominence is in the noun terms, it has to be assumed that the focus on the noun may percolate up to the whole PP.

There is an alternative to this reasoning: if one wants to make a cleft with the focused noun terms which is contained within the PP, the whole PP has to be dislocated. Extracting only the NP would violate conditions on extraction. I would like to suggest that (40) involves a case of pied-piping on the whole PP, though only the noun terms is focused. This may explain why in the following case there is no projection:

(41) A: Did they talk in favor of Peter?
　　 B: No! It was AGAINST Peter that they talked.

In this case, Peter is not the new information in the discourse, only the preposition is contrasted and introduced as new information. Clefting only the preposition is impossible, hence the whole PP has to be moved, though focus does not project. Actually, it seems that the role of intonation in clefts is exactly the reverse of what Selkirk proposes: its function is to preclude focus projection. If a constituent is clefted, in principle, it should be interpreted as focus, since projection is an option if neutral stress is present. By assigning a prominent stress to a subpart of a clefted constituent, one makes sure that only this part is interpreted as new information.

The felicitous continuations demonstrate that this is the difference between the following two sentences:

(42) It was against Peter that they talked,
　　 a.　　not against Mary
　　 b.　　*not in favor of him
　　 c.　　not in favor of Mary.

The interpretation for (42a) is the one in which the complement of the PP is the focus. This interpretation follows from the neutral stress principle: the rightmost element is the most prominent and it is interpreted as focus. In (42c), the whole PP is interpreted as focus. (42b) is infelicitous, because only the preposition is in focus, but nothing was done to exclude the NP from the set of focused constituents. The only way to exclude it would be to strand the NP in situ, yielding the ungrammatical (43), or stress the preposition, avoiding focus-projection (44):

(43) * It was against that they talked Peter.

(44) It was AGAINST Peter that they talked,
    a.   *not against Mary
    b.   not in favor of him
    c.   *not in favor of Mary.

The appropriateness of (44c) shows that there is no projection, hence the continuation may not involve an alternate to the whole PP. (44a) is not felicitous, since only the NP is focused, which should be impossible both in the view adopted here and the one defended by Selkirk. It thus seems that whenever there is a change either in the unmarked word order (VSO in Greek) or in the normal intonational pattern (rightmost prominence) there is no projection of focus.

The intonation of information focus in Greek can be summarizes as follows: Focused constituents are prosodically prominent. If they are rightmost they bear neutral stress, if they are not rightmost they are assigned a high pitch accent (or marked stress). If there is more than one focus, the leftmost bears the heavy stress: all constituents following the heavy stress are interpreted as focus. Information focus is not incompatible with other types of contrast. Hence, any constituent may bear heavy stress, independently of its being the focus of the sentence for contrast purposes. This will, however, make a projection of focus more difficult for the reasons pointed out above.

Under the review of Selkirk's discussion of projection of focus made above, I reach conclusions similar to hers regarding the status of projection as not being exceptional, although in the exact opposite sense. She concluded that focus projection is not exceptional since it may happen almost everywhere. Differently, I concluded that focus-projection is unexceptional, since it does not need to be postulated. The reasoning goes as follows: all that is needed is rightmost prominence. The effects of projection are a consequence of coincidence of rightmost borders of constituents (NP, VP, IP). Any other stress pattern will preclude projection, since projection does not exist as an independent phenomenon. It is just the effect of ambiguity several rightward constituent borders.

3.3. An algorithm for identifying focus
Combining the distribution of focus and the prosodic facts, the following realizations are obtained:

a) Focused constituents are rightmost in the sentence;
b) Focused elements bear high stress (neutral or marked)
c) If there are multiple foci, they appear all to the right of the non-foci elements;
d) If there are multiple foci, the first in the left-to-right fashion bears heavy stress.

These observations may serve as the cues for the formulation of algorithm to identify information focus in Greek, which is given in (45). Note that (45) is meant as an algorithm to identify information focus, not the other types of focus, excluding thus the cleft constructions discussed above, which were nevertheless useful for the study of focus projection. This formulation is partially based on Reinhart's (1995) observations concerning the distribution of focus on her own formulation of what a focus-set of constituents is:

(45) The focus set of constituents of a sentence is the prosodically most prominent constituent plus everything it c-commands.

Prosodic prominence is defined as in (46), adapted from Nespor and Vogel (1986), Cinque (1993), Zubizarreta (1995) and Nash (1995):

(46) The prosodically unmarked most prominent constituent is the rightmost one, following the recursion pattern of a language.

(46) states that in VO languages, the most prominent constituent is the rightmost one to the right of the verb, while in OV languages, the most prominent constituent is the rightmost to the left of the verb (the XP in bold in (47) below):

(47) V O XP **XP**
     O XP **XP** V

There is a crucial stage in the paper, regarding theoretical options: in the work done so far, I have remained neutral regarding Kayne's (1994) hypothesis that all languages are underlyingly SVO and that rightward movement and adjunction are disallowed. What it will be shown later on is consistent with this hypothesis, since I have shown on an empirical basis (Haidou 2000) that right adjunction of DPs and adverbs may be dispensed with. It is also shown that subjects in sentence final position in Greek are not to be derived by means of right –adjunction. I have further shown that Greek does not have scrambling of the Germanic type, yet presenting evidence to eliminate one potential typological difference between OV/VO languages. Anticipating the work to be developed, I will show that several word order patterns may be derived from a single basis. Yet, I decided not to adopt Kayne's antisymmetry hypothesis, since for the formulation of the sentence-stress-assignment algorithm, I need to assume the existence of OV and VO languages. If I were to say that stress is rightmost, without adding anything further, I would make the wrong prediction for a language like Dutch, in which the most stressed constituent in a sentence is the element preceding the verb and not the verb itself (except for marked constructions, in which there is stress shift from the preverbal material to the verb):

(48) a. Ik heb **het boek** gelezen
     b.* Ik heb het boek **gelezen**

The correlation between sentence stress assignment and the OV/VO distinction finds further confirmation in the language acquisition work by Nespor, Cristophe and Guasti (1996), who show that the directionality parameter is set at the prelexical stage, and argue that the right setting of the parameter is triggered by the prosody of the languages: the relative ordering between heads and complements will be uniform in syntax and in

phonology.

For reasons of coherence with this type of work developed in the framework of phrasal phonology, I will not abandon the OV-VO distinction. I would nevertheless like to emphasize that this distinction may be eliminated, if a way is found to derive the coincidence of stress pattern and word order independently of the basic word order. A potential solution for this is also mentioned in a footnote in Nespor et alii (1996), who suggest that the PF nature of sentence stress assignment may be relevant at the level in which movement operations that transform VO into OV have already applied. I will not explore this idea here, since I will propose that syntactic movements in some languages may or may not happen, depending on the relative importance of the constraints on focus. I will leave this issue open, and maintain the OV-VO distinction for reasons of coherence.

Let me now turn to the algorithm presented above. When the conditions for a constituent which has to be interpreted as focus to receive the sentence (neutral) most prominent stress are not met, a heavy stress has to be assigned. This happens e.g. in the case of multiple foci, in which two constituents cannot occupy the rightmost position at the same time.

Let us now see how the algorithm in (45) allows for identifying focus in the cases discussed above. In the case of a VSO sentence with high stress on the subject, the set of focused constituents will be the subject and the object. The subject is interpreted as focus, because it is the most prominent constituent. The object is interpreted as focus, because it is c-commanded by the subject. Since the verb is out of the c-command domain of the subject, it is not interpreted as focus.

In the case of VOS sentences, the subject bears the main neutral stress and does not c-command anything, hence it is the only constituent interpreted as focus. The focus on the subject may not project, because the unmarked work order is changed. The impossibility of rightmost focus to project when there are changes at the unmarked word order will not follow from any considerations in this chapter.

As for SVO, two situations are possible: the most natural is that the object is the rightmost element, bearing sentence neutral stress. In that case, since it does not c-command anything, only the object is interpreted as new information. The other two possibilities are interpretation of these sentences as VP-focus and everything in focus. These two interpretations also follow from the algorithm in (45), since the object is also the rightmost part of the constituent IP or VP that one wants to focus in cases of sentence-focus and VP-focus respectively. Focus projection is thus interpreted here as a natural consequence of the general neutral stress rule: assign the most prominent stress to the rightmost element. This rule is general to any constituent, independently of its label, as observed by Cinque (1993) among others:

(49) a. [$_{NP}$the good man with the red **shirt**]
   b. [$_{AP}$much more **beautiful**]
   c. [$_{PP}$before **midnight**]
   d. [$_{VP}$give something to **someone**]
   e. [$_{IP}$John gave a book to **Mary**]

Now, why is focus projection possible in a VSO sentence? The explanation is simple: since the subject is the most prominent constituent and the object is also focused due to the fact that it is c-commanded by the subject, it can be the case that the whole sentence is in focus, since the stress also falls on the rightmost element (see also Cinque 1993 and Reinhart 1995 for a similar reasoning).

Should it be possible then that stress on the final subject would also yield sentence-focus? In principle nothing precludes it, since the subject is both the rightmost element and the most prominent one. There is however a reason for excluding this possibility: if one compares a VOS structure with an SVO structure, they should be equal in terms of prosody. However, the latter is more marked, since the subject does not appear in its canonical position: Spec VP. Hence, since there is no difference in status in terms of possible interpretations, the least marked VOS sentence is more grammatical.

Let us now see why some sentences are impossible when associated to some interpretations, and how that follows from the algorithm in (45). Why can't a VSO sentence be interpreted with focus on the subject only? That is, why is (50B) not a felicitous answer to (50A):

(50) A: Who broke the window?
    B: * Espase O PAULOS to parathiro
        Broke Paul   the window

The problem with this answer is that it forces the object to be interpreted as new information, since it is within the c-command domain of the subject which bears the most prominent stress. Since *window* has been referred to in the discourse, this interpretation is not felicitous.

Another case excluded by the algorithm in (45) is the interpretation for a VSO sentence in which the subject is not stressed:

(51) * Espase o Paulos to PARATHIRO
      Broke Paul   the window

The problem with this sentence is that, according to the definitions in (45), only the object can be interpreted as focus. Now, if that is the case, the sentence is ruled out for either of the two following reasons: if the subject is to be interpreted as new information, the sentence is out since is not included in the focus set of constituents. This is because the subject is not c-commanded by the most prominent constituent. Alternatively, if the interpretation required is the one in which the subject is to be interpreted as focus, then there is no reason for it to stay in low position. Also, heavy stress should never appear in sentence final position unless for contrast purposes, since it is not necessary in order to assign main prominence to a constituent (recall the discussion of (46)).

It seems thus that the principles given above make a larger number of correct predictions, concerning the possible intonations and mappings between word orders, intonations and discourse functions.

3.4. Summary

Summarizing the results of this section, I present the following table, containing the several possible word orders with most prominent element marked in bold. The second column of the table indicates the focus set of constituents given by each word order, and the third column indicates the reason why some pairs word order/intonation and word order/focus-set are impossible:

(T1)

Word Order	Focus-set	Reason for ungrammaticality
SVO	O, VP or IP	
VSO	S and O, VP	
VOS	S	
*SVO	S	S is not c-commanded by the most prominent element
*SVO	S	V and O are c-commanded by the most prominent element; they should be part of focus-set
*SVO	IP	The sequence with unmarked stress blocks the more marked one
*VSO	IP	Stress is not in the rightmost constituent of IP
*VSO	IP	S should also be part of the focus. VSO in that case is preferable
*VSO	O	Stress falls on the subject
*VSO	O	Since the subject is not in focus, there is no reason for it to stay low
*VOS	VP, IP	VSO is preferable, since this word order is less marked
*VOS	S and O	O has been scrambled for escaping focus

(T1) illustrates the relevance of two aspects for the identification of focus: stress assignment and c-command by the most prominent element. These two aspects have been formalized in the algorithm for sentence stress assignment in (45) and (46).

It is important to note at this stage that the principles in (45)-(46) just represent the instructions hearers have to follow in order to identify the focus of a sentence. As such, these principles are quite descriptive in nature. They are explanatory only to the extent

that they follow from independent principles: in order to get to (45) and (46), it is necessary have a theory of phrasal phonology which relates sentence stress assignment to the directionality parameter (Nash 1995, Nespor, Guasti and Cristophe 1995). In addition, a theory of sentence structure making sure the c-command requirement is met in the relevant configuration is required. Finally, there has to be an independent explanation for the part of the principles that require focus to be prosodically prominent. It is a combination of these three aspects that makes it possible to arrive at a formulation of an algorithm for sentence stress identification, as given in (45)-(46).

For the purposes of this chapter, the most important aspect to keep in mind is the following: **prosody and c-command are crucial for the identification of focus.**
Regarding the debate on focus-in-situ vs. focus-movement on the Greek data discussed above, one may conclude that several rearrangement of the sentence word order must be done for the sake of identifying focus, although there is not one specific position where focused elements move on to the left periphery of the sentence, as is the case in Hungarian. Instead, focused elements seem to stay in the rightmost position, and in most cases they do not undergo any movement in order to reach this position. Given this behavior, the conclusion obtained is that Greek is not of the Hungarian type, and it can be treated as a language with focus in situ in the default form.

If Greek is a language with focus-in-situ, the hypothesis according to which languages with focus-in-situ move the focused constituents at LF to a position similar to the Hungarian one (Brody 1990) may be tested. Greek should be one of those languages in which there is LF-focus movement.

The goal of the next section is to evaluate the predictions of such a hypothesis.

4. Focus movement at LF

Assuming the description made in the last section, according to which the key-factor for word order rearrangements in Greek is the information structure of the sentence, and more precisely the location of sentential stress, it is now possible to use Greek as a test for Brody's hypothesis concerning LF-movement of in-situ focused constituents. Testing such hypothesis is the goal of this section.

Brody's proposal is that for an English sentence like (52a) there is a corresponding LF-representation (52b):

(52) a. $[_{IP}$ Mary loves JOHN]
       b. $[_{FP}$ John$_i$ $[_{IP}$ Mary loves t_i]

Let us now review the Greek data presented above and see what predictions such a proposal makes.

The discussion in section 4.1 and 4.2 will be conceptual and empirical: section 4.1 will argue that LF-movement of focused constituents is uneconomical; section 4.2 will argue that LF-movement of focused constituents is empirically inadequate.

4.1. LF-movement is uneconomical

A first problem with an analysis in terms of focus movement at LF for Greek is conceptual in nature. I have shown that there are several word orders available in Greek, each of them corresponding to a given information structure. In the previous sections, as well as in Haidou (2000), I have identified the nature of the operations yielding each word order which can be summarized in (53):

(53) SVO: subject in Spec IP/TP, object in base position
     VSO: subject in Spec VP, object in base position
     VOS: subject in Spec VP, object adjoined to VP
     OSV: subject in Spec IP/TP, object topicalized
     OVS: subject in Spec VP, object topicalized

The motivation for movement operations like scrambling, topicalization, or the postponing or canceling of movement like in cases in which the subject is left in situ is to create configurations which can be easily mapped onto prosody. For instance, objects scramble across the subject so that the latter is in the rightmost position of the sentence, receiving the main stress, and/or escaping this stress (not being interpreted as focus).

There is thus a set of operation yielding representations that constitute an output to be read off by prosody. These rearrangements in terms of word order are sufficient to identify the focus of the sentence. An application of the algorithm for the identification of focus presented in section 2 is sufficient for unambiguously identifying the focus of a sentence.

A functional projection for focus (Brody's Focus Phrase) and movement to this functional projection ensures that there is identification of focus at a certain level of a derivation. If foci are not identified in overt syntax, they are identified at LF.

A first problem with this type of approach is that there is no doubt that focus must be identified in overt structures. It always appears marked prosodically and/or morphologically, cf Givon 1990. It is however questionable if there is a notion relevant for LF. For instance, Vallduvi (1990) argues quite extensively that there should be an information component for the grammar, given the fact that focus does not change the truth-value of a sentence. Leaving aside this debate for the moment, it must be noted that this would entail that the grammar contains two independent mechanisms for identifying focus: a surface mechanism based on rearrangements carried out for the sake of a successful mapping onto prosody enabling an unambiguous identification of the focus of a sentence on the one hand, and a movement operation at LF which has the purpose on identifying focus on the other.

This situation is undesirable on conceptual grounds: there are two mechanisms for the same language deriving the same thing: identification of focus. The theory is therefore uneconomical (Chomky 1995).

If other cases of covert/overt movement are considered, it is not clear at all the fact that these also involve a duplication of licensing mechanisms. For instance, wh-in-situ languages do not resort to other operations in order to identify wh-in-situ. The only difference between, say Chinese and English has to do with the ordering of words, not with prosody.

The question whether one or two licensing mechanisms are necessary for focus is also an empirical one. If there is no empirical advantage in having movement at LF, this operation should be dispensed with. I will show that there are no arguments in favor of LF-movement, but also that this proposal is not descriptively adequate, since it makes the wrong predictions.

4.2. Prediction of focus-movement at LF
I have argued that c-command by the most prominent element is crucial to identify the focus of a sentence. The set of focused constituents may be identified with the most prominent constituent and everything that follows it (cf. 45 and 46).

Keeping in mind the relevance of c-command, let us now evaluate the predictions of LF-representations for each word order.

We could start with the possible LF-representations for a VSO sentence. Since the subject is the most prominent element, it might be assumed that this would be the element to be moved at LF, yielding an LF representation like in (54b):

(54) a. Efage o Paulos tin soupa
        Ate   Paul   the soup

LF-representation: (if the whole sentence is in focus)
     b. [FP o Paulos [IP efage tin soupa]]

The representation in (54b) raises two problems: first, it makes it impossible to distinguish this sentence from a VOS sentence in which the subject is in focus:

(55) a. Efage tin soupa o Paulos

LF-representation
     b. [FP o Paulos [IP efage tin soupa]]

This is because also in this case, the subject is the most prominent element of the sentence. I have argued above that the only difference between (54a) and (55a) is the position of the object (scrambled in VOS). Following Reinhart (1995), I also assume that scrambling takes place for prosodic reasons: in other terms, via scrambling, the object is out of the scope of the subject and as a consequence, it is not interpreted as a member of the set of the focused constituents of the sentence.

Now, in the LF-representations in the (b) sentences, this difference is lost. In both cases, the subject c-commands the object. Moreover, it also c-commands the verb, yielding no difference with respect to an unmarked SVO order:

(56) [IP O Paulos efage tin soupa]

LF-representation
     [FP [IP o Paulos efage tin soupa] [IP t]]

Therefore, LF movement to a focus position seems to destroy all the c-command configurations created at S-structure and necessary for identifying focus. Since the operations we identified at S-structure have as a purpose to create c-command configuration that allows identification of focus, it seems unreasonable that a covert LF-operation will undo this work.

Concluding, it seems that, given the relevance of c-command for the identification of focus, the LF-movement analysis makes wrong predictions. Either the scrambling operation is redundant or the LF focus movement operation is redundant; since scrambling is visible and LF-movement is not, it is more likely that the latter is non-existent.

In spite of the argumentation just presented, there are still some ways of rescuing the LF-movement approach. I will still list them and present some criticism to each hypothesis:

a) Traces keep the original c-command configuration

One could argue that the criticism raised above is meaningless, since it overlooks the

role played by traces in the identification of focus. If one of the purposes of focus-movement is to establish an operator-variable relation between a focus operator and its base position, the role of the trace (as a variable) is relevant.

Hence, one might say that for a VSO sentence like (54) repeated here the more specific LF-interpretation (57b) does not create any problem:

(57) a. Efage o Paulos tin soupa
       Ate   Paul   the soup

LF-representation: (if the whole sentence is in focus)
    b. $[_{FP}$ o Paulos $[_{IP}$ efage tin soupa]]

In (57b), in spite of the movement of the focused NP *o Paulos*, the c-command configuration that was relevant for S-structure is still maintained, since as its base position, the NP does not c-command the verb, and c-commands the object.

The problem with the LF-representation given before was that it is indistinguishable from the LF-representation for a VOS sentence. Taking into account the role that traces have, such a problem does not come up. The role of traces predicts a relevant difference with respect to a VOS structure. The relevant difference is that, since in a VOS sentence the base position of the subject is below the landing site of the object, the relevant c-command configuration is still maintained: at LF, the trace of the subject does not c-command the object: the relevant configuration is given in (58b):

(58) a. Efage tin soupa o Paulos

LF-representation
    b. $[_{FP}$ o Paulos$_i$ $[_{IP}$ efage tin soupa t$_i$]]

In (58b), the trace of the subject does not c-command anything: it is therefore that only focus in accordance with the algorithm presented in section 3 (46).

Now there is a flaw in the discussion in (58): remember I have proposed that the derivation of VOS sentences is done via scrambling of the object to the left of the subject, by adjunction to VP. If that is the case, there is also a trace in the base position of the object, hence the right LF-representation for (58a) is (59) rather that (58b):

(59) LF-representation for VOS:

    $[_{FP}$ o Paulos$_i$ $[_{IP}$ efage$[_{VP}$ tin soupa$_j$ $[_{VP}$ t$_i$ t$_j$]]]]

But if (59) is the right identification for a VOS sentence, and if traces are relevant for the identification of focus, the prediction is that a VOS sentence should always be ambiguous between a reading in which the subject and the object are focused and a reading in which only the subject is focused. Since that is not true, the role of traces in the identification of the base position of focused elements can be discarded, since it is empirically inadequate.

Summing up, once traces are taken into consideration, it must be assumed that all traces are relevant for identifying focus (or at least all traces of the same type). Since in VOS sentences, the object has been A-bar moved, we must assume that its trace is relevant for identification of focus for the sake of uniformity of analysis. This

assumption makes incorrect predictions.

b) All foci move:

Another attempt to solve the problems that arise in destroying the c-command configurations at LF may be to follow Brody's (1990) Focus-criterion, which suggests that, at LF, all focused constituents have to be in Spec of FP. Now if that is true, we have distinct LF-representations for VSO and VOS, avoiding the problems indicated above:

(60) VSO:
    a.   Efage o Paulos tin soupa
          Ate   Paul the soup

LF-representation:
    b. $[_{FP}$ [tin soupa]$_i$ [o Paulos]$_j$ $[_{IP}$ efage t$_j$ t$_i$]]

Since both the subject and the object are focused, both are moved at LF in a VSO sentence like (60b). Note that the representation has to be the one in (60b) and not the one in (61), since (61) involves crossing paths:

(61) $[_{FP}$ [o Paulos]$_j$ [tin soupa]$_i$ $[_{IP}$ efage t$_j$ t$_i$]]

In a VOS sentence, in which only the subject is in focus, the LF representation would involve only movement of the subject:

(62) VOS:
    a. Efage tin soupa o Paulos

LF-representation:
    b. $[_{FP}$ o Paulos$_i$ $[_{IP}$ efage$[_{VP}$ tin soupa$_j$ $[_{VP}$ t$_i$ t$_j$]]]]

Assuming that all foci must move to FP at LF makes the LF identification of focus ambiguous, but still not unproblematic.

In case there are two foci (subject and object), their order at LF mirrors the basic one in order to avoid crossing paths when they are moved. Now, LF-movement can be tested by looking at quantifier scope (May 1985). In keeping with the hypothesis that LF exists as a level of representation, it must be assumed that quantifier scope is represented at this level. If a scope relation is established, the quantifier which has wide scope c-commands the other quantifier at LF. Now, if the LF-representation for a VSO sentence is the one in (60b), and there are quantifiers in subject and object position, the sentence should be unambiguous with respect to the possible scope of the quantifiers: only object-wide-scope should be available. However, (63) shows that a VSO sentence may be ambiguous with respect to scope:

(63) Diavasan dio paidia   ena vivlio   (S>O, O>S)
    read   two children one book

From the LF-representation in (60b), a reading in which there is one book such that two boys read should be the only reading available. However, that is not true. This is

even more obvious if the subject contains a quantifier that obligatorily takes scope over the object:

(64) Diavase kathe kathigitis mia ergasia
     read   each professor an exam

The reading predicted by the LF movement hypothesis that all foci move respecting crossing paths does not emerge. The reading that may be read off the S-Structure relation between the two QPs is available. The sentence in (64) should be as bad as one in which *kathe/each* cannot ever take scope over the indefinite. In (65), I give such a case: if the sentence contains an adjunct with an indefinite, and if the adjunct is sentence final, the quantifier can scope over it (a). If the indefinite is not c-commanded by the quantifier, the sentence is very marked (65b):

(65) a   Kathe kathigitis milise me tin Maria se   diaforetiki mera
           Each teacher talked with Maria in a different day
           'Each teacher talked to Mary in a different day'
     b. ?? Se diaforetiki mera, kathe kathigitis milise me ti Maria
           In a different   day, each teacher talked with Maria

According to the hypothesis that all foci move, the VSO sentence in (64) should have the same status as (65b), which is not true.

It seems thus that moving all the focused constituents does solve the problem of having ambiguous LF-representations but makes wrong predictions with respect to quantifier scope. Therefore, this is not the way to solve the empirical problems the LF-analysis makes.

I should note that the argumentation just developed makes sense only in a framework not allowing for crossing dependencies. If the alternative approach is taken (permitting crossing but not nesting, as in Chomsky 1995), the argument still holds provided that the relative order between quantifiers is swapped. In such case, only subject wide scope would be predicted, which would remain problematic for ambiguous sentences like (66) repeated from above:

(66) Diavasan dio paidia   ena vivlio   (S>O, O>S)
     read   two children one book

c) Surface c-command has nothing to do with the LF-requirement

The third type of solution one might try to argue for in order to defend LF-movement of foci would be to say that the identification of focus done at S-Structure and the identification of focus at LF via movement to a functional projection are independent from each other. The former has to do with arranging words in a given order for a good mapping with prosody and the latter has to do with semantic identification. It is hard to see what the consequences of such a split would be. However, if focus is a semantic category invisible to prosody, there is no clear reason for why it should be marked prosodically. If instead, one treats focus in discourse/functional terms (e.g. Vallduvi 1990), the relation to prosody is clear: the most informative material in the sentence has to be assigned prominence, as argued in Givon 1990, and the structural semantic identification can be dispensed with.

This latter approach is more advantageous than the split between independent

prosodic and semantic licensing, since it captures the relation between function and form and the fact pointed out by von Stechow (1990) and Rooth (1985) among others that focus does not change the truth values, hence needs not to be represented at LF.

One problematic case for the claim that focus does not change the truth-values is raised by the following cases discussed in Rooth (1985) and Partee (1991) among others:

(67) OFFICERS always escort ballerinas
     Paraphrase:
     Everyone who escorted a ballerina was an officer

(68) Offices always escort BALLERINAS
     Paraphrase:
     Everyone who was escorted by an officer was a ballerina.

The problem with these sentences is that it seems that the position of stress does indeed alter the truth-conditions of the sentences. That is, we have a situation in which focus has truth-conditional import. Now, this is more evident when a Q-adverb (either covert or overt or any other element associated with focus, Rooth 1985) is present. In (69), the focus either on the subject or on the object does not make any significant difference:

(69) a. OFFICERS escorted ballerinas.
     b. Officers escorted ballerinas.
     c. Officers escorted BALLERINAS.

Partee (1991) notes that the relevance of focus in (67-68) is to decide what goes in the nuclear scope and in the restrictive clause of the focus-sensitive quantifier *always*. Her conclusion is that focus may be represented in the nuclear scope, and the focus frame in the restrictive clause:

(67') [$_{OP}$Always] [$_{RC}$ x escorts ballerinas] [$_{NS}$officers]

(68') [$_{OP}$Always] [$_{RC}$ escort officers x] [$_{NS}$ ballerinas]

For the argument made here that there is no need to move focused elements at LF, these examples are not problematic. Actually, according to Diesing's 1992 proposal concerning
a tripartite structure for quantification and its representation in the syntax (Diesing 1992), the prediction would be that the quantifier would be raised, and the focused constituents would stay inside VP (or undergo LF-reconstruction in the case of the subject), which is assumed to be part of syntactic structure to be mapped onto the nuclear scope.

Hence, even the cases where focus is truth-conditionally relevant provide evidence against focus movement at LF, for a proper mapping between syntactic structure and semantics, since the focused constituents should be VP-internal at LF and not in the specifier of a left-peripheral functional projection.

4.3. Conclusion
In this section, I have argued that LF-focus movement is conceptually undesirable,

since it reduplicates the identification of focus done at S-Structure. More importantly, LF-focus movement is empirically inadequate, since it destroys the c-command configurations which are relevant for the identification of focus.

Since it does not appear to exist any good justification for the function of this operation, I suggest to be dispensed with. In the next two sections, I will argue that two potential remaining arguments in favor of focus movement do not constitute conclusive evidence.

5. Focus preposing : overt focus movement

There are two types of arguments traditionally used in favor of some covert movement operation where there is no direct evidence in favor of it: one is the existence of overt movement of the same type within the same language; the other one is the existence of movement of the same type in some other language. In this section, we will look at the first type of argument and see that in spite of constructions like (70), which might be looked at as instances of focus- preposing, these sentences do not constitute evidence in favor of LF-focus movement:

(70) a . Auto to vivlio diavasa.
     That book   I read
     b. Me tin mitera tou, o Janis milise
     With his mother, John talked

The argument will go as follows: I will first show that Greek does not display focus-preposing of the type discussed in studies like Rizzi (1995) and Tsimpli (1990, 1995, 1997). I will further argue that the construction labelled focus-preposing by some authors displays quite different properties from the in-situ foci we have been looking at. The conclusion will be that in spite of the terminological coincidence, one construction may not be taken as an empirical argument for the analysis of the other.

The existence of preposing constructions is taken e.g. by Rizzi (1995) as evidence in favor of the existence of some kind of operator movement to a functional projection Focus Phrase. There may be preposing of different kinds, and Rizzi (1995) argues for several differences between preposed topics and preposed foci. The differences he points out are the following (71-74) are taken from from Rizzi (1995):

i)   Topics but not foci can be associated with a resumptive clitic:

(71) a. Il tuo libro, lo ho comprato.
     Your book, I bought it.
     b. IL TUO LIBRO, (*lo) ho comprato.

ii)   Foci but not topics induce weak-cross-over effects.

iii)   Bare quantificational elements may be focused but not topicalized

(72) a. *Nessuno, lo ho visto.
     No-one I saw him
     b. NESSUNO ho visto

iv)   There can only be one focus in the sentence, while there may be several topics.

(73) a. Il libro, a Gianni, glielo daro.
     The book, to John I'll give it to him.
     b. *IL LIBRO, A GIANNI, daro.

v)   Focus but not topics are incompatible with wh-elements.

(74) a. A Gianni, che cosa gli hai detto?
     To Gianni, what did you tell him?
     b. *A GIANNI che cosa hai detto?

Rizzi claims that the first three properties can be derived from the fact that focus but not topic is quantificational. The first property follows since quantifiers have to bind variables, and clitics are not legitimate variables. For the second property, Rizzi adopts Chomsky's account of the Weak cross-over facts. The bare quantifier facts are explained under the assumption that a legitimate variable has to be in an A-position. Since clitics are not legitimate variables, there will be no A-position serving as a variable for the bare quantifier.

Rizzi claims that the distributional properties of focused constituents (uniqueness and incompatibility with wh-phrases) can be accounted for assuming the existence of a functional projection where focused constituents move to. I will not discuss here whether there is much advantage in proposing a functional projection or a split –CP or restrictions on adjunction to IP in order to derive the focus-preposing phenomena, since the nature of the structural configuration explaining the distributional parts of the left periphery of the sentence in Italian falls outside the scope of this paper.

The relevant aspect of Rizzi's work for the present discussion is whether the existence of constructions like the ones he discusses is a good enough argument for assuming that focus in-situ involves LF-focus movement. Rizzi himself points out that the function of preposed and non-preposed foci is different: "[preposing]" could not be felicitous uttered as conveying non-contrastive new information (p5). However, he suggests that lower focalization (cf75), involving focal stress, which does not involve contrast, also involves placement at LF to the left periphery of the clause:

(75) From Rizzi 1995:
     Ho letto IL TUO LIBRO
     'I read your book'

In the remainder of this section, I will show that focus in-situ and focus preposing are two different phenomena, suggesting that they should be analyzed differently and that whatever version of Rizzi's analysis of focus preposing does not apply to focus-in-situ. Although I will argue, that Greek does not display focus-preposing of the Italian type, I will consider Rizzi's list of properties for the more restricted construction in Greek and show that these properties do not apply to in-situ foci. The aspects to be considered are the following:

i)   Greek will be shown not to have overall generalized focus preposing, which
        weakens the idea that focus in situ should be construed as part of a general
        movement operation, since its overt counterpart is a part of a different
        operation obeying different purposes as it will be shown

ii)   The construction involving focus preposing and focus in situ in Greek serve
        two different discourse functions, hence cannot be analyzed as a pure
        overt/covert manifestation of the same process, like in Brody (1990).

iii)   Focus-in-situ and preposing are not incompatible, as it would be expected if
        Rizzi's uniqueness constraint is correct and the moved element and the in-situ
        are of the same kind.

iv)   Focus-in-situ and wh-phrases are not in complementary distribution and the
        perform different functions

v)   Focus-in-situ is not quantificational.

I will not discuss weak cross over effects, since they can be derived independently of
the conclusions concerning LF-movement (Rooth 1985).
        The first aspect to be noted, which has been reported in several studies in Greek
(Tsimpli 1997, Agouraki 1990) is that Greek does have the same type of construction
that we can find in other Romance languages. Thus, in Greek it is possible to front a
bare quantifier:

(76) KANENAN den   ida
     No one   didn't I saw

This is in no contradiction with Italian (72), and is a clear sign that Greek does have
focus-preposing. The preposing is optional since a case as in (77) is also perfectly
grammatical:

(77) Den ida KANENA.
     No one I saw

More precisely, according to the literature, the similarity of NPIs (Negative Polarity
Items) and focus phrases is attributed to the [f] feature which gives rise to a wide
scope reading and allows elements to focus-move to clause-initial position. However,
polarity items are quantifiers and are thus expected to behave similarly with wh-
phrases in, for example, being able to co-occur in the same clause/sentence, as in (78).
The obligatory individual reading associated with the [f] feature is derived, in the case
of NPIs, by negation (den) which licenses the quantifier as depicting a zero number
set.

(78) KANENAS den ipe   TIPOTA se KANENAN
     No one   not said-3s nothing   to no one
     'Nobody said anything to anyone'

(79) * ISTORIA diavazi kanenas?
       History read-3s anyone?
       Does anyone read history?

(80) Den kserw ISTORIA an diavazi kanenas.
     Not know-1s history if read-3s anyone
     'I don't know if anyone reads history'

The in-between status of polarity items (-wh/-f) make them available to share
properties attributed to both quantificational/functional and individual elements. It is
in this respect that NPIs illustrate a case of lexically specified, quantificational
operator which, however, can appear to behave like a focus phrase in a specific
context, due to its acquired negative reading.
        Coming back to the above discussion, given the above instability of the status
of the NPIs and also the differences between focused constituents and wh-phrases. I
am not sure that the overt proposed construction may construe an argument for
movement at LF.
        In the rest of the section I will look at some data found in standard Portuguese
and I will try to compare them with the Greek ones. The syntactically marked focus
constructions that are found in Portuguese, described by Raposo (1994), among
others, involve quantified DPs, and can be exemplified in (81):

(81) Muito vinho o Joao bebeu!
     Much wine   Joao drank

This type of construction is much more natural in Portuguese if the sentence is
exclamative. The same holds also in Greek.

(82) Poly krasi o Janis ipie!.
      Much wine John drank

Comparing this construction with the Italian examples from Rizzi (1995), they appear
to be alike. Naturally, not all properties may be checked, since the construction is only
possible with quantified DPs:

i)   As far as the combination with clitics is concerned, the preposed quantified DP
        may not be doubled:

(83) a. Portuguese:
         Muito vinho, o Joao (*o) bebeu (*o)!
         Much wine, Joao it drank it
     b. Italian:
         IL TUO LIBRO, (*lo) ho comprato.
         Your book, it have-it I bought
     c. Greek:
         Poly krasi o Janis (*to) ipie!.
         Much wine John drank

ii)   There may only be one quantified DP in this preposing construction:

(84) Portuguese:
      a. Muitas vezes o Joao bebeu vinho!
          Many times Joao drank wine
      b. Muito vinho o Joao bebeu muitas vezes!
          Much wine Joao drank many times
      c. * Muitas vezes, muito vinho bebeu!
          Many times much wine Joao drank

Italian:
d. IL LIBRO, A GIANNI, daro
    The book to Gianni, (I-will-) give

(84a) is similar to (81) in terms of context, hence it may be seen as one of the so called 'focus preposing' constructions. (84c) illustrates that two quantified DPs may not be preposed. This sentence is only acceptable if the first preposed element is interpreted as a topic. The same is true also for Greek:

(85) Polles fores POLY KRASI o Janis ipie
     Many times much wine John drank

Under the exclamative interpretation that the Portuguese preposed DPs receive, the sentence is ungrammatical.

iii)   Preposed quantified DPs in the relevant interpretation are incompatible with wh-elements:

(86) Portuguese:
a. *Muito vinho, com quem e que o Joaa bebeu?
    Much wine, with whom Joao drank?
b. * Com quem, muito vinho o Joao bebeu?
    With whom much wine John drank
    Greek:
c. *Poly krasi, me pjon ipie o Janis?
    Much wine, with whom John drank
    Italian:
d. *A GIANNI, che cosa hai detto?
    To Gianni, what did you tell?

Again (86a) is only possible under a topic interpretation of the DP *muito vinho*. With the exclamative interpretation the sentence is ungrammatical. This is not surprising, since the preposing is more natural in exclamative sentences, and the sentence may not be simultaneously interrogative and exclamative in Portuguese. The Greek case is also excluded as a violation of strong islands.
Given the similarity in behavior with the Italian construction, when comparing in situ with moved foci, I will use quantified DPs as evidence that we are looking at syntactic foci.

5.1 The function of preposing
The two types of constructions can be fruitfully compared contrasting the function of preposing and focus in-situ respectively. It will be argued that for a constituent to be preposed, it has to yield given information, even in the constructions involving quantified DPs only.
    I have been considering throughout this chapter that the focus that appears in situ is used to introduce new information, hence it is felicitous as an answer to a wh-question:

(87) Pjon ide o Janis?
      Whom did John see?

O Janis ide pollou anthropous.
John   saw many people.

Now, if the difference between preposing and focus in situ is just a difference in terms of the locus of application of the operation focus-movement in the derivational history of the sentence, both cases are expected to yield a felicitous answer to a wh-question.
    What is a felicitous context for preposing? Consider the following fragments of discourse, in which preposing is felicitous. Preposing is possible and felicitous, if the preposed constituent is given in the discourse (or in the context). These are cases which preposing is not distinguishable from topicalization.

(88)   Pjos egage poly soupa?
       Who ate much soup?
       POLY SOUPA, kanis den efage.
       Much soup, noone ate.

(88)   Diavase kapjos to vivlio sou?
       Did anyone read your book?
       TO VIVLIO MOU, kaneis den diavase.
       My book, noone read.

Another context for preposing is in exclamative sentences:

(90)   Poly krasi o Janis ipie!.
       Much wine John drank

In these cases there is no explicit contrast with anything else. Note that however in an exclamative answer to a question, this word order is not licit if the quantified DP is new information (the information focus of the sentence). The relevant contrasts are given in (91) and (92):

(89)   Ti   ipje o Janis
       What drank John?
a. O Janis ipje poly krasi
    John drank much wine
b. *Poly krasi Janis ipje (preferably an answer to the question *'What happened?'*)
    Much wine John drank

A rather convincing information of the exclamative force of the sentences is that, it is impossible to add a question tag to a sentence with a preposed quantified DP, which shows that the sentence may not be interpreted as declarative:

(90)   Poly krasi ipje o Janis, (* den ipje?)
       Much wine drank John,   not drank

It is thus possible to conclude that the focus preposing construction may not serve always as a way to introduce new information. It is possible to obtain this word order if the quantified DP may be deduced from the context (cf.92).

(91)   To party itan apithano!
       The party was great
       Poly krasi o Janis ipje

As the examples above show, in a felicitous context for preposing, the constituent that is in the left periphery of the sentence has to have been previously mentioned in the discourse or to be deduced from the context. Moreover, it does not introduce new information. Rather, it contrasts or reassures some piece of old information with something else (the answer in the question-answer pairs). If preposing in the above cases would convey new information, it might be used for answering different types of questions. As shown above this is not true. Anytime there is preposing of a constituent of the above type in Greek, the information conveyed by that constituent is given (independently of whether it is further contrastive or topical). Actually, the part that answers the question can stay in situ by default as (93) and (94) illustrate, independently of whether the constituent conveying new information is contrasted to another one or not:

(92)   Pjon   sinandides xtes?
       Who did you meet yesterday?
       Xtes   sinandisa [poly kosmo]$_F$.
       Yesterday I met   many people.

An answer in which focus is fronted and the contrasted temporal adverb is left in situ is simply not the best option.

(93)   Pjon sinandides xtes?
       Who did you meet yesterday?
       ??[Poly kosmo]$_F$ sinandisa *xtes*
       many people I met   yesterday

This is true unless the focus of the sentence is itself contrasted:

(94)   Ti evales sto rafi?
       What did you put on the shelf?
       [POLLA PRAGMATA]$_F$ evala sto rafi, [LIGA PRAGMATA]$_F$ afisa stin karekla
       Many things   I put on the shelf, few things   I left on the chair.

But the question could be given also the following felicitous answer:

(96) *STO RAFI* evala [polla pragmata]$_F$, *STIN KAREKLA* afisa [liga pragmata]$_F$
       on the shelf I put   many things,   on the chair   I left   few things.

Thus it seems, that apart from the need to be contrasted, a constituent that constitutes absolutely new information can never appear in fronted position. In the same line of thought, topics may also be contrasted and preposed. This conclusion suggests that taking the constructions of preposing as the overt counterpart of focus in situ is erroneous, and that the label focus-proposing is often used without looking at the specific properties of the language involved and at the contexts in which each construction may be used, as also pointed by Buring (1994,1997).
       For the case of Greek, focus preposing is restricted to quantified DPs and

elements that the information the carry is identificational/contrastive or exhaustive given a specific set of contextual alternatives. However, even in these cases and the cases of information focus, focus preposing is not an alternative mechanism to focus in-situ, since their discourse function is different. Hence the construction involving preposing must not be taken as an argument for LF-movement of focused constituents.

5.2 Preposing and focus in situ are not incompatible
Turning now to the properties listed in Rizzi (1995), recall that it was observed that, differently from topicalized constituents, there is no recursion of focused constituents at the left periphery of the sentence:

(95)   (from Rizzi (1995))

       * A GIANNI, IL LIBRO daro (no a Piero,   l'articolo)
       to Gianni, the book I'll give, not to Piero, the article

According to Rizzi, this is so because there is only one position where foci can move. Rizzi's explanation goes as follows (leaving aside the technical interpretation): if there is one partition in terms of focus and presupposition , as soon as a first focus is identified, everything that follows it is obligatorily interpreted as presuppositional, hence the inappropriateness of two foci.
       Although this binary partition may be too simplistic, as argued by Vallduvi (1990) among others, Rizzi argues that the two foci of the same type cannot co-occur in the same sentence. Now, if this is true and if LF-focus movement exists, a preposed focus is not expected to co-occur with focus in situ, since the latter will be moving at LF creating a structure like (96). This is, however, incorrect as (97) shows, where a preposed focus (a quantified DP) co-occurs with a focus in-situ. The sequence may be interpreted as a legitimate answer to (98):

(96)   Pjos agorase ti?
       Who bought what?
       [O Markos]$_F$ agorase [nea mixani]$_F$
       Mark   bought a new motorbike.

If the distinction between focus preposing and focus-in situ could be reduced to a simple difference in terms of locus of application of movement, the contrast between (96) and (97) would not be possible to explain. If, instead, focus in-situ is interpreted as suggested above, there is no problem when comparing these two structures.

5.3 Focus in situ and wh-phrases are not in complementary distribution.
Another property of focus-preposing constructions pointed out by Rizzi is the complementary distribution between preposed foci and wh-phrases. I have already shown that the same is true for Greek. A preposed quantified DP may not co-occur with a wh-phrase and keep the relevant interpretation.

(98)   *POLY KRASI, me pjon ipje o Paulos?
       Much wine, with who Paul drank?

Differently from preposed constituents, in situ focus material is not in complementary

distribution with wh-phrases. This can be attested in fragments of discourse like the following:

(99)   Rotises   pjos ide pjon xtes?
              You asked who saw whom yesterday
              Rotisa pjos ide xtes   ti Maria
              I asked who saw yesterday Maria.

In (99), there is a wh-phrase and a focused constituent. If the latter would be moved at LF to same position where preposed constituents appear, the sentence should be as ungrammatical as its overt counterpart (independently of the ordering between wh-phrase and preposed constituent, as shown by Rizzi):

(100) * rotisa POLLI ANTROPI pjon idan
         I asked many people who saw
         * rotisa pjon idan POLLI ANTROPI
         I asked who many people saw

Again, the evidence seems to indicate that focus in situ should be interpreted in situ and that there is no parallel between focus in situ and preposing.

5.4. Focus-in-situ is not quantificational

Kiss (1996) argues that focus-in-situ differs from constructions involving preposing in that it is not quantificational. First of all, it does not change the truth value of the sentence, and secondly it does not involve (semantic) uniqueness.

     Kiss (1996) illustrates this by comparing cleft sentences with sentences having in-situ focus but the same tests may be applied to the difference between focus-in-situ and preposing. The crucial tests for identifying the quantificational nature of focus come from Szalbocsi (1981), who show that the displaced foci in Hungarian do have quantificational force and do change the truth values of the sentences because they imply uniqueness. Szalbocsi (1981) uses two types of tests, given in A and B, below, and tested for English and Greek respectively.

A: if one coordinated NP is in focus inside a negative sentence and it is opposed to its positive variant from which one of the coordinates has been dropped, then there is exhaustiveness.
     Cf. the following examples from English and Greek respectively

(101) JOHN and MARY, I didn't see, but JOHN I saw.

(102)   POLI KRASI kai POLI SABANIA den ipja, alla POLY SABANIA ipja.
        Much wine and much champagne I didn't drink, but much champagne I drank.

Note that focus in situ, as noted by Kiss (1996), does not pass this first test of exhaustivity:

(102) *I didn't see [John and Mary]$_F$, but I saw John.
(103) *Den ipja poli krasi kai sabania, all ipja poli sabania
        I didn't drink much wine and champagne but I drank much champagne.

(102) and (103) are not well formed sentences, because they are contradictory.

The second test for exhaustivity proposed by Scalbosci (1981) and used by Kiss (1996) is the following:

B: If there are two sentences, of which the first one contains a focused coordinate NP, and the second one only contains one of the coordinates and may be interpreted as a logical consequence of the first one, there is no exhaustiveness:

(104) JOHN and PETER, I saw.
        JOHN I saw.

(105) TON PAULO kai TON PETRO ida.
        TON PAULO ida.
        Paul and Peter I saw.
        Paul I saw.

With focus in situ the implicatures are possible since there is no exhaustivity involved:

(106) I saw John and Peter →
        I saw John →

(107) Ida [Petro kai Paulo]$_F$
        I saw Peter and Paul →
        Ida to Petro
        I saw Peter

The lack of parallelism between these two cases in terms of influence on the truth value of the sentence and quantificational force makes it suspicious to attempt a unification between the two types of focus.

     I should note at the end of this section that the results of the tests from (101)-(107) are not too strong. These tests yield clearer results with cleft sentences mostly in English (Greek does not have the type of clefts found in other languages but pseudoclefts). As far as I can tell, the reason why these sentences are not too good has probably to do with the exclamative interpretation associated with the preposing constructions. This makes it difficult to evaluate them with respect to their semantics, since exclamative sentences do not necessarily express a truth-value but rather a subjective meaning.

6. Conclusions

In this paper, I managed to reach a number of conclusions. Firstly, prosody and c-command are quite relevant for the overt identification of focus in Greek. Moving information foci at LF is disadvantageous, that is: i) it reduplicates the process of identifying the focus-set of constituents; ii) it destroys the c-command configurations which are relevant for the identification of focus.

     Secondly, one potential source of evidence for LF-focus movement is the alleged existence of overt focus-movement, as argued in Kiss 1995, Brody 1990, among others. I have compared focus-in situ with construction involving preposing, and showed that

they are different in terms of discourse function. This comparison served as a means to argue that, given the differences, the construction involving preposing must not be taken as evidence for the postulation of covert movement of the in-situ focused constituents.

Finally, a piece of potential evidence for LF-focus movement considered here was the case of Hungarian, where focused constituents move overtly. Although it is by no means obvious that the existence of one construction in one language may constitute an empirical argument for postulating a similar operation in another language, I have presented Kiss's (1996) arguments showing that the Hungarian construction is not the counterpart of focus-in-situ in other languages but rather the counterpart of cleft constructions in languages like English. I further confirmed Kiss's conclusions, showing that in Greek as well, the counterpart of the Hungarian construction is the 'so-called' cleft or 'pseudocleft' constructions.

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