Polarity Sensitivity as (Non)Veridical Dependency

Anastasia Giannakidou

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(NON)VERIDICAL DEPENDENCY

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ANASTASIA GIANNAKIDOU

University of Amsterdam

Αν δεν στηρίξεις το ένα σου πόδι έξω από τη Γη
ποτέ σου δεν θα μπορέσεις
να σταθείς επάνω της.

[Οδυσσέας Ελύτης, ΜΑΡΙΑ ΝΕΦΕΛΗ]

Preface

This book presents the theory of polarity sensitivity I have been developing in a number of publications (1994, 1995, 1996) culminating in my dissertation "The Landscape of Polarity Items", defended at the University of Groningen in January 1997. Although the organization of the material has remained faithful to the structure of the dissertation, some substantial modifications have been made in order to make the argument about (non)veridicality more clear.

Most importantly, the orientation in this book has changed. In the dissertation, I emphasized the issue of diversity: the aim was to show that what the previous literature lumped together under the label "polarity sensitivity" consists in fact of various subphenomena which are not identical, and which should thus be studied and understood on their own terms. In the present study, I take this result for granted; the goal now is to determine what the various manifestations of polarity have in common. I will argue that the common core in all polarity phenomena is sensitivity to (non)veridicality. Sensitivities to negation or downward entailment emerge as subcases thereof.

Another change concerns the issue of sensitivity. In the dissertation, I criticized previous theories of polarity as neglecting the relation between polarity items and licensing (or anti-licensing) property, but I didn't deal with the issue myself. In this book, the sensitivity issue is taken seriously: limited distribution is linked to the lexical semantics of polarity items and is shown to follow directly from their sensitivity specifications.

Finally, considerable modifications have been made as regards the syntactic mapping of polarity dependencies, more specifically, the analysis of negative licensing and negative concord in chapter 4. The important conclusion there will be that licensing, an instance of semantic dependency, does not necessarily correspond to a syntactic be-in-the-scope-of-licenser requirement. In some cases, for instance for the interpretation of negative concord, it is required that the licensee escape the scope of the licenser.

These three major changes are visible in the addition of new material in chapters 2 and 3, and the re-analysis of the original data reported in my dissertation in chapter 4.

I wish to thank a number of people for helping me write this book. First of all, I owe a lot to Frans Zwarts. I would like to thank Frans not only for his linguistic aid, but also for his continuous support and help in dealing with everything. I do sincerely hope that he likes this book. Many thanks also to members of my former thesis committee: Donka Farkas, Jack Hoeksema and Bill Ladusaw. They always made me feel that I can rely on them.

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CHAPTER 1

The Semantic Nature of Polarity Sensitivity

Polarity phenomena have been known to generative linguists since Klima (1964). The pattern involves expressions which are not grammatical in just any environment, but only in sentences exemplifying the feature Klima called *affective*. These expressions are known as *polarity items*, and although the term 'affective' is not precisely defined in Klima's work, appeal to polarity implies that the expressions at hand are subject to some kind of dependency which is best conceptualized as polarization (negation or affirmation).

For this reason, most accounts appeal to negation and downward entailment (and their opposites) in order to explain the distribution of polarity items. Yet in this tradition a wealth of data is systematically left unaccounted for. In addition, the link between polarity items and the property they depend upon, which should be of primary importance since it addresses directly the issue of sensitivity, is quite seriously overlooked.

In this book, I propose a theory of polarity sensitivity which avoids the empirical and conceptual problems of the previous approaches by introducing a notion wider than negation and downward entailment: (non)veridicality. The leading idea is that the various polarity phenomena observed in language are manifestations of the dependency of polarity items to the (non)veridicality of the context of appearance. Dependencies to negation or downward entailment emerge as subcases of sensitivity to nonveridicality. The analysis relies mainly on the examination of polarity dependencies as they are manifested in Greek, but the scope of the proposed theory is not limited to Greek only. It will be shown that the constraints on polarity items like English *any*, Dutch *ooit* and *ook maar iets*, and their equivalents in other languages follow directly from the hypothesis that polarity sensitivity is dependency to (non)veridicality.

In this chapter, I outline the basic features of the theory of polarity sensitivity I will be assuming, organizing the discussion as follows. In §1.1, a review of the major classical approaches is given, with emphasis on the problems they encounter. In §1.2, I propose to tease apart several distinct sensitivities which are lumped together in a general label of negative polarity and polarity sensitivity. The basic notions of 'semantic dependency', 'licensing', and 'anti-licensing' are defined and illustrated with some examples. Limited distribution will be linked to the lexical semantics of polarity items by using the metaphor of 'sensitivity features'. Finally, in §1.3, the proposed theory of polarity will be embedded into a dynamic semantic framework. To this end, the core notions of dynamic semantics will be presented and explicated, as they become relevant in dealing with the semantic issues to be discussed later in this book.

1.1 Previous approaches

The most famous polarity item (PI) is the English determiner *any*. *Any* occurs in the scope of negation, as in (1a), but is barred in affirmative sentences, as shown in (1b):

(1)   a   I didn't see anybody.
        b   * I saw anybody.

Counterparts of *any* exist in many languages (see, among others, Kürschner 1983 for German, Zwarts 1986, van der Wouden 1994, and Rullmann 1995 for Dutch, Bosque 1980, Vallduví 1994 for Catalan, Laka 1990 for Basque, Progovac 1988, 1994 for Serbian/Croatian, Giannakidou 1997a for Greek, and Haspelmath 1993, 1997 for an overview).

PIs may be atomic, like *any,* or complex like *lift a finger* in (2), and they may belong to various syntactic categories: DPs like *anybody* above, prepositions like *until* in (3), adverbs like *yet* in (4), adjectives like the Greek *efkatafroniti* 'rejectable' and the Dutch *noemenswaardig* 'worthy of mentioning' in (5)-(6), and (modal) verbs like the Greek *xriazete* 'need' in (7). Polarized modals are attested in many languages (cf. Dutch *hoeven*, German *brauchen*, English *need*; see van der Wouden 1996 for data):

(2)   Ruth didn't lift a finger to help me.
(3)   Ruth didn't start writing until midnight.
(4)   Ruth hasn't arrived yet.

(5)   I   prosfora tu   dhen ine   katholu efkatafroniti.
       the offer   his not   be.3sg at-all   rejectable
       'His offer is not all rejectable.'
(6)   Hij boekte   geen noemenswaardige voruitgang.
       he made.3sg no   mentionworthy   progress
       'He made no progress to speak of.'
(7)   Dhe xriazete   na   feris   pola   lefta.
       not   need.3sg subj bring.2sg much money
       'You need not bring much money with you.'

A comprehensive theory of polarity sensitivity should address and deal
with two fundamental issues: the question of sensitivity, and the 'licenser
question' (cf. Israel 1996, Ladusaw 1996). The former concerns the relation
between PIs and the property they depend upon for grammaticality. Why are
PIs sensitive to the types of environments they are? For a successful answer,
the semantic properties of PIs should be linked to those of the environments
which allow or disallow them, and, in this sense, limited distribution arises as
the product of sensitivity semantics. The issue addresses directly the heart of
the matter, i.e. the source of sensitivity and limited distribution, but the atten-
tion it has received in the relevant literature is remarkably small (with the ex-
ception perhaps of the syntactic proposal in Progovac 1988, 1994).

        By contrast, the licenser question has been dealt with extensively. The
licenser question addresses the issue of what the formal property is that all af-
fective environments share. Generally, it is believed that these environments
can be understood as forming a natural class in terms of some property and
there have been attempts to formulate conditions which will be able to predict
the distribution of PIs within and across languages. Through the decades, two
distinct traditions have been developed.

        The first tradition assumes a semantic characterization of the term af-
fective as negative. Baker (1970) and Linebarger (1980, 1987) argue that *any* is
licensed in a sentence S either if S itself is negative or if, in the absence of
overt negative marking, S gives rise to a negative sentence S', where S' is an
entailment (for Baker) or an implicature (for Linebarger).

        The second tradition originates in Ladusaw (1979). Ladusaw builds on
the insights of the research in the area of scalar predication (Horn 1972, Fau-
connier 1975, and related work). The key observation is that PIs occur in scale
reversing contexts. Identifying downward entailment (DE, or monotone de-
creasingness) as the semantic property which gives rise to scale reversal,
Ladusaw's main tenet is that PIs will be acceptable only if they are located in

the scope of expressions denoting DE functions. Zwarts (1986, 1993), Hoek-sema (1983, 1986), van der Wouden (1994), Dowty (1994), and Israel (1996), *inter alia*, build on Ladusaw's hypothesis and advance theories of PI-licensing based on DE. [1]

Regardless of orientation, every attempt to formulate strong licensing conditions which will capture the distribution of PIs in terms of negation or DE makes only partially correct predictions and leaves a large number of data un-accounted for. In addition, neither approach addresses the sensitivity issue. What seems to be called for is a theory of polarity sensitivity which will be general enough to account for sensitivities that might include negation or DE, and, at the same time, refined and restrictive enough to predict the correct dis-tribution for PIs by linking it to their sensitivity semantics.

1.1.1 Affective as negative

Klima (1964) postulates that items like *any* must be found "in construction with" (i.e. c-commanded by) negation, or an expression bearing the feature [+affective]. The precise semantic nature of this feature is left undetermined (though it is stated that it should include negative and interrogative features).

Baker (1970) proposes a divide between positive polarity items (PPIs) and negative polarity items (NPIs) and discusses the wellformedness condi-tions on the licensing of both. *Would rather* and *some* are characterized as PPIs. The former is ungrammatical under negation, as we see in (8), and the latter is grammatical but escapes the scope of negation, as shown in (9) :

(8)   * I wouldn't rather be in Montpellier.

(9)   a   Margo didn't see some students.

        b $\exists$x [student (x) $\wedge$ $\neg$ saw (Margo , x)]

        c   # $\neg$ $\exists$x [student (x) $\wedge$ saw (Margo, x)]

Sentence (9a) lacks the reading in (9c), where negation takes wide scope, and it is said that Margo saw no students at all. Rather, (9a) can only be interpreted as in (9b), that is, as a statement about some students, for instance Paul, Frank and

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[1] A third approach can be distinguished, advocated in Quirk et alii (1985) and Haspelmath (1993, 1997). This theory attributes the licensing force to the lack of existential entailments characterizing both the licensing contexts and the PIs themselves. This approach is very close in spirit to the nonveridicality analysis of affective licensing I develop in this book.

Bill, such that Margo didn't see those students. Hence wellformedness for potential PPIs does not always involve ungrammaticality (a fact to which we return in §1.2).

The opposition negative versus positive polarity relates to the idea that expressions of limited distribution are polarized with respect to negation or affirmation. For NPIs, Baker proposes the condition we see in (10):

(10)   *Baker's (1970) licensing condition*
        (i) NPIs are appropriate within the scope of negations, whereas PPIs are appropriate elsewhere.   [Baker 1970: (47a)]
        (ii) Given semantic representations P1 and P2 satisfying the following conditions:
        (A) P1= X1 Y Z1 and P2= X2 Y Z2, where Y is itself a wellformed semantic representation;
        (B) P1 entails P2;
        then the lexical representation appropriate to Y in P2 (by (i)) is also appropriate to Y in P1.   [Baker 1970: (47b)]

So NPIs are licensed by negation, but negation need not be syntactically present. NPIs are acceptable either if (i) is met, thus in a negative sentence, or if (ii) is met, thus in an affirmative sentence which entails a negative one. For instance, *any friends* in the affirmative (11a) is licensed via the negative entailment in (11b):

(11)   a   Frank is surprised that Ruth has any friends.
        b   Frank expected that Ruth would not have any friends.

The essence of Baker's proposal is adopted in Linebarger (1980, 1987). Linebarger's proposal consists of the two parts we see in (12):

(12)   *Linebarger (1980, 1987)*
        Part (A): The Immediate Scope Constraint [ISC; Linebarger 1987: 336]
        An NPI is acceptable in a sentence S if in the LF of S the subformula representing the NPI is in the immediate scope of the negation operator NOT. An element'is in the immediate scope of NOT only if (1) it occurs in a proposition that is the entire scope of NOT, and (2) within this proposition there are no logical elements intervening between it and NOT.

Part (B)   [Linebarger 1987: 346]
(i) Expectation of negative implicature is itself a conventional implica-
ture. An NPI contributes to a sentence S expressing a proposition P the
conventional implicature that the following two conditions are satisfied.
(ii) Availability of negative implicatum. There is some proposition NI
(which may be identical to P) which is implicated or entailed by S and
which is part of what the speaker is attempting to convey in uttering S.
In the LF of some sentence S' expressing NI, the lexical representation
of the NPI occurs in the immediate scope of negation. In the event that
S is distinct from S', we may say that in uttering S the speaker is mak-
ing an allusion to S'.
(iii) NI strengthens P. The truth of NI, in the context of utterance, virtu-
ally guarantees the truth of P.

In Linebarger's system, the primary licensing source is negation; NPIs must
always be found in the scope of negation which is a requirement trivially met
in negative sentences. In nonnegative sentences, a negative (conversational)
implicature is invoked as an indirect licensing mechanism. Part B derives
NPIs, for instance, in the scope of *only* from the implicature we see in the b-
sentence (the example is from Linebarger 1987):

(13)   a   Only John has a hope in hell of passing.
        b   Whoever is not John does not have a hope in hell of passing.

NPIs are claimed to be in the scope of negation at the syntactic level of
Logical Form (LF; the input to semantic intepretation). Linebarger generalizes
her proposal to the totality of licensing environments resulting thereby in a
theory which is not adequately constrained. Many affective environments can-
not be characterized as negative, many others do not give rise to a negative im-
plicature, and finally some environments may give rise to a negative implica-
ture but will not sanction PIs as will become obvious from the discussion be-
low of English *any,* and of Greek PIs in chapters 2 and 3. Appeal to a negative
implicature will be desirable in some instances of NPIs but, crucially, it cannot
serve as the basis for a general condition on PI-licensing.

    Part A reflects the idea that the relationship between the licenser
(negation) and the licensee (NPI) must be local. The ISC expresses the locality
restriction as a scope condition holding at LF and it is invoked to rule out the
occurrence of a *red cent* in (14a). Linebarger assumes an argument structure
where goals are structurally higher than themes, and under this account, *to*

every charity in (14a) is higher than *a red cent* at LF, as indicated in (14b). The sequence [NEG EVERY ANY] makes *a red cent* illicit because the PI is not found in the immediate scope of negation:

(14) a   * Paul didn't give a red cent to every charity.
      b   [Paul did NOT [give to every charity₁ [a red cent t₁]]]

The ISC is also claimed to account for the nonnegative interpretation of (15a), where the *because*-clause, rather than the main clause, is in the immediate scope of negation:

(15) a   Lucy didn't speak because she was afraid of anyone.
      b   [Lucy spoke [NOT [because she was afraid of anyone]]]
      c   # [NOT [Lucy spoke [because she was afraid of anyone]]]

Negation takes the *because*-clause, and not the main clause, in its immediate scope in (15a) yielding the LF in (15b) as the only possible LF. As a result, the main clause in (15a) is not negated.

      The need to postulate locality constraints for the syntactic licensing of the items under consideration expresses a strong insight. To this end, an appeal to the notion of intervener must be made and it is important to identify what type of elements actually count as interveners. The sentences in (16) show that bare NPs, singular indefinites, definite DPs, and *any*-DPs do not block NPI-licensing (for a similar argument see Jackson 1994, and Kas and Zwarts 1995):

(16) a   No doctor gave any medicine to patients of this hospital.
      b   No doctor gave any medicine to a patient of this hospital.
      c   No doctor gave any medicine to the patients of this hospital.
      d   No doctor gave any medicine to any patients of this hospital.

The data in (16) suggest that the ISC, as it stands, lacks full empirical support. It seems that the ISC has to be reformulated as a condition on the intervention of *every* and related quantificational expressions, and not of just any blocking operator. In this sense, the ISC patterns with Beck's (1996) Minimal Clause Quantifier Constraint, which postulates that no LF dependency may cross a quantificational barrier. Although Linebarger herself does not tackle the issue, identification of the harmful interveners is a non-trivial task (see some discussion in Giannakidou to appear, and Acquaviva 1997 specifically for intervention effects; the issue will be tackled in more detail in §4.6).

1.1.2 Affective as downward entailing

In a tradition different from Baker's and Linebarger's, the term affective is understood as coextensive to DE. This is the view originally taken in Ladusaw (1979) and followed in, among others, Hoeksema (1983), Zwarts (1986, 1993, 1996), van der Wouden (1994), and Dowty (1994).

Ladusaw proposed that NPIs are acceptable only if they are located in the scope of expressions which denote DE functions. Unlike upward entailing (UE) functions, which are order preserving and closed under supersets, DE functions are order reversing and closed under subsets. Both cases are illustrated in the definitions below:

(17)   **DEFINITION 1** (Upward entailing function).
       A function f is upward entailing iff for every arbitrary element X,Y it holds that: $X \subseteq Y \rightarrow f(X) \subseteq f(Y)$

       DEFINITION 2 (Downward entailing function).
       A function f is downward entailing iff for every arbitrary element X,Y it holds that: $X \subseteq Y \rightarrow f(Y) \subseteq f(X)$

In UE contexts, inference from set to supersets is supported; UE functions are upward monotone. On the other hand, expressions denoting DE functions allow inference from sets to subsets in their scope, i.e. they are downward monotone. In DE contexts, expressions denoting sets can be substituted for expressions denoting subsets *salva veritate*. It is shown below that negation and negative DPs are DE, whereas the DP *some children* validates the UE pattern:

(18)   a   Lucy does not like ice cream.
              [Italian ice cream] $\subseteq$ [ice cream]
              _____
              Lucy does not like Italian ice cream.

       b   No children like ice cream.
              [Italian ice cream] $\subseteq$ [ice cream]
              _____
              No children like Italian ice cream.

(19)   a   Lucy does not like Italian ice cream.

              [[Italian ice cream]] ⊆ [[ice cream]]

       \#   Lucy does not like ice cream.

       b   No children like Italian ice cream.

              [[Italian ice cream]] ⊆ [[ice cream]]

       \#   No children like ice cream.

(20)   a   Some children like Italian ice cream.

              [[Italian ice cream]] ⊆ [[ice cream]]

              Some children like ice cream.

       b   Some children like ice cream.

              [[Italian ice cream]] ⊆ [[ice cream]]

       \#   Some children like Italian ice cream.

The inferential results indicated above are quite straightforward. Functions can also be non-monotone (NM). Quantifiers like *exactly n N* denote NM functions. Sentences with *exactly n N* do not allow inference in either direction:

(21)   a   Exactly three children like Italian ice cream.

              [[Italian ice cream]] ⊆ [[ice cream]]

       \#   Exactly three children like ice cream.

       b   Exactly three children like ice cream.

              [[Italian ice cream]] ⊆ [[ice cream]]

       \#   Exactly three children like Italian ice cream.

In a universe consisting of more than three children, knowing that exactly three children like Italian ice cream does not allow us to infer that exactly three children like ice cream. Likewise, in the same universe, knowing that exactly three

children like ice cream does not sanction the inference that exactly three children like Italian ice cream.

Ladusaw's licensing condition postulates that an expression α will "trigger", i.e. license, NPIs if α is DE. If α is UE or NM, it will not be able to trigger NPIs. This is summarized in (22):

(22)   *Ladusaw's (1979) licensing condition*
        α is a trigger for NPIs in its scope iff α is downward entailing.

Dowty (1994) goes even further and proposes that marking DE inferences is the *raison d'être* for NPIs (but it remains a question why it is important for natural language to mark DE in the first place). The prediction of (22) is that negation and negative DPs will be appropriate NPI-triggers whereas positive DPs such as *some children* or NM quantifiers such as *exactly three students* will not be. We observe in (23) that this prediction is for the most part borne out (% indicates variation in acceptability across speakers):

(23)   a   No students saw anything.
        b   * Some students saw anything.
        c   % Exactly three students saw anything.

Although it is true that UE expressions like *some children* do not allow *any* in their scope, the judgments about NM expressions vary. Linebarger (1987) accepts sentences like (23c) with *exactly three students* as grammatical: *exactly three students* ϕ gives rise to the negative implicature *no more than three students* ψ and it can thus license NPIs. If (23c) is indeed partially acceptable, then we already have a counterargument for the DE approach to NPIs. Accounting for it by appealing to an equivalence between (23c) and a statement like *Only three students saw anything* does not provide much help, as the DE properties of *only* has been questioned in the literature (see discussion below).

In addition to negation and negative quantifiers, the condition in (22) predicts grammaticality of NPIs in the scope of *few,* in the clausal complement of negative predicates, in clausal comparatives, and in the restriction of the universal quantifier, since these constructions can be properly characterized as DE. We see below that this prediction is borne out.

(24)   Few children saw anything.
(25)   Frank denied that he said anything.
(26)   Bill runs faster than anybody thought he could.

(27)   Everyone who knew anything about the accident spoke to the police.

Hence for this type of data, conditions like (22) can be adequate.

1.1.3 Problems with downward entailment as the licensing property

Invoking DE as the answer to the licenser question has been extremely appealing from the semantic point of view because Ladusaw's proposal offered, for the first time, a coherent semantic characterization of API-licensers. Yet, if we look at the data more carefully, numerous problems arise, which seriously question the validity of conditions like (22).

Perhaps the most serious problem is that, crosslingusitically, PIs are licensed in contexts which are not DE (see extensive discussion in chapters 2 and 3 for Greek, and Haspelmath 1993, 1997 for data from a variety of languages). But the same problem appears even if we limit the scope of the discussion to *any*, the item (22) was designed to primarily account for. This limitation on the empirical side plagues, of course, not only DE-based theories, but also, and indeed more seriously, the negation-based approach.

Consider the distribution of *any*, partially illustrated in (28) (examples (28h,l) due to Jason Merchant, and (28n) due to Larry Horn):

(28)   a   Lucy didn't see anyone.   [negation]
        b   Did Lucy see anyone?   [yes/no nonrhetorical question]
        c   Who has seen any students?   [*wh*-nonrhetorical question]
        d   They insisted that we let anyone in.   [intensional verb]
        e   Take any apple!   [imperative]
        f   If you sleep with anybody else...   [*if*-clause]
        g   Any application from Groningen will be considered.[modal verb]
        h   At our meeting tonight, anybody is welcome.   [implicit modal]
        i   I am surprised he has any friends.   [factive verb]
        j   Anyone can answer this question.   [modal verb]
        k   Any cat hunts mice.   [generic]
        l   Nobody but Paul saw anything.   [NM quantifier]
        m   Only Paul saw anybody.   [only]
        n   % I hope there is any left   [intensional verb]

It is not immediately obvious how, if at all, interrogatives, imperatives, conditionals and the whole bulk of the environments in (28) are to be associated with DE (or negation for that matter). In fact, in a semantics of interrogatives along

the lines of Groenendijk and Stokhof (1984, 1997), interrogatives can be at most NM. Likewise, the imperative and generic sentences cannot be monotone, and intensional and modal contexts do not have any monotonicity properties either (see especially Keenan and Faltz 1985). Additionally, the DE of *only* and the conditional protasis have been questioned (Heim 1984). Finally, a NM quantifier like *nobody but Paul* in (28l) provides a licensing context for *any*, yet it lacks inherent monotonic properties (cf. Keenan 1996).

Dayal (1995) discusses, in this connection, some older data from Le-Grand (1975), where *any* is licensed in plain affirmative sentences like the ones in (29) and (30):

(29)   Frank talked to any woman who came up to him at the party.
(30)   Any woman who saw a fly in the food didn't have dinner.

The phenomenon is dubbed "subtrigging" in LeGrand (1975). There are, of course, constraints on subtrigging *any,* discussed at length in Dayal (1995) and Quer (1998); the fact remains, however, that subtrigged *any* appears in contexts which are not negative or DE in any obvious way. [2]

As an objection, one might argue that the strength of the critique here can be undercut by saying that some instances of *any* in (28) are actually instances of *free-choice any*. This, however, is not a real objection because it presumes that the opposition between free choice and NPI-*any* corresponds to a lexical distinction (see Ladusaw 1979, Carlson 1980 and references therein for opposing views). This is not an uncontroversial assumption. In fact, it makes sense to handle *any* as one item, anti-licensed by veridicality in way to be made precise in §3.5.3.

More problems arise if we examine more closely the DE area. Consider first the case of *any* in the restriction of the universal quantifier. According to (22), in (31), where the relative clause provides the restriction of *every*, it is the DE status of the relative clause that permits *anything* to appear. Note, however, the contrast between *every* and *each/both* illustrated in (32)-(33):

(31)   Every student who saw anything, spoke to the police.

(32)   *Each student who saw anything, spoke to the police.
(33)   *Both students who saw anything, spoke to the police.

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[2] Quer (1998) proposes an analysis of subtrigging in terms of nonveridicality. I will not consider subtrigging in this book, but see Dayal (1995) and Quer (1998) for discussion.

The contrast between *every* and *each* as regards NPIs was first noted in Horn (1972) and Seuren (1983). The problem is obvious. *Both/each* and *every* denote universal quantifiers. Since the restriction of the universal quantifier is DE and since we attribute the licensing potential to the DE property of this position, we expect *each/both* to behave no different than *every*, contrary to fact. The unacceptability of anything in (32) and (33) strongly suggests that the DE of the ∀-restriction might not be what we need to account for PI-licensing. Perhaps there is some other important difference between *every* and *each/both* which is relevant here and which overrides monotonicity as far as NPI-licensing is concerned. I will argue that the difference resides in the veridicality properties of the two determiners, but discussion will be postponed for §3.2.

A third problem for monotonicity-based licensing conditions concerns the licensing of PIs in comparatives. Hoeksema (1983) proposes that clausal comparatives (S-comparatives) are DE, contrary to phrasal (NP)-comparatives which are argued to be UE. He makes use of this distinction in order to explain the contrast between (34) and (35) below.

(34)   Mary runs faster than anyone. (≈ than everyone)

(35)   Mary runs faster than anyone had expected. (≈ than someone had expected)

According to Hoeksema, in (34) only free choice *any* is allowed (the *than*-NP argument being UE), while in (35), which is a phrasal comparative, we are dealing with a regular polarity sensitive use of *any*. The opposition between free choice and NPI-*any* is taken to correspond to a difference between a universal and an existential quantifier. Yet, as I mentioned above, it is highly questionable whether the contrast is indeed a lexical one; and even if it turns out to be, there is no *a priori* reason to believe that the sensitivity characterizing free choice *any* is so distinct from that characterizing its NPI-mate (in fact it is not, as I show in §3.5.3).

Hoeksema's generalization also fails on the empirical side. It is quite unclear whether Hoeksema's contrast in (34) and (35) is indeed real. As Larson (1988: fn.11) points out, *almost*, which was shown by Carlson (1980) to be a modifier of free choice-*any*, can also freely modify *any* in the S-comparative, suggesting that free choice readings are available in clausal comparatives too:

(36)   This girl is smarter than almost any boy is.

This fact squares with the clear native speaker's intuition that there is no significant difference in the interpretation of *any* in phrasal and clausal comparatives. Note also that, crosslinguistically, free choice items are generally unproblematic in clausal comparatives (for instance in Greek, Spanish, and Catalan), and sometimes they are preferred. A related problem, stressed in Heim (1985), is that certain NPIs such as *lift a finger* and *ever before,* are admissible in NP-comparatives without having free choice uses.

Moreover, if we believe that it is the DE nature of clausal comparatives that allows for *anyone* in (35), sentence (37) below is not expected. Seuren (1983) shows that equative clausal comparatives do not license NPIs:

(37)   * John is exactly as competent as anybody in this department is.

If Hoeksema (1983) is correct in arguing that it is the clausal versus phrasal contrast in comparatives that matters for monotonicity and PI-licensing, then why should there be a conflict between equative and non-equative clausal comparatives? The existence of this contrast allow us to conclude that even if there is indeed a difference in the monotonicity properties of clausal and phrasal comparatives, the acceptability of NPIs does not necessarily follow from this difference.

In addition, even the inherent monotonicity properties of the comparative can be called into question. Specifically, the claim that the two types of the comparative have different monotonicity properties is hard to justify. P. Hendriks (1995) shows that it is not the S- versus NP-contrast that yields distinct monotonicity patterns in the comparative but, rather, the presence of certain quantifiers. She concludes that "in principle all the comparatives with *more* seem to be monotone decreasing and all comparatives with *fewer* monotone increasing, independently of whether the comparative conjunction *than* is followed by a clause or a phrase" (P. Hendriks 1995: 33). Rullmann (1995) further observes that Dutch comparatives with *minder* "less, fewer" are in fact ambiguous between a reading under which they are UE and a reading under which they are DE.

Finally, another problem for the DE-based approach is that it confines itself to the identification of the triggering contexts and offers no grounds for addressing the issue of sensitivity, i.e. the relation between PIs and their licensers. The issue is of primary importance, and in order to handle it successfully we must focus on the lexical semantic properties of the PIs themselves and link these properties to their limited distribution. If we do this, however, it becomes even more obscure why DE should be relevant for PIs. Note, in this

connection, that psycholinguistic evidence, which could show that the presence of PIs like *any* facilitate DE-reasoning, in fact points in the opposite direction. Moxey and Sanford's (1996) findings suggest that speakers recognize UE patterns much more easily than DE ones and, moreover, that the presence of NPIs does not really help in making the DE of a given context more salient as is expected under analyses like Dowty's (1994).

I conclude that previous approaches to PIs based on DE and negation do not succeed in unifying affective environments as a natural class: they make too narrow predictions, and leave a vast body of data unexplained. The failure has to do with the fact that it is impossible to justify the term affective in the generic sense as negative or DE. Polarity sensitivity comprises much more diversity than a characterization in terms of negation or DE can account for.

1.2 Polarity sensitivity as semantic dependency

PIs can be of various kinds, not always related to negation or DE. As an illustration, consider the following Greek sentences:

(38) a   Dhen idha   **kanenan** fititi.
           not   saw.1sg any   student
           'I didn't see any student.'
      b   * Dhen idha   **opjondhipote**   fititi.
           not   saw.1sg any.free-choice student
           'I didn't see any student.'
      c   * Idha **kanenan/opjondhipote** fititi.
           saw any/any.free-choice   student
           '* I saw any student.'

The boldface items in (38a, b) exemplify limited distribution characteristic of PIs: they are not grammatical in the affirmative (38c). Yet only *kanenan* is fine under negation; *opjondhipote,* the free choice item, as we see in (38b), is still ungrammatical. Extensive discussion of the wellformedness conditions of free-choice items will be provided in §2.4 and §3.5 (see also Giannakidou 1997b, Bosque 1996, Quer 1998 for Spanish and Catalan). Here, it suffices to point out that, if we were to acknowledge licensing by negation as the only possible option, free choice PIs would not qualify as exemplifying it.
          Consider further the case of mood alternations in relative clauses:

(39)   I Maria **theli   na** pandrefti enan andra **pu na exi pola lefta**.
        the M. want.3sg subj marry.3sg a   man that subj has much money
        'Mary wants to marry a man who has a lot of money.'

(40)   I Maria **theli   na** pandrefti enan andra **pu exi pola lefta**.
        the M. want.3sg subj marry.3sg a   man that has much money
        'Mary wants to marry a man who has a lot of money.'

Sentences like the translations of (39) and (40) are ambiguous in English between the two readings we see in (39') and (40'). Under the reading in (39'), the indefinite *a man who has a lot of money* is interpreted inside the scope of the intensional verb *want,* and the existence of a man that will meet the descriptions conveyed by the noun and the relative clause is not warranted. Under the reading in (40'), on the other hand, the existence of such a man is given in the actual world, since *a man who has a lot of money* is interpreted outside the scope of *want*:

(39')   WANT (M, ($\exists$x [**man** (x) $\wedge$ **has-a-lot-of-money** (x) $\wedge$ **marry** (M, x)]))

(40') $\exists$x [**man** (x) $\wedge$ **has-a-lot-of-money** (x) $\wedge$ WANT (M, **marry** (M, x))]

        In Greek, the ambiguity is resolved by mood choice, and in this Greek is not unique. Romance languages use this mechanism extensively too (see Farkas 1985, and for a more recent discussion Quer 1998). Sentence (39), where *enan andra* 'a man' is modified by a subjunctive relative clause, has only the narrow scope reading in (40'). Sentence (40), where *enan andra* 'a man' is modified by an indicative relative, has only the wide scope reading in (40'). Crucially, subjunctive modification is allowed only in the scope of intensional verbs. In the absence of such a verb, subjunctive relatives become illicit:

(41)   * I Maria **pandreftike** enan andra **pu na   exi pola lefta**.
        the M.   married.3sg   a   man that subj has much money
        'Mary married a man who has a lot of money.'

Hence subjunctive relatives (and their indicative counterparts) can also be seen as PIs, and their sensitivity clearly does not involve negation or polarity strictly speaking. For more details see §2.5, 3.5.
        As a starting point, then, we will have to recognize that the area standardly subsumed under the label negative polarity or polarity sensitivity does not form a homogeneous domain. This point was repeatedly emphasized in

Giannakidou (1997a). PIs are sensitive expressions, and sensitivities can be distinct (though to a great extend related). Sensitivity is a lexical semantic feature of PIs, and indeed the one causing the dependency between PIs and context (for a comparable view on sensitivity see Tovena 1996).

In order to understand the content and consequences of this perspective on polarity, it is necessary to spell out the background ideas, and establish the conceptual vocabulary we will be using.

1.2.1   Polarity items as semantically sensitive expressions

Traditionally, as we have seen, sensitive expressions are characterized as (negative) polarity items. Despite the fact that the term captures successfully the sensitivity of certain expressions to some kind of polarity (negation or affirmation), it is precisely because of this that it proves misleading: it implies that *all* sensitive expressions depend on some kind of polarity or negation. I will adhere to the traditional label in the present study, but in order to avoid confusion, I will drop the characterization negative (and reserve it for PIs which are truly sensitive to negation). I will be talking about PIs understood as in (42) (see also Giannakidou to appear):

(42)   **DEFINITION 3** (Polarity item).
          i. A polarity item α is an expression whose distribution is limited by sensitivity to some semantic property β of the context of appearance.
          ii. β is (non)veridicality.

The repertoire of PIs includes various kinds of sensitive expressions: affective PIs like *any,* free choice items, positive PIs (PPIs), and PIs like subjunctive relative clauses. I will show in chapter 3 that the distribution and interpretation of all types of PIs can be captured successfully if we assume that they are sensitive to (non)veridicality (see also Quer 1998 for a similar claim with regard to Romance languages).

(42) gives priority to sensitivity: PIs are sensitive and thus dependent on semantic features of the context for grammaticality. We can envision sensitive expressions as expressions with a semantic "deficiency". Such expressions are unable to be properly interpreted unless they are found in a context that "cures" their deficiency somehow. The definition of semantic dependency I give in (43) encodes precisely this view of sensitivity:

(43)   **DEFINITION 4** (Semantic dependency).

An expression α is semantically dependent on an expression β iff, for the proper interpretation of α, a certain relation R must hold between α and β .

The relation R can be viewed as a positive or as a negative relation giving rise therefore to two different interpretations of sensitivity. Positively, R can be regarded as an attraction relation. Negatively, R can be envisioned as an avoidance relation, and it reflects some kind of incompatibility between PI and context:

(44)   **DEFINITION 5** (Two kinds of semantic dependency).

A polarity item α is semantically dependent on an expression β iff, for the proper interpretation of α, at least one of the following holds, for some relation R:

(i) R (α, β),

(ii) ¬ R (α, β)

We can say, for instance, that *any student* is grammatical in (45a) with the interpretation in (45c) because there is a positive relation between *any student* and negation. By contrast, *some student* in (45b) can only be interpreted outside the scope of negation as in (45d), because a negative relation holds between negation and this item (this is the assumption underlying the standard analysis of *some* as a PPI):

(45)   a   Margo didn't see any student.

       b   Margo didn't see some student.

       c   ¬ ∃x [**student** (x) ∧ **saw** (Margo, x)]

       d   ∃x [**student** (x) ∧ ¬ **saw** (Margo , x)]

When (44i) holds we talk about *licensing*; (44ii) corresponds to *anti-licensing*. Hence, *any student* is a licensed PI, but *some student* is an anti-licensed one. I formulate here licensing and anti-licensing in terms of semantic dependency as above; the insight, however, that a theory of PIs should allow for negative conditions goes back at least to Ladusaw (1979) (see also Progovac 1988, 1994 for a syntactic implementation of this idea in terms of binding theory).

Below, I illustrate the general schemata for both types of conditions:

(46)   **DEFINITION 6** (Licensing).
       (i) A polarity item α is licensed by a property β iff the proper interpretation of α in a context c requires that R (α,β) hold in c, for some relation R.

       DEFINITION 7 (Anti-licensing).
       (i) A polarity item α is anti-licensed by a property β iff the proper interpretation of α in a context c requires that ¬ R (α,β) hold in c, for some
       relation R.

The formulations above represent different strategies for determining the
grammatical contexts for PIs. If a PI is licensed by a property we will have to
define precisely what this property is and show how all the grammatical contexts for the PI have this property. Alternatively, for anti-licensing we will
have to single out the class of grammatical contexts in terms of the property
PIs are incompatible with. While a licensing condition is a *must* condition, an
anti-licensing condition is a *must not* condition. In order to derive the former
we need to focus on the grammatical environments, but for the postulation of
the latter we must direct our attention to the ungrammatical environments.

Anti-licensing conditions can generally be useful for cases where the
ungrammatical contexts may be seen as a natural class while those in which the
PI actually occurs may not. An anti-licensing analysis can be proposed, for instance, to account for the restrictions on PPIs, as we just saw.[3] Apart from
PPIs, which I will not discuss in any detail in this book, I will propose anti-
licensing conditions based on veridicality for free choice, intensional dependencies and *any*, in §2.4, 2.5 and 3.5 (for further justification, see also Giannakidou to appear).

A legitimate intepretation of sensitivity allows for the possibility that
an item may be licensed by some property and anti-licensed by another. If the
relevant properties are additionally found in a set/subset relation to each other,
the item will be expected to occur in a subset of the contexts defined by the
licensing property; PIs exemplifying anti-locality effects with negation
crosslinguistically, e.g. *i*-PIs in Serbian/Croatian and *vala*-PIs in Hungarian,

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[3] Note that judgments in anti-licensing do not always correspond to * versus OK. Given that
PPIs *are* grammatical in negative sentences, we must say that * may be seen as the limiting

can admit such an analysis (licensed by nonveridicality and anti-licensed by veridicality; see §3.1).

        In this framework, NPIs are understood as a proper subset of PIs, i.e. those PIs that are semantically sensitive and thus dependent on negation (or semantically equivalent expressions). Negative polarity is thus subsumed under the general domain of sensitivity as a particular instance thereof.

1.2.2 The representation of sensitivity

I have pointed out that sensitivity is the source of semantic dependency and therefore the cause of the limited distribution of PIs. I have also noted that sensitivity should be understood either as an attraction or as an incompatibility relation between the context and the PI. In either case the source of sensitivity is the need for the PI to be properly interpreted and relation between PI and context can be captured in terms of (in)compatibility of semantic features.

        The goal is to link the lexical semantics of PIs to their limited distribution, and to show how the former determines the latter (an issue largely over-looked in the previous literature). This perspective should be viewed in connection to the recent proposals in the literature, cf. Liu (1990), Farkas (1997), Beghelli and Stowell (1997), Szabolcsi (1997), and others, arguing that it is intepretation that drives distribution: constraints on the interpretation of DPs pose restrictions as to where and when the DPs occur and the scopal pattterns they exemplify.

        I assume that PIs are "special" expressions in that they encode a sensitivity feature. Sensitivity features are semantic features, part of the lexical representation of PIs, encoding their semantic "deficiency". Sensitivity features are present in the lexical semantics of PIs at least at an abstract level and they may, but need not, correspond to morphological features. In some cases, they are indeed realized as such (for instance with free choice items and subjunctive relatives), in other cases as phonological features (for instance with NPIs in Greek). The relevant distinctions will be discussed in chapter 2.

        Attraction of the PI to some semantic property of the context requires compatibility of features between PI and context for the proper interpretation of the PI. The opposite holds for anti-licensed items. As the context does not always provide a specific expression with the required semantic property, we should think of the (in)compatibility as holding generally between PI and context, and not necessarily between the PI and a particular expression in the con-

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case of illformedness of interpretation. That is, only when all possible interpretations of PIs are ruled out do we consider them *.

text (cf. discussion in §1.2.3 on "triggerless" cases, and §3.4 on indirect licensing).

Nonsensitive expressions are not special in any way, hence there is nothing particular to sensitivity encoded in their semantics, and they are free to occur (and be properly interpreted) anywhere.

1.2.3 Licensing and scope

At a first approximation, we can postulate that licensing involves scope and propose the following licensing condition:

(47) **DEFINITION 8** (Licensing as involving scope).
A polarity item α is licensed iff:
(a) the context provides some expression γ which supplies the semantic property β, which the proper interpretation of α depends on, and
(b) α is found in the scope of γ.

Although for many cases a licensing condition like (47), which subsumes scope in its (b) clause, is appropriate, a requirement that the PI be in the scope of its licenser should not be envisioned as inherent to licensing. We will see in chapter 4 that for certain NPIs licensing involves *escaping* the scope of their licenser (which could also be strongly formulated as a requirement that the NPI takes its licenser in its scope). Licensing is not syntactic but semantic: it is an instance of semantic dependency, and as such, it is not bound to a particular conception of the syntactic dependency domain. In other words, the syntactic mapping of a licensing dependency is *not* pre-determined.

The core notion of semantic dependency may be positive (licensing) or negative (anti-licensing). In a parallel fashion, the syntactic mapping of the dependency may be positive, or negative. A positive syntactic condition would be formulated in terms of a be-in-the-scope-of condition for the PI. This, in turn, would map onto a c-command condition: the PI must be c-commanded by its licenser. A negative syntactic condition, on the other hand, translates into an escape-the-scope-of condition.[4] Nothing in the theory entails that a positive semantic dependency will map onto a positive syntactic condition, and a negative semantic dependency onto a negative one (for more discussion see §4.5).

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[4] The escape-the-scope-of condition could be understood as *anti* c-command, or strongly, as a condition requiring that the PI takes the licenser in its scope. Yet, given that there are certain locality constraints that one has to consider, it is hard to decide at this point what the correct formulation would be. I refer to chapter 4 for more discussion.

Instead of (47), we should thus use (48), where the (b) clause is dropped, as the general condition on PI-licensing:

(48)   **DEFINITION 9** (Licensing, general format).
        (i) A polarity item α is licensed iff the context provides some expression γ which supplies the semantic property β which the proper interpretation of α depends on.
        (ii) γ is the trigger of α.

Triggers are the licensers. Throughout this book, I will treat the two terms as synonymous and use them accordingly. Naturally, there are different classes of PIs, being licensed by different sets of triggers. According to (48), licensing will always depend on the availability of a trigger. There are, however, cases of "triggerless" licensing like (49) below, where it is impossible to isolate a single expression as the trigger but, rather, the whole construction seems to act as the licenser:

(49)   Any movement and I'll shoot!
        (i.e. I' ll shoot if you make any movement.)

Similarly, *indirect* licensing by a pragmatic implicature may be seen as "triggerless" licensing. A detailed examination of this type of licensing will be offered in chapter 3, where a distinction between direct and indirect licensing will be drawn.
        For cases where licensing translates into a scope condition, the relation between scope and syntactic hierarchy warrants attention. The issue concerns specifically the relation between surface c-command and scope. In the default case, a correspondence between the two can be captured in terms of s-structure direct scope (for more discussion see §4.6):

(50)   **DEFINITION 10** (Direct scope).
        An expression α has direct scope over an expression β iff β is in the scope of α, and α c-commands β at s-structure.

The reverse gives rise to inverse scope (see May 1977, Beghelli and Stowell 1997, Farkas 1997, Farkas and Giannakidou 1996, Szabolcsi 1997). Following the literature, I formulate inverse scope as in (51):

(51)   **DEFINITION 11** (Inverse scope).

An expression α has inverse scope over an expression β iff α has scope over β, and β c-commands α in s-structure.

(51) describes the interpretation of *every book* in (52) when it scopes over the c-commanding *some student* and is interpreted as in (52'):

(52)   Some student read every book.

(52') $\forall x$ [**book** $(x) \rightarrow \exists y$ [**student** $(y) \wedge$ **read** (y, x)]]

Here, the universal takes inverse scope over the indefinite because the indefinite is interpreted in the scope of the universal, i.e. students co-vary with books, and yet the universal is c-commanded by the indefinite at s-structure.

PIs that obey (47) can never have wide scope with respect to their triggers. *Any* under negation is such a PI. Hence, *any students* in (53a) below cannot be interpreted as taking wide scope in (53b) but, rather, it is assigned narrow scope as in (53c):

(53)   a   I didn't see any students.

b   # $\exists x$ [**student** $(x) \wedge \neg$ **saw** (I, x)]

c $\neg \exists x$ [**student** $(x) \wedge$ **saw** (I, x)]

Since linguistic expressions have scope over their c-commanding domain, it follows that PIs obeying (47) may occur anywhere within the c-command domain of their triggers. The relevant level for c-command is shown to be LF in §4.6.

To sum up, in this section I outlined a theory of polarity sensitivity where sensitivity plays the central role. Sensitivity is a form of semantic dependency, to be understood as a relation between PIs and context, which can be positive (licensing), or negative (anti-licensing). Accordingly, PIs are subject to licensing or anti-licensing conditions (or, conceivably, both). The source of dependency is the lexical semantics of PIs, i.e. their sensitivity features, which in many cases are realized as morphological features. Sensitivity features vary from one class of PIs to the other, their distribution thus also varies, but it never exceeds the realm of (non)veridicality, a point to be made precise in chapter 3.

1.3 Polarity sensitivity in dynamic semantics

The definition of (non)veridicality to be proposed in this study will rely in the notion of *context,* and its components, as understood in dynamic semantics. In this section, I provide the basic features of the dynamic theories of meaning I will be assuming. The paradigm I refer to as dynamic semantics is a highly productive line of research whose origins can be found in Stalnaker (1978) and Lewis (1975), and whose most prominent representatives are *File Change Semantics* (FCS, Heim 1982; see also Heim 1992), *Dynamic Montague Grammar* (DMG), *Dynamic Predicate Logic* (DPL), and *Update Semantics* (US), see Groenendijk and Stokhof 1990, 1991, Dekker 1993, 1995, Groenendijk, Stokhof and Veltman 1996, Chierchia 1995a, among others), and *Discourse Representation Theory* (DRT, Kamp 1981, Kamp and Reyle 1993; for an extension see Farkas 1997).

Dynamic semantics is a quite diversified paradigm: the individual theories cited above are by no means uniform. Some of them, for instance FCS and DRT are representational, i.e. they posit an intermediate level between syntactic structure and semantic interpretation: LF and discourse representation structures, respectively. DPL, DMG and US are not representational: sentences are directly translated into the chosen logical language. In this sense, DPL, DMG and US place the dynamic interpretation into the semantics proper, i.e. within the core notions of meaning and entailment, whereas in representational theories the dynamics of interpretation relies in the architecture of the intermediate representational level.

Despite the varying executions, the core idea behind dynamic theories is that the meaning of a sentence is not its truth conditions, as assumed in truth conditional semantics, but rather, the change it brings about in the context of conversation, its *context change potential* (CCP). The meanings of nonsentential expressions consist in their contributions to that change. The compositional interpretation of donkey sentences provided the major motivation for this shift from truth conditions to CCPs, but as the issue is not essential to our discussion I omit consideration here (but see the abovementioned studies for extensive discussion). Crucially, context change is narrowed down to the (im)possibilities of subsequent anaphoric reference that sentences determine. All other informa-tion that a sentence conveys is treated in a static, rather than in a dynamic fashion (see specially Groenendijk and Stokhof 1990, 1991).

Two issues will be of interest to us: (a) the notion of context and context change, and (b) the treatment of variables. Within the context, the notion

of an individual's model will be defined. These models will be decisive for the relativization of (non)veridicality I propose in chapter 3.

1.3.1 The Stalnakerian context

Stalnaker (1978) can be seen as setting the foundation for a dynamic theory of assertion. He emphasizes the context-dependence of assertions and the effect these have in the context itself. The idea is that sentences are not interpreted in isolation, but relevant to some context with the result of *updating* that context.

Utterances, assertions among them, take place against a background of mutually held beliefs of some agents, i.e. the participants in a conversation, and once accepted, their effect is to increment the background assumptions of those agents. Envisioning these background assumptions to be information shared by the agents as to what the actual world is like, we can understand informative assertions as increasing that information by virtue of their content. Uninformative assertions, on the other hand, provide the case where the background assumptions remain unchanged.

Within dynamic semantics, a context c can be formally construed as a tuple of the form in (54) (where informational parameters are combined with *Kaplanian parameters*):

(54)   *Context*
        $c = <\text{cg}(c), \text{W}(c), s, h, w_0, f...>$

The Kaplanian parameters of c include the speaker s, the hearer h, w_0, the world in which the utterance takes place and f which is a function assigning values to variables. To these we can add parameters for time and place of the utterance.

The informational parameters of c are the *common ground* $\text{cg}(c)$ and the *context set* $\text{W}(c)$. Eventually, the informational parameters will also include *modal bases* distinct from the context set, *ordering sources* for modeling the contribution of utterances with modal verbs, and individual models, to be made precise in §1.3.3. The common ground is conceived of as the set of propositions, corresponding to the background assumptions, the participants in the conversation mutually take to be true up to a certain point:

(55) $\text{cg}(c) = \{p_1, p_2, p_3...p_n\}$

The context set $W(c)$ is the set of worlds in which all the propositions in the common ground are true. Worlds are standardly conceived of as first order models consisting of a domain D, i.e. a set of objects, and an interpretation function I which assigns denotations to constants and predicates relative to the domain.

So $W(c)$ is the set of worlds compatible with what is believed to be true by the agents prior to any assertion, presuming, realistically, that the common ground prior to any assertions is, in general, non-empty. Given the information that the agents (presume to) have, any one of the worlds in $W(c)$ is a candidate for being the actual world. Given that $cg(c)$ and $W(c)$ are realistic, it follows that w_0, the world in which the utterance takes place, is a member of $W(c)$.[5]

Kaplanian parameters fix the interpretation of some context-dependent expressions such as indexicals, demonstratives, and deictics, whereas informational parameters fix the intepretation of, for instance, overt and implicit modal operators. Assertions crucially affect the informational parameters of the context: the change caused to these parameters as the result of an assertion depends on the way the parameters were fixed prior to the assertion, and on the content of the assertion in that context. When a sentence is asserted, the proposition denoted by the sentence is added to the common ground up to the point of assertion. Its contribution consists in updating the information provided by the common ground up to the point of utterance, and a new common ground $cg(c')$ is created, as illustrated in (56) (where p_n is an arbitrary proposition):

(56)   (i)   ASSERT $p_n = cg(c) + p_n$

        (ii) $cg(c) + p_n = cg(c) \cup \{p_n\} = cg(c')$

Stalnaker saw information growth as elimination of alternatives, as narrowing down the possibilities of how things are. Acquiring information is being able to eliminate possible alternatives, which up to the point of utterance were conceivable candidates for being the way things actually are. Assertions make additions to the common ground by virtue of whether the context set gets smaller.

Let me illustrate with an example. Suppose we have two speakers starting a conversation. Since nothing was previously said, we assume that we start with an empty common ground. An empty common ground is empty of any information, hence the context set includes all possible worlds:

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[5] If we construe propositions as sets of worlds, then the context set can also be defined on the basis of the common ground as the intersection of all the elements of the common ground.

(57)   (i) $W(c) = \{w_1, w_2,...w_n\}, \forall w \in W(c)$

     (ii) $cg(c) = \{p \mid p = 1 \text{ in } W(c)\}$

Now suppose there occurs an assertion of (58):

(58)   Someone killed Theodora.

The proposition p_1 expressed by (58), namely that *someone killed Theodora,* is added to $cg(c)$. The result is a new common ground, $cg(c')$ which contains just this proposition and brings about a new state of information which includes just those worlds in which p_1 is true:

(59)   (i) $cg(c) + p_1 = cg(c')$

     (ii) $W(c') = \{w \mid w \in W: \text{someone killed Theodora in } w\}$

Suppose further that another assertion follows, for instance (60):

(60)   The murderer was arrested.

    Now we have a new proposition, $p_2 = $ *the murderer was arrested.* The result is a new common ground, $cg(c'')$, in which p_2 is true too. $Cg(c'')$ represents a new state of information which contains just these worlds in which both p_1 and p_2 are true:

(61)   (i) $cg(c') + p_2 = cg(c'')$

     (ii) $W(c'') = \{w \mid w \in W: \text{someone killed Theodora in } w \text{ and the person who killed Theodora in } w \text{ was arrested in } w\}$

    And so forth for an infinite number of assertions. Rules for connectives may also be employed, like (62) for negation (Heim 1992):

(62)   (i) $cg(c) + \neg p = cg(c) \cup \{\neg p\} = cg(c')$

     (ii) $W(c') = \{w \mid w \in W \wedge w \notin p\}$

According to (62), the assertion of a negative sentence like *The murderer was not arrested* has the effect of excluding from W all the worlds in which *the murder was arrested* is true.

1.3.2 Context and information states in Update Semantics

As the paradigm of dynamic semantics develops, the notion of context has come to be thought of in terms of *information states,* especially in recent work in DPL and US, see Groenendijk, Stokhof and Veltman (1996).

An information state is a set of possibilities, consisting of the alternatives which are open according to the information. The nature of the possibilities which make up information states depends on what the information is about. There are two kinds of information: information about the world, and discourse information. Information about the world is represented as a set of possible worlds, those worlds that, given the information which is available, still might be the actual world (cf. the Stalnakerian view just described). Discourse information keeps track of what has been talked about, and questions concerning anaphoric relations belong to this kind of information.

Groenendijk, Stokhof and Veltman (1996) define possibilities as in (63), with the aid of a *referent system* (based on Vermeulen 1994):

(63)   **DEFINITION 12** (Possibilities).
[Groenendijk, Stokhof and Veltman 1996, def. 2.4.]
Let D, the domain of discourse, and W, the set of possible worlds, be two disjoint non-empty sets.
The possibilities based on D and W is the set I or triples <r,g,w>, where
r is a referent system; g is a function from the range of r onto D; w∈ W.

The referent system encodes the discourse information, and it is defined in (64):

(64)   **DEFINITION 13** (Referent system).
[Groenendijk, Stokhof and Veltman 1996, def. 2.1.]
A referent system is a function r, which has as its domain a finite set of variables v, and as its range a number of pegs.

Pegs are formal objects, and we can think of them as addresses in memory which are linked to *discourse referents*. Since pegs serve no purpose other than being "intermediaries" between variables and discourse referents, they can be dispensed with. Hence the referent system can be understood directly as a function from variables to discourse referents. This is the view I adopt here.

The use of the quantifier ∃x adds the variable x to the variables that are already in use, it introduces the next discourse referent, and associates the vari-

able x with that referent. Crucially, associating a variable with a new discourse referent is the prototypical way in which the discourse information is extended. We will see in §2.3.5 that polarity sensitive existentials do not conform to the picture sketched here. The use of an existential quantifier is assumed to introduce a new discourse referent, but the polarity sensitive existentials lack this property, as we will conclude in §2.3.5.

Information states are subsets of the sets of possibilities:

(65)   **DEFINITION 14** (Information states).
        [Groenendijk, Stokhof and Veltman 1996, def. 2.6.]
        Let I be the set of possibilities based on D and W.

        The set of information states based on I is the set S such that $s \in$ S iff

        $s \subseteq I$, and $\forall i, i' \in$ s: i and i' have the same referent system.

Variables and discourse referents are introduced globally with respect to information states, thus an information state has a unique reference system.

Information grows in two ways: by adding discourse information, and by eliminating possibilities (in the Stalnakerian way). Both are captured in (66):

(66)   **DEFINITION 15** (Extension of an information states).
        [Groenendijk, Stokhof and Veltman 1996, def. 2.8]

        Let i, i' $\in$ I, i = <r,g,w> and i' <r',g',w'>, and s, s' $\in$ S.

        i. i' is an extension of i, $i \leq i'$ iff $r \leq r'$, $g \subseteq g'$, and w = w'.

        ii. s' is an extension of s, $s \leq s'$, iff $\forall i' \in$ s': $\exists i \in$ s: $i \leq i'$.

An information state s' in an extension of state s if every possibility in s' is an extension of some possibility in s. A possibility i' is an extension of a possibility i if i' differs from i at most in that in i' variables have been added and linked to newly introduced discourse referents.

Subsistence is a notion connected to the extension of information states, and is defined as follows:

(67)   **DEFINITION 16** (Subsistence).
        [Groenendijk, Stokhof and Veltman 1996, def. 2.9]

        Let s, s' $\in$ S, $s \leq s'$, $i \in$ s, $i' \in$ s'.

    i. i′ is a descendant of i in s′ iff i ≤ i′.

    ii. i subsists in s′ iff i has one or more descendents in s′.

    iii. s subsists in s′ iff ∀i ∈ s subsists in s′.

It follows from (67) that if s subsists in s′, then s is an extension of s′, which means that every possibility in s′ is an extension of some possibility in s.

    Information states having been defined, we can now consider how updating goes, in some particular cases, of importance for the issues discussed in chapter 3. I list below the updates for affirmative sentences, negation, and implication:

(68)   **DEFINITION 17** (Some updates).

        [Groenendijk, Stokhof and Veltman 1996, def. 3.1, 3.2]

        i. s [φ] = {i ∈ s ∣ i subsists in s[φ]}

        i. s[¬φ] = {i ∈ s ∣ i does not subsist in s[φ]}.

        ii. s [φ →ψ]= {i ∈ s ∣ if i subsists in s[φ], then all descendents of i in

        s[φ] subsist in s[φ] [ψ]}.

An affirmative sentence φ is interpreted as a CCP, i.e. as function from information states to information states, indicated by postfix notation as s[φ]. s[φ] is the result of updating s with φ, s[φ] [ψ] is the result of first updating s with φ, and then with ψ (typically, how two consequent sentences are interpreted, and conjunction). Whether s can be updated with φ may depend on the fulfillment of certain constraints. If a state s does not meet them, then s[φ] does not exist, and intepretation is blocked. This situation arises, for instance, when a polarity constraint is not met (more discussion in §2.3., 2.4, 2.5).

    Updating a state s with a negative sentence is done in two steps. First, s is updated hypothetically with the affirmative φ. Then, the possibilities that subsist after this hypothetical update are eliminated from the original state s (cf. the CCP for negation in (62)). This will be shown to have an important consequence as regards the felicity of polarity sensitive existentials in §2.3.5, and brings negative sentences close to *if* conditionals. Updating a state s with a conditional, as we see in (68ii), consists in updating s with the protasis φ first, and then s [φ] is updated with ψ.

    The discussion here has been extremely brief. A more refined analysis of conditionals will be provided in §3.3, taking into consideration Heim

(1992). Updating with propositional attitudes will also be dealt with in connection to the (non)veridicality properties of these in §3.1.

1.3.3 Models of individuals

As I propose in Giannakidou (1997a, to appear), within the context c we can define *models* of the form $M(x)$. Such models will be construed as collections of worlds in c:

(69)   **DEFINITION 18** (Models of individuals).

Let $c = <cg(c), W(c), M, s, h, w_0, f,...>$ be a context.

A model $M(x) \in M$ is a set of worlds associated with an individual x. x is called the *individual anchor*.

The introduction of models relative to individuals is intended to capture the insight in Farkas (1992), namely that truth assignment should be relativized with respect to individuals. Farkas introduces individual anchors into the study of propositional attitudes in order to explain why weak intensional verbs like *believe* and *dream* select for the indicative and thus behave on a par with extensional verbs, unembedded assertions, and factives as regards mood choice. It is not crucial for our discussion to go into the details of Farkas's analysis here. The intuition is that sentences are not just true or false, but are true or false with respect to some individual.

The same intuition is present in the philosophical tradition, where belief and knowledge states are modeled as sets of possible worlds in terms of accessibility functions (see, among many others Quine 1953, 1956, Hintikka 1962, 1969, Lewis 1973, and more recently van Rooy 1997; also Heim 1992 and discussion in §3.1). According to Hintikka (1969), for instance, a sentence like (70), is true in a world w iff it is raining in every world w' that is doxastically accessible for Frank in w:

(70)   Frank believes that it is raining.

'Doxastically accessible' means the following. A world w' is doxastically accessible for an individual x in the world w iff w' is compatible with the beliefs that x has in w. The accessibility relation involved is the standard one assumed in modal logic and possible world semantics, and can be defined as an

accessibility assignment, i.e. as a function from worlds to sets of worlds, as in (71) (see Hintikka 1969, and Lewis 1973: (7)):

(71)   **DEFINITION 19** (Accessibility function).

Let $R \subseteq W \times W$. Then f_R is the function from W to $\wp(W)$, such that,

for any $w \in W$, $f_R(w) = \{ w' \in W | w \, R \, w' \}$.

Hence, we can identify a doxastic function $\text{Dox}_{\text{Frank}}$ for Frank in the actual world w_0, which will correspond to the worlds which are epistemically accessible to Frank from w_0, and which are compatible with what Frank believes in w_0 (see also Heim 1992):

(72)   For $w_0 \in W$,

$\text{Dox}_{\text{Frank}}(w_0) = \{ w' \in W \mid w' \text{ conforms to what Frank believes in } w_0 \}$.

The models defined in (69) correspond to accessibility functions like the above: they both model an individual's belief, or more generally epistemic state.

In the most straightforward case, namely for unembedded assertions and for sentences embedded under epistemic verbs, M(x) stands for some individual's belief state: it represents the epistemic status of that individual, and it includes worlds compatible with what x believes in (and about) the actual world. This is captured in (73), where M(x) is subscripted with B:

(73)   **DEFINITION 20** (Belief model).

Let $c = \langle cg(c), W(c), M, s, h, w_0, f, ... \rangle$ be a context.

A model $M_B(x) \in M$ is a set of worlds associated with an individual x, representing worlds compatible with what x believes.

But this is not always the case. In other instances, we may want to understand M(x) as representing a fictional reality; M(x) in this case includes worlds compatible with what x dreams or imagines, indicated by subscripting M(x) with D:

(74)   **DEFINITION 21** (Dream model).

Let $c = \langle cg(c), W(c), M, s, h, w_0, f, ... \rangle$ be a context.

A model $M_D(x) \in M$ is a set of worlds associated with an individual x, representing worlds compatible with what x dreams.

Crucially, the worlds compatible with one's beliefs need not be, and in fact usually are not, identical to the worlds compatible with one's dreams; $M_B(x)$ and $M_D(x)$ single out different (but possibly intersecting) sets of worlds with respect to the same individual. Note that although $M_B(x)$ can be viewed as a *(doxastic)* extension of the actual world, $M_D(x)$ cannot be seen as such an extension (see Farkas's 1992 claim that with dream/fiction verbs a fictional reality replaces the actual one).

For assertives, we need to view $M(x)$ as conceptualizing the context of reported conversation. In this case, $M(x)$ includes worlds compatible with what x takes the reported conversation to be, as illustrated in (75) by the subscript RC. Under realistic assumptions, $M_{RC}(x)$ includes worlds different from the ones in $M_B(x)$ and $M_D(x)$:

(75)   **DEFINITION 22** (Model of reported conversation).
        Let $c = <cg(c), W(c), M, s, h, w_0, f,...>$ be a context.

        A model $M_{RC}(x) \in M$ is a set of worlds associated with an individual x, representing worlds compatible with what x takes the reported conversation to be.

The models defined above represent distinct sets of worlds, clearly, however, they are all epistemic, in a more general sense. What one dreams represents the belief state of an individual while (s)he is dreaming, and what one takes the reported conversation to be represents the belief state of an individual as regards the reported conversation. Therefore, sentences are not true or false in isolation, but they are true or false with respect to an individual's epistemic state. An unembedded assertion is thus true or false in c, if it is true or false the speaker's belief model $M_B(s)$:

(76)   *Unembedded assertions*
        i. $[\![p]\!]_{c,s} = 1$ iff $M_B(s)$ is such that $\forall w \in M_B(s)$, $[\![p]\!]_w = 1$.
        ii. $[\![p]\!]_{c,s} = 0$ iff $M_B(s)$ is such that $\forall w \in M_B(s)$, $[\![p]\!]_w = 0$.

Hence *Lucy loves Paul* is true in c iff in all worlds compatible with what the speaker believes Lucy loves Paul in those worlds, and false in c iff in all such worlds *Lucy loves Paul* is false in those worlds. On the other hand, when we

consider embedded sentences like *Lucy loves Paul* in (77), two models are relevant: the speaker's belief model, as in case of unembedded sentences, as well as the model of the main clause subject, who is the bearer of the attitude.

(77)   [[Jacob believes that Lucy loves Paul]] = 1 iff
        [[Lucy loves Paul]] = 1 in M_B(Jacob), that is, iff
        $\forall w \in M_B$(Jacob), [[Lucy loves Paul]]$_{ME(Jacob)}$= 1.

A prerequisite for *p* to be true in (77) is that p be true in Jacob's epistemic model. Thus this model is a subset of the worlds where *p* true: M_B(J) $\subseteq$ p. So Jacob must be committed to *Lucy loves Paul* if he believes it. The speaker might believe or even know that what Jacob believes is false. But this is irrelevant for Jacob's beliefs. So, when embedded, *p* may be evaluated with respect to the models associated with the matrix subject M(su) or with respect to model associated with the speaker, and truth assignment will be relative to these. These points are extensively discussed in Giannakidou (to appear), and they will become clearer when we consider the veridicality properties of propositional attitudes in §3.1.

Temporal considerations have been ignored throughout for simplicity. Tense can be built into this system by subsuming points in time under worlds (cf. the standard practice of assuming *indices*, i.e. spatiotemporal parameters, instead of worlds for the purposes of interpretation originating in Montague 1974). For instance, when evaluating a sentence in the past tense we view the worlds in M(x) as past-worlds, that is, as worlds describing past eventualities; when evaluating a sentence in the present we treat M(x) as a set of present-worlds, that is, as worlds of present eventualities. Future will be envisioned as modality and not as a real tense, as in Giannakidou and Zwarts (1998); see discussion in §3.3.

1.3.4 The nonquantificational approach to indefinites

In this last section, I consider briefly the nonquantificational approach to indefinites. The representational theories of dynamic semantics belong to this paradigm: FCS and DRT. Their very basic features will be mentioned here, and then an application will be discussed as regards the analysis of *minimizer* PIs.

1.3.4.1 Tripartite quantification and unselective binding
(i) Certain expressions lack quantificational force of their own. Indefinite DPs are such expressions. (Definites are assigned the same semantics, the differ-

ence between indefinites and definites residing in novelty and familiarity respectively, but there is no need to go into this here; see Heim 1982). Indefinite DPs are interpreted not as existential quantifiers, but as free variables, just like pronouns. Semantically, they also contribute descriptive content which conveys a predicative condition that has to be met by the variable. Thus, the indefinite *a student* is represented as in (78):

(78)   [[a student]] = **student** (x)

(ii) A quantificational operator (Q-operator) sets up a tripartite structure of the form Q [A] [B], where A is the restriction and B is the (nuclear) scope.

(iii) Indefinites are subject to a requirement for binding by Q-operators. Q-operators are quantifying determiners (*every, most, few* etc.) and adverbs of quantification (Q-adverbs, *always, usually, seldom* etc.). Binding may be direct, in which case the Q-operator binds the indefinite variable, and the indefinite acquires the quantificational force of the Q-operator. Binding can also be done indirectly, by inserting an existential quantifier which induces existential closure (∃-closure) in the scope; indirect binding by an inserted existential quantifier results in the default existential interpretation of the indefinite.

(iv) Binding is unselective and exhaustive. Generally, a variable is bound by the first c-commanding Q-operator. The unselectiveness of quantification resides in the fact that since all variables are bound by whatever quantifier is c-commanding them first, one quantifier may end up binding several variables. On the other hand, binding is exhaustive because all variables get bound by some quantifier. The two properties of binding are illustrated in (79) with a donkey-sentence:

(79)   a   Every man who owns a donkey beats it with a stick.

       b $\forall x,y$ [**man** (x) ∧ **donkey** (y) ∧ **own** (x,y)] → [∃z [**stick** (z) ∧ **beat** (x,y,z)]

The variable z in the right argument of ∀, i.e. in the scope of ∀, is bound indirectly and is interpreted by default as if it were "left over", i.e. by nuclear scope ∃-closure. Heim (1982) postulates also a rule of text level ∃-closure, which applies to indefinites in unembedded positions.

PI-existentials could be analyzed as indefinites (see Ladusaw 1992, 1994, Acquaviva 1993, Giannakidou 1997a, and Giannakidou and Quer 1995, 1997), but they don't have to be. In the analyses just mentioned, indefinite PIs come with a requirement for binding (∃-closure or direct binding) by operators

PI-existentials could be analyzed as indefinites (see Ladusaw 1992, 1994, Acquaviva 1993, Giannakidou 1997a, and Giannakidou and Quer 1995, 1997), but they don't have to be. In the analyses just mentioned, indefinite PIs come with a requirement for binding (∃-closure or direct binding) by operators of the appropriate semantic type (i.e. nonveridical; see Giannakidou 1997a). Additionally, we could also postulate a ban on text level ∃-closure and say that sensitive indefinites can be ∃-closed only in the scope of operators, never on the text-level. The constraint would capture the fact that sensitive indefinites do not introduce discourse referents in the actual world, a point to which I return in §2.3.5.

In the framework developed in this book, appealing to the theory of indefinites for PI-existentials is not really necessary. The claim that PIs come with a requirement for binding by the appropriate kind of operator does not really bring us closer to understanding the source of the sensitivity issue, i.e. the question of how the lexical semantics of PIs is linked to their limited distribution. Likewise, the ban on text-level ∃-closure appears to be a description rather than an explanation. Finally, invoking an indefinite analysis for negative concord does not offer a viable solution to the problem, and it also makes the wrong predictions, as we see in chapter 4.

Yet there is indeed a class of PIs, the minimizers, which *can* be handled successfully in (a particular extension of) the theory of indefinites.

1.3.4.2 Semantic incorporation: minimizers
Recently, it has been argued by McNally (1995) and van Geenhoven (1996), building on Carlson (1977), that some narrow scope indefinites should be analyzed as contributing only predicates, rather than predicates and free variables, as in standard FCS/DRT. The phenomenon is dubbed *semantic incorporation* and it primarily applies to (also syntactically) incorporated bare plurals in West Greenlandic (although McNally 1995 analyzes bare plurals in Spanish as semantically incorporated indefinites too). In Giannakidou (1996a), I proposed to treat minimizer-PIs as semantically incorporated indefinites, a view which I will adopt in the present study. Here, I summarize this point very briefly.

The semantic incorporation idea relies on two claims. The first claim is that a narrow scope indefinite denotes just a predicate. Second, this predicate is 'absorbed' by an incorporated verb as the predicate of that verb's internal argument. Van Geenhoven (1996) labels this absorption *semantic incorporation* and she represents the lexical meaning of an incorporating verb as in (80); I give here van Geenhoven's formula where a two-sorted type language is used (Gallin's 1975 Ty2):

(80) $\lambda P_{<s,<e,t>>}\ \lambda w_s\ \lambda x_e\ \exists y\ [\mathbf{Verb}_w\ (x,y)\ \wedge\ P_w(y)]$
       [van Geenhoven 1996: 152]

In semantic incorporation structures the verbal predicate is the semantic head.
The structure in (80) is reminiscent of Carlson's (1977) analysis of the bare
plural in English.

The *minimizer*-construction is attested in virtually all languages that
have NPIs and is illustrated for Greek with the examples in (81); upper case
letters indicate emphatic accent (see Giannakidou 1997a for more data):

(81)   a   * (Dhen) ipe   LEKSI oli mera.
           not   said.3sg word   all day
           'He didn't say a word all day.'
       b   * (Dhen) exi   KUKUTSI mjalo.
           not   have.3sg pit   brains
           'He doesn't have an ounce of sense.'
       c   * (Dhen) tu kejete   KARFI ja to ti   tha pi   o kosmos.
           not   him burn.3sg nail   for the what fut say.3sg the world
           'He doesn't give a damn about what people will say.'
       d   * (Dhen) evale   BUKJA sto   stoma tu.
           not   put.3sg bite   in-the mouth his
           'He didn't eat a bite.'
       e   * (Dhen) patise   PSICHI.
           not   stepped.3sg soul
           'Not a soul arrived.'

Minimizers generally have the hallmark of idioms. They consist of a verb and
its DP or NP complement. The complement is a singular indefinite in English,
but a bare singular in Greek, pronounced emphatically. Greek minimizers are
licit only under negation and *xoris* 'without' (and very marginally in counter-
factual conditionals; cf. 3.4).

Bare singulars in Greek have a very limited distribution; they are only
used in minimizers, in complex predicate constructions like *xtizo spiti* 'build a
house', *kano istioploia* lit. 'do surfing', 'to surf', *diavazo efimeridha* 'read
newspaper', and as predicate nominals, as we see in (82):

(82)   I   Roxani   ine fili.
        the Roxanne is friend
        'Roxanne is a friend.'

Connecting this fact to the minimizer use of bare singulars, I proposed
in Giannakidou (1996a) to treat minimizers as semantic incorporations. Note
that the involved bare singulars are not syntactically incorporated, as they can
appear to the left of negation, outside the VP, as in *LEKSI dhen ipe* 'He didn't
say a word'.

The analysis of the minimizer construction as involving a predicative
use of the bare singular predicts that anaphora will be blocked in this construc-
tion: the bare NP does not contribute a free variable for further binding. This
prediction is indeed borne out, as we see in (83). Non-incorporated indefinites
allow anaphora freely, as indicated in (84).

(83)   I Ilektra dhen ipe   LEKSI$_1$. # Tin$_1$ kratise   ja   meta.
        the E.   dot   said.3sg word.   her kept.3sg for later
        'Electra didn't say a word. # She kept it for later.'

(84)   I Ilektra thelise   na   pi   mono mia leksi$_1$. Tin$_1$ ipe   telika
        the E. wanted.3sg subj say.3sg only   one word. Her said.3sg finally
        meta apo   mia ora.
        after from one hour
        'Electra wanted to say just one word. She said it finally after one hour.'

Hence semantic incorporation seems to provide a viable account of the
minimizer construction. Note, however, that anaphora *is* enabled under nega-
tion for bare plurals, contrary to what van Geenhoven's analysis would predict.
I have noted this point in Giannakidou (1997a); the example below illustrates
the fact:

(85)   Paul didn't buy books$_1$ after all. They$_1$ were sold out.

It is not clear whether such an asymmertry is predicted by van Geenhoven.
How semantic incorporation can account for the existence of anaphoric links
like the one in (85) between a bare plural and a pronoun is even less clear.

1.4 Conclusion

This chapter started out with a review of the previous theories of PIs based on negation and DE. Empirical and conceptual arguments were provided as to why these theories fail as comprehensive theories of polarity sensitivity.

I proposed to analyze polarity phenomena as manifestations of distinct (but related) kinds of semantic dependency, and I laid out the theoretical tools I will be using. The notion of semantic dependency was shown to be central: semantic dependency is the source of sensitivity and thus of limited distribution. Semantic dependency can be positive (licensing) or negative (anti-licensing), and its locus is to be found in the lexical semantics of PIs, namely, in their sensitivity features. This way, the link between sensitivity and limited distribution is emphasized, unlike in previous frameworks where the connection has been overlooked.

I also emphasized that the notion of semantic dependency does not correlate with scope in the syntactic sense. In some cases, licensing translates into a scope condition, but in some other cases it doesn't. In chapter 4, NPIs in negative concord will be shown to exemplify this case.

The theory of polarity sensitivity described above has been embedded in a dynamic semantic framework, where the notions of context and context change are central. Within the context, models of individuals were defined, representing the epistemic status of those individuals. These models correspond essentially to the accessibility functions used in modal logic for the analysis of attitude reports. Finally, we probed into the details of what exactly the contribution is of existentially quantified terms, an issue pertaining to the discussion of PI-existentials in the next chapter.

Varieties of Sensitivity in Greek

This chapter provides a description of several polarity phenomena in Greek cast in the sensitivity-based framework outlined in chapter 1. The immediate aim is to justify the claim that semantic dependency comes in various flavors. Four types of sensitivity will be identified: two affective, and two nonaffective. Affective dependencies involve two distinct kinds of sensitivity, one loosely and one tightly related to negation. The former gives rise to *affective polarity items* proper; the latter to *negative polarity items*. Nonaffective polarity items are *free choice items* and subjunctive relative clauses. Finally, a class of *positive polarity items* will also be isolated. I will propose that the observed varieties of sensitivity should be understood as dependency to *nonveridicality*, a point to be thoroughly discussed in chapter 3.

The varying distributions of the relevant classes will be linked to the distinct sensitivity semantics of the items. For each class, the crucial sensitivity feature will be identified. In affective polarity items, it is dependent reference, in negative polarity items it is the property of being the logical subject of negative predications, in free choice items the variation requirement encoded as attributiveness, and finally, in subjunctive relatives, it is the lack of an existential entailment. These sensitivity features, which are in most cases also morphologically represented, restrict the distribution of polarity items in the attested systematic way, a point to be further explored also in chapter 3.

The emerging picture yields a novel ontology of variables. As far as their quantificational force is concerned, polarity items will be shown to be no different from the quantifiers familiar from predicate logic: $\forall$ and $\exists$. Unlike these, however, polarity items are "special" in that additional requirements are imposed as regards the link between the variable associated with the quantifier and the object assigned to that variable (if any).

The chapter is organized as follows. §2.1 familiarizes the reader with the basics of sentence structure in Greek. §2.2 deals with the syntactic representation of negation. After this introduction, which also connects to the syntactic issues to be discussed in chapter 4, I will proceed to the identification of the polarity paradigms. In § 2.3, the two affective paradigms are discussed with emphasis on their distribution and interpretation. *Nonemphatic* polarity items are licensed in a wide range of environments, negation included, which cannot be analyzed as negative or downward entailing, whereas *emphatic* polarity items are licit only in negative and quasi-negative contexts. Based on the semantic and syntactic differences between emphatics and nonemphatics, I will argue that the two should be treated as distinct lexical items. In §2.4, another class of polarity items will be delimited: free-choice items, and in §2.5, subjunctive relative clauses will be singled out as polarity items too. The chapter concludes with a typology in §2.6. Positive polarity items will also be mentioned in this connection.

2.1 Sentence structure in Greek

Before investigating the distribution of PIs in Greek, it is useful to have some background on the syntax of the language. The model of grammar adopted here is a version of Government and Binding theory, as in Chomsky (1981, 1986), with some references to Chomsky's (1995) Minimalist Program. Two levels of representation are assumed: surface structure (s-structure) and logical form (LF). S-structure is the input to phonetic interpretation and to the mapping onto LF. LF is the input to semantic interpretation. Mapping of s-structure onto LF is done via move-α, an operation which freely moves constituents.

2.1.1 Word order and verb movement

Greek is a head initial pro-drop language; as such, it allows for dropping of subjects (1) and for free subject-verb inversion (2):

(1)   Akuo.
       hear.1sg
       'I am listening.'

(2)   a   Efije   o Pavlos.
            left.3sg the Paul
            'Paul left.'

b   O Pavlos efije.
the Paul   left.3sg
'Paul left.'

Following the literature, we assume that Greek has a null pronominal (*pro*) at its disposal, compatible with the subject position (but see Giannakidou and Merchant 1997 for the claim that *pro* need not only be atomic).

Greek exemplifies a certain degree of flexibility in word order, observed in main and embedded clauses alike. The possible word order patterns are illustrated in (3) for main clauses; a comma indicates intonational break:

(3)   a   Potise   i Roxani   ta   luludhia.   (VSO)
           watered.3sg the Roxanne the flowers
           'Roxanne watered the flowers.'

        b   I   Roxani potise   ta luludhia.   (SVO)
           the Roxanne watered.3sg the plants
           'Roxanne watered the flowers.'

        c   Potise   ta luludhia I   ROXANI.   (VOS)
           watered.3sg the flowers the Roxanne
           'Roxanne watered the flowers.'

        d   Ta luludhia, ta   potise   i   Roxani.   (OVS)
           the flowers   them watered.3sg the Roxanne
           'The flowers, Roxanne watered them.'

        e   Ta luludhia, i   Roxani   ta   potise.   (OSV)
           the flowers the Roxanne them watered.3sg
           'The flowers, Roxanne watered them.'

        f   I Roxani,   ta luludhia, ta   potise.   (SOV)
           the Roxanne, the flowers, them watered.3sg
           'As for Roxanne and the flowers, she watered them.'

As we see in (3d-f), Greek makes use of clitics in object-topicalization constructions; these exemplify *Clitic left dislocation* in the sense of Cinque (1990). Right dislocations are also allowed. Greek also exhibits *clitic doubling*, a structure argued to be distinct from clitic left dislocation and right dislocation in Anagnostopoulou (1994) and Anagnostopoulou and Giannakidou (1996).

For our purposes we do not need to go into the details of word order issues (for discussion, see Horrocks 1983, Philippaki-Warburton 1985, Tsimpli 1990, Drachman and Klidi 1992, Anagnostopoulou 1994, Alexiadou 1994, Alexiadou 1998, Alexiadou and Anagnostopoulou to appear). The early literature

assumed that Greek has a "flat" structure, i.e. that the subject is not structurally distinguished from the predicate (VP) and that all the arguments of the verb are generated inside the VP.

Since Philippaki-Warburton (1985) and Tsimpli (1990), it is assumed that the basic order in Greek is VSO and that it is only in this order that the overt subject occupies the canonical subject position. This position is [Spec, VP]. Generation of the subject inside the VP is postulated under the *VP-Internal Subject Hypothesis* (Koopman and Sportiche 1988 and others). I illustrate in (4) how the VSO order is derived:

(4)

```
            T/AgrP
           /      \
                 T/Agr'
                /      \
         T/Agr°          V P
           |            /    \
         verbᵥ        DP        V'
                     /\       /    \
                  subject   V °      DP
                            |       /\
                            tᵥ     object
```
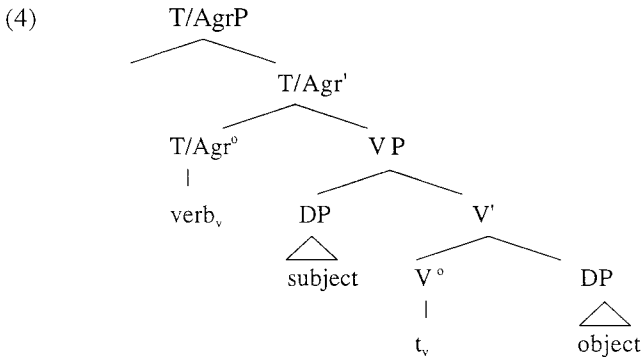
The Greek verb is inflected for tense, aspect, voice, and agreement, thus the structure in (4) can be enriched by adding projections for aspect and voice (see Alexiadou 1994, 1997). The verbal root is generated under V^0 and, via head movement, passes through all the relevant inflectional heads to end up in T/Agr^0, yielding the linear VS order. Following suggestions in Alexiadou (1998), I assume that tense and agreement are fused in Greek (cf. Iatridou 1990 for a proposal allowing for crosslinguistic variation in the availability of split Infl). In that work, as well as in Alexiadou and Anagnostopoulou (to appear), it has been shown that [Spec,TP] is not a possible subject position in Greek, and arguments are presented that [Spec,AgrP] is not available as a subject position either (but see Philippaki-Warburton and Spyropoulos 1998 for an opposing view). If we do assume, however, that [Spec,AgrP] is available, then we can say that this position is occupied by *pro* in a structure like (4). In that case, overt postverbal subject and *pro* would be coindexed. In the absence of an overt subject, I take it that [Spec, VP] is occupied by *pro*.

In the SVO order, preverbal subjects are analyzed as topics, assumed to occupy a non-argument (A') position (see Philippaki-Warburton 1985, and Anagnostopoulou and Alexiadou to appear for a recent discussion). Sentences

with preverbal subjects in Greek can thus be viewed as *categorical*, in the sense of Kuroda (1992) and Ladusaw (1994): they display a subject (topic)/predicate divide. Given that subjects are generated within the VP, I take it that, in the SVO order, they move from [Spec,VP] to [Spec,TopicP] (cf. Müller and Sternefeld 1993), *contra* Alexiadou and Anagnostopoulou who claim that preverbal subjects are base-generated in the left peripheral position (though nothing crucial depends on this choice). The derivation of a Greek SVO order would then run as in (5):

(5)
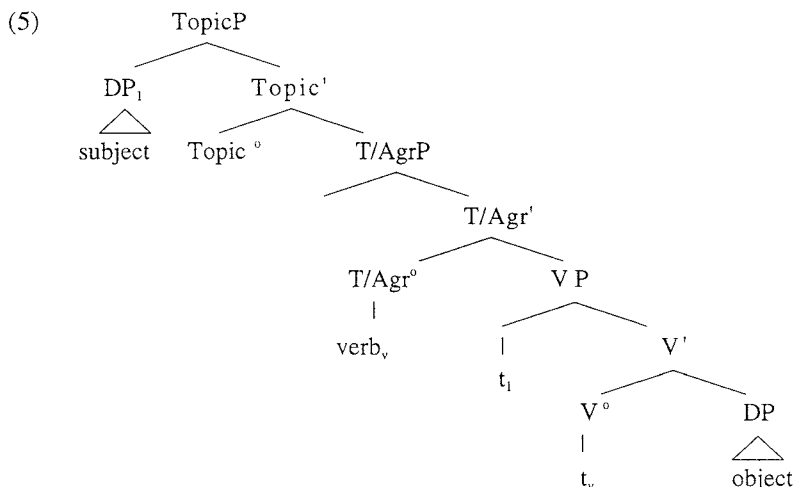
TopicP immediately dominates inflectional projections and is itself dominated by CP. For the SOV order we may adopt Alexiadou's (1995) claim that it involves scrambling. The VOS order, on the other hand, may be handled as right dislocation of the subject, as argued in Tsimpli (1995), or we may say that the OS order is derived by scrambling of the object to the left of the subject, as happens in Germanic (see Alexiadou 1995).

At this point, some considerations with respect to mood are in order.

2.1.2 Mood, complementation, and the structure of IP

Greek, like other Balkan languages, does not exhibit non-finite complementation, though a form which has been characterized as the 'gerund' is still in use (see discussion below). Greek grammaticalizes three mood distinctions: subjunctive, indicative, and imperative. The subjunctive is marked by the presence of certain particles like *as, na*, and not by inflection on the verb itself, another feature of the Balkan *Sprachbund*. The particles precede the inflected verb and

the clitic pronouns as illustrated in (6). *As* is only used in main clauses, but *na* may occur in both main and embedded clauses. For the imperative, a special verb suffix is employed, as in (7), and a pattern of *enclisis* arises.   In indicative clauses no special marking occurs and clitics appear before the verb (*proclisis*), as in (8):

(6)   Na/as to pis.   (7)   Pes   to.
      subj it say.2sg   *say.2sg it*
      'Say it.'   'Say it.'

(8)   To ipe.
      it   said.3sg
      '(S)He said it'.

For the semantic parameters regulating mood choice, see discussion in chapter 3. Here, we will only be concerned with how mood is to be syntactically represented. Mood is an inflectional element. Following the literature, I will assume that Greek projects a Mood phrase, distinct from T/AgrP   (cf. Philippaki-Warburton 1984, 1993, Philippaki-Warburton and Veloudis 1984, Terzi 1997). I will also assume that MoodP is the highest projection of Infl. In (9) below, *na* precedes the clitic + verb cluster. If we envision the auxiliary *ixes* 'had.2sg' as occupying T/Agr^0, then it follows that *na* must be higher than T/AgrP.

(9)   Na to ixes   pi.
      subj it had.2sg said
      'You should have said it.'

(10)   MoodP
         ╱──────
              Mood'
           ╱──────
      Mood^0 T/AgrP
        | ╱──────
       na   DP   T/AgrP
              ╱─╲   ╱──────
             to$_1$ T/Agr'
                           ╱──────
                      T/Agr^0 V P
                         | ╱──╲
                       ixes$_v$ t$_v$ pi t$_1$
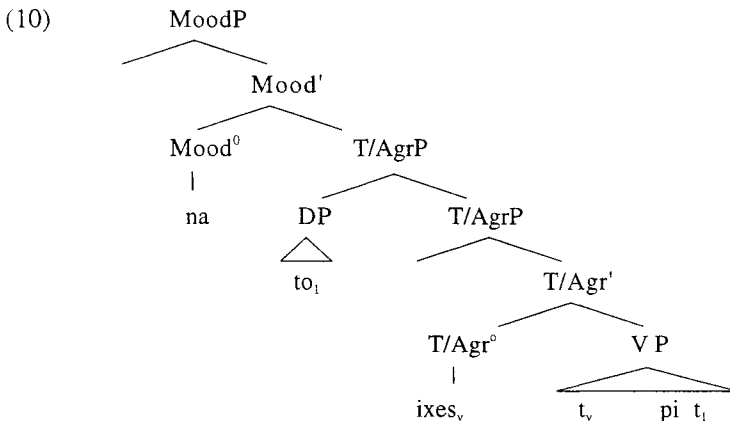
As indicated in (10), clitic pronouns are adjoined to T/AgrP, presumably via movement to that position (cf. Anagnostopoulou 1994). According to (10), *na* heads MoodP. In postulating *na* as the head of MoodP, I align with Philippaki-Warburton (1984, 1994), Tsimpli (1990), Alexiadou (1994), and Terzi (1997) among others. An alternative view, namely that *na* has the status of C^0, has been advocated mainly in the work of Agouraki (1993), and Tsoulas (1993). It is not necessary to probe into the specifics of the debate here (for convincing arguments why *na* cannot be a complementizer, see Philippaki-Warburton 1994).

    Na and the verb are adjacent and no lexical material may intervene, apart from pronominal clitics and, as we will soon see, negation. We see in (12a) that the subject cannot appear between *na* and the verb; rather, overt preverbal subjects must appear to the left of *na*, as in (12b):

(11)   Thelo   na   erthi   o   Pavlos.
                want.1sg subj come.3sg the Pau.nom
                'I want Paul to come.'

(12)   a   * Thelo   na   o   Pavlos   erthi.
                want.1sg subj the Paul.nom   come.3sg
        b   Thelo   o   Pavlos   na   erthi.
                want.1sg the Paul.nom subj come.3sg
                'I want Paul to come.'

The adjacency requirement between *na* and the verb in a language with flexible word order can most readily be explained if we take *na* to be part of the inflection cluster rather than an element in C^0. Elements having the status of C^0, such as *oti* and *pu*, can be separated from the verb by DPs (and other elements), as illustrated in (13b) and (14b), where the subject occurs between *oti* and *pu* and the verb:

(13)   a   O Pavlos ipe   oti efije   i   Roxani.
                the Paul   said.3sg that left.3sg the Roxani
        b   O Pavlos ipe oti i Roxani efije.
                'Paul said that Roxanne left.'

(14)   a   O   Pavlos lipate   pu   efije   i Roxani.
               the Paul   is-sad.3sg   that   left.3sg the Roxani
        b   O Pavlos lipate pu i Roxani efije.
               'Paul regrets that Roxanne left.'

Pu has been characterized as the factive complementizer, because it introduces the complements of factive verbs, e.g. *lipame, metaniono* 'regret', *xerome* 'be-glad' (cf. Christides 1981, Varlokosta 1994, Roussou 1994). Semi-factives like *thimame* 'remember' optionally take *pu* or *oti* complements (see discussion in §3.1). In (13b), *oti* is located in C^0 and the preverbal subject *i Roxani* occupies [Spec,TopicP]. The same can be said for (14b). Apart from indicating a difference between *na* and *oti/pu* as regards their categorial status, the unavailability of the *na* SV order and the ensuing contrast between (12) and (13)/(14) should be taken to support the view that [Spec,T/AgrP] is not a subject position in Greek. If it were, subjects would be expected to appear there, but they don't.

    Given this background, the CP domain of a Greek sentence with an overt preverbal subject must be as in (15):

(15)   CP
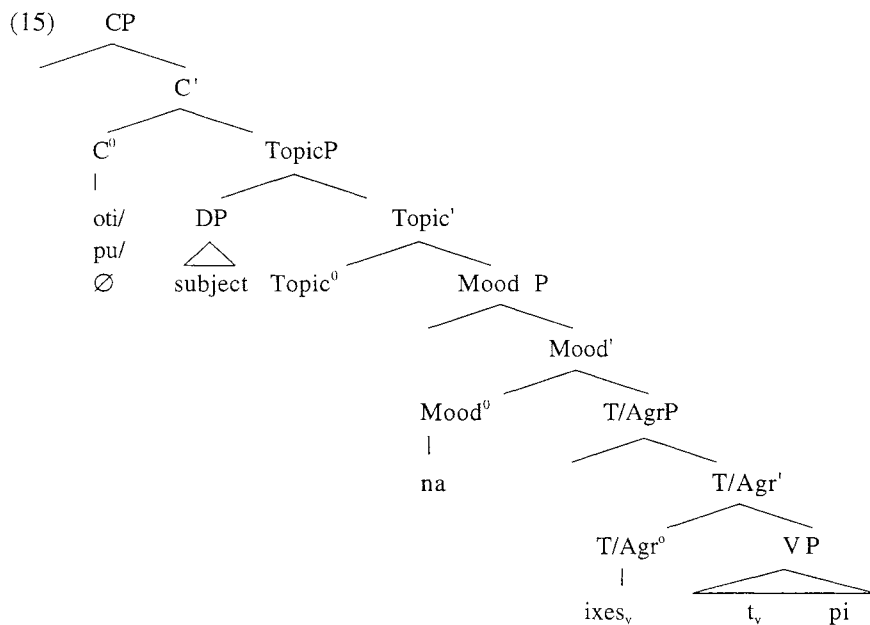
We may conjecture that in embedded clauses a null element occupies C^0 since *na* is incompatible with the indicative and factive complementizers *oti, pu*. In fact, an overt realization of a complementizer compatible with *na* is observed, namely *ja*, which appears in purpose clauses as *ja na* 'in order to'.

Since there is no overt counterpart of *na* for the indicative, I will follow Philippaki-Warburton (1993, 1994) and assume that in indicative clauses $Mood^0$ hosts a zero morpheme. The verb stays in T/Agr^0, clitics are adjoined to T/AgrP, thus the pattern of proclisis arises. With imperatives the situation is different. The imperative is instantiated as morphology on the verb, hence the verb must move to $Mood^0$ to attach to the imperative morphology. Given that clitics are attached to T/AgrP, the enclitic order [verb clitics subject] is predicted and this is precisely what we get[1]:

(16)   a   Pes to!
           say.imp.2sg it
           Say it!
       b   * To pes.

Overt vocative subjects in imperatives appear either to the left of the verb or to the right of the clitic pronoun. The latter is their canonical position. When appearing to the left of the verb overt vocative subjects are in [Spec,TopicP]:

(17)   {Pavlo}, pes to {Pavlo}!
       {Paul.voc} say.imp.2sg it
       Say it Paul!

With these preliminaries as background, we can now examine how negation interacts with sentence structure.

---

[1] Rivero (1992), and Rivero and Terzi (1996) analyze verb movement in imperatives as I-to-C movement (as in English, see Potsdam 1996). The enclitic pattern in these analyses is the result of such movement. As far as I can see, there are no real empirical arguments for I-to-C movement in Greek imperatives, but I will not tackle the issue here (see also Anagnostopoulou 1994 as to why there are no convincing arguments for I-to-C movement in interrogatives either). Moreover, generalized I-to-C movement predicts the wrong orderings with respect to negation, as we shall see below.

2.2   The syntactic representation of sentential negation

2.2.1 Negative particles in Greek

The most comprehensive description of negation in Greek is provided in Veloudis (1982). Veloudis observes that Greek has the four negative particles we see in (18); the characterizations are the ones found in that work:

(18)   oxi 'not':   constituent negation
       mi 'not':   "lexical" negation
       dhe(n) 'not':   sentential negation
       mi(n) 'not':   sentential negation

Deviating from Veloudis, I will argue here that *oxi* is not just the particle of constituent negation, but also the metalinguistic negator (for a discussion on metalinguistic negation see Horn 1989, van der Sandt 1988, 1990, and McCawley 1990). Metalinguistic and constituent negation resemble each other in two respects. First, both express negation "narrower" than the sentential negation: constituent/metalinguistic negation does not take sentential scope. Second, they are both corrective. But although metalinguistic negation *must* be corrective, constituent negation only *may* be so. The example in (19) is a typical example of *oxi*-negation with constituent negating flavor. The examples in (20), on the other hand, indicate that *oxi* must be corrective:

(19)   I   Roxani   metakomise oxi poli   kero prin.
            the Roxanne moved.3sg   not much time   ago
            'Roxanne moved not long ago.'

(20)   a   * Oxi poli   fitites   irthan.
            not   many students came.3pl
            'Not many students came.'
       b   Irthan,   oxi poli   fitites ala liji.
            came.3pl not many students but few
            'Not many students came; only a few did.'

In (20), where *oxi* must negate only part of the DP, it is ungrammatical. With the appropriate corrective continuation in (20b), *oxi* is fine. The availability of corrective continuations is a restriction on metalinguistic negation, crosslinguistically (cf. Horn 1989, van der Sandt 1988, 1990):

(21)   a   Grafume   oxi "νερώ", ala "νερό":
            write.1pl   not whater but water
            "We don't write "*whater* ", but "*water*".'

      b   * Grafoume oxi "νερώ".
            write.1pl   not   whater
            '*We write not "whater".'

I take it then that *oxi* expresses metalinguistic negation in Greek, and that the constituent negating reading can be subsumed thereunder. In itself, this fact is interesting because it provides empirical support to the distinction between logical and metalinguistic negation argued for in the literature.

     Lexical negation, as in (22), is negation at the level of the word. Note that lexical negation *mi* differs from sentential *mi(n)* in that it does not have an allomorph *min*. The presence of *n* in *mi(n)/dhe(n)* is purely a phonological alternation, similar to English *a(n)*.

(22)   i   mi-alithiakotita
        the non-veridicality
        'nonveridicality'

Sentential negation *dhe(n)* and *mi(n)* is the vehicle of the logical connective ¬, i.e. the one place propositional operator whose function is to reverse the truth value of the proposition it applies to, as indicated in (23):

(23)   *The semantics of the propositional operator* ¬

     (i) $[\![\neg\phi]\!] = 1$ iff $[\![\phi]\!] = 0$

     (ii) $[\![\neg\phi]\!] = 0$ iff $[\![\phi]\!] = 1$

Dhe(n) and *mi(n)* are found in complementary distribution. According to the traditional view, *dhe(n)* negates indicative clauses (24), and *mi(n)* negates subjunctives (25). However, the gerund *exondas* accepts *mi(n)* without being subjunctive in any obvious sense, as we see in (26):

(24)   {Dhen/*min} irthe   i   Roxani.
      not   came.3sg the Roxanne
      'Roxanne didn't come.'

(25)   Na   {min/*dhen} erthi   i   Roxani
        subj   not   come.3sg the Roxanne
        'Don't let Roxanne come.'

(26)   {Mi(n)/*dhen} exondas epignosi   tis   katastasis...
        not   have.ger awareness the.gen situation.gen
        'Not being aware of the situation...'

In view of these data, the most reasonable divide seems to be one which takes the split indicative-nonindicative as decisive: *dhe(n)* negates [+indicative] clauses while *mi(n)* negates [-indicative] clauses, where [-indicative] includes subjunctives and gerunds. Considering that *n* is optional in (26), another hypothesis might be that the instance of negation in (26) is actually a case of lexical negation. I will reject this hypothesis because it would treat *mi(n)* as ambiguous between sentential and lexical negation.

Corresponding to the propositional connective ¬, sentential negation takes a whole proposition in its scope. Metalinguistic/constituent negation and lexical negation, on the other hand, are more "local": we can analyze them as adjunctions to the phrasal constituents which provide their scope. As we will be interested only in the representation of sentential negation here, we will put aside *oxi* and *mi* and focus on the syntax of *dhe(n)* and *mi(n)*.

2.2.2 The syntactic status of dhe(n) and mi(n)

In the literature, two approaches to the syntax of sentential negative markers (NMs) can be distinguished. Both hinge on the syntactic status of negation as a full projection, although the issue is still the object of some debate. According to the first approach, NMs contribute their own projection in the syntax, namely NegP (Pollock 1989, Zanuttini 1991, 1997, Haegeman and Zanuttini 1991, 1996, Haegeman 1995, among others). Under this view, the varying properties of NMs across languages come about as the result of characterizing NMs either as heads or as phrasal constituents which occupy the specifier position of NegP. The second approach holds that negation is just one instance of a more general semantic projection, other instances of which may be emphatic affirmation, polarity or modality (cf. Laka's 1990 *SigmaP*, Culicover's 1990 *Polarity*P). Under the second approach, negation and modality markers are expected to be mutually exclusive. Since this is not borne out in Greek, I align with the first approach.

Arguing for a NegP in Greek requires showing two things: first, that *dhe(n)/ mi(n)* have an autonomous categorial status, and second, that the exact

position of *dhe(n)* and *mi(n)* can be justified in a way consistent with the fact that they have sentential scope.

 Dhe(n) and *mi(n)* have the following four basic characteristics:

(a) They have a fixed position: they are preverbal and adjacent to the verb:

(27) a Dhen irthe to grama.
   not came.3sg the letter
   'The letter didn't arrive.'
  b * Irthe dhen to grama.
   came.3sg not the letter
  c * Dhen t o grama irthe.
   not the letter came.3sg

The adjacency requirement can be violated only in case the intervening material consists of pronominal clitics and/or the future particle *tha* [2]:

(28) Dhen tha tu to po.
  not fut him it say.1sg
  'I will not say it to him.'

Tha is assumed to be in T/AgrP, with the clitics adjoined to its right, as the linear order suggests (cf. Philippaki-Warburton 1994). The facts in (27) and (28) imply that the position of *dhe(n)* and *mi(n)* is at least higher than T/AgrP.

 (b) *Dhe(n)* and *mi(n)* block clitic movement, as illustrated in (29), where the indirect object (IO) clitic cannot appear preceding *dhen*:

(29) * Tu dhen to ipa.
  him not it said.1sg
  (I didn't say it to him.)

The blocking effect of NMs with respect to clitics suggests that they interfere with head-movement which in turn entails that NMs of this type are heads (see Zanuttini 1991, 1997 and references therein).

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[2] Based on the fact that *tha* and *na* cannot co-occur, Rivero (1992) has argued that *tha* is a mood element just like *na*. But the assimilation of the two is problematic. While it makes sense to view future as involving some kind of modality (as argued, for instance, in Giannakidou and Zwarts 1998), it is questionable whether the modality involved ought to be represented as mood. Moreover, if *tha* is like *na*, the fact that *tha* is negated by *dhe(n)* and not *mi(n)* has to be

(c) *Mi(n)* cannot negate true imperatives, as shown in (30). When a sup-
pletive form borrowed from the indicative or the subjunctive paradigm is used,
mi(n) is acceptable as we see in (31):

(30)   * Min ela.
        not   come.imp.2sg
        ('Don't come!')

(31)   Na   min erthis /   erxese.
        subj not come.pres.perf.2sg / come.pres.imperf.2sg
        'Don't come!'
        'Don't keep coming!'

Hence the Greek NMs seem to behave on a par with their Italian counterparts.
Zanuttini (1991) took incompatibility with true imperatives to be an important
indication that Italian *non* selects a TP as its complement which is not available in
the case of the imperative (but see discussion below).
        (d) Mood morphemes precede negation. The reverse is ungrammatical:

(32)   {Na/ As}   min tu to dhosis.
        subj   not him it give.2sg
        'Don't give it to him.'

(33)   * Min {na/as} tu   to dhosis.
          not subj   him it give.2sg

Evidently, then, *dhe(n)* and *mi(n)* must be structurally lower than mood.
        The facts in (a)-(d) suggest that the Greek particles are identical to pre-
verbal NMs in Romance, i.e. that they are functional heads, Neg^0, which project
in the ordinary way, to NegP (cf. Zanuttini 1991). Note that the possibility of
analyzing *dhe(n)/mi(n)* as clitics is excluded. Pronominal clitics cannot be ac-
cented, but *dhe(n)/mi(n)* may be in some cases. Moreover, pronominal clitics do
not block verb movement in imperatives, as we previously saw. Finally, real cli-
tic NMs, like pronominal clitics and unlike Greek NMs, do not block negation in
imperatives either, a fact we know from the work on Slavic NMs (cf. Progovac
1988, 1994, Brown 1996 among many others).

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explained as well as the dissimilarity between the two with respect to the orderings with nega-
tion: *dhen tha* and *na min* but *min na* as we shall see below.

I conclude that *dhe(n)* and *mi(n)* are heads Neg^0 of NegP, and that NegP is situated higher that T/AgrP but lower than MoodP. The whole picture is illustrated in (34):

(34)   MoodP
```
            MoodP
          /       \
                Mood'
              /      \
        Mood⁰        NegP
          |         /     \
         na/          Neg'
         ∅/         /     \
      imperative  Neg⁰     T/AgrP
                   |       /     \
                  min    DP      T/AgrP
                  dhen   △      /      \
                        to₁          T/AgrP'
                               T/Agr⁰    /    \
                                 |            V P
                               ixesᵥ       /      \
                                         pro t, t₁ pi
```
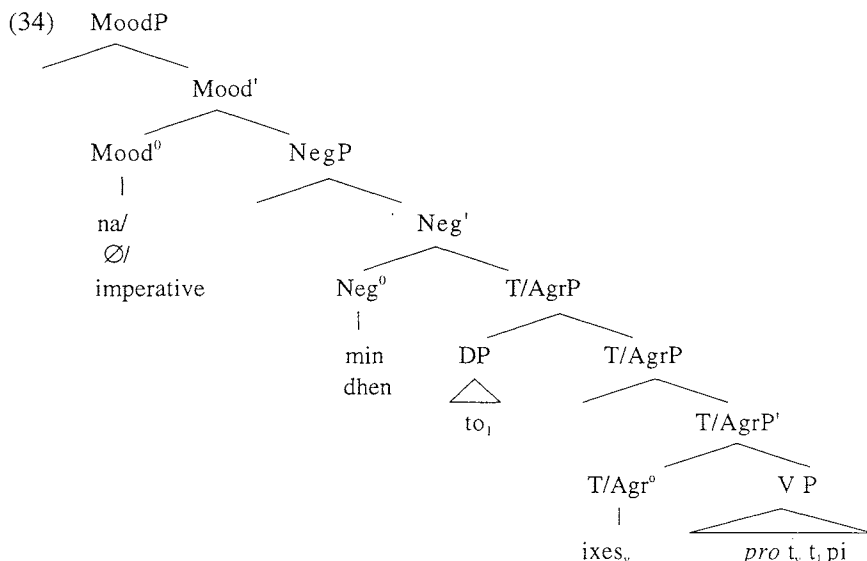
Placing sentential negation above tense and agreement is in accord with the fact that the NMs take sentential scope. (34) accounts directly for the orders [*dhe(n)* verb] and [*na mi(n)* verb] observed with the indicative and the subjunctive. The orders [*dhe(n)* clitics verb] and [*na mi(n)* clitics verb] are also predicted under the assumption that clitics are adjoined to T/AgrP.

An interesting consequence of (34) is that it makes the incompatibility of negation and the imperative follow, if we assume that the imperative is a bound morpheme generated under Mood^0 and that the verb must move all the way up to that position to check the imperative morphology. When negation is present, verb movement to Mood^0 is barred because of the head status of the negative particles. So, the unavailability of negated imperatives is readily accounted for without recourse to the TP selection restrictions invoked in Zanuttini (1991).

With this basic information about the Greek clause structure, we can now examine the distribution of polarity items (PIs). I consider first affective PIs, i.e. PIs that are subject to a negation related dependency (§2.3). Then I identify PIs which are not affective in this sense (§2.4, 2.5).

2.3 Affective dependencies

In this section it will be shown that affective dependencies in Greek come in two varieties: (i) one "narrow" variety, which includes sensitivity to just negation (and negative-like operators), and (ii) a broader variety, which includes sensitivity to negation along with other operators which are not negative but *nonveridical*. Only items subject to the former dependency are strictly speaking *negative polarity items* (NPIs). PIs subject to the broad nonveridical dependency will be referred to as *affective polarity items* (APIs). Naturally, the former forms a proper subset of the latter, since the negative dependency is included in the nonveridical one, empirically, as it will be shown here, and formally, a point extensively discussed in chapter 3.

I highlight a particular class of PIs, those known as *n-words* (a term coined in Laka 1990 for the relevant expressions in Romance). N-words are DPs and adverbs which appear under negation and may participate in *negative concord* structures (cf. discussion in chapter 4).

2.3.1 Two paradigms of affective polarity items

Greek exemplifies the series of n-words reproduced under (35). As indicated, these items can be used either as modifiers or as independent DP constituents:

(35)   kanenas / KANENAS   'anyone, anybody/ no one, nobody'
         kanenas N / KANENAS N 'any N-*singular*/ no N-*singular*'
         tipota N$_{plural}$ 'any N-*plural* / no N-*plural*'
         tipota / TIPOTA   'anything / nothing'
         pote / POTE   'ever / never'
         puthena / PUTHENA   'anywhere/ nowhere'
         katholu / KATHOLU   'at all / not at all'

An important fact about Greek n-words, first noted in Veloudis (1982) and often pointed out since (cf. Giannakidou 1993, 1995, 1997, Quer 1993, Klidi 1994) is that they may bear emphatic accent. Crucially, emphasis may be applied only under negation and in the scope of certain connectives such as *without* and *before*, as we shall see below. In any other case, emphatic accent results in ungrammaticality. I will call the accented n-words *emphatics* and the unaccented ones *nonemphatics*. Following Veloudis, I use in (35) the convention of uppercase/lowercase to indicate the former and the latter respectively. The nature of the stress involved remains for the moment a mystery, but see discussion

§2.3.6 for an explanation. As indicated by the glosses, nonemphatics are semantically comparable to *any*, but emphatics receive negative intepretation. We see in §2.3.4, however, that negative meaning is not inherent to emphatics.

The distinction between emphatics and nonemphatics is quite robust. The two paradigms are distributionally very different, and there are important semantic and syntactic differences that should be taken into account.

2.3.2 Distributional differences

2.3.2.1 Grammatical constructions for both paradigms
Emphatics and nonemphatics are both grammatical under negation, and operators displaying semantic affinity to negation: *xoris* 'without' and *prin* 'before'. This fact is illustrated in the sentences below; both APIs are glossed as *any* for convenience:

(36) O papus dhen idhe   {KANENA/kanena} apo ta egonia   tu.
      the grandpa not   saw.3sg any   from the grandchildren his
      'Grandpa didn't see any of his grandchildren.'

(37) O papus pethane xoris na dhi {KANENA/kanena} apo ta egonia tu.
      the grandpa died.3sg without subj see.3sg any   from the grandch. his
      'Grandpa died without seeing any of his grandchildren.'

(38) O papus pethane prin na dhi {KANENA/kanena} apo ta egonia tu.
      the grandpa died.3sg before subj see.3sg any from the grandchildren his
      'Grandpa died before seeing any of his grandchildren.'

Negative, *xoris* 'without' and *prin* 'before' clauses are the only legitimate contexts for emphatics. The occurrence of emphatics in *prin*-clauses is more restricted than its occurrence in negative and *xoris* clauses (a point to which I return in chapter 3).

2.3.2.2 Grammatical contexts for nonemphatics
There is a large number of contexts in which only nonemphatics are licit. These contexts are listed and illustrated below in full detail. Emphatics are ungrammatical in these contexts. The data were first documented in Giannakidou (1993, 1997a), and some were already discussed in Veloudis (1982).

Though I will not present an analysis here, a mere glance suffices to make clear that not all licensing environments are downward entailing. In fact

only a small number of them are; the rest can be shown to be either upward entailing or with no inherent monotonicity properties at all (for instance intensional and modal verbs, interrogatives, imperatives and habituals; see also discussion in §1.1.3).

Besides with negation, *xoris* and *prin,* nonemphatics are admitted in the following constructions; as indicated, the use of emphatics is not allowed:

Questions (yes/no, constituent; rhetorical *or* information readings)
(39)   a   Pijes   [pote /* POTE} sto Parisi?
             went.2g ever   in-the Paris
             'Have you ever been to Paris?'
        b   Pjos pije   {pote / *POTE} sto   Parisi?
             who went.3sg ever   in-the Paris
             'Who has ever been to Paris?'

Antecedents of conditionals
(40)   An dhis   tin Ilektra {puthena / *PUTHENA}, na   tis milisis.
        if   see.2sg the Electra anywhere,   subj her talk.2sg
        'If you see Electra anywhere, talk to her.'

Restrictions of universal quantifiers
(universal quantifiers, plural definites, and free relative clauses)
(41)   Oli osi gnorizun {tipota /*TIPOTA} ja tin ipothesi, as milisun.
        all who know.3pl anything   for the issue,   subj talk.3pl
        'Everyone who knows anything about Electra let them speak.'
(42)   I   fitites   pu exun   {tipota /*TIPOTA} na   pun,   as   milisun.
        the students that have.3pl anything   subj say.3pl, subj speak.3pl
        'The students that have anything to say may speak.'
(43)   Opjosdhipote gnorizi {tipota /*TIPOTA} sxetiko, as   milisi.
        whoever   know.3sg anything   relevant, subj talk.3sg
        'Whoever knows anything about the case, let him speak.'

too-clauses
(the Greek counterpart of 'too' is pronounced emphatically, a point to which I return in §2.3.6).

(44)   I Ilektra ine   POLI kurasmeni ja na milisi se {kanenan/*KANENAN}.
        the Electra be.3sg too tired   for subj talk.3sg to anyone
        'Electra is too tired to talk to anybody.'

Clausal comparatives
(45)   Apodhixtike pjo eksipni   apoti perimene   {kanenas/* KANENAS}.
        proved.3sg more intelligent than expected.3sg anybody
        'She turned out to be more intelligent than anyone had expected.'

Superlatives
(46)   Ine   to kalitero vivlio pu exo   dhiavasi {pote/*POTE} os fititria.
        be.3sg the better   book that have.1sg read   ever   as student
        'This is the best book I've ever read as a student.'

Future
(47)   Tha vro   {kanena/*KANENA} filo   na me voithisi.
        fut   find.1sg any   friend subj me help.3sg
        'I will find a friend to help me.'

Subjunctive (main and embedded) clauses
(48)   Elpizo   na   emine   {kanena /*KANENA} komati.
        hope.1sg subj left.3sg any   piece
        'I hope there is a piece left.'
(49)   Na   diavasis {kanena /*KANENA} vivlio sxetika.
        subj read.2sg any   book   about
        'You should read a book about this.'

(Subjunctive) Complements of modal verbs (epistemic, deontic)
(50)   Prepi   na   episkeftis {kanenan/* KANENAN} jatro.
        must.3sg subj visit   any   doctor
        'You should visit a doctor.'

(51)   Tha prepi   na   ine   {kanenas/* KANENAS} jatros.
        fut   must.3sg subj be.3sg any   doctor
        'You must be a doctor.'

Imperatives
(52)   Pijene   se {kanenan / *KANENAN} jatro.
        go.imp.2sg to any   doctor
        'Go to a doctor!'

Habitual sentences (nongeneric)

(53)   Otan pijena   ja ipno, ksefiliza   sinithos {kanena /*KANENA} periodhiko.
        when went.1sg for sleep, browsed.1sg usually any   magazine
        'Whenever I went to bed, I usually browsed through a magazine.'

Disjunctions

(54)   I bike   {kanenas /*KANENAS} mesa i   afisame to fos anameno.
        or entered.3sg anyone   in   or left.1pl the light lit
        'Either somebody broke into the house or we left the light on.'

as if-clauses

(55)   Kanis sa na ise   {kanena /*KANENA} moro.
        do.2sg as subj be.2sg any   baby
        'You behave as if you were a baby.'

Monotone decreasing quantifiers

(the Greek counterpart of 'few' is pronounced emphatically, cf. §2.3.6).

(56)   LIJI fitites   idhan   {tipota /*TIPOTA}.
        few   students saw.3pl anything
        'Few students saw anything.'

Negative verbs

(57)   Arnithike   oti idhe   {tipota/*TIPOTA}.
        denied.3sg that saw.3sg anything
        'He denied that he saw anything.'

Perhaps-clauses

(58)   Isos   na irthe   {kanenas/*KANENAS}.
        perhaps subj came.3sg anybody
        'Perhaps somebody came.'

The overall picture is summarized in table 1. Note that the contexts allowing for nonemphatics include the contexts which allow for emphatics as a proper subset. Many of these are licensing environments for *any* in English, but crucially, in some of them *any* is interpreted as free choice; for instance, in subjunctives (*I insist that you allow anyone in*), in future tense sentences (*Any sane doctor will tell you that what you do is wrong*), in imperatives (*Pick any apple*) and with modals (*Anyone can solve this problem*). It should be emphasized that Greek

nonemphatics do not receive free choice interpretations in any of the contexts where they occur:

Table 1 Comparative distribution of emphatics and nonemphatics

Environments	Emphatics	Nonemphatics
Negation	OK	OK
before-clauses	OK	OK
without-clauses	OK	OK
Yes-no/constituent questions	*	OK
Conditionals	*	OK
Restriction of ∀	*	OK
too-clauses	*	OK
S-comparatives	*	OK
Superlatives	*	OK
Future	*	OK
Subjunctives/modals	*	OK
Imperatives	*	OK
Habituals	*	OK
Disjunctions	*	OK
as if/perhaps-clauses	*	OK
Downward entailing DPs	*	OK
Negative verbs	*	OK

Nonemphatics exemplify the broad affective dependency, they are thus APIs proper. Emphatics, on the other hand, are NPIs: they are licit only in negative and negative-like contexts. When licensed, nonemphatics are interpreted as existential quantifiers, but unlike other existential quantifiers like *kapjos* 'some' or *tris fitites* 'three students', nonemphatics can never be interpreted as having 'wide scope'. This point will be refined in §2.3.5, after we learn more about the semantics of the two paradigms.

I turn now to an examination of the syntactic differences between the two paradigms.

2.3.3 Syntactic differences

In this brief section I merely give a description of the facts and no specific claims are made about the syntax of the items under consideration. A thorough examination of the syntactic issues will be given in chapter 4.

(i) *C-command of the licenser at s-structure*
Nonemphatics never appear to the left of their licenser (except when embedded in constituents which can, as we see in §4.6). This can be translated into a requirement that they be preceded by their licenser at s-structure. Emphatics are not subject to such a requirement and they may appear to the left of negation, as we see in (59a):

(59)   a   KANENAN dhen idha.
             any   not   saw.1sg
             'I saw nobody.'
        b   *Kanenan dhen idha.

I will return to this issue in chapter 4, where overt preposing of emphatics will be analyzed as topicalization. The inability of nonemphatics to appear to the left of their licenser will be handled as a by-product of the fact that nonemphatics cannot be appropriate topics.

(ii) *Sensitivity to islands*
Emphatics are sensitive to islands: *inter alia,* sentential adjuncts, relative clauses, and complex NPs, as shown in the sentences below. Nonemphatics do not display such sensitivity and are freely licensed there by non-local negation.

(60)   a   Dhen itan   isixi [epidhi fovithike   {kanenan/*KANENAN}].
             not   was.3sg quiet because was-scared-3sg anyone
             'S/he wasn't quiet because (s)he was scared of anybody.'
        b   * Pjon$_i$ dhen itan   isixi epidhi   fovithike   t$_i$?
             who   not   was.3sg quiet because was-scared.3sg

(61)   a   Dhen prodosa mistika [pu eksethesan {kanenan/*KANENAN}]
             not   betrayed-1sg secrets that exposed-3pl anybody
             'I didn't reveal secrets that exposed anybody.'
        b   * Pjon$_i$ dhen prodosa   mistika pu eksethesan t$_i$?
             who   not   betrayed.1sg secrets   that exposed.3pl

(62)   a   Dhen akusa   [ti fimi oti sinelavan {kanenan/*KANENAN}]
             not   heard.1sg the rumor that arrested.3pl anybody
             'I didn't hear the rumor that they arrested anybody.'
        b   * Pjon$_i$ akuses [ti fimi oti sinelavan t$_i$?]
             who heard.2sg the rumor that arrested.3pl

(iii) *Long-distance licensing*
Nonemphatics are typically licensed by superordinate negation in embedded clauses but emphatic items are not:

(63)   I Ilectra   dhen ipe   oti idhe   {tipota/*TIPOTA}.
        the Electra not   said.3sg that saw.3g anything
        'Electra didn't say that she saw anything.'

A detailed analysis of long distance facts is given in chapter 4. The observed syntactic differences suggest that the licensing of emphatics is more local than that of nonemphatics. This can be captured by arguing that licensing of the former involves a movement dependency, but licensing of the latter is done *in situ*.

2.3.4 Semantic differences

The interpretation of n-words has received considerable attention especially in the literature on Romance. A question often asked is whether these are NPIs or negative quantifiers. According to some authors, n-words are negative quantifiers (cf. Zanuttini 1991, Haegeman and Zanuttini 1991, 1996), and according to some others, they are NPIs (cf. Laka 1990, Progovac 1988, 1994). The difference underlying the NPI versus negative quantifier opposition is taken to be a difference between an existential and a universal negative quantifier. However, talking in terms of NPIs versus negative quantifier in this sense does not prove very helpful. There is no *a priori* reason to view the label NPI as synonymous to "existential". As a matter of fact, NPIs can be property-denoting (recall the minimizer class), or universal quantifiers, as we will see in the discussion below. The term "NPI" is merely a distributional label: it refers to expressions which are licensing dependent on negation, and should only be used as such.

The semantic differences highlighted in this subsection suggest that emphatics receive "strong", quantificational interpretation whereas nonemphatics are interpreted "weakly", as (narrow scope) existential quantifiers. The most plausible hypothesis is to argue that emphatics are universal quantifiers, and nonemphatics are existentials.

(i) *Almost/absolutely modification*
Since Dahl (1970) and Horn (1972), *almost/absolutely-* modification is used a diagnostic of universal quantifiers. Observe that *almost* can modify universally

quantified DPs like *everything* in (64), but it cannnot modify existentially quanti-
fied ones like *something* in (65)[3]:

(64)   Electra was willing to accept almost everything
(65)   * Electra was willing to accept almost something.

Emphatics can be modified by *almost/absolutely* but nonemphatics cannot (see
Zanuttini 1991 for the same test in Italian n-words):

(66)   Dhen idha   sxedhon {KANENAN / *kanenan}.
            not   saw.1sg almost   anybody
            'I saw almost nobody.'

The contrast suggests that, under negation, emphatics are being interpreted as
universal ∀ whereas the nonemphatics as ∃ (a conclusion further corroborated by
the interpretation of nonemphatics in the nonnegative environments presented in
§2.3.2).

(ii) *ke- modification*
Ke 'and' is an emphatic particle which modifies existential quantifiers. It is com-
parable to Dutch *ook maar* 'too + focus particle', German *auch nur* 'too + only',

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[3] There has been criticism against the *almost/absolutely* test, focusing on facts like (i) (see Lee
and Horn 1995, Iatridou and Varlokosta 1998):

(i)   * Sxedhon o   kathe fititis bike mesa.
           almost   the every student came in
           '* Almost each student came in.'

O kathe and its English equivalent *each* cannot be modified by *almost*, although they are uni-
versal quantifiers. This fact is not fatal, however. Note that plural definites are also not modifi-
able by these adverbs, as shown in Alexiadou and Giannakidou (1998):

(ii)   *Sxedhon ta pedhia bikan mesa.
           almost   the kids   came in
           '* Almost the kids came in.'

It appears then that *almost/absolutely* are incompatible with definite-like universals, whatever
the source of this incompatibility may be. This does not really threaten the validity of the test,
to the extent that it successfully distinguishes between *some* and *every*, and their equivalents in
other languages.

and English *even.* Like these particles, *ke* only combines with existential quantifiers, as shown in (67) (example (67b) is due to Jason Merchant):

(67)   a   Wil jij   {ook maar iemand/   *iedereen} zien?
              want.2sg prt   somebody /everybody see
              'Do you want to see anybody?'
      b   He better not mess up with {even one/ *every/*most/ a single} circuit board.
      c   Olo ke   kapjos/   *kathenas erxete   to proi.
              all   and someone /everyone come.3sg the morning
              'Someone usually comes in the morning.'

Ke is grammatical with nonemphatics but ungrammatical with emphatics:

(68)   Dhen ipe   ke   tipota / *TIPOTA spudheo.
        not   saw.3sg and anything   important
        'He didn't see anything important.'

The contrast in (68) can be understood as a contrast between an existential and a universal quantifier in terms of their compatibility with *ke.*

(iii) *Use as predicate nominals*
Emphatics and nonemphatics also differ with respect to their use as predicate nominals. Only nonemphatics can be used in predicative positions:

(69)   Dhen ine   {kanenas / *KANENAS} idhikos.
        not   be.3sg any   specialist
        'He is no specialist.'

Partee (1987) and Hoeksema and Klein (1995), among others, discuss restrictions on the availability of type-shifting to *predicative* (type $<e,t>$) interpretations. They show that universal quantifiers like *every*, unlike existential indefinites, cannot be used as predicate nominals, and that they must always be assigned the generalized quantifier (GQ) type $(<<e,t>,t>)$:

(70)   Frank is {a/*every} friend of mine.

The unacceptability of the emphatics in predicate nominal positions indicates clearly that emphatics, like *every*, cannot receive predicative interpretations. On

the other hand, the fact that nonemphatics are fine as predicate nominals places them in the same class with existential quantifiers.

The interesting question is of course why *every* and consequently *KANENAS* cannot shift to *<e,t>*. As it is not of direct relevance to the matters we are considering, I will not venture an explanation of it (but see Partee 1987, Hoeksema and Klein 1995, and Giannakidou and Quer 1997 for discussion).

(iv) *Fragment answers*

Emphatics, but not nonemphatics can serve as fragment answers:

(71)   Q: Pjon idhes?
         who   saw.2sg
         'Who did you see?'
         A: KANENAN / *kanenan.
         'Nobody.'

Zanuttini (1991) took similar facts in Italian to evidence that the fragment answer constituent is inherently negative. Yet the availability of negative interpretation in fragment answers does not entail that emphatic items are inherently negative. Given that these items are ungrammatical without the overt presence of sentential negation, we can treat (71A) as an elliptical construction containing negation. The negative meaning for *KANENAN* would then arise from association with negation at the level at which the fragment answer is interpreted, rather than coming from the semantics of *KANENAN* itself (for more discussion on this issue, see §4.3.3.

(v) *Binding differences*

Nonemphatics and emphatics behave differently in *donkey* anaphora. Nonemphatics support donkey anaphora and exhibit all the empirical characteristics of it aligning thereby with indefinite existentials such as *kati* 'something'. Emphatics, on the other hand, do not support donkey anaphora. They display all the blocking effects we observe with true quantifiers such as *every* and *no*. The contrast is illustrated in the examples below:

(72)   I   fitites   pu exun   tipota₁ na   pun,   as to₁ pun tora.
         the students that have.3pl anything subj say.3pl, let it   say.3pl now
         'The students that have anything₁ to say should say it₁ now.

(73)   I   fitites   pu exun   kati$_i$ na pun,   as to$_i$ pun tora.
        the students that have.3pl something subj say.3pl, let it   say.3pl now
        'The students that have something$_i$ to say should say it$_i$ now.

(74)   * I fitites pu dhen exun TIPOTA$_i$ na pun, as to$_i$ pun tora.
        (* The students that have nothing$_i$to say, let them say it$_i$ now).

(75)   * I fitites   pu aghorasan   kathe vivlio$_i$, na to$_i$ ferun   mazi tus.
        the students that bought.3pl every book, subj it   bring.3pl with them
        (* The students that bought every book$_i$ should bring it$_i$ with them.)

In (72) we see that nonemphatics behave dynamically: they can establish ana-
phoric links from a relative clause, thus from a non c-commanding position, just
like singular indefinites in (73). *Any* behaves no different in this respect. The
situation in (72) is reminiscent of binding under modal subordination (Farkas
1985, Roberts 1987). Emphatics and universal quantifiers, on the other hand,
are static: they cannot bind variables outside their syntactic scope, as we see in
(74) and (75), respectively. The presence of negation is required in (74) for the
grammaticality of TIPOTA, but the static effect is parallel to the one we observe
in (75) with the universal quantifier without negation. The fact that modality is
present in the main clause in (74) (which could enable a modal subordination ef-
fect, as in (72)), does not save the intended anaphoric connection.

    Likewise, nonemphatics can bind into a following conjunct, just like in-
definites, but emphatic items cannot:

(76)   I   Ilectra tha agorasi kanena vivlio$_i$ ke   i   Cleo tha to$_i$ katastrepsi.
        the Electra fut buy.3sg any   book and the Cleo fut it   destroy.3sg
        'Electra will buy a book$_i$ and Cleo will destroy it$_i$.'

(77)   *I Elsa dhen tha agorasi KANENA vivlio$_i$ ke i Cleo (dhen) tha to$_i$ katas-
        trepsi.
        (* Elsa will buy no book$_i$ and Cleo will (not) destroy it$_j$).

(78)   *I Ilectra tha agorasi kathe vivlio$_i$ ke i Cleo tha to$_i$ katastrepsi.
        (* Electra will buy every book$_i$ and Cleo will destroy it$_j$).

When we consider anaphoric links under negation, we should keep in
mind that negation has been characterized as a *test* (in the sense of Groenendijk
and Stokhof 1991): it creates static contexts which block anaphoric binding. As

we noted, however, nonemphatics preserve their dynamic nature and are indeed able to bind pronouns even under negation, and so does English *any*. The following sentences further illustrate this point; for (79a) I am grateful to Jason Merchant:

(79)   a   Don't check any book$_1$ out from that (Satanic) library; reading it$_1$ might warp your mind.

        b   Min agorasis kanena vivlio$_1$; bori na   apodixti *pro$_1$* epikindino.
                not buy.2sg   any   book   may subj prove.3sg   dangerous
                'Don't buy any book$_1$; it$_1$ might prove dangerous.'

In (79a), anaphora is enabled across negation and *might* between *any book* and *it*. The same can be said for (79b) (though in this sentence the bound reading may be not the most salient reading in English). Imagine the context of a dictatorial regime, where some books are fobidden by the government, and whoever buys them runs the risk of going to jail. In this context, (79b) can be felicitously uttered, meaning either "buying books will prove dangerous", or "the books that you buy may be dangerous". The second reading is the one indicated in the indexing in (79b). Emphatics, crucially, do not allow this reading; universal quantifiers also don't:

(80)   Min agorasis KANENA vivlio$_1$; bori na apodixti *pro$_{*1}$* epikindino.
        not buy.2sg   any   book   may subj prove.3sg   dangerous
        'Buy no books; it might be dangerous (if you buy).'

(81)   Min agorasis kathe vivlio$_1$;   bori na apodixti *pro$_{*1}$* epikindino.
        not buy.2sg every   book   may subj prove.3sg   dangerous
        'Don't buy every book; it might be dangerous (if you buy them all).'

(80) only has the reading where buying books can prove dangerous, and likewise, (81) can only mean "buying all the books will be dangerous". Hence negative sentences appear to be static for universal quantifiers and emphatics, but dynamic for PIs like *any* and nonemphatics. As I said before, binding in these cases can be accounted for in terms of modal subordination. Hence negation and modal/intensional predicates form a natural class in this respect, a point alluded to also in Groenendijk, Stokhof and Veltman (1996).

       Apart from helping us distinguish between emphatics (static) and nonemphatics (dynamic), the conclusion reached here is important because it suggests that PIs of the *any-* and nonemphatic type may introduce, and pick up

discourse referents. They do so, however, in a particular way, to be made precise below.

2.3.5 The sensitivity semantics of emphatics and nonemphatics

The semantic facts discussed above can only force one conclusion: that the difference between an emphatic and a nonemphatic is that between a universal and an existential quantifier, as in (82):

(82)   a $[\![KANENAS]\!] = \lambda P \forall x \ [\textbf{person } (x) \rightarrow P(x)]$

        b $[\![kanenas]\!] = \lambda P \ \exists x \ [\textbf{person } (x) \wedge \textbf{P}(x)]$

This conclusion implies that we treat the two paradigms as distinct, a choice I make here and stick to throughout this book. Both paradigms are polarity sensitive, we must thus identify the relevant sensitivity features.

Consider nonemphatics first. If nonemphatics are "regular" existential quantifiers, then we expect that existential statements like (83'), meaning "there is an x that has the property P", would be expressible with them. However, we see in (83) that they are not:

(83)   *Irthe   kanenas.
        came.3sg anybody
        '*Anybody came.'

(83') $\exists x \ [\textbf{P} \ (x) \wedge \textbf{Q}(x)]$

The fact that nonemphatics fail to refer in simple existential statements shows that these items are unable to refer "directly" to objects in the actual world, the way regular existential quantifiers like *a man,* or *three students* can. The same can be said for *any.* But what does it mean "to not be able to refer directly to objects in the actual world"?

Consider the use of a regular existential quantifier. By using $\exists x$, two things are accomplished. First, the quantifier adds a new variable x to the variables that are already in use. Second, it introduces a discourse referent, and associates the variable x with that discourse referent. This we may call direct, independent reference of regular existential quantifiers. In donkey anaphora, the discourse referent introduced by the existential quantifier is picked up by a pronoun.

Dependent existential quantifiers are just like regular existentials in contributing a new variable, but differ from them in that they fail to introduce a discourse referent in the actual world w_0. Dependent existential quantifiers, unlike regular existentials, cannot assert existence in the actual world. This is encoded in the definition in (84ii). Affective PIs like nonemphatics, and comparable items, denote dependent existential quantifiers, in this sense:

(84)   *Sensitivity in APIs*   (to be revised in §3.3.6)

     i. An affective polarity item α is a dependent existential quantifier.

     ii. A existential quantifier $\exists x_{ni}$ is dependent iff the variable x_{ni} it contributes does not introduce a discourse referent in w_0.

     iii. $[\![$kanenas$]\!] = \lambda P \exists x_{ni} [\mathbf{person}\ (x_{ni}) \wedge \mathbf{P}(x_{ni})]$

"ni" stands for "no introduction of discourse referent in w_0". Hence, *kanenas* does not denote the existential quantifier in (82b) but rather the dependent one we see in (84iii).

Dependent reference is thus the sensitivity feature of nonemphatics and affective PIs of the same kind, e.g *any*. Crucially, dependent reference does not imply lack of reference. As we saw above in the donkey anaphora examples, and as (84) states, nonemphatics may indeed introduce discourse referents, just not in w_0 (or, some individual's epistemic model, as it will be further proposed in §3.3.6). This point becomes clear in the following example with a conditional:

(85)   An dhis   kanenan$_i$, na   tu$_i$ pis   na   me perimeni.
       if   see.2sg anybody, subj him say.2sg subj me wait.3sg
       'If you see anybody$_i$, tell him$_i$ to wait for me.'

Kanenan is associated with a discourse referent here, which, obviously, itself contributes (since no other existential is in use). This referent is subsequently picked up by *tu* for further reference. Yet the introduction of the discourse referent is not done in w_0, but in the hypothetical context set up by the conditional protasis.

This example also shows that dependent reference does not imply lack of *actual* reference. i.e. reference to individuals that exist in the actual world. In the hypothetical context in (85), *kanenas* may pick up an actual individual as its referent; it will be impossible, however, to use *kanenas* in order to *introduce* that individual in w_0. Hence, although they are unable to introduce new discourse referents in w_0, dependent existential quantifiers may be associated with already

existing ones, or introduce discourse referents in embedded contexts of the ap-
propriate type, as we shall see in §3.3.6. Like nonemphatics, *any* encodes de-
pendent reference as its sensitivity feature too.

Emphatics, on the other hand, are universal quantifiers. They differ from
"regular" universal quantifiers, however, in that they can only combine with
negative predicates (antiveridical in a sense to be made precise in chapter 3). I
envision this as their sensitivity feature in (86):

(86)   *Sensitivity in emphatics*
        Emphatics are *topical* universals which can only combine with antiveridi-
        cal predications.

Emphatics (and comparable items crosslinguistically) are the logical subjects of
antiveridical predications. Their limitation to negative and negative like contexts
follows from this sensitivity specification. In terms of scope, this means that
emphatics are equivalent to *oli* 'all' in (87b), when it combines with a negative
predicate (to the extent it does):

(87)   a   Oli i   fitites   irthan.
                all the students came.3sg
                'All the students came.'
        b   ?Oli i   fitites   dhen irthan.
                all the students   not   came.3sg
                'All the students didn't came.'

Although the combination of *oli* with a positive predicate is fine in (87a), sen-
tences like (87b) are never impeccable; moreover, object *oli* and distributive uni-
versals cannot provide general negative statements in combination with negation
(as we know from Beghelli and Stowell 1997 on English *every*; for discussion
of the Greek facts, see §4.5, also Veloudis 1982). Emphatics, then, offer the *all
not* choice which would be otherwise difficult or impossible to have.

2.3.6 The role of emphatic accent

Emphatic accent, in the proposal made here, has a lexical effect: it distinguishes
between the two API-paradigms. Is this a welcome result? The answer is posi-
tive, and I would like to justify here why.

The lexical effects of emphatic accent are not particular to the emphatic/
nonemphatic contrast under consideration, but are attested elsewhere in the

grammar of Greek. Though Greek has no lexical distinction between *few* and *a few*, emphasis does distinguish between the two, as we see in (88): the nonemphatic is licensed under *LIJI* but not under *liji*, as expected (given that only *few* licenses such PIs). Likewise, in (89), it is illustrated that emphasis distinguishes between *very* and *too*. Again, nonemphatic licensing serves as the diagnostic:

(88) a LIJI fitites   ipan   tipota.
         few students said.3pl anything
         'Few students said anything.'
      b * Liji fitites   ipan   tipota.
         a few students said.3pl anything

(89) a Ime   POLI kurasmeni ja na   miliso   me kanenan.
         be.1sg too   tired   for subj talk.1sg with anybody
         'I am too tired to talk to anybody.'
      b * Ime poli kurasmeni ja na   miliso me kanenan.
         be.1sg very tired   for subj talk.1sg with anybody

The lexical effects of emphasis observed here are important, and can clearly not be reduced to focus.

In addition, emphatic accent may be used to disambiguate scope (a point emphasized in Büring 1997). This is precisely what emphasis does in the Greek sentence in (90):

(90) Dhen parakoluthise PARAPANO apo tria   mathimata.
      not attended.3sg   more   from three classes
      'S/He didn't attend more than three classes.'

The English version of this sentence, with no accentual marking, has two possible readings, depending on whether *more than three classes* scopes over negation or not. The first possibility is illustrated in the LF in (91a): *more than three classes* has adjoined to IP, and thus takes wide scope over negation. (I assume that English negation is just a clitic on Infl). The second possibility is given in (91b): *more than three classes* is adjoined to VP, below negation.

(91) a [$_{IP}$ more than three classes$_1$ [$_{IP}$ he didn't [$_{VP}$ attend t$_1$]]]
      b [$_{IP}$ he didn't [$_{VP}$ more than three classes$_1$ [$_{VP}$ attend t$_1$]]]

Under the reading in (91b), with negation taking wide scope, the person picked by the pronoun attended no more than three classes; in this reading, we don't know how many classes the person was absent from, there could be three, twenty, or none (if, for instance, only three classes were taught that trimester). Under the reading in (91a), on the other hand, we know that there were more than three classes from which the person in question was absent. We have no idea how many classes were actually attended. The two readings are thus true under distinct circumstances.

The Greek sentence, with the accented DP, has only the wide scope DP reading in (91a). Neutral intonation would give us both possibilities. Accent on negation *dhen* enables only the wide scope negation reading in (91b). The disambiguating effect of accent seems, then, more general: it marks wide scope readings. There is considerable empirical evidence for this generalization, from various sources, but it would lead us too far afield to examine it here. What matters is that emphatic accent, at least under negation, indicates that an element takes wide scope. This will be shown to be consistent with the analysis of emphatics as wide scope universals I will propose in chapter 4, and the assumption that emphatics and NPIs of this kind are logical subjects on antiveridical predications.

I conclude that the choice to treat emphatics and nonemphatics as distinct lexical items is empirically and conceptually well motivated. Further evidence that the emphasis involved is not focus is given in §4.7.

To sum up, in §2.3 we have established that affective dependencies come in two flavors, one loosely and one tightly related to negation. The former gives rise to APIs, the latter to NPIs. Nonemphatic items belong to the first category, emphatics to the second. The sensitivity semantics of the two paradigms were also shown to be distinct. Emphatics, and similar NPIs, were characterized as having the property of being the logical subjects of antiveridical predications. Nonemphatics, on the other hand, exhibit the property of dependent reference: they cannot introduce discourse referents in w_0. That the particular sensitivity specifications restrict the distribution of emphatics and nonemphatics the way they do will become obvious in the next chapter. Now, we turn to nonaffective PIs. First, free choice items will be discussed, and then subjunctive relatives.

2.4   Free choice items

Greek, unlike English, has a lexically distinct paradigm for free choice items (FCIs). Romance and Slavic languages resemble Greek in this respect (and many others; see Haspelmath 1993, 1997 for an overview, and Bosque 1996, Quer 1998 for Spanish and Catalan). In this section, I present the distribution of Greek FCIs, and outline an analysis of their free choice semantics building on the proposal in Giannakidou (1997b). The link between this semantics and the distribution of FCIs will be tackled in §2.4.3 and is further discussed in §3.5.

The series of Greek FCIs is reproduced under (92), and it contains nominal and adverbial elements. The relevant expressions appear both as determiners and as independent DP or adverbial constituents, and the nominal ones are inflected for gender, case, and number. I cite here the masculine, nominative, singular form, following standard practice:

(92)   opjosdhipote   'anyone, anybody'
        otidhipote   'anything'
        oposdhipote   'anyhow, anyway'
        opotedhipote   'whenever'
        opudhipote   'wherever'

FCIs may also head free relatives. In this use, they can be replaced by the free-relative pronoun *opjos*:

(93)   {Opjos/ opjosdhipote} exi   kamja erotisi, na tin   kani   sto
        whoever/anyone   have.3sg any question, subj her make.3sg in-the
        dhialima.
        break
        'Whoever has any questions may ask during the break.'
        'Anyone who has any questions may ask during the break.'

Opjos 'whoever', which is lexically distinct from the relative pronoun *opios* 'who' (which is again distinct from the interrogative pronoun *pjos* 'who') is exclusively employed in free relatives. This item, unlike *opjosdhipote*, is not accepted in regular FC contexts (to be illustrated in detail below):

(94)   {Opjadhipote / *opja}   gata kinigai   pondikia.
        any /   whoever cat   hunt.3sg mice
        'Any cat hunts mice.'

Because I will not consider the free relative uses of the FCIs here, the contrast in (94) should be emphasized.

Morphologically, FCIs can be decomposed into three parts: *opjos* 'free-relative who', *dhi* 'indeed' (emphatic particle from ancient Greek), and the nonemphatic *pote* 'ever' (cf. English *whatsoever*). *-dhipote* is the locus of the free choice semantics.

Though the distribution of FCIs parallels that of APIs to a great extent, it differs from it in some crucial respects. I review the distributional facts below. In 2.4.2 I provide a semantic characterization of FCIs as *attributive* indefinites, and identify attributiveness as their sensitivity feature.

2.4.1 Distribution

The grammatical contexts for the broad nonemphatic dependency will be our starting point. FCIs are grammatical in most of the environments nonemphatics are, yet the contrastive distribution of FCIs and APIs makes it clear that we are dealing with two distinct (but related) kinds of sensitivity. To start with, just like APIs, FCIs are not possible in affirmative episodic sentences:

(95) * Xthes, idha   opjondhipote ston   kipo.
       yesterday, saw.perf.1sg anybody   in-the garden
       (*Yesterday at two o'clock I saw anybody in the yard)

By 'episodic', it is meant that reference to an event is made (in the standard neo-Davidsonian way; Davidson 1967, Kratzer 1988, 1995, Parsons 1990), a fact supported by the use of perfective aspectual morphology, as indicated in (95) (see Giannakidou and Merchant 1998). APIs are also excluded from sentences like (95), because they fail to refer directly (nonemphatics), and they do not combine with a negative predicate (emphatics). FCIs are excluded from (95) because episodicity is incompatible with their free choice semantics.

I list here the grammatical environments for FCIs which are also grammatical for APIs:

Protasis of conditionals
(96) An dhis   tin Ilektra opudhipote,   na tis pis   na   me perimeni.
      if see.2sg the Electra anywhere,   subj her say.2sg subj me wait.3sg
      'If you see Electra anywhere, tell her to wait for me.'

Restrictions of universal quantifiers

(97) Oli osi gnorizun   otidhipote sxetiko me   tin ipothesi, as   milisun.
      all that know.3pl anything   about   with the issue   subj talk.3pl
      'Everyone who knows anything about the issue should speak.'

Phrasal comparatives

(98) I   Ana apodhixtike pjo   eksipni   apoti perimene   opjosdhipote.
      the Ann proved.3sg more intelligent than   expected.3sg anybody
      'Ann turned out to be more intelligent than anyone had expected.'

Subjunctives

(99) I   Ilectra epemine   na   afiso opjondhipote na   perasi   mesa.
      the Electra insisted.3sg subj let.1sg anyone   subj come.3sg in
      'Electra insisted that I allow anyone in.'

Modal verbs

(100) Bori   na   bike   opjosdhipote mesa.
      can.3sg subj entered.3sg anyone   in
      'Anyone may have come in.'

(101) Boris   na   danistis   opjodhipote vivlio.
      can. 2sg subj borrow.2sg any   book
      'You may borrow any book.'

(102) Opjosdhipote bori   na   lisi   afto to provlima.
      anyone   can.3sg subj solve.3sg this the problem
      'Anyone can solve this problem.'

Implicit modals

(103) Opjosdhipote ine   kalodhexumenos sti   sinantisi apopse.
      anyone   be.3sg welcome   in-the meeting tonight
      'Anyone is welcome at the meeting tonight.'

Imperatives

(104) Pare   opjodhipote milo.
      take.2sg any   apple
      'Take any apple.'

Future particle

(105) Opjosdhipote jatros tha su pi oti afto pu kanis dhen ine sosto.
any doctor fut you tell.3sg that this that do.2sg not be.3sg right
'Any doctor will tell you that what you do is not right.'

Habituals

(106) Sinithos dhiavaze ophodhipote vivlio me megali prosoxi.
usually read.3sg any book with great attention
'S/He usually read any book very carefully.'

too-clauses

(107) I Ilektra ine POLI kurasmeni ja na milisi me opjondhipote.
the Electra be.3sg very tired for subj talk.3sg with anyone
'Electra is too tired to talk to anybody.'

xoris- 'without' clauses

(108) Plirose xoris na aghorasi otidhipote.
payed.3sg without subj bought.3sg anything
'S/He payed without buying almost anything.'

prin-'before' clauses

(109) Pethane prin na di opjodhipote apo ta egonia tu.
died.3sg before subj see.3sg any from the grandchildren his
'He died before he saw almost any of his grandchildren.'

Unlike nonemphatics, however, FCIs are additionally licensed in phrasal comparatives and generic sentences, and are fine as direct objects of negative predicates (the unavailability of nonemphatics in generic sentences was noticed first in Giannakidou 1995a):

Phrasal comparatives

(110) I Ana trexi grigorotera apo opjondhipote stin taksi tis.
the Ann run.3sg faster than anybody in-the class hers
'Ann is more intelligent than anybody in her class.'

(111) *I Ana trexi grigorotera apo kanenan tin taksi tis.
the Ann run.3sg faster than anybody in-the class hers

Negative predicates

(112)   Tu lipi   opjadhipote esthisi tu xumor.
        him lack.3sg any   sense of humor
        'He lacks any sense of humor.'

(113)   *Tu lipi   kamia esthisi tu xumor.
        him lack.3sg any   sense of humor

Generics

(114)   Opjadhipote ghata kinigai   pondikia.
        any   cat   hunt.3sg mice
        'Any cat hunts mice.'

(115)   * Kamia ghata kinigai   pondikia.
        any   cat   hunt.3sg mice

Spanish and Catalan FCIs exemplify the same distribution (cf. Bosque 1996, Quer 1998). When grammatical, FCIs exhibit quantificational variability: sometimes they are understood as existential quantifiers (for instance in imperatives), and sometimes as universal (in the sentences above). In addition, utterances with FCIs are generally better with rich descriptive content, i.e. with the FCI as a modifier, or complemented by a partitive NP. Both facts will be shown to derive from the semantics I will present below.

Crucially, FCIs are *ungrammatical* in typical API-environments such as negation and interrogatives; I indicate free choice reading in *any* below be prefixing it with *almost*, following Carlson 1980).

(116)   * I Roxani   dhen idhe   otidhipote.
        the Roxanne not   saw.3sg anything
        '??Roxanne didn't see almost anything.'

(117) * Aghorases opjodhipote vivlio?
        bought.2sg any   book
        (* Did you buy almost any book?)

(118)   * Pote irthe opjosdhipote?
        when came.3sg anyone
        (* When did almost anyone arrive?)

Again, Spanish and Catalan FCIs are also ungrammatical in negative and inter-
rogative sentences, and so is *any* modified by *almost*, as we see. From the data
presented here we can conclude that FCIs are PIs distinct from APIs, i.e. em-
phatics and nonemphatics and *any*.

Table 2 illustrates the contrastive distribution of nonemphatics and FCIs:

Table 2 Comparative distribution of nonemphatics and FCIs

Environments	FCIs	Nonemphatics
Negation	*	OK
before-clauses	OK	OK
without-clauses	OK	OK
Yes-no/constituent questions	*	OK
Conditionals	OK	OK
Restriction of ∀	OK	OK
too-clauses	OK	OK
S-comparatives	OK	OK
Future	OK	OK
Modals/Subjunctives	OK	OK
Imperatives	OK	OK
Habituals	OK	OK
Disjunctions	*	OK
Downward entailing DPs	OK	OK
Negative verbs (CP)	OK	OK
Negative verbs (DP)	OK	*
Generics	OK	*
Phrasal comparatives	OK	*

There are two possible ways of interpreting the information in table 2.
We can either conclude that FCIs are not subject to the same kind of dependency
nonemphatics are (which is the conclusion I reached in Giannakidou 1997a, and
b), or we can hypothesize that FCIs and nonemphatics exemplify the same type
of dependency, but their distribution differs because of their distinct sensitivity
semantics. This is the conclusion I opt for here, which is consistent with the free
choice morphology of FCIs.

2.4.2 The semantics of free choice

The literature on FC *any* more or less takes it for granted that FC-interpretation implies universal quantification (cf. Quine 1969, Vendler 1967, Horn 1972, Ladusaw 1979, Carlson 1980). In Giannakidou (1997b), I showed that FCIs are not universal but existential quantifiers, and that the universal-like flavor of statements with FCIs is a by-product of the nature of free choice quantification. The analysis of free choice I present here builds on the main features of the analysis I defended in that work.

Intuitively, free choice requires variation (cf. Kadmon and Landman's 1993 *widening*, Horn and Lee 1994, Dayal 1995, 1997, Tovena and Jayez 1997). The requirement on variation is encoded in the semantics of FCIs via their morphology. Recall the presence of *-dhipote* 'indeed ever' in Greek FCIs; modal marking is present in other languages too, e.g. Hindi (Dayal 1995), Spanish (Bosque 1996) and Catalan (Quer 1998). Because FCIs encode a variation requirement, they are expected to occur only in environments where this requirement is satisfied.

The variation requirement can be captured in terms of attributiveness. Donnellan (1966) distinguished between *referential* and *attributive* uses of definites. In the referential use, *o dholofonos tu Smith* 'Smith's murderer' in (119) refers to a particular individual, say Paul, who is known to have killed Smith.

(119)   O dholofonos tu Smith ine paranoikos.
        the murderer   of Smith is paranoid
        'Smith's murderer is insane.'

In the attributive use, *o dolofonos tu Smith* is paraphrasable by "whoever murdered Smith", and does not make reference to a particular individual. It is, for instance, a statement that the policeman would make who found Smith brutally murdered in his apartment, without being able to identify who the actual murderer is.

Given that unlike proper names, definite descriptions are non-rigid designators (Kripke 1972), we can capture the difference between attributive and referential definites in the following way. We can say that, referring non-rigidly, referential definites may pick up different individuals in different worlds. Yet, referential definites don't *have to* pick up distinct individuals in each possible world. In fact, there may be two worlds, say w_1 and w_2, where *Smith's murderer* picks up the same individual, say Paul. Attributive definites, on the other hand, *must* pick up distinct individuals in each possible world. Dayal (1997) has

forcefully argued in favor of this later position in her analysis of free relatives as attributive definites.[4]

With this notion of attributiveness in mind, we can argue that FCIs are attributive existential quantifiers. Attributive existentials are just like regular existential quantifiers vis-à-vis their quantificational force, but, additionally, they come with the free choice requirement that their referent vary from one world to another. Attributiveness is encoded as a sensitivity feature on FCIs in the form of *-dhipote* 'ever'. The presence of this feature requires that FCIs be interpreted with respect to a set of alternatives to the world of evaluation w_0, what Dayal (1997) calls i(dentity)-alternatives:

(120) *Sensitivity in FCIs*

    i. A free choice item α is an attributive existential quantifier.

    ii. Attributive existential quantifiers must be evaluated wrt a set of i-alternatives.

    iii. A world $w' \in M(x)$ is an i-alternative wrt α iff there exists some $w'' \in$

    $M(x)$ such that $[\![\alpha]\!]_{w'} \neq [\![\alpha]\!]_{w''}$.

Two i-alternatives w' and w'' are worlds agreeing on everything but the value assigned to the FCI α. $M(x)$ is the set of worlds representing the epistemic status of some individual, in the case of unembedded assertions, the speaker's: $M_B(s)$ (see §1.3). Hence, i-alternatives are epistemic alternatives relative to an individual. In this context, FCIs denote existential quantifiers, just like regular indefinites (as in (122)), which, however, must be evaluated against a set of i-alternatives as indicated by i-indexation in (121):

(121) $[\![$ opjodhipote vivlio $]\!]_{w0} = \lambda P [\forall i\text{-alt.} \in M_E (s) \exists x_i \mathbf{\ book} (x_i) \wedge \mathbf{P} (x_i)]$

(122) $[\![$ a book $]\!]_{w0} = \lambda P [\exists x \mathbf{\ book} (x) \wedge \mathbf{P} (x)]$

Donnellan emphasizes that in attributive expressions it is the link between description and referent that is essential, rather than the identity of the referent. The observation that FCIs are preferred with rich descriptive content squares with this fact.

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[4] Farkas (1985) described the difference between referential and attributive definites as a difference between a rigid and a non-rigid designator. But this contradicts the Kripkean distinction between definite descriptions (non-rigid designators) and proper names (rigid designators); see also discussion in Quer (1998).

I illustrate how this proposal works with two examples. Consider (123) first, with a FCI in a comparative clause. Given standard assumptions about comparatives as relations between individual and degrees mediated by maximality (cf. *inter alia* von Stechow 1984), this sentence's meaning is as in (124). The FCI, on the other hand, denotes the set indicated by (125):

(123) I Ana   trexi   grigorotera apo opjondhipote stin   taksi tis.
       the Ann run.3sg faster   than anybody   in-the class hers
       'Ann is more intelligent than anybody in her class.'

(124) $\exists d$ [**fast** (d) $\wedge$ **run** (Ann,d) $\wedge d >$ max ($\lambda d'$ (**run** (anyone in her class, d')))]

(125) [[opjondhipote stin taksi tis]]$_{w0}$ = λP [$\forall$i-alt. $\in$ M$_E$ (s) $\exists x_i$ **person-in-class-of-Ann** $(x_i) \wedge P(x_i)$]

Consider now the i-alternatives in (126) and an ordering of degrees d' < d" < d''', such that the degree d' to which Roxanne runs is smaller than the degree d" to which Cleo runs and this, in turn, is smaller than the degree d''' to which Theodora runs:

(126) a   i-alt$_1$: **person-in-class-of-Ann** (x_1) = Roxanne

             $\exists d'$ [**fast** (d') $\wedge$ **run** (Roxanne, d')]

      b   i-alt$_2$: **person-in-class-of-Ann** (x_2) = Cleo

             $\exists d''$ [**fast** (d") $\wedge$ **run** (Cleo, d")]

      c   i-alt$_3$: **person-in-class-of-Ann** (x_3) = Theodora

             $\exists d'''$ [**fast** (d''') $\wedge$ **run** (Theodora, d''')]

Given these alternatives, sentence (123) says that Ann's degree of running is greater than the maximal degree to which an individual considered in the i-alternatives is. In other words, Ann runs faster than even Theodora. The universal interpretation of the FCI is thus illusive: it is not inherent to the FCI itself, but rather, it is due to the maximality operator present in the comparative. The same can be said about the universal-like flavor of FCIs in generic sentences: it is due to the presence of the generic operator. In the absence of an operator inducing universal-like effects, the FCI is interpreted as a regular existential quantifier. To see this, consider occurrences of FCIs in imperatives as in (127), evaluated with respect to the set of i-alternatives in (128):

(127) Dialekse   opjodhipote filo;   opjo thelis.
        pick.imp.2sg any   *card;*   *whichever want.2sg*
        'Pick any card; whichever you want.'

(128) a   i-alt$_1$: **card** (x_1) = card$_1$
            IMP [**pick** (you, card$_1$)]
     b   i-alt$_2$: **card** (x_2) = card$_2$
            IMP [**pick** (you, card$_2$)]
     c   i-alt$_3$: **card** (x_3) = card$_3$
            IMP [**pick** (you, card$_3$)]

Dialekse opjodhipote filo "Pick any card" is an invitation to take some card, be it card$_1$, card$_2$, or card$_3$, but not all of them. If one takes more that one card, one has presumably not understood what the imperative meant.

If FCIs are attributive, then their *indiscriminative* reading is no longer a mystery (cf. Horn 1996 for the characterization 'indiscriminative'). This reading of FCIs arises in Greek in construction with the definite determiner: *o opjosdhipote* corresponding to 'just anybody':

(129) Theli na   proskalesume ton opjondhipote.
        not   *fut invite.1pl*   *the anyone*
        '(S)He wants us to invite just anybody.'

Indiscriminative uses of FCIs are common across languages and they have a pejorative flavor. In English, as we see in (129), they are marked by the precedence of *just*. Though the constraints on the indiscriminative reading do not fall under the scope of this study, it is important to note that the availability of this reading is predicted under the analysis of FCIs as attributive quantifiers pursued here.

2.4.3 Linking free choice to limited distribution: episodicity

How does evaluation with respect to i-alternatives rule out FCIs from affirmative episodic, negative and interrogative sentences? The common feature of these sentences is that they are episodic, i.e. their logical representation involves existential closure of an event variable *e* (cf. Davidson 1967, Parsons 1990, Kratzer 1995), as is shown below for (95), (116), and (117); '?' stands for the question operator, see Groenendijk and Stokhof (1997):

(95') $\exists e$ [$\exists x$ (**person** (x, e) $\wedge$ **saw** (I, x, e)) $\wedge$ **in-the-yard** (e)]

(116') $\neg \exists e$ [$\exists x$ (**thing** (x, e) $\wedge$ **saw** (Roxanne, x, e))]

(117')   ? $\exists e$ [$\exists x$ (**book** (x, e) $\wedge$ **bought** (you, x, e))]

Hence the ungrammatical cases form a natural class in terms of event closure. Episodicity in this sense will always block the possibility of invoking i-alternatives in virtue of its blocking variation for the arguments of the event. In an episodic context, the FCI is forced into a non-varying existential interpretation, and this consequently makes it illicit. Consider, in this connection, that FCIs are excluded from progressive sentences too (a fact also noticed for Catalan FCIs in Quer 1998):

(130)   * Olo to proi,   i   Ilectra egrafe   opjodhipote grama.
         all   the morning the Electra wrote.progr.3sg any   letter
         ('*All morning, Electra was writing any letter.')

As we see, the ungrammaticality carries over to English *any*. It is not the place here to dwell on to a discussion of the progressive (cf. Landman 1992 and references therein). However, it is important to emphasize that the progressive can be regarded as episodic, in the sense that it involves a single event, albeit as a sequence of successive states. In the context of (130), *opjodhipote grama* 'any letter' is forced into an existential, non-varying interpretation: Electra was writing *some* letter all morning. Hence, FCIs are excluded from the progressive because their free choice variation requirement is not satisfied in this domain, due to its episodic nature. Note that in Giannakidou (1995a) the progressive was characterized as veridical, as it does not allow for nonemphatics either, a point to which I return in chapter 3 (§3.3.4).

In accordance with this analysis, FCIs turn out to be acceptable with individual-level predicates (and with generics, as we saw), where e is assumed to be bound inherently by GEN as in Chierchia (1995b), or absent altogether as in Kratzer (1995):

(131)   I   Ilektra gnorizi   opjondipote sto   tmima.
         the Electra know.3sg anyone   in-the department
         'Electra knows anybody in the department.'

(131')   [[know]]=$\lambda x_1 \lambda x_2$ GENs (**in** (x$_1$,x$_2$,s)) [**know**(x$_1$,x$_2$,s)]
         [Chierchia 1995b]

So the proposed analysis of FCIs as attributive indefinites derives their restricted distribution in a simple way: attributive indefinites must avoid episodic domains, because episodic domains do not satisfy the free choice requirement on variation. FCIs are then anti-licensed by episodicity, and we can state this in the condition in (132):

(132) *Anti-licensing of free choice items*   (to be further refined)
       A free choice item α is not be licensed in a sentence S if S is episodic.
       Otherwise, α is licensed.

(132) predicts the right distribution not only for Greek FCIs but also for their Spanish and Catalan counterparts: *cualquier* "anybody"(Spanish), *qualsevol* "anybody" (Catalan). The reader can check for herself to see how all the grammatical environments presented in 2.4.1 conform to (132). Crucially, (132), by requiring that FCIs be in a nonepisodic domain, implies a positive specification of the grammatical environment: there must be an operator which binds the *e* variable. Hence habitual, generic, and modal operators are, inter alia, required to ensure nonepisodicity and to allow for the free choice interpretation of FCIs. The condition in (132) is further constrained by nonveridicality as we will see in chapter 3 (§3.5).

To summarize, in 2.4 we have identified a class of FCIs in Greek. FCIs encode a variation requirement as their sensitivity feature, best captured as attributiveness in terms of variation across i-alternatives. Episodic domains are incompatible with attributiveness because they force non-varying reference, and FCIs are ungrammatical in these domains.
       Next, I consider relative clause modification as another instance of a polarity phenomenon.

2.5   Mood choice in relative clauses

Subjunctive (restrictive) relative clauses (SRs) in Greek provide another class of PIs. The dependent character of SRs was originally discussed in Farkas (1985) for Rumanian, where it was emphasized that it is sensitivity of these to intensionality that makes them dependent and consequently restricts their distribution. Veloudis (1984) followed Farkas and examined mood choice in Greek restrictive relatives in the light of Farkas's hypothesis. Likewise, Giannakidou (1997a),

and Quer (1998) provide accounts of the indicative-subjunctive shift in relative clauses using the extensionality versus intensionality contrast.

Farkas's generalization for the distribution of SRs is given in (133):

(133)   *Farkas's generalization*
        Subjunctive relative clauses are grammatical iff they modify DPs which are interpreted inside the scope of intensional operators.

Because of their sensitivity to intensionality, Farkas calls SRs *intensional descriptions*. In what follows, I will agree with the hypothesis that SRs are PIs crosslinguistically; I will propose, however, that it is not the intensional versus extensional contrast that is relevant for the restricted distribution of SRs, but rather, the availability of a certain existential entailment. This, in turn, will be shown to correlate with scope.

In §2.5.1 I present the distribution of SRs, establishing that they constitute a class of PIs distinct from (but related to) the other PI paradigms we are already familiar with. Then, in §2.5.2, I specify 'lack of guarantee of existence' as the sensitivity feature of SRs and suggest that this feature restricts their distribution in the attested way.

2.5.1 Distribution

SRs may modify indefinite DPs of various forms: singular indefinites, bare NPs, and PIs such as emphatics and FCIs. Here, I present their (partial) distribution when modifying singular indefinites, bare NPs, and nonemphatics; as we see, some of the English translations involve modal verbs:

Negation
(134)   Dhen idha   enan andra [pu na   forai   kokino kapelo.]
        not   saw.1sg a   man   that subj wear.3sg red   hat
        'I didn't see a man wearing a red hat.'

Conditionals
(135)   An dhis   kapjon [pu na forai   kokino kapelo]....
        if   see.2sg someone that subj wear.3sg red   hat
        'If you see someone wearing a red hat....'

Strong intensional verbs

(136) I Cleo protine na vro kapjon [pu na me voithisi.]
the Cleo proposed.3sg subj find.1sg someone that subj me help.3sg
'Cleo suggested that I find someone who will help me.'

Modal verbs

(137) Prepi na grapso mia ergasia [pu na ine pano apo 15 selidhes.]
must.3sg subj write.1sg an essay that subj is more than 15 pages
'I have to write an essay which has to be longer that 15 pages.'

Imperatives

(138) Fere mu ena vivlio [pu na exi ble kalima.]
bring.2sg me a book that subj have.3sg blue cover
'Bring me a book that has a blue cover.'

Interrogatives

(139) Idhes kanenan [pu na me thimate?]
saw.2sg anyone that subj me remember.3sg
'Did you see anyone who remembers me?'

In these constructions, DPs modified by SRs have narrow scope readings, in a way to be made precise in 2.5.2.

On the other hand, SR modification is barred in affirmative sentences with extensional verbs, comparatives, generics, and interestingly, in the scope of intensional verbs like *believe,* and *dream* (characterized as *weak intensional* in Farkas 1985, 1992; here I use the term merely as a descriptive label).[5] Here are the relevant examples:

Affirmative extensional

(140) * I Roxani idhe enan andra [pu na exi pola lefta.]
the Roxanne saw.3sg a man that subj have.3sg much money
(Roxanne saw a man that had a lot of money.)

---

[5] The distinction between *weak* and *strong* intensionality is drawn in Farkas (1985, 1992), and is intended to account for mood selection in Romance languages: strong intensional verbs meaning *want, suggest,* etc. select the subjunctive, but weak intensional ones meaning *believe, dream,* etc. select the indicative. In §3.1 I show that the underlying semantic difference is one in terms of (non)veridicality.

Comparatives

(141)   *I Cleo trexi   taxitera apo andres [pu na exun   proponithi sklira.]
        the Cleo run.3sg faster   than men   that subj have.3pl trained   hard
        ('Cleo runs faster than men who have had hard training.')

Generic sentences

(142)   * I ghates [pu na   exun   prasina matia] ine   eksipnes.
        the cats   that subj have.3pl green   eyes be.3pl intelligent
        ('Cats that have green eyes are intelligent.')

Weak intensional verbs

(143)   * I Roxani pistevi   oti idhe   enan andra [pu na exi
        the R.   believe.3sg that saw.3sg a   man that subj have.3sg
        pola lefta.]
        much money
        (Roxanne believes that she saw a man that had a lot of money.)

(144)   * I Ana onireftike   oti filise   enan andra [pu na exi musi.]
        the Ann dreamt.3sg that kissed.3sg a   man that subj has beard
        ('Ann dreamt that she kissed a man who has a beard.)

The fact that SR modification is excluded in generic contexts and with weak intensional verbs is quite unexpected under Farkas's generalization, since these contexts *are* intensional (cf. Condoravdi 1994 for recent discussion of the modal character of generic statements). On the other hand, negation, which is not strictly speaking intensional, *is* a licenser of SRs (a fact which *prima facie* squares with the observation made in §2.3 that negation constitutes a modal subordination context for variable binding).

    As regards the PI-picture we may single out SRs as PIs distinct from emphatics, nonemphatics and FCIs, as indicated in Table 3. Weak intensional verbs were added. The examples below illustrate that all PI-paradigms, including *any,* are ungrammatical there, a fact crucial to the semantic analysis I develop in the next chapter:

(145)   *O Pavlos pistevi   oti aghorase   kanena/KANENA vivlio.
        the Paul   believe.3sg that bought.3sg any   book
        '*Paul believes that he bought any book.'

(146) * O Pavlos pistevi   oti aghorase opjodhipote vivlio.
       the Paul   believe.3sg that bought.3sg any   book
       '*Paul believes that he bought almost any book.'

Table 3 Comparative distribution of PIs in Greek

Environments	APIs	FCIs	SRs	NPIs
Negation	OK	*	OK	OK
before-clauses	OK	OK	*	OK
without-clauses	OK	OK	OK	OK
Yes-no/constituent questions	OK	*	OK	*
Conditionals	OK	OK	OK	*
Restriction of ∀	OK	OK	OK	*
too-clauses	OK	OK	*	*
S-comparatives	OK	OK	*	*
Superlatives	OK	*	*	*
Future	OK	OK	OK	*
Modal verbs	OK	OK	OK	*
Strong intensional verbs	OK	OK	OK	*
Imperatives	OK	OK	OK	*
Habituals	OK	OK	*	*
Disjunctions	OK	*	*	*
Downward entailing DPs	OK	*	OK	*
Negative verbs (DP)	*	OK	OK	*
Generics	*	OK	*	*
Phrasal comparatives	*	OK	*	*
Weak intensional verbs	*	*	*	*

The question, for now, is how to account for the distribution of SRs. According to the framework developed in this study, the answer to this question should be sought by first identifying the relevant sensitivity feature.

2.5.2 Subjunctive relatives and entailment of existence

We have already observed that subjunctive modification is excluded in the scope of intensional verbs like *believe* and *dream*, and that it is allowed under negation, which is not strictly speaking intensional. These facts suggest that Farkas's generalization cannot be the real explanation of what regulates mood choice in relative clauses. In this section, I propose that subjunctive modification will be

allowed only if we don't know whether the object denoted by the DP exists. If we know that such an object exists, we are forced to use an indicative relative (for the same intuition, see Veloudis 1984 and Quer 1998). Sensitivity to strong intensionality will be shown to follow from this in §3.5.

The basic observation is that SRs can modify indefinite DPs in the scope of intensional verbs like *look for* and *want*; in the scope of an extensional verb like *see*, SR-modification is illicit. The contrast is illustrated in the sentences below:

(147)   I Roxani theli   na   pandrefti {enan/*ton} andra pu   na exi
        *the R.   want.3sg subj marry.3sg a/*the   man that subj have.3sg*
        pola lefta.
        much money
        'Roxanne wants to marry a man who has a lot of money.'

(148)   * I Roxani   idhe   {enan/ton} andra pu   na exi   pola lefta.
        the Roxanne saw.3sg a /   the man that subj have.3sg much money
        (Roxanne saw {a/the} man that had a lot of money.)

In (147), the SR *pu na exi pola lefta* 'who has a lot of money' modifies the indefinite *enan andra* 'a man'. Definite DPs like *ton andra* 'the man' are not modifiable by SRs, which is to be expected under Farkas's generalization: definites are interpreted outside the scope of the intensional operator. (The situation in Romance is different, see Quer 1998). In (148), on the other hand, modification by the SR is barred, the reason being, under the intensionality hypothesis, that the indefinite *enan andra* is in the scope of *idhe* 'saw' which is extensional.

DPs modified by SRs necessarily take narrow scope with respect to the intensional operator and are only interpreted *de dicto*, a fact which also supports the dependent character of these clauses. (147) has only the narrow scope interpretation for the indefinite that we see in (147') and the existence of a man who meets the relative clause requirement is not guaranteed.

(147')   WANT (R, ($\exists$x [**man** (x) $\land$ **has-a-lot-of-money** (x) $\land$ **marry** (R, x)]))

In the absence of *na,* the sentence in (147), given now as (149), would have only the wide scope interpretation in (149'), where it is entailed that the man with a lot of money that Roxanne wants to marry exists.

(149) I Roxani theli   na   pandrefti   enan andra pu na exi
       the R.   want.3sg subj marry.3sg a   man that subj have.3sg
       pola lefta.
       much money
       'Roxanne wants to marry a man who has a lot of money.'

(149') $\exists x$ [**man** (x) $\wedge$ **has-a-lot-of-money** (x) $\wedge$ WANT (R, **marry** (R, x))]

Wide scope and the ensuing *de re* interpretation is the only possible option for DPs modified by indicative relatives. These basic facts about mood choice in relative clauses have been extensively discussed in the relevant literature in Romance and Greek (cf. Farkas 1985, Veloudis 1984, Rouchota 1994, Quer 1998). The crucial contrast appears to rely on the availability of an existence entailment, and this in turn translates into scope: *de re*, wide scope interpretations entail existence, but *de dicto*, narrow scope do not. This explains why it is easy to get SRs with intensional predicates in the first place, and not in unembedded nonmodal/nonintensional clauses, where existence is by default guaranteed.

I argue that the sensitivity feature of SRs lies precisely here: the existence of an object meeting the joint requirement of the DP and the relative clause is not entailed. Sensitivity to strong intensionality is a by-product of this. I provide the relevant condition in (150), where "Op" stand for 'operator'; it will be shown in §3.5.2 that the condition on *Op* is that it not be veridical:

(150) *Sensitivity in subjunctive relatives*
       [*Op* (DP + Subjunctive Relative Clause) VP] has a truth value iff it is not
       known whether the following is true: $\exists x$ [**NP**(x) $\wedge$ **Subjunctive**
       Relative Clause (x)]

Note that the use of a SR does not imply nonexistence. Modification by SR merely indicates ignorance as to whether an object exists. When this knowledge *is* available, an indicative relative is used instead. These clauses, then, are also sensitive expressions: they are associated with an existence entailment:

(151) *Sensitivity in indicative relatives*
       [*Op* (DP + Indicative Relative Clause) VP] has a truth value iff the
       following is true: $\exists x$ [**NP**(x) $\wedge$ **Indicative Relative Clause** (x)]

It is because of the existence entailment that indicative modification gives rise to wide scope reading only.

SRs will be ungrammatical in contexts where existence is guaranteed. Affirmative unembedded assertions, e.g. (148), are such cases, and subjunctive modification is not permitted. Likewise, embedded veridical clauses, i.e. the complements of epistemic and dream/fiction verbs (cf. examples (143), (144)), also exclude subjunctive modification, because existence of the decisive individual is entailed in the embedded model of the attitude subject. If Ann believes or dreamt that she kissed a man with a beard, then a man with a beard definitely exists in her view of the actual world, or in some fictional reality corresponding to Ann's dreams (more details see §3.5.3).

Generic statements, though intensional (see Condoravdi 1994), also block subjunctive modification. This is a problem for the intensionality hypothesis, but does it follow from the analysis pursued here? The answer is yes. To see this, consider the ungrammatical case in (142), repeated here:

(142)   * I ghates [pu na   exun   prasina matia] ine   eksipnes.
        the cats   that subj have.3pl green   eyes   be.3pl intelligent
        ('Cats that have green eyes are intelligent.')

In the literature on genericity, it is a standard assumption that generic statements are not associated with existential presuppositions (cf. Condoravdi 1994, Krifka et al. 1995 and references therein). In a sentence like (142) it is not presupposed that cats which have green eyes exist, the same way statements like *Unicorns are mythical animals* do not presuppose the existence of unicorns in the actual world. Whether a kind exists in the actual world or not is a matter of world knowledge. We know that unicorns do not exist, but we know that cats and cats with green eyes do. Since we have such knowledge, we cannot modify *ghates* 'cats' with a subjunctive relative clause.

2.6   Conclusion: A typology of polarity items in Greek

In this closing section I summarize the findings of the discussion in this chapter as they result in a typology of Greek PIs.

First, we identified a class of NPIs exemplifying the narrow sensitivity to negation. Emphatic PIs were shown to be NPIs proper, but these are not the only members of this class. Minimizers like *leo leksi* 'say word' are also NPIs. cf. discussion in §1.3. I briefly present here some more members of this class,

for the sake of completeness (for more examples see Giannakidou 1997a). We see that in all NPIs emphatic accent is present, a fact which must be related to the strong negative character of the utterances (see also discussion in chapter 4).

Greek has NPIs of the form *in X*, where X is a temporal expression. Such NPIs are very common across languages. *In years/in days* in English and *in jaren* 'in years' in Dutch are typical instances of such NPIs. The Greek counterpart of this NPI is exemplified in (152):

(152) *(Dhen) idha   tin Cleo epi MINES.
       not   saw.1sg the Cleo in months
       'I haven't seen Cleo in months.'
       versus '* I saw Cleo in months.'

Another NPI is *KAN*. *KAN* is *even* under negation and *xoris* 'without', as we see in (153). A positive *even*, *akoma*, also exists in Greek, as we see in (154):

(153) a   *(Dhen) irthe   KAN.
            not   came.3sg even
            'He didn't even come.'
       b   Mu milise   *(xoris) KAN na   me kitaksi.
            me talked.3sg without even   subj me look.3sg
            'He talked to me without even looking at me.'

(154)   Irthe   akoma ke   i   Anna.
            came.3sg even   and the Ann
            'Even Ann came.'

Kanenas/KANENAS have *kan* as their first morphological constituent. The availability of NPI-*even* is interesting, but I will not comment on it here. Another NPI is the *ke toso ADJ* 'all that ADJ' construction:

(156) *(Dhen) ine   ke   toso spudheo.
       not   be.3sg and that important
       'It is not all that important.'

(157) Ton akuga,   *(xoris) na   ime   ke   toso enthusiasmeni.
       him heard.1sg without subj be.1sg and that enthusiastic
       'I was listening to him without being all that thrilled.'

The English expression *all that ADJ* turns out to be an NPI too: * *He was all that intelligent.* Note that a similar expression, *that ADJ*, is not an NPI since it is fine with a deictic flavor:

(158)   My brother managed to find a flaw in Einstein's relativity theory. He is *that* intelligent!

The Greek and English expressions are in turn comparable to items like *bijster* in Dutch (cf. Klein and Hoeksema 1994). *Ke toso adj* lacks the emphatic intonation observed in the other NPIs, but *ke* 'and, also' can in itself be considered as an emphatic particle. The use of emphatic particles, sometimes analyzed as focus particles, is a pervasive tactics for NPI-formation in many languages (cf. Haspelmath 1993, 1997 for an overview of the data).

NPIs were shown to be special cases of APIs, which exemplify the broad sensitivity to nonveridicality (to be made precise in chapter 3). Nonemphatics are typical APIs. Another candidate is the sensitive auxiliary *xriazete* 'need' whose distribution is partially illustrated below:

(159)   * (Dhe) xriazete   na erthis.   [negation]
        not   be-needed.3sg subj come.2sg
        'You need not come.'

(160)   Xriazete   na ertho?   [question]
        be-needed.3sg subj come.1sg
        'Need I come?'

(161)   Oti xriazete   na kseris   su to   exo pi.   [restriction of ∀]
        what be-needed subj know.2sg you tit have.1sg said
        'I told you all you need to know.'

(162)   Milai   perisotero apoti xriazete.   [comparative]
        talk.3sg more   that be-needed.3sg
        '(S)He talks more than necessary.'

(163)   An xriasti   na ime parusa....   [*if*-clause]
        if   be-needed.3sg subj be.1sg present
        'If I have to be present....'

(164)   Thelo   na xriasti na miliso, ke tote tha dhume.   [intensional pred.]
        want.1sg subj be-needed.3sg subj talk.1sg, and then fut see.1pl
        'I want to have to talk, and then we will see.'

Greek *xriazete* is comparable to other sensitive auxiliaries which are modal verbs developing into PIs. Dutch *hoeven,* German *brauchen,* and English *need* are similar items (cf. van der Wouden 1996 for some crosslinguistic data).

        Greek is not unique in having APIs. Comparable items are: *any,* Dutch *ooit* 'ever', and *ook maar iets* (cf. Hoeksema 1995, and Giannakidou and Zwarts 1998), *jemals* 'ever' in German, *vreo* 'any' in Romanian, *is*-indefinites in Ossetic, the Lithuanian *nors*-series, and Russian *libo*-pronouns (cf. Haspelmath 1993, 1997; also Lahiri's 1995 Hindi 'NPIs').

        FCIs and mood choice in relative clauses were also handled as instances of polarity. I will keep the term 'intensional polarity items' (from Giannakidou 1997a) to refer to SRs, although we saw that sensitivity to strong intensionality is a by-product of their sensitivity requirement that existence is not entailed. By contrast, indicative relatives can be characterized as 'extensional polarity items', again with the same proviso.

        For completeness, we may add *positive polarity items* (PPIs) of the *kapjos*-series as yet another class of PIs.

(165)   kapjos   'someone'
        kati   'something'
        kapote   'sometime'

Kapjos 'someone' under negation takes wide scope, as mentioned already. (166a) only has the intepretation is in (166b):

(166)   a   (Dhen) idha kapjon fititi.
               not saw.1sg some student
               I didn't see some student.

        b $\exists x$ [**student** (x) $\wedge \neg$ **saw** (I, x)]

        c   # $\neg \exists x$ [**student** (x) $\wedge$ **saw** (I, x)]

I will not discuss PPIs in any detail in the following chapters.
        The overall facts are summarized in table 4.

Table 4 Polarity items in Greek

Class	Examples
Affective polarity items	nonemphatics, *xriazete*
Negative polarity items	emphatics, minimizers, *kan, epi xronia,* etc.
Free choice items	*opjosdhipote*-indefinites
Intensional polarity items	Subjunctive relative clauses
Extensional polarity items	Indicative relative clauses
Positive polarity items	*kapjos*-series

The sensitivities involved here relate in an obvious way. It will be shown next that they are all manifestations of a dependency to (non)veridicality.

The PIs in Table 4 were shown to be "special" expressions in that they encode sensitivity features. The identification of the sensitivity feature of each class prompted a novel ontology of quantifiers and variables, where dependent (APIs) and attributive (FCI) existential quantifiers are included. These quantifiers are similar to the ones we know from predicate logic, $\forall$ and $\exists$, as far as quantificational force is concerned. Unlike regular $\forall$ and $\exists$, however, dependent and attributive existentials pose additional requirements as regards the link between their variable and the object assigned to that variable (if any). In the next chapter we see how this correlates with their exclusion from veridical contexts.

Polarity Dependencies and (Non)veridicality

Negation-related dependencies were standardly thought of in terms of *affectivity* where *affective* is understood as negative or downward entailing. In chapter 1, §1.1.3, we established that this view of affectivity is seriously flawed. In the present chapter, affective phenomena are considered under the hypothesis that affective contexts are nonveridical, and a theory of polarity sensitivity is developed which predicts the correct distribution of affective polarity items, and which is consistent with their sensitivity semantics.

I will propose that Greek affective items- the nonemphatics- are licensed by nonveridicality. In nonaffective polarity items and *any* the nature of dependency is different: these items are anti-licensed by veridicality. Because the relation of nonemphatics to nonveridicality is positive, these expressions are expected to occur in a given domain, as long as this domain is nonveridical. On the other hand, the nature of sensitivity involved in items anti-licensed by veridicality does not allow us to predict that they must appear in all nonveridical environments, although it surely raises the expectation that they will appear in most of them. With polarity items of this latter type it is quite feasible that there will be nonveridical contexts in which the items will not be licit. The distributional differences between nonemphatics and *any* follow directly from this fact.

The discussion is organized as follows. First I briefly summarize what the Greek affective data are. Then I concentrate on affective polarity items; the ones which exemplify the broad affective dependency. In §3.1, the notion of (non)veridicality is introduced, and the proper formal distinctions are drawn between veridicality, nonveridicality, and antiveridicality. Based on the interaction between affective polarity items and mood choice, the proposal will be that these are sensitive to nonveridicality. Weak intensional verbs will be shown to be

veridical, and thus prohibit affective polarity items from their scope. Strong intensional verbs, on the other hand, are nonveridical and hence appropriate licensers for these items. In §3.2, an extension of (non)veridicality is proposed to the domain of determiners and quantifiers, in order to account for the licensing of affective polarity items in the restriction of *every* and their exclusion from the restriction of *each* and *both*. (Non)veridicality here connects directly to the referential/presuppositional character (and lack thereof) of the relevant determiners. In §3.3, other licensing environments are investigated and characterized as nonveridical in the appropriate way: modal verbs, conditionals, the future, habitual and nondeclarative domains (interrogatives, imperatives, and exclamatives). Negative polarity will be analyzed as a subcase of affective dependency in §3.4, specifically as antiveridical dependency. In some cases, the required antiveridical inference is not directly provided by an operator which has this property, but by a negative implicature. Such cases will be handled as instances of *indirect licensing*. Indirect licensing is a secondary option for licensing available to affective items in general, yet not all negative polarity items can be licensed this way. Negative polarity items of the emphatic type are licensed only directly by antiveridical operators, and will thus be characterized as *superstrong*. In the end of this section, a typology of affective items will be given based on nonveridicality. This typology will be compared to previous ones based on a more fine-grained notion of monotonicity and will prove empirically superior to these. In §3.5, nonaffective dependencies and *any* will be considered in the light of the theory developed thus far. It will be shown that free choice items and subjunctive relative clauses are anti-licensed by veridicality, because veridicality is incompatible with their sensitivity semantics. *Any* will also be analyzed as an item anti-licensed by veridicality in §3.5.3. The differences in the distribution between *any* and Greek APIs will be shown to follow from this characterization.

3.1 Mood choice and affective dependencies

In chapter 2, we observed two paradigms of affective polarity items (APIs): APIs proper, and negative polarity items (NPIs). The latter can be viewed as a proper subset of the former. Nonemphatics belong to the former class, and emphatics to the latter. I give here the relevant table:

Table 1 Affective dependencies in Greek

Environments	APIs	NPIs
Negation	OK	OK
before-clauses	OK	OK
without-clauses	OK	OK
Yes-no/constituent questions	OK	*
Conditionals	OK	*
Restriction of ∀	OK	*
too-clauses	OK	*
S-comparatives	OK	*
Superlatives	OK	*
Future	OK	*
Strong intensional verbs	OK	*
Modal verbs	OK	*
Imperatives	OK	*
Habituals	OK	*
Disjunctions	OK	*
Downward entailing DPs	OK	*
Negative verbs	OK	*
Generics	*	*
NP-comparatives	*	*
Weak intensional verbs	*	*

In Table 1, some typical ungrammatical environments are included, and must be accounted for. As noted in 2.3, many of the grammatical environments are also good for *any*, a point to which I return in §3.5.

In the present section, I argue that Greek APIs are expressions sensitive to *nonveridicality*, and I show that all the grammatical contexts in Table 1 are nonveridical. The approach builds on proposals I developed in earlier publications (Giannakidou 1994, 1995, 1996, 1997a), but the implementation to be presented here revises and modifies substantially the ideas that appeared in those works. A crucial part of the discussion relies also in Giannakidou (to appear), and this will be indicated as appropriate.

As a starting point, the link between mood and nonemphatics is highlighted, as the former affects the licensing of the latter in a particular way. The basic observation is that nonemphatics are grammatical in certain subjunctive clauses (but not in all), and ungrammatical in indicatives. It will be shown that the licensing and exclusion of APIs in these contexts is captured directly if we

assume that nonveridicality is the regulating factor. First, a static notion of (non)veridicality is considered, and judged inadequate for the specific set of facts. Then, (non)veridicality is relativized with respect to individual anchors, which allows us to capture the attested contrast. In addition, the proposed account has a welcome result for the analysis of mood choice in Greek: it turns out that this is also regulated by (non)veridicality.

3.1.1 Mood choice in Greek

Traditionally (*inter alia* Mackridge 1985, Holton et al. 1997), grammars of modern Greek distinguish two moods, the indicative and the subjunctive. Since the modern Greek verb, unlike its ancient Greek counterpart, is not inflected for mood, the indicative bears no morphological marking. The subjunctive is marked by particles: *na, ja na* and *as*, as we saw in §2.1. Here, I discuss only *na-*clauses, but what is said for *na* carries over to *ja na-* and *as-*clauses too.[1]

Matrix *na* clauses express commands, exhortations, wishes (for an elaborate exhibition see Mackridge 1985, Holton et al. 1997). *Na* may also be used in questions. Traditional grammars recognize also a narrative use of *na* where the *na-*V cluster expresses past tense.

Greek lacks infinitives, but three types of finite complement clauses are attested: *oti/pos-, pu-*, and *na-*complements. The first two are characterized as *indicative* complements, and *pu-*clauses are additionally factive (see Christides 1981, Varlokosta 1994 and Roussou 1994 for discussion). The verb classes that select indicative complements are listed in (1):

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[1] The claim that the subjunctive is not marked on the (Modern) Greek verb is not entirely accurate. There is a verbal form, the [+present,+perfective], which must be preceded *na, ja na, as,* and the conditional *an* 'if' in order to be grammatical, otherwise it is ruled out. For this reason, Holton et al. (1997) call the [+present,+perfective] 'the dependent':

(i)   na fiji /   as fiji /   an fiji /   *fiji
         na go-perf-pres.3sg / as go-perf-pres.3sg / if go-perf-pres.3sg/ go-perf-pres.3sg
         'He may go./ Let him go./ If he goes...'

The same paradigm occurs in free relative clauses. Although the employed morphology is not strictly speaking subjunctive, we can say that the [+present,+perfective] has shifted to the subjunctive function. In effect, one could argue that the subjunctive in Greek bears double marking, but I will not commit myself to this view here (cf. Giannakidou 1995a).

(1)   *Indicative verbs*
    assertives: leo 'say', dhiavazo 'read', isxirizome 'to claim'
    fiction verbs: onirevome 'to dream', fandazome 'imagine'
    epistemics: pistevo 'believe', nomizo 'think'
    factives: xerome 'be glad', gnorizo 'know', metaniono 'to regret'
    semifactives: anakalipto 'discover', thimame 'remember'

Fiction and epistemic verbs are the familiar *weak intensional* verbs of Farkas (1985, 1992). Here I use the distinction *weak* versus *strong* intensional only as a descriptive label. Semifactives select *oti-* rather than *pu*-complements, and some of them, like *thimame* 'remember' may even select both.
    Verbs selecting the subjunctive are divided into the following two groups and can be given the semantic labels in (2) and (3). *Na* comes also after *prin* 'before', *xoris* 'without' and *isos* 'perhaps':

    Subjunctive verbs
(2)   *volitionals:*   thelo 'want', elpizo 'hope', skopevo 'plan'
    directives: dhiatazo 'to order', simvulevo 'advise', protino 'suggest'
    modals: (invariant) prepi 'must' (deontic and epistemic), ine
                 pithanon 'it is possible'
    permissives: epitrepo 'allow'
    negative: apofevgho 'avoid', arnume 'refuse', apagorevo 'forbid'
    verbs of fear: (verba timendi) fovame 'to be afraid'

(3)   *aspectual:*   arxizo 'start', sinexizo 'continue',
    perception: vlepo 'see', akuo 'hear'
    commissives: anagazome 'be forced to', iposxome 'promise'
    implicatives: kataferno ' manage'

    There are also cases of double mood selection. For example, *iposxome* 'to promise' can also select an indicative *oti*-complement, verbs of fear e.g. *fovame* which may select *oti* complements too, and perception verbs are found with *oti*- or *pu*- complements.[2] Given that *promise* is a performative verb, we can say that its Greek counterpart *iposxome* is performative only when it is fol-

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[2] Verbs of fear may also subcategorize for complements introduced by *mipos* "lest', in cases like *Fovame mipos erthi* 'I fear lest he come'. Such complements can be characterized as subjunctive, since the [+present,+perfective] form is used, see fn.1. Note that in English too, *lest* requires the subjunctive. *Mipos* is usually characterized as a 'negative' complementizer because it consists of *mi* 'not' and *pos* 'that'. See also discussion in §4.3.

lowed by an indicative complement; if the speaker chooses subjunctive instead, she is not committed to actually bringing about what is said by the complement clause. As regards perception verbs, what regulates the choice is determined by whether perception is direct or indirect. If the former is the case, the subjunctive is used; in the case of the latter, one has to use the indicative (or additionally the factive). Double mood selection is pervasive in Romance too, where negation on an indicative verb suffices to trigger subjunctive in the complement, a phenomenon interesting in itself but not really attested in Greek. As mood selection is not the primary topic of this book, I will not probe into a general discussion of it here; see Farkas (1985, 1992), and especially Quer (1998) for a recent proposal about mood choice in Romance cast in the framework outlined in chapter 1.

The distinction between two groups of subjunctive complements is done on semantic grounds. The verbs in (2) belong to the category of *strong intensional* (in the sense of Farkas 1985, 1992), but the verbs in (3) are extensional. Moreover, there are three independent syntactic differences between the two groups which I briefly review below.

To start with, the verbs in (3) give rise to obligatory control structures whereas the verbs in (2) do not. The null subject in clauses after (3)-type verbs obligatorily corefers with the matrix subject (or object, as the case may be), contrary to what is the case with the subjects of *na*-clauses after the verbs in (2):

(4)   Thelo   na   figo/   na fiji   o Pavlos.
       want.1sg subj go.1sg / subj go.3sg the Paul
       'I want to go / I want Paul to go.'

(5)   Sinexise   na   xorevi/   *na xorevo.
       kept-on.3sg subj dance.3sg / subj dance.1sg
       'She kept on dancing.'

Second, the predicates in (3) pose aspectual restrictions on their *na*-complements. More specifically, some of them (i.e. the aspectual and perception verbs) require that the VP of the complement bear imperfective aspect. The verbs under (2) do not pose such a requirement:

(6)   Arxise   na   vrexi/   *na   vreksi.
       started.3sg subj rain.imperf.3sg / subj rain.perf.3sg
       'It started raining.'

(7) Elpizo   na   erthi/   na   erxete   o Pavlos.
     hope.1sg subj come.perf.3sg / subj come.imperf.3sg the Paul
     'I hope Paul comes (today).'
     'I hope Paul comes (regularly).'

The need to have imperfective aspect after perception verbs obviously relates to the fact that the *na*-complements express direct perception: as we know from the work on aspect, the imperfective indicates the ongoing (see Giannakidou and Merchant 1997 for references).

Finally, unlike (2)-type verbs, the verbs in (3) may have, as a secondary option, their complement introduced by *ke* 'and' instead of *na*:

(8) a   Arxizi   ke   vrexi.
         start.3sg and rain.3sg
         'It starts raining.'
     b   Anagastika   ke   piga.
         was-forced.1sg and went.1sg
         'I was forced to go, and I went.'
     c   * Sas simvulevo ke   fijete.
         you   advise.1sg and go.2pl
         ('I advise you to go.')

Whatever the structure of *ke*-complements may be, strong intensional verbs do not accept them.

In view of the differences noted here, we conclude that subjunctive verbs and their complements do not form a homogeneous class in terms of their semantic and syntactic properties. Based on these observations, I argued in Giannakidou (1995b) that *na* is ambiguous. In one of its instances it is the subjunctive particle; but after (3)-type verbs *na* should be seen on a par with what appears to be a *deictic* use of it, exemplified in (9):

(9) Na i   Roxani!
     na the Roxanne
     'Here is Roxanne!'

This deictic use was already noted and connected to *na* after perception verbs in Christides (1981) and earlier work. Deictic *na* is veridical, as I proposed in Giannakidou (1995b). The subjunctive use will be shown to be nonveridical. The distinction affects directly the licensing of APIs, as we see next.

3.1.2 Mood choice and nonemphatics

Nonemphatics appear in main subjunctive clauses as illustrated in (10). Nonemphatics are also licensed in the subjunctive complements of strong intensional verbs and in subjunctive relative clauses modifying intensional DPs, as illustrated in (11); see also Giannakidou (1994, 1995, 1997a).

(10)   Na akus   kamja simvuli, tha su   vji   se kalo.
       subj listen.2sg any   advice, fut you come-out.3sg in good
       'Listen to some advice, it will prove to your advantage.'
       (* Listen to any advice, it will prove to your advantage.)

(11)   a   Protino   na   simvuleftite kanenan jatro.
              suggest.1sg subj consult.2pl any   doctor
              'I suggest you get a doctor's opinion.'
              (*I suggest you get any doctor's opinion.)
       b   Thelo   na mu agorasis kanena vivlio.
              want.1sg subj me buy.3sg any   book
              'I want you to buy me a book.'
       c   Prepi   na   sizitisete to thema me   kanenan idhiko.
              must.3sg subj discuss.2pl the issue   with any   specialist
              'You must discuss this issue with a specialist.'
              (*You must discuss this issue with any specialist.)
       d   I   eteria   zita   enan ipalilo   pu na   kseri   tipota
              the company ask.3sg an   employee who subj know.3sg anything
              sxetika me   lojistiki.
              about with accounting
              'The company is looking for an employee who knows some
              thing about accounting.'
              (* ...who knows anything about accounting).

Note that English *any* is ungrammatical in the cases above. Yet *any* is not totally excluded from the scope of strong intensional and modal verbs. Sentences like *I hope there is any left, I insist you allow anyone in,* and *Anybody can solve this problem* are fine, so it makes sense to say that *any* is marginally accepted in the scope of such verbs. There is a clear difference, however, between nonemphatics and *any* in that only the former are fine in all cases. We come back to this difference in §3.5.3.

Nonemphatics in complements of (3)-type verbs are not permitted. Note that *any* is also excluded from the complements of such verbs (a point to which I return in §3.5.3), as indicated in the examples below:

(12)   * O Jorghos arxise   na grafi   kanena vivlio.
        the George started.3sg subj write.3sg any   book
        *George started writing any book.
        (George started writing a book.)

(13)   * Akusa tin Ilectra na psithirizi   tipota   ston Andrea.
        heard.1sg the Electra subj whisper.3sg anything in-the Andreas
        * I heard Electra whispering anything to Andreas.
        (I heard Electra whispering something to Andreas.)

(14)   * Anagastika   na fero   kanenan filo mu sto   parti.
        was-forced.1sg subj bring.1sg any   friend my in-the party
        * I was forced to bring any friend(s) of mine to the party.
        (I was forced to bring some friend(s) of mine to the party.)

(15)   * O Pavlos katafere   na agorasi kanena spiti   sti   thalasa.
        the Paul   managed.3sg subj buy.3sg any   house in-the sea
        *Paul managed to buy any house by the sea.
        (Paul managed to buy a house by the sea.)

Likewise, as shown in Giannakidou (1994, 1995, 1997a, to appear) and in the examples below, nonemphatics are excluded from indicative and factive complements. The same holds for *any* (with some exceptions as regards 'negative' factives, i.e. factives giving rise to a negative implicature; to be further discussed in §3.5.3):

(16)   * O Pavlos pistevi   oti akuse   kanenan thorivo.
        the Paul   believe.3sg that heard.3sg any   noise
        * Paul believes that he heard any noise.
        (Paul said that he heard a noise.)

(17)   * Onireftika oti   irthe   kanenas idravlikos.
        dreamt.1sg that came.3sg any   plumber
        * I dreamt that any plumber came.
        (I dreamt that a plumber came.)

(18)   *I Ilectra ipe oti akuse   kanenan thorivo.
        the Electra said that heard.3sg any   noise
        * Electra said that she heard any noise.
        (Electra said that she heard a noise.)

(19)   * I Ilectra xarike   pu irthe   kanenas filos tis.
        the Electra was-glad.3sg that came.3sg any   friend hers
        * Electra was happy that any friend of hers came by.
        (Electra was happy that some friend of hers came by).

The generalization to be captured here is the following: nonemphatics are licit in the complements of strong intensional verbs, and illicit in the complements of weak intensional and extensional verbs. The question is what accounts for this contrast. The answer will be: (non)veridicality.

3.1.3 (Non)veridicality as an absolute notion

Montague (1969) talks about *veridicality* in an attempt to characterize the semantics of perception verbs like *see* which entail the existence of the individuals involved in their complement proposition. Because if I see a student running, I also see a student, therefore a student exists, *see* is veridical, according to Montague. Barwise (1981) employs a similar notion of veridicality for the same class of verbs. Giannakidou (1994, 1995, 1997a) and Zwarts (1995) formalize (non)veridicality along the lines of (20):

(20)   **DEFINITION 1** ((Non)veridicality, first approximation).
        Let *Op* be a monadic propositional operator. The following statements hold:

        (i) *Op* is *veridical* just in case *Op p* → *p* is logically valid. Otherwise, *Op* is *nonveridical*.

        (ii) A nonveridical operator *Op* is *antiveridical* just in case *Op p* → ¬ *p* is logically valid.[3]

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[3] In Zwarts (1995) and in earlier work of mine (Giannakidou 1994, 1995, 1997), the property of *antiveridicality* is referred to as *'averidicality'*. In the present study, the label 'averidicality' is abandoned because it assigns the wrong logical content to the property it is intended to refer to: a-veridical means "without veridicality properties", but the intended property is "the opposite of veridical". Anti-veridical(ity) expresses successfully this meaning.

A propositional operator *Op* is veridical iff *Op* entails *p*, that is, an operator *Op* is veridical iff whenever *Op p* is true, *p* is true too (where *p* is an arbitrary proposition). *Op* is nonveridical iff *Op* does not entail *p*, i.e. iff whenever *Op p* is true, *p* may or may not be true. Note that nonveridical operators do not entail the falsity of *p*. Entailing the falsity of *p* is the defining property of antiveridical operators. As conceived of in (20), antiveridical operators form a subset of the nonveridical: *Op p* → *p* is not logically valid for antiveridical operators either. Hence, every antiveridical operator is also nonveridical but not *vice versa*. Zwarts further proposes that dyadic operators can also be classified as veridical, nonveridical, and antiveridical, and offers analogous definitions with respect to each argument position (Zwarts 1995: (4)):

(21)   **DEFINITION 2** ((Non)veridicality for dyadic connectives).
        Let *C* be a dyadic truth-functional connective. The following statements hold:

        (i) *C* is veridical with respect to p [q] just in case $pCq \rightarrow p$ [$pCq \rightarrow q$] is logically valid. Otherwise *C* is nonveridical with respect to p [q].
        (ii) A nonveridical connective *C* is *antiveridical* with respect to p [q] just in case $pCq \rightarrow \neg p$ [$pCq \rightarrow \neg q$] is logically valid.

Let me illustrate the properties with some examples. Consider *yesterday*. *Yesterday* and its Greek counterpart *xthes* are monadic sentential operators and, as shown in (22), they are veridical (of course, ancillary assumptions must be made with respect to tense):

(22)   I Theodora   efije   xthes.   →   I Theodora efije.
        the Theodora left.3sg yesterday
        'Theodora left yesterday.'   →   'Theodora left.'

And is a dyadic operator veridical with respect to both arguments. According to Zwarts, *and* is the only truth-functional connective which is veridical in both arguments:

(23)   Jacob sang and Ruth cried.   →   Jacob sang.
        Jacob sang and Ruth cried.   →   Ruth cried.

Implicative verbs like *manage* (for the characterization 'implicative' see Karttunen 1971), and its Greek counterpart *kataferno* are also veridical:

(24) I Theodora   katafere   na   kimithi. $\rightarrow$ I Theodora kimithike.
      the Theodora managed.3sg subj sleep.3sg
      'Theodora managed to sleep.' $-/\rightarrow$ 'Theodora slept.'

Contrasting with the above, *perhaps* and its Greek counterpart *isos* are nonveridical; note that *isos* is construed with the subjunctive *na*:

(25) Isos   i   Roxani   na efije. $-/\rightarrow$ I Roxani efije.
      perhaps the Roxanne subj left.3sg
      'Perhaps Roxanne left.' $-/\rightarrow$ 'Roxanne left.'

Disjunction (realized by *or*) is nonveridical in both arguments; the same holds for the Greek *i* 'or':

(26) Jacob jumped or Ruth fainted. $-/\rightarrow$ Jacob jumbed
      Jacob jumped or Ruth fainted. $-/\rightarrow$ Ruth fainted.

Zwarts (1995) characterizes *before* as veridical with respect to the *p* argument but nonveridical with respect to *q* (for discussion see Heinämäki 1974, Zwarts 1995 and references therein):

(27) a   Lucie left the country before anything happened. $\rightarrow$
           Lucie left the country.
      b   Lucie left the country before anything happened. $-/\rightarrow$
           Something happened.

(27) is a clear example of the nonveridical use of *before*: one can accept the truth of the whole sentence without being forced to accept the truth of the *before*-clause. This use of *before* corresponds to Heinämäki's (1974) 'non-committal' *before*. There are, however, cases in which *before* appears to be veridical with respect to both arguments. One such case is given in (28):

(28) Before we went to bed, Paul washed his teeth.

These veridical uses were pointed out already in Anscombe (1964) and
Heinämäki (1974) (cf. Heinämäki's 'factual' *before*). The truth of (28) requires
that the *before*-clause be true too. Note that the q argument of *before* can also be
antiveridical. This alternative is exemplified in (29), where the effect is
reinforced by the fact that we have a predicate like *die*:

(29)   a   Ruth died before she saw her grandchildren. → Ruth died.

        b   Ruth died before she saw her grandchildren. →
                Ruth did not see her grandchildren.

Here the truth of (29) entails the falsity of the *before*-clause. Heinämäki (1974)
labels such uses as 'non-factual' *before*. In §3.4, we will see this variability in
veridicality of *before*-clause to have repercussions for the licensing of APIs and
NPIs.

       Sentence negation is the prototypical antiveridical operator; it corresponds
to the Boolean connective ¬. If p holds, then in ¬ p, p no longer holds:

(30)   Frank didn't bring flowers. →
                It is not the case that Frank brought flowers.

It is not the case translates (external) negation as the propositional connective.
Antiveridical operators are negative-like operators. (31) illustrates that the
connective *without* is antiveridical with respect to its q argument:

(31)   Jacob spoke without opening his eyes. → Jacob spoke.

        Jacob spoke without opening his eyes. → Jacob didn't open his eyes.

I should mention here that the Greek counterpart of *without, xoris,* is construed
obligatorily with the subjunctive *na*. (*Prin* 'before' is also construed with *na*, but
na may optionally be omitted; for some discussion see Giannakidou and Zwarts
1998). At any rate, the connection between nonveridicality and the subjunctive is
obvious.

       Two things should be emphasized. First, veridicality and the related
notions, as conceived of in definition 1, are *absolute* notions immune to
contextual factors. Second, there is a link between (non)veridicality and
monotonicity. Zwarts (1995) establishes that no operator can be both veridical

and downward entailing with respect to a given argument position. In other words, the class of operators that are DE in a given argument position forms a (proper) subset of the class of operators that are nonveridical in that argument position (**downward entailing** ⊂ **nonveridical**). In effect, every operator which is veridical in an argument place must be either upward monotone or non-monotone in that argument place (see Zwarts 1995 for discussion and proofs).

Armed with (non)veridicality understood as above, we can go back to Table 1 and ask ourselves whether it can help us explain the occurrences of APIs in the scope of some of the operators presented there. Indeed, it can. Negation, *before*, *without*, *isos* 'perhaps', and disjunctions feature prominently as appropriate licensers. Blocking environments, on the other hand, like affirmative unembedded assertions, implicative and perception verbs are veridical. Moreover, there is a viable way to characterize interrogatives, the future, imperatives and conditionals as nonveridical, as we shall see in §3.3. Hence, if we appeal to nonveridicality to account for the distribution of nonemphatics, it seems that we can explain the cases of the downward entailing triggers as well as those of nonmonotone, or monotone increasing ones.

However, if we consider the contrast between strong intensional and weak intensional/extensional domains described in the previous subsection, the context independence of (non)veridicality in (20) proves fatal. Weak *and* strong intensional verbs are nonveridical according to (20); if *I believe p* is true, *p* is not necessarily true, and if *I want p* is true, *p* doesn't have to be true either. Hence, if it is (non)veridicality in an absolute sense that matters, APIs should be equally acceptable, or unacceptable, in the scope of *believe* and *want*. In order to account for the fact that *want* licenses APIs but *believe* does not we have to build contextual considerations about individuals into the definition of (non)veridicality. This is what I do next.

3.1.4 Relativized (non)veridicality

In order to deal with the veridicality properties of propositional attitudes, one has to take into consideration individual anchors. Recall the discussion in §1.3.3. Sentences are not true, or false, in isolation. Rather, they are true or false with respect to an individual. The relevance of individuals was captured in the notion of an individual's model, which represents some individual's belief state, or dreams, or perception of the reported conversation. I repeat here the pertinent definitions (see §1.3.3):

(32)   **DEFINITION 3** (Belief model).
Let c = <cg(c), W(c), M, s, h, $w_0, f,...$> be a context.

A model $M_B(x) \in M$ is a set of worlds associated with an individual x, representing worlds compatible with what x believes.

DEFINITION 4 (Dream model).
Let c = <cg(c), W(c), M, s, h, $w_0, f,...$> be a context.

A model $M_D(x) \in M$ is a set of worlds associated with an individual x, representing worlds compatible with what x dreams.

DEFINITION 5 (Model of reported conversation).
Let c = <cg(c), W(c), M, s, h, $w_0, f,...$> be a context.

A model $M_{RC}(x) \in M$ is a set of worlds associated with an individual x, representing worlds compatible with what x takes the reported conversation to be.

Though the models of individuals defined above represent distinct sets of worlds, clearly, they are all epistemic, in a more general sense. What one dreams represents the belief state of an individual while (s)he is dreaming, and what one takes the reported conversation to be represents the belief state of an individual as regards the reported conversation. Therefore, sentences are not true or false in isolation, but they are true or false with respect to an individual's epistemic state. In the default case of unembedded assertions, the only relevant model is that of the speaker's belief state: $M_B(s)$. If p is true, where p is *Lucy loves Paul,* then it is true in $M_B(s)$, as indicated in (33).

(33)   [[Lucy loves Paul]]$_c$= 1 iff [[Lucy loves Paul]] $_{MB(s)}$ = 1.

On the other hand, when we consider an embedded sentence like *Lucy loves Paul* in (34), two models are relevant: the speaker's epistemic model, as in case of unembedded assertions, as well as the model of the main clause subject, who is the bearer of the attitude. A prerequisite for p to be true in (34) is that Jacob's belief worlds be a subset of the worlds where p true: $M_B(J) \subseteq p$, that is Jacob must be committed to *Lucy loves Paul* if he believes it. The speaker might believe or even know that what Jacob believes is false. But this is irrelevant for Jacob's beliefs.

(34) a $[\![$ Jacob believes that Lucy loves Paul$]\!]_c = 1$ iff
             $[\![$Lucy loves Paul$]\!]_{MB(Jacob)} = 1$
      b $[\![$ Jacob believes that Lucy loves Paul$]\!]_c = 1$ if
             $[\![$Lucy loves Paul$]\!]_{MB(s)} = 0$

Against this background, (non)veridicality can be defined as follows (see also Giannakidou (to appear); cf. Giannakidou 1997a):

(35) **DEFINITION 6** (Relativized (non)veridicality).
      Let $c = <cg(c), W(c), M, s, h, w_0, f, ...>$ be a context.
      i. A propositional operator Op is *veridical* iff it holds that: $[\![Op\ p]\!]_c = 1 \rightarrow$
      $[\![p]\!] = 1$ in some epistemic model $M(x) \in c$; otherwise Op is nonveridical.
      ii. A nonveridical operator Op is *antiveridical* iff it holds that:
      $[\![Op\ p]\!]_c = 1 \rightarrow [\![p]\!] = 0$ in some epistemic model $M(x) \in c$.
      iii. Epistemic models are: belief models $M_B(x)$, dream models $M_D(x)$, models of reported conversation $M_{RC}(x)$, and nothing else.

According to (35), a propositional operator is veridical iff the truth of $Op\ p$ in c requires that p be true in some individual's model $M(x)$ in c. An operator Op is nonveridical iff the truth of $Op\ p$ in c does not require that p be true in some such model in c. Finally, a nonveridical operator Op is antiveridical iff the truth of Op p in c requires that p be false in some model $M(x)$ in c. Antiveridical operators form a proper subset of the nonveridical (**antiveridical $\subset$ nonveridical**), so the original insight of (20) is retained. Propositions can accordingly be characterized as veridical, nonveridical, or antiveridical depending on the properties of the embedding operators.

Affirmative unembedded assertions are veridical under Definition 6, as we see below; the anchoring model is the speaker's belief model $M_B(s)$, which the default (see also (33) above):

(36) Frank killed Bob.

(37) $[\![$Frank killed Bob $]\!]_c = 1$ iff $[\![$Frank killed Bob $]\!]_{MB(s)} = 1$.

What about the crucial attitude verbs? Consider first those that do not allow for APIs: perception, commissives, aspectual, implicatives, epistemic, dream/fiction, assertive and factive verbs. Take, for instance, the embedded domain under a predicate like *vlepo* 'see' in (38):

(38)   I   Roxani   idhe   tin Theodora   na   klei.
       the Roxanne saw.3sg the Theodora subj cry.3sg
       'Roxanne saw Theodora crying.'

The *p* we are interested in is *p* = *Theodora is crying*, and the operator for our purposes is the matrix clause verb *see*. For (38) to be true it is required that *p* be true in the speaker's belief model $M_B(s)$. If the speaker considers (38) to be true, (s)he will also be committed to the truth of Theodora's crying, hence *see* and consequently *p* are veridical. A veridical inference is also required for the truth of *see p* as regards the subject, i.e. the one who sees. Perception verbs are standardly characterized as veridical (cf. Montague 1969, Barwise 1981; also Svenonius 1994). Aspectual, commissive, implicative and factive predicates can be analyzed on a par as shown in (39) (where *s* stands for the speaker and *su* for the matrix subject):

(39)   *Veridical attitudes I*

   i.   a $[\![\text{vlepo (su, p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(s)} = 1$ 'see'

          b $[\![\text{vlepo (su, p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(su)} = 1$

   ii.   a $[\![\text{arxizo (su, p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(s)} = 1$ 'start'

          b $[\![\text{arxizo (su, p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(su)} = 1$

   iii.   a $[\![\text{anagazome (su,p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(s)} = 1$ 'be forced'

          b $[\![\text{anagazome (su,p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(su)} = 1$

   iv.   a $[\![\text{kataferno (su, p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(s)} = 1$ 'manage'

          b $[\![\text{kataferno (su, p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(su)} = 1$

   v.   a $[\![\text{xerome (su, p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(s)} = 1$ 'be glad'

          b $[\![\text{xerome (su, p)}]\!]_c = 1 \rightarrow [\![p]\!]_{MB(su)} = 1$

Likewise, weak intensional verbs- epistemic, dream/fiction, and assertive verbs- express relations between individuals and propositions which are veridical. They differ from the attitudes in (39) in that it is required that their complement proposition be true in a model associated with the individual that stands for the matrix clause subject, i.e. the epistemic agent. The model does not have to be a belief model; rather, it may be the model of the subject's dreams or the model of reported conversation.

(40)   *Veridical attitudes II*

i. $[\![$ pistevo (su, p) $]\!]_c = 1 \rightarrow [\![$ p $]\!]_{MB(su)} = 1$ 'believe'

ii. $[\![$ onirevome (su, p) $]\!]_c = 1 \rightarrow [\![$ p $]\!]_{MD(su)} = 1$ 'dream'

iii. $[\![$ leo (su, p) $]\!]_c = 1 \rightarrow [\![$ p $]\!]_{MRC(su)} = 1$ 'say'

iv. $[\![$ ksero (su, p) $]\!]_c = 1 \rightarrow [\![$ p $]\!]_{MB(su)} = 1$,   'know'

$[\![$ ksero (su, p) $]\!]_c = 1 \rightarrow [\![$ p $]\!]_{MB(s)} = 1$

Veridicality in these cases is warranted by truth not with respect to the speaker but with respect to the individual that believes, dreams, says, or knows. *Believe* and *know* give rise to the same veridicality entailment with respect to the same model, but this does not mean that *x believes p* entails *x knows p*. The factivity of *know* gives rise to an additional entailment, namely that *p* holds in the speaker's epistemic model too, i.e. $[\![$ p $]\!]_{ME(s)} = 1$, which cannot be derived from *believe* (but can be derived, as we just saw, from aspectual, commissive, implicative and factive predicates). Hence from *x knows p* we can indeed infer that *x believes p* , although the reverse does not hold.

The fact that *p* may not be true in $M_B(s)$ in the case of *believe, dream,* and *say* is not fatal for the veridicality of these predicates (or mood choice for that matter), because veridicality requires only that *p* be true in *some* model, regardless which one. At this point, perhaps it would make sense to distinguish between weak and strong veridicality in order to refer to the veridicality of extensional and weak intensional verbs respectively. Strong veridicality arises in case *p* is true in both the default $M_{B(s)}$ and in some model associated with the subject; *know,* and aspectual, commissive, implicative and factive predicates are strongly veridical in this sense. Weak veridicality, on the other hand, describes the situation where *p* is true just in the embedded model; epistemics, dream/fiction, and assertive verbs are weakly veridical under this definition.

Strong intensional verbs, on the other hand, are nonveridical. Consider *thelo* 'want'. The anchoring model here is the subject's belief model which, crucially, includes worlds which represent future realizations of the actual world, designated as $M_{Bfut}(su)$. [4] $M_{Bfut}(su)$ is a set of worlds which in this case is partitioned into two sets, say W_1 and W_2. W_1 includes worlds in which *p* is true, so the following holds: $\forall w'$, $w' \in W_1$ and $W_1 \subseteq M_{Bfut}(su)$, $[\![p]\!] = 1$ in w', therefore $W_1 \subseteq p$. W_2, the complement of W_1, contains worlds where *p* is false:

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[4] This holds for directives in general, since they are all future oriented (with the exception of *wish* which can be past counterfactual). The partitioning to be described below relates in an obvious way to the nondeterministic character of the future (see also discussion in §3.3.5).

$\forall$ w'', w'' $\in$ W$_2$ and W$_2 \subseteq$ M$_{Bfut}$(su), $[\![p]\!]$ = 0 in w'', therefore W$_2 \not\subset$ p. In other words, from *want (su, p)* we cannot infer that *p* is true in M$_{Bfut}$(su). It is this understanding of (non)veridicality that underlies (41):

(41)   *Nonveridical attitudes*

    i. $[\![$ thelo (su, p) $]\!]_c$ = 1 $-/\rightarrow$ $[\![p]\!]_{MBfut(su)}$ = 1   'want'

    ii. $[\![$ protino (su, p) $]\!]_c$ = 1 $-/\rightarrow$ $[\![p]\!]_{MBfut(su)}$ = 1   'suggest'

    iii. $[\![$ zito (su, p) $]\!]_c$ = 1 $-/\rightarrow$ $[\![p]\!]_{MBfut(su)}$ = 1   'ask'

It might well be the case that *p* is true in the speaker's belief model M$_B$(s). For instance, I might want to meet the Head of the Philosophy Department of the University of Amsterdam, and in fact I might be talking to her right now without knowing that the person I'm talking to is actually the person I wanted to meet. In this context, if somebody else utters the sentence *Anastasia wants to meet the Head of the Philosophy Department of the University of Amsterdam* knowing who the person I am talking to is, a veridical inference with respect to the speaker is sanctioned. Note, however, that this inference is not derived from the logical properties of *want* but rather from the particular circumstances of the given situation. The definition of nonveridicality in (35) is not incompatible with such cases.

The semantics of *want*-type attitudes proposed here presumes that what one desires is connected with what one believes, a connection prevailing in the classical treatments of desire reports, see Hintikka (1963), Stalnaker (1984), Asher (1987), Heim (1992), and more recently van Rooy (1997). The connection is done in terms of *preference*. Specifically, Stalnaker (1984) claims that "wanting something is preferring it to certain relevant alternatives, the relevant alternatives being those possibilities that the agent believes will be realized if he does not get what he wants." (Stalnaker 1984: 89). Heim (1992), building on this position, proposes that *x wants p* is true iff John prefers *p* to $\neg p$, an idea to be traced in her description of the meaning of *want* in (42):

(42)   [Heim 1992: 193]

    'α wants that ϕ' is true in w$_0$ iff for every w $\in$ Dox$_\alpha$ (w$_0$) :

    every ϕ-world maximally similar to w is more desirable to α in w$_0$ than

    any non- ϕ-world maximally similar to w.

Dox_α (w_0) is the accessibility function which determines a set of epistemic alternatives for α, in essence equivalent to $M_B(\alpha)$. In these alternatives, non-ϕ-worlds are also included, but they are less preferred. The same idea is present in (43), formulated in terms of selection functions Sim_w (i.e. functions from propositions to propositions mapping each proposition p to a set of p-worlds maximally similar to w):

(43)   [Heim 1992: 197]

   $w \in [\![\alpha$ wants that $\phi]\!]$ iff $\forall w \in Dox_\alpha$ (w_0),

   $Sim_{w'}$ ($[\![\phi]\!]$) $<_{a,w}$ $Sim_{w'}$ ($[\![\neg \phi]\!]$)

The important features of this approach, and the ones which derive nonveridicality for *want*-complements, are that (a) desire reports are envisioned against epistemic alternatives with respect to individuals, and (b) the worlds modeling those alternatives include worlds where $\neg \phi$ holds as the least preferred worlds. Note that this semantics derives correctly non-monotonicity for desire reports, a position generally accepted in the literature; see Asher (1987), Heim (1992) and van Rooy (1997).

From the above discussion we can conclude that API-licensing correlates with the veridicality properties of the propositional attitudes discussed here: nonemphatics are legitimate only in the scope of the nonveridical verbs of the strong intensional class. In addition, veridicality appears to be the regulating factor in mood choice: subjunctive *na* is licensed only by nonveridical verbs; veridical verbs select for the indicative, or the deictic *na*. The subjunctive *na* itself can be thus regarded as a PI sensitive to nonveridicality (recall that *na* follows nonveridical connectives such as *xoris* 'without', and *prin* 'before'); for an explicit proposal see Giannakidou (1995a).

Negation, finally, as the prototypical antiveridical operator will also allow for APIs. The antiveridicality of negation is illustrated in (44): for a negative sentence to be true, the proposition *p* embedded under negation must be false. In the simple case of a negative assertion, the anchoring model is the default $M_B(s)$:

(44) $[\![$ not p $]\!]_c = 1$ iff $[\![$ p $]\!]_{MB(s)} = 0$

Note that 'negative' verbs, e.g. *arnume* 'deny', *apagorevo* 'forbid', are nonveridical rather than antiveridical. If I deny that I saw Paul, this does not entail that I didn't see Paul (nor does it imply that I saw Paul, of course). The nonveridicality pattern of negative verbs is given in (45), with respect to the

subject ; clearly, however, these verbs are nonveridical also with respect to the speaker.

(45)   *'Negative' attitudes*
        i. $[\![$ arnume (su, p) $]\!]_c = 1 \qquad -/\rightarrow [\![p]\!]_{MB(su)} = 1$ 'deny'
        ii. $[\![$ apagorevo (su, p) $]\!]_c = 1 \quad -/\rightarrow \quad [\![p]\!]_{MBfut(su)} = 1$ 'forbid'

APIs are generally licensed in the scope of negative verbs, as was illustrated in chapter 2, which further supports the nonveridicality hypothesis pursued here. Since nonveridicality appears to be the crucial factor for the licensing of APIs, we can use it now to formulate a condition on the occurrence of these items.

3.1.5 A licensing condition for affective polarity items

As a conclusion to the discussion in §3.1, we may formulate (46) as the licensing condition for APIs; this condition involves also a scope clause[5]:

(46)   *Licensing condition for affective polarity items*   (to be revised)
        An affective polarity item α will be licensed in a sentence S iff S provides an expression γ which is *nonveridical*, and α is in the scope of γ.

Since antiveridical expressions form a subset of the nonveridical, it follows that APIs will be licit in antiveridical environments too. It is conceivable that there be APIs which are anti-licensed by antiveridicality. Such items would be unacceptable in the direct local scope of antiveridical operators, i.e. negation. Possible candidates for this class will include PIs known from the literature to exhibit 'anti-locality effects' vis-a-vis negation: *i*-NIs in Serbian/Croatian, *ook*

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[5] In Giannakidou (to appear), I further refine conditions like (46), by invoking immediate scope. This is needed to account for the ungrammaticality of APIs in cases like (i), from (Giannakidou to appear: (62)):

(i)   * Thelo   na   onireftis   oti   su   aghorasa   kanena vivlio.
         want.1sg subj dream.2sg that you bought.1sg   any   book
         ('I want you to dream that I bought a book for you.')

The requirement of 'immediate scope' is reminiscent of Linebarger's immediate scope constraint. We come back to cases like (i) in §4.6 where it shown that immediate scope is only a requirement on the licensing of APIs in propositional attitudes. Negative licensing does not require immediate scope.

maar PIs in Dutch, *vala*-PIs in Hungarian and equivalent expressions (see Giannakidou 1997a for more details).

(46) predicts that APIs will be allowed in a sentence only in the presence of a nonveridical operator. We will see in §3.4 that this is too strong a requirement. In certain contexts, nonemphatics may appear without there being an expression which has nonveridicality as a logical property. The licensing of nonemphatics in counterfactual conditionals, rhetorical questions, and comparatives, among others, are such cases, and nonemphatics are sanctioned there due to a negative implicature. The licensing condition in (46) will be modified accordingly in §3.4. in order to allow for such cases.

(46) predicts that nonemphatics will be grammatical only if their trigger is syntactically present. 'Triggerless' cases are expected to be ungrammatical, and indeed they are:

(47)   *Kamia kinisi   ke tha pirovoliso!
          any   movement and fut shoot.1sg
         'Any movement and I' ll shoot!'

Any, as we see in the translation, is acceptable in (47). Although they have the make-up of coordinations, sentences like (47) are equivalent to conditionals, and the first conjunct corresponds to the protasis. This equivalence, whatever the level in which it is realized may be, suffices to license *any* but not nonemphatics. This, and other differences between the two paradigms and their implications will be further discussed in §3.5.3.

Let us turn now to testing the empirical strength of (46). To do this, we have to go back to the grammatical environments listed in Table 1, and check whether they are nonveridical according to the definition in (35). The restriction of the universal quantifier will be the point of departure.

3.2   Determiners, quantifiers and (non)veridicality

We saw in 3.1 that nonemphatics are licensed in clauses which provide restrictions of universal quantifiers: relative clauses modifying DPs headed by the determiner *oli* 'all', *kathe* 'every', and the definite determiner *i* 'the', as well as free relatives headed by items of the free-choice paradigm. Licensing of APIs in these contexts is a phenomenon attested in many languages. I provide here the relevant Greek examples:

(48)   Oli osi gnorizun tipota   sxetika me tin ipothesi, as   milisun tora.
        all who know.3pl anything about with the case,   subj talk.3pl now
        'Everyone who knows anything about Electra should speak now.'

(49)   Kathe fititis pu   gnorizi   tipota   sxetika me tin ipothesi,
        every student that know.3sg anything about   with the case,
        as   milisi   tora.
        subj talk.3sg now
        'Every student who knows anything about the case should speak now.'

(50)   I   fitites   pu gnorizun tipota   sxetika me   tin ipothesi,
        the students that know.3pl anything about   with   the case,
        as   milisun tora.
        subj talk.3pl now
        'The students who know anything about the case should speak now.'

(51)   Opjosdhipote gnorizi   tipota sxetiko me tin ipothesi,   as milisi tora.
        whoever   know.3sg anything about with the case, subj talk.3sg now
        'Whoever knows anything about the case, should speak now.'

The logical representation of quantifier sentences like the ones above involves restricted quantification as in (52), where DET stands for *determiner*:

(52)   DET $_{[...x...]}$ [$_{restriction}$ ....x....] [$_{scope}$...x...]
        where x is a variable ranging over individuals

Under the standard assumptions of generalized quantifier theory (Barwise and Cooper 1981, Keenan and Moss 1984, Keenan and Stavi 1986, van Benthem and ter Meulen 1985, Zwarts 1983, de Jongh and Verkuyl 1985 among others), in structures of the form [[$_{DP}$ DET NP] VP], determiners are functors D_E operating on a universe E and relating a set of individuals A to a set of individuals B, where A = [[NP]] and B = [[VP]] and A, B $\subseteq$ E. In a *functional* perspective, a determiner DET combines with a NP to form a DP, i.e. a generalized quantifier; for discussion see Zwarts (1983), Gamut (1991) and references therein.

Abstracting away from issues like uniqueness and exhaustivity, determiners like *every, each, the* and *both* express the subset relation, as shown in (53). Accordingly, the sentences above can be represented as in (54) below:

(53) a $[\![every \text{ NP VP}]\!] = 1$ iff $[\![\text{NP}]\!] \subseteq [\![\text{VP}]\!]$

      b $[\![the \text{ NP VP}]\!] = 1$ iff $[\![\text{NP}]\!] \subseteq [\![\text{VP}]\!]$

      c $[\![each \text{ NP VP}]\!] = 1$ iff $[\![\text{NP}]\!] \subseteq [\![\text{VP}]\!]$

      d $[\![both \text{ NP VP}]\!] = 1$ iff $[\![\text{NP}]\!] \subseteq [\![\text{VP}]\!]$, and $|[\![\text{NP}]\!] \cap [\![\text{VP}]\!]| = 2$

(54) $\forall x$ [**person**$(x) \wedge$ **knows-something-about-the-case**(x)] $\rightarrow$
      [SHOULD **speak-now**(x)]

The task is twofold. First, we have to account for the grammaticality of
the nonemphatics by characterizing the restriction in (54) as nonveridical.
Second, we have to explain why, although the determiners in (53) have the same
logical representation, *every* and *the* allow for APIs in their restriction, but *each*
and *both* do not. This point is illustrated below for the corresponding Greek
determiners (see also §1.1.3, 2.3.1):

(55) *O kathe fititis pu gnorizi   tipota   sxetiko   me tin ipothesi,
      the every student that know.3sg anything about with the case,
      as   milisi   tora.
      subj talk.3sg now
      '*Each student that knows anything about the case should talk now.'

(56) * Ke i   dhio fitites   pu gnorizun tipota   sxetiko   me tin ipothesi,
      and the two students that know.3pl anything about with the case,
      as   milisun tora.
      subj talk.3pl now
      '*Both students that know anything about the case should talk now.'

As I emphasized in §1.1.3, the contrast between *every/all/the*/free relatives and
each/both in licensing *any* and Greek APIs is quite unexpected under the
downward entailment approaches to APIs, since the restriction of $\forall$ is down-
ward entailing in all cases. I argue in this section that the licensing of *any* and
Greek APIs in the restrictions of $\forall$ follows directly from nonveridicality. The
restrictions of *every/all/the* and free relatives will be characterized as
nonveridical, but the restrictions of *each/both* will be shown to be veridical in the
appropriate way. The discussion relies on Giannakidou (1997a), and further
builds on Giannakidou (to appear).

3.2.1 (Non)veridicality for determiners and quantifiers

What does it mean for a determiner to be (non)veridical? Intuitively, we can envision a determiner to be veridical with respect to its NP argument in a context c just in case it is required that the denotation of the NP argument be nonempty in c. Accordingly, a determiner may be viewed as nonveridical in c if it is not required that the denotation of the NP argument be nonempty. Clearly, this view of veridicality connects to the position, often voiced in the literature, that certain determiners are presuppositional and certain others are not (for a general recent discussion see Heim and Kratzer 1998).

Determiners like *both* and *the* have been characterized as presuppositional. A presuppositional determiner is *context sensitive*: it does not have a semantic value in all models, but only in those where certain conditions are satisfied. Consider, for instance, *both* in (57):

(57)   Both books have blue covers.

This sentence is true only if it previously established in the context that there are two books (and no more). In case there is only one, or more than two books, the quantifier *both books* does not have a value, and the sentence (57) cannot be assigned a truth value either. *The* is assumed to give rise to a similar presupposition, further constrained by uniqueness (for singular definites), or maximality (plural definites). Naturally, and contrary to what is generally the case, presuppositional determiners must be analyzed as partial, rather than as total $<<e,t>, <e,t>,t>>$ functions.[6]

Though veridicality and presuppositionality in the determiner domain relate in an obvious way, crucially, they do not coincide. We saw in the data presented in the previous subsection that there is a split between *both/each* and *the/every*/free relatives vis-a-vis APIs, which suggests that presuppositionality alone does not suffice to characterize veridicality in the determiner domain.

Considering that we are dealing with complex restrictions consisting of an NP and a relative clause modifying it, and given that this type of modification

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[6] The presuppositional - nonpresuppositional distinction mentioned here relates to the *weak-strong* distinction argued for in the literature (see Milsark 1977, Diesing 1992, and de Hoop 1992, among many others). The determiners that are characterized as presuppositional have also been characterized as strong, in the sense that they do not occur in existential *there-* constructions. McNally (1992), however, has shown that this is not true. *Every* and *the* DPs may occur felicitously in the existential construction as in *There is the argument that the restriction of the universal quantifier is downward monotone* (see McNally 1992 and references therein).

can be formally understood as the intersection between the two relevant extensions (NP∩CP, where CP is the relative clause), I propose the following definition of (non)veridicality for determiners (see also Giannakidou to appear):

(58)   **DEFINITION 5** ((Non)veridicality of determiners).
       Let $c = <cg(c), W(c), M, s, h, w_0, f,...>$ be a context.
       i. A determiner DET is *veridical* wrt its NP argument iff:

       $[\![$ DET NP VP $]\!]_c = 1 \rightarrow [\![$ NP $]\!]_c \neq \varnothing$; otherwise, DET is *nonveridical*.

       ii. A determiner DET is *veridical* wrt its complex NP∩CP argument iff:

       $[\![$ DET (NP∩CP) VP $]\!]_c = 1 \rightarrow [\![$ NP∩CP $]\!]_c \neq \varnothing$; otherwise, DET is *nonveridical*.

'→' means 'implies', hence (non)veridicality should be understood as a semantic property of determiners, i.e. as an entailment (although it is conceivable to assign to it the force of an existential presupposition, see comments below; as far as I can see, there is no empirical difference between the two formulations).

Veridical determiners are 'referential' in the following sense: they can only be used if it has been established in the context that NP (or NP∩CP) is not empty, i.e. only if NP (or NP∩CP) has an extension in that context. If this has not been established, the determiner cannot be used. *Each* has been discussed in the literature as a referential determiner in this sense, see Vendler (1967), and also Beghelli and Stowell (1997). The intuition that sentences with *each* cannot be uttered out of blue squares with its referential nature. Nonveridical determiners, on the other hand, are unspecified as regards the extension of their NP (or NP∩CP) argument. They are compatible with situations in which that argument is empty, and they are also compatible with situations in which it is not empty, but they don't come with an inherent requirement that their first argument have an extension.

The monotonicity properties of determiners connect naturally to their (non)veridicality properties. For instance, there are no determiners that are DE *and* veridical with respect to the same argument position. In other words, DE determiners are necessarily nonveridical (cf. Hoeksema's 1986 argument that if *each* requires a nonempty NP-denotation, then it is no longer DE in this argument). Hence lack of DE follows as a result of veridicality.

Note that no antiveridical determiners are defined in (58). This is so because no determiners require that their NP or NP∩CP be empty. *No students talked* does not entail that there are no students. Rather, it tells us that that there aren't any students who talked. Statements with negative quantifiers of this kind

are indeed compatible with existence, a fact which becomes particularly visible in the case of the so-called 'comp(lement)-set anaphora' (see Moxey and Sanford 1992), illustrated below:

(59)   No students came to the meeting. They preferred to stay home instead.

In (59), *no students* has seemingly introduced a discourse referent, which is being picked up by the pronoun *they* in the second sentence. What the exact mechanism is need not concern us here. Suffice it to see that in these cases the NP denotation need not be empty.

3.2.2 (Non)veridicality of determiners and affective licensing

I consider here the determiners that present the crucial data for API-licensing, namely *o kathe* 'each', *ke i dhio* 'both', on the one hand, and *kathe* 'every', *oli* 'all', *o* 'the' on the other. The role of referentiality in the availability of veridical and nonveridical patterns will be emphasized.

(i) *o kathe* 'each' and *ke i dhio* 'both'
O kathe 'each' and *ke i dhio* 'both', like their counterparts in English, are distributive universal quantifiers which can be characterized as D-linked (in the sense of Pesetsky 1987). I will take D-linking to be a manifestation of the underlying referentiality of these determiners.
         From their being referential, we can conclude that *kathe/ke i dhio* are veridical in the following way. Recall the ungrammatical sentences in (55) and (56). Referential DPs are about fixed (sets of) individuals. We can understand this as association with a (Strawsonian) existential presupposition like the one definite descriptions such as *the king of France* give rise to. In order to be able to assess the truth of sentences that contain referential DPs we will have to establish the existence of a particular set of individuals first, i.e. the set the DPs make reference to, and this must be done in the preceding context c. DPs headed by *each* and *both* are inherently referential, hence they always give rise to an existential presupposition. Fixing of reference must take place in c prior to the utterance of the sentence that contains them, so both sentences above involve a particular set of students who knew something about the case, whose existence has been previously established in c. To put it in another way, if the sentences in (55) and (56) are true in a given context c, then it is also true in c that *there are students who know something about the case*; additionally, *ke i dhio* 'both' requires that there are exactly two such students :

(60) [[Each student that knows anything about the case should talk now]]$_c$= 1
      → [[student ∩ knows something about the case]]$_c$≠ ∅.

(61) [[Both students that know anything about the case should talk now]]$_c$= 1
      → [[student ∩ knows something about the case]]$_c$≠ ∅, and
      | [[student ∩ knows something about the case]]| = 2 in c.

The ungrammaticality of *tipota* 'anything' follows then as a violation of the nonveridicality requirement on its licensing. The fact that (62) and (63) below are contradictory supports the idea that veridicality of *o kathe* 'each' and likewise of *ke i dhio* 'both' is a semantic property of these determiners:

(62) O kanonismos lei na proskalesoume ton kathe fititi; #epomenos de xriazete na proskalesoume KANENAN, afu dhen iparxun fitites s'aftin tin poli.
      'The regulation says that we have to invite each student; # So we don't have to invite anybody because there are no students in this city.'

(63) O kanonismos lei na proskalesoume ke tus dio fitites; # epomenos de xriazete na proskalesoume KANENAN, afu dhen iparxun fitites s'aftin tin poli.
      'The regulation says that we have to invite both students; # So we don't have to invite anybody because there are no students in this city.'

I conclude that determiners like *each* and *both* are veridical because they are referential. They can be used only if it is guaranteed that their NP or NP∩CP argument is nonempty.

(ii) *Definites, kathe* 'every', *oli* 'all'
Like proper names, definite DPs are used to refer to individuals, but unlike proper names, they do so by means of a description. Russell's theory of descriptions (Russell 1905) analyzes definites, like *the king of France,* as asserting existence, but Strawson (1950) argues that the existence of a king of France is not asserted but *presupposed* by the definite. Since Strawson, it is widely believed that definites always give rise to an existential presupposition.

Yet if we take a closer look at plural definites, or definites modified by a relative clause, it becomes less clear whether they give rise to an existential presupposition. Consider (64) first. This sentence, unlike the ones above, with *both/each* respectively, is not contradictory:

(64)   O kanonismos lei na proskalesoume tus fitites; epomenos de xriazete na
       proskalesoume KANENAN, afu dhen iparxun fitites s'aftin tin poli.
       'The regulation says that we have to invite the students; so we don't have
       to invite anybody because there are no students in this city.'

The same can be shown for *every*:

(65)   O kanonismos lei na proskalesoume kathe fititi; epomenos de xriazete na
       proskalesoume KANENAN, afu dhen iparxun fitites s'aftin tin poli.
       'The regulation says that we have to invite every student; so we don't
       have to invite anybody because there are no students in this city.'

No existence presupposition is present in sentence (48) either, repeated
here as (66):

(66)   I   fitites   pu gnorizun tipota   sxetika   me   tin ipothesi,
       the students that know.3sg anything about   with the case,
       as   milisun tora.
       subj talk.3sg now
       'The students who know anything about the case should speak now.'

Upon uttering and hearing this sentence, speaker and hearer do not really know
whether there are students who actually know anything about the case, so the
following holds:

(67)   ⟦The students who know anything about the case should talk now⟧$_c$= 1

       -/→ ⟦**student ∩ knows something about the case**⟧$_c$≠ $\emptyset$.

Plural definites are thus nonveridical in the required sense, and the
grammaticality of *tipota* 'anything' follows from the hypothesis we are pursuing
that APIs are licensed by nonveridicality. Crucially, if the context establishes
somehow that there are students who know something about the case, *tipota*
becomes ungrammatical. Exactly the same is observed with *any:*

(68)   *c:* Yesterday, some students came to my office. Many of them had
       information about the murder of Athanasiadis.

A: I fitites   pu gnorizan {*tipota/ kati}   sxetiko me tin ipothesi
the students that knew.3pl anything/something about with the case
apodixtikan poli xrisimi.
proved.3pl very helpful
'The students who knew {*anything/something} about the case proved
very helpful.'

We know from the background context in (68) that there were students who had
information about the murder, and this knowledge affects API-licensing. The
effect is observed not only because we have the particular context we do, but
also because of the episodic past tense in the VP. (68A) remains ungrammatical
also in isolation. So, unlike the veridical, nonveridical determiners and
quantifiers don't come with fixed information about the extension of their first
argument. The local (sentence) or the global context (background information)
interferes and ultimately determines whether $[\![NP]\!]$ or $[\![NP \cap CP]\!]$ will be empty
or not. Nonveridical determiners are compatible with either situation. The
licensing of APIs, however, is not, as we saw in (68).

Recall now the other grammatical cases. In all the examples, the VP
contains a modal (English) and a future oriented subjunctive (Greek):

(69)   Oli osi gnorizun tipota   sxetika me tin ipothesi, as   milisun tora.
        all who know.3pl anything about with the case, subj talk.3pl now
        'Everyone who knows anything about Electra should speak now.'

(70)   Kathe fititis pu gnorizi tipota   sxetika me tin ipothesi,
        every student that know.3sg anything about   with the case,
        as milisun tora.
        subj talk.3sg now
        'Every student who knows anything about the case should speak now.'

(71)   Opjosdhipote gnorizi   tipota   sxetiko me tin ipothesi, as   milisi tora.
        whoever   know.3sg anything about with the case, subj talk.3sg now
        'Whoever knows anything about the case, should speak now.'

In all these cases, the required nonveridical inference is available: it is not
entailed that students who know anything about the case exist. *Tipota* and
anything are thus fine because of this. In a context like (68), however, or simply
with episodic past in the VP, as we see below, APIs become ungrammatical:

(72)   Kathe fititis   pu gnorize {*tipota/ kati}   sxetiko me tin ipothesi
        every student that knew.3sg anything/something about with the case
        apodixtike poli xrisimos.
        proved.3sg very helpful
        'Every student who knew *anything/something about the case proved
        very helpful.'

(73)   Oli i fitites   pu gnorizan   {*tipota/   kati}   sxetiko me tin ipothesi
        all *the students that knew.3pl anything/something about with the case*
        apodixtikan poli xrisimi.
        proved.3pl very helpful
        'All the students who knew *anything/something about the case proved
        very helpful.'

(74)   Opjosdhipote fititis gnorize {*tipota/   kati}   sxetiko me tin ipothesi
        whoever   *student knew.3pl anything/something about with the case*
        apodixtike poli xrisimos.
        proved.3sg very helpful
        'Any student who knew *anything/something about the case proved
        very helpful.'

We can conclude then that plural definites, universal quantifiers like *every/all*,
and free relative clauses (which have the semantics of plural definites, see
Jacobson 1995, and Dayal 1997 among others), form a natural class in terms of
being nonveridical. As such, they will be appropriate environments for APIs.

(75) $[\![$Every student who knows anything about the case should speak now$]\!]_c$
        $= 1 \; -/\!\to [\![$**student $\cap$ knows something about the case**$]\!]_c \neq \varnothing$.

(76) $[\![$All students who know anything about the case should speak now$]\!]_c = 1$
        $-/\!\to [\![$**student $\cap$ knows something about the case**$]\!]_c \neq \varnothing$.

(77) $[\![$Any student who knows anything about the case should speak now$]\!]_c = 1$
        $-/\!\to [\![$**student $\cap$ knows something about the case**$]\!]_c \neq \varnothing$.

This conclusion, and the related contrast between *each* (veridical) and *every*
(nonveridical), explains why *each and every* is possible, but **every and each* is

not: *every* does not necessarily establish a domain that can be picked up as the referent of *each*.

The discussion in §3.2 allow us to conclude that the licensing of PIs in the restriction of universal quantifiers does not follow from the monotonicity properties of that position, as was previously believed, but rather from its veridicality properties.

3.3 Other licensing environments for APIs

In this section more licensing environments for APIs are examined. The aim is to test the empirical validity of the nonveridicality-based licensing condition postulated in (46). It will be shown that in all instances, it is nonveridicality that sanctions APIs. In a limited number of cases, the required nonveridical inference is provided by a negative implicature. Licensing in these cases will be called *indirect*, and will be dealt with in §3.4.2. The discussion here follows closely Giannakidou (1997a, to appear).

3.3.1 Modal verbs

We have seen in chapter 2 that epistemic and deontic modals sanction nonemphatics in their domains. I give here some examples:

(78)   Prepi   na   episkeftis kanenan jatro.
        must.3sg subj visit.2sg   any   doctor
        'You should visit a doctor.'

(79)   Bori   na mas akusi   kanenas perastikos.
        may.3sg subj us   hear.3sg any   passer-by
        'A passer-by might hear us.'
        '?Any passer-by might hear us.'

(80)   Bori   kanenas na lisi   afto to provlima.
        may.3sg anyone subj solve.3sg this the problem
        'Some person or other can solve this problem.'
        'Anyone can solve this problem.'

As we see *any* is also fine. Unlike deontic and epistemic modals, *aleithic* modals do not allow for APIs:

(81) * Enas ergenis prepi na ine   kanenas enilikas, anipandros andras.
   a   bachelor must subj be-3sg any   adult   unmarried   man
   (A bachelor must be an adult, unmarried man.)
   *A bachelor must be any adult, unmarried man.

The question is how to capture the attested contrast in terms of the veridicality properties of modal verbs.

Deontic and epistemic modals are nonveridical with respect to the speaker's epistemic model. If I, the speaker, know that Frank is ill, i.e. if Frank is ill in all worlds compatible with what I believe, then I cannot utter *Frank must be ill;* rather, I should say *Frank is ill.* The nonveridicality of epistemic and deontic modals is illustrated in (58), where K is the modal base (Kratzer 1981):

(82) *Nonveridicality of modals*
   i. $[\![\, \text{bori } p \,]\!]_{c,\ Kepistemic} = 1$ $-\!/ \rightarrow [\![\, p \,]\!]_{MB(s)} = 1$ 'epistemic may'
   ii. $[\![\text{bori } p \,]\!]_{c,Kdeontic} = 1$ $-\!/\!\rightarrow [\![\, p \,]\!]_{MBfut(s)} = 1$ 'deontic may'
   iii. $[\![\text{prepi } p \,]\!]_{c,\ Kdeontic} = 1$ $-\!/ \rightarrow [\![\, p \,]\!]_{MBfut(s)} = 1$ 'deontic must'
   iv. $[\![\, \text{prepi } p]\!]_{c,\ Kepistemic} = 1$ $-\!/ \rightarrow [\![\, p \,]\!]_{MB(s)} = 1$ 'epistemic must'

Epistemic and deontic modals must be distinguished from *strong* necessity, or aleithic modals (cf. Kratzer's "human necessity"). Only aleithic modals correspond to the necessity operator L we know from modal logic. L validates what is known as *the axiom of necessity* (Hughes and Cresswell 1968) or principle T (Chellas 1980) which postulates that $Lp \rightarrow p$, L is thus veridical:

(83) $[\![\, \text{prepi } p]\!]_{c,\ Kaleithic} = 1$ iff $[\![\, p \,]\!]_{MB(s)} = 1$ 'aleithic must'

Modals in rules, mathematics and analytic statements are aleithic and thus veridical. If nonemphatics are licensed by nonveridicality, as we are assuming, they are predicted to be ungrammatical in those domains, and this is exactly what we saw in (81). We conclude, then, that nonveridicality predicts correctly the licensing of APIs under modal verbs.

3.3.2 Nondeclaratives: interrogatives, imperatives, exclamatives

Nondeclarative domains, specifically interrogatives and imperatives, constitute one of the most prominent licensing environments for APIs. These domains have been a stumbling block for the monotonicity-based approaches to polarity, because monotonicity inferences are not applicable there (since it is unclear what notion of entailment can be assumed). In this subsection I show that the non-veridicality of questions and imperatives squares neatly with their non-declarative character.

As Groenendijk and Stokhof (1997) put it, the term 'interrogative' applies to sentences. Interrogatives are linguistic objects: they are particular types of sentences. Questions are semantic objects: they are the semantic values of interrogatives, i.e. their meanings. Questions are defined in terms of answerhood conditions, just like the meaning of a declarative is defined in terms of truth conditions.

In the literature, two types of approaches to the semantics of interrogatives can be distinguished, both building on the idea that the meaning of an interrogative should be represented somehow in connection to its answer space. Questions have been handled as sets of propositions (Hamblin 1973, Karttunen 1977), and as propositions, that is as sets of possible worlds (Higginbotham and May 1981, Groenendijk and Stokhof 1984, 1997). In the former view, the relevant set of propositions may include the possible answers (as in Hamblin 1973), or the true ones (as in Karttunen 1977).

Imperatives, just like interrogatives, have a meaning distinct from that of declaratives. The meaning of imperatives likewise cannot rely on truth conditions. We can say that imperatives have *commands* as their semantic value. Commands can be defined in terms of *fulfillment* conditions. In this sense, both interrogatives and imperatives are nonveridical: the sequences $?p$, and $!p$, where "!" is the imperative operator (thanks to Jason Merchant for this suggestion), do not preserve the truth of p, nor do they require that p be true in c. If *You are hungry* is true, *Are you hungry?* and *Be hungry!* need not be since in neither cases can we talk about truth values proper. I record this in (84)[7]:

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[7] The account I give here for the nonveridicality of interrogatives differs substantially from the one I gave in Giannakidou (1997a). In that work, I adopted a version of Karttunen-type semantics for questions, where questions denote the set of their true answers, and argued that non-veridicality arises because in those answers a negative answer is included. One could still argue along this lines and derive nonveridicality from this fact. Here, I embed interrogatives into their natural context, that of nondeclaratives, and I show that nonveridicality in these cases follows directly from their nondeclarative character.

(84)   *Nonveridicality of nondeclaratives*
        i. If *?p* is a wellformed question, then *p* does not have a truth value.
        ii. If *!p* is a wellformed imperative, then *p* does not have a truth value.

Exclamatives, which, as shown in (85), also sanction APIs, can be viewed in the same light. In this case too, we are not dealing with truth conditions proper:

(85)   Na erxotane   kanenas!
        subj came.imperf.3sg anyone
        'If only someone came!'

(85) contains an interesting combination of the subjunctive with imperfective aspect on the verb (the perfective would be unacceptable), which we also find in counterfactual wishes. The sentence, however, is merely a wish, not a counterfactual. The licensing of *kanenas* here is expected under the nonveridicality hypothesis. The nonveridicality of the exclamative is stated in (86); EXCL stands for the exclamative operator:

(86)   *Nonveridicality of the exclamative*
        If *EXCL p* is a wellformed exclamative, then *p* does not have a truth value.

Hence, not having a truth value is understood as a subcase of nonveridicality. This seems an appropriate occasion for invoking *averidicality* (= lack of veridicality). Nondeclaratives would be averidical proper.
        Rhetorical questions will be dealt with in §3.4.2.

3.3.3 Conditionals

Following Giannakidou (1997a), I propose here that the antecedent of factual conditionals is nonveridical in virtue of its being nonassertive. The claim will be based on an analysis of conditionals cast in terms of the dynamics of context and context change outlined in §1.3. More specifically, I will rely on Heim (1992), but essentially the same analysis can be given in terms of update semantics in a system line the one in Groenendijk, Stokhof and Veltman (1996).
        Heim (1992) provides a semantics of conditionals in an extension of file change semantics (FCS). Meaning is specified as context change potential (CCP)

in a dynamic way. CCPs are functions from contexts to contexts, where contexts represent states of information of the structure we discussed in §1.3. The change effected by the CCP of a sentence consists in updating that information with what the sentence says.

For a sentence of the form *if p then q*, we need to apply the CCP of *p* to some argument and, according to Heim, this argument should be the context *c*. After *p* is applied to *c*, *q* is applied too. A conditional *if p then q* is true in a world w iff *q* is true in all *p*-worlds (maximally) similar to w. By "*p*-world (maximally) similar to w" a world is meant in which *p* is true and which resembles w no less than any other world where *p* is true. Being viewed this way, the CCP definition of *if p then q* is given in (88) (Heim 1992: (36)):

(87) $c + if\, p, q = \{w \in c: Sim_w(c + p) + q = same\}$

The condition "$(c + p) + q = same$" expresses the condition $(c + p) + q = c$, which means that a conditional sentence doesn't really contribute new information in the Stalnakerian sense of eliminating worlds from the context set $W(c)$. Consider (88):

(88)   If it rains, we will stay home.

Let *if it rains* be *p* and *we will stay home* be *q*. Remember that crucial to the idea of adding a proposition to the common ground is that (a) asserting is providing information and (b) when a sentence is asserted the proposition expressed by this sentence becomes part of the current common ground, i.e. part of the beliefs that the agents in the conversation share as mutually accepted information. If *p* in (88) is added to *c*, then we expect *it rains* to provide new information and to describe truthfully a state of affairs in the actual world. But this is not what we get. *It rains* is not true in the world of utterance w_0 (although it may be true in other worlds), and since w_0 is the world of evaluation for *c*, we cannot claim that *it rains* is added to *c*. In essence, no new information about how things are is given to us by the utterance of the conditional antecedent. We can conclude therefore that applying the antecedent *p* to *c* does not involve adding *p* to *c*. Groenendijk, Stokhof, and Veltman (1996) reach the same conclusion when they argue that the conditional protasis sets up a hypothetical, and not an actual situation, and define updates like (89) (see also §1.3.2):

(89) *Conditional update*   (Groenendijk, Stokhof and Veltman 1996)

s [ϕ →ψ]= {i ∈ s | if i subsists in s[ϕ], then all descendents of i in s[ϕ]
subsist in s[ϕ] [ψ]}.

On the other hand, the consequent is informative with respect to the ante-
cedent. The antecedent *if it rains* supplies the condition under which *we will stay
home* will be an accurate description of how things are. In fact, *we will stay
home* is already true in the worlds introduced by the antecedent (q is added to c +
p). Hence it makes sense to view conditionals as consisting of two parts, one
assertive and one non-assertive. The nonassertive part is provided by the antece-
dent which is the place where conditions are stated by introducing hypothetical
situations. The assertive part is the consequent. What is asserted in the conse-
quent is taken to be true in the worlds that make the antecedent true.

In the tradition of restricted quantification assumed in FCS and DRT,
there is also another way to capture the contrast between the nonassertive char-
acter of the conditional antecedent and the assertive character of the consequent.
If-clauses provide restrictions of adverbial and nominal quantifiers, which con-
tribute tripartite structures Q ϕ ψ with a restriction and a scope. Crucially, the
scope, but not the restriction, is the assertive component because the former, but
not the latter, hosts the main predication. *If*-clauses being restrictions, they can
never be part of the assertion in quantificational statements. By extension, *if*-
clauses in ordinary conditional statements can be thought of as providing the re-
striction of an implicit universal quantifier over worlds (*vide* McCawley 1980
and references therein). In effect, a sentence like (88) *if it rains we will stay
home* will be assigned the structure in (90):

(90)   ∀w [it rains at w] [we will stay home at w]

From the analysis of *if*-clauses as (nonassertive) restrictions on quantifiers over
worlds, it follows that *if*-clauses are nonveridical with respect to c: the conditions
expressed in them may or may not be met in c. While the antecedent presents
conditions, the consequent will have to be true with respect to these conditions,
hence the consequent is veridical with respect to the antecedent (q is added to c +
p). Thus, the nonveridicality account predicts correctly that APIs will be licit in
the antecedent but not in the consequent of the conditional, because the latter is
veridical with respect to the former.

Finally, a comparison between *if*- and *since*-clauses can be illuminating.
Notice that *since* does not license APIs (*any* included):

(91)   * Afu idhes   kanenan, borume na fighume tora.
        since saw.2sg anyone,   can.1pl subj leave.1pl now
        '* Since you saw anybody, we can go now.'

The ungrammaticality in (91) follows from the fact that *since* is veridical (cf. Zwarts 1995): for the truth of *since you saw Lucy, you can tell that she is crazy* it is required that *you saw Lucie* is also true. It appears therefore that the difference between *if* and *since* as regards APIs can be successfully described in terms of their veridicality properties.

3.3.4 Habituals

As observed in Giannakidou (1993, 1995a), and further discussed in Giannakidou (1997a) and Giannakidou and Zwarts (1998), APIs are licensed in habitual sentences. I present here the basic facts and discussion.

Nonemphatics are licensed in habitual sentences (*characterizing* in the sense of Krifka et. al 1995) with imperfective aspect.[8] Optionally, a Q-adverb denoting a quantifier other than the universal may be present:

(92)   Otan pijene   o Pavlos ja ipno,   ksefilize   sinithos kanena
        when went-3sg the Paul   for sleep, browsed-3sg usually   any
        periodhiko.
        magazine
        'When Paul went to bed, he usually browsed through a magazine.'

The monotonicity properties of the Q-adverb are irrelevant. Instead of *sinithos* 'usually' in (92) we could have *sixna* 'often' or *spania* 'seldom' and this would not affect the grammaticality of the sentence (see Giannakidou 1995a). Habituality does not seem to affect nonemphatics only. The following contrasts in English and Dutch suggest that habituality licenses *any* and its Dutch counterpart *ook maar iets* (examples from Giannakidou and Zwarts 1998; for Dutch, see also Sánchez-Valencia 1998):

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[8] Nonemphatics are grammatical in *habitual* sentences with imperfective aspect, and not in the *progressive*, which is also expressed with imperfective aspect in Greek (as in many other languages that exemplify the grammatical distinction perfective-imperfective). Because the progressive involves events, albeit seen as sequences of successive states, it has been characterized as veridical in Giannakidou (1995a) and Giannakidou and Zwarts (1998). See also Quer (1998), and the discussion in §3.5.1 and 3.5.3 for the effect of the progressive on FCIs and *any*.

(93)   a   * Paul warned me when he saw anything.
       b   Paul used to warn me as soon as he saw anything.

(94)   De kinderen vertrokken   zodra   zij   ook maar iets ontdekten.
       the   children   left.3pl   as soon as they   anything   discovered.3spl
       '*The children left as soon as they discovered anything.'
       OK, as: 'The children used to leave as soon as they saw anything.'

In its default past episodic reading, the English sentence (93a) is ungrammatical
with *any*. Yet, if we insert *used to*, which gives a habitual interpretation, *any* be-
comes grammatical. Likewise, the Dutch sentence in (94), where again overt as-
pectual marking is absent, is grammatical only under a habitual interpretation.
We have to say then, that in English and Dutch too, habituality affects API-
licensing in a particular way. The task is to show in what sense the habitual is
nonveridical, as opposed to the (affirmative) episodic which is veridical:

(95)   a. $[\![\exists e \, P(e)]\!]_c = 1 \rightarrow [\![\exists e \, P(e)]\!]_{M(s)} = 1$ (episodic)

       b   * Paul warned me when he saw anything. $\rightarrow$
               Paul saw something.

The episodic is veridical under the assumption that it involves existential quanti-
fication over events. The ungrammatical (93a) entails that Paul saw something.
       In what sense is the habitual nonveridical? I will give here a tentative an-
swer building on my previous work. The issue, however, is worthy of further
examination. First, I assume that habitual sentences involve a dyadic adverbial
quantifier HAB which binds a situational variable *s*, as shown in (96) (see
Krifka et al. 1995):

(96)   HAB $_{[...s...]}$ [$_{restriction}$ ....s....] [$_{scope}$...s...]
       where s is a situational variable

       The situational variable is required for the interpretation of the habitual
quantifier. If *s* is not available, ungrammaticality arises as in (97):

(97)   a   * Lucy is infertile when she is tricolored.
       b   * When Lucy dies, Jacob is unhappy.

In (97a), the restriction *when she is tricolored* contains a lexical stative verb, therefore it does not provide the necessary variable s for binding. Likewise, as first observed in de Swart (1991), when the restriction contains an *once-only* predicate such as *die* in (97b), there is no situational variable present, hence we have again a bad result.

Consider now the logical representation of the grammatical (92):

(92')   USUALLY$_s$ [**went to bed** (Paul, in s)] [$\exists$y **magazine** (y) $\wedge$ **browsed** (Paul, y, in s)]

Usually, on the other hand, is assinged the meaning of *most*, as in (98):

(98) $[\![$USUALLY A B$]\!]$ = 1 iff $|$ $[\![$A$]\!]$ $\cap$ $[\![$B$]\!]$ $|$ > $|$ $[\![$A$]\!]$ - $[\![$B$]\!]$ $|$

(92') then states that the number of situations in which Paul goes to bed and browses through a magazine is greater than the number of situations in which Paul goes to bed and does not browse through a magazine. So the situations in the restriction are not such that Paul browses through a magazine in all of them. When this is the case, as in (99) with a universal quantifier, nonemphatics become ungrammatical. Recall that the truth conditions for the universal quantifier are as in (100):

(99)   * Otan pigena   ja ipno, ksefiliza   panda   kanena periodiko.
        when went.1sg for sleep, browsed.1sg always any   magazine
        ('When I went to bed, I always browsed through a magazine.')

(100) $[\![$ALWAYS A B$]\!]$ = 1 iff $[\![$A$]\!]$ $\subseteq$ $[\![$B$]\!]$

Hence all situations that are in A are also in B, therefore all the situations in which I go to bed are situations in which I browse through a magazine. In this sense, the universal habitual is veridical and the ungrammaticality of the nonemphatics follows. Alternatively, the nonveridicality of the non-universal habitual resides in the fact that the set of situations introduced in the restriction is partitioned into a set A', which includes situations which satisfy both the restriction and the scope, and its complement set -A' which includes situations which satisfy the restriction but do not satisfy the scope.

Note that nonemphatics are barred also from kind-denoting generic sentences, and from sentences containing lexical statives. The point is illustrated in the examples below:

(101) * I gates kinigun kanena pondiki.
       the cats hunt.3pl any   mice
       (Cats hunt mice.)
       (Any cat hunts mice.)

(102) * O Pavlos ine   erotevmenos me   kamia jineka.
       the Paul   be.3sg in-love   with any   woman
       ('Paul is in love with some woman.')

The fact in (101) seems quite unexpected, as generic domains *are* nonveridical: they don't presuppose existence and they have a modal character of the appropriate kind for nonveridicality; see Condoravdi 1994. Nevertheless, it is genericity that rules out (101). As we see in (103), if we add *pu ke pu* 'every now and then', the sentence improves considerably:

(103) I   gates kinigun kanena pondiki pu ke pu.
       the cats hunt.3sg any   mice   every now and then
       'Cats hunt mice every now and then.'

The improvement we witness here is due to the fact that a habitual interpretation is rendered possible. I will assume that, although the nonemphatic is found in a nonveridical domain, (101) is bad because nonemphatics cannot denote kinds (but *any* obviously can, a fact to be linked to the free choice component of its semantics). Other APIs with no free choice semantics, like the Dutch *ook maar* items are equally unacceptable in generic sentences:

(104) * *Katten jagen ook maar een muis.*
       (Cats hunt mice.)

Finally, nonemphatics are ruled out with lexical statives in (102) because these are not habitual either. (102) states that the property of *being in love with some woman* is predicated of Paul. Under widely held assumptions, lexical statives either lack the situation variable (as in Kratzer 1995), or have it internally bound by the generic operator (as in Chierchia 1995b). At any rate, the lack of habituality appears to have a dramatic effect for the licensing of nonemphatics.

3.3.5 Future

The future licenses nonemphatics, and as we see in the examples below, it also licenses the Dutch *ook maar iets:*

(105)   * De kinderen vertrokken zodra   zij   ook maar iets ontdekten.
           the   children   left.3pl   as soon as they   anything   discovered.3pl
           '*The children left as soon as they discovered anything.'

(106)   De kinderen **zullen** vertrekken zodra   zij ook maar iets ontdekken.
           the   children   will   leave.3pl   as soon as they   anything   discover.3pl
           'The children will leave as soon as they discover anything.'

This fact is observed and discussed in Giannakidou and Zwarts (1998). The minimal difference between the two sentences, and the one that appears to be decisive for the acceptability of *ook maar iets* (and *any* as we see in the translations), is that (105) is retrospective (it refers to a past event), but (106) is prospective (it refers to a future event). In a linear model of time, retrospective past is deterministic, and in this sense veridical (see discussion above on episodicity). Prospective future, on the other hand, embodies a notion of *projected*, but not *actual* truth. Future is nondeterministic, and thus nonveridical: we do not know whether the expected events will take place:

(107) $[\![\text{FUT p}]\!]_c \,\text{-/}\!\!\rightarrow [\![\text{p}]\!]_c = 1.$

It is conceivable to represent the nonveridicality of the future as branching time, but I will not take a stand here. What I merely want to emphasize is that, as far as veridicality and APIs are concerned, future behaves more like a modality than a real tense (a point also stressed in Giannakidou and Zwarts 1998).

3.3.6 Nonveridicality and the sensitivity semantics of nonemphatics

In the preceding sections we confirmed that nonveridicality provides a solid basis for the formulation of a licensing condition on APIs. In a limited number of cases, not yet discussed, the nonveridicality requirement on licensing is satisfied in an indirect way via a negative implicature (to be discussed in the next section, in connection to NPIs).

        Before closing this section, I would like to go back to the issue of sensitivity and show that nonveridicality captures correctly the link between licenser

and licensee in affective dependencies. Recall that, as I proposed in §2.3.5, APIs are existential quantifiers of a special kind: they fail to introduce discourse referents in the actual world w_0. Such quantifiers are called 'dependent':

(108) *Sensitivity in APIs*   (to be revised)

  i. An affective polarity item α is a dependent existential quantifier.

  ii. A existential quantifier $\exists x_{ni}$ is dependent iff the variable x_{ni} it contributes does not introduce a discourse referent in w_0.

A statement with $\exists x_{ni}$ is thus not equivalent to one with the regular $\exists x$, which implies and asserts existence. $\exists x_{ni}$ does not assert existence in w_0, though it may do so in a hypothetical, non-actual context. Hence, *kanenas* fails in the veridical affirmative, but it is fine in the nonveridical conditional protasis:

(109) a   *Irthe   kanenas.
               came.3sg anybody
               '*Anyone came.'
       b   An erthi   kanenas...
               if   come.3sg anybody
               'If anyone comes...'

Veridical sentences like unembedded assertions do not satisfy the sensitivity requirement of dependent existentials, because they force reference to w_0 and these quantifiers does not qualify for this purpose. In terms of individual anchors and models, we say that dependent existentials are unable to introduce discourse referents in the speaker's view of the actual world $M_B(s)$. Veridical attitudes block dependent existentials in exactly the same way, only this time w_0 is replaced by the subject's model $M_B(su)$. If *Ann believes that someone came*, then *someone came* is true in $M_B(Ann)$, thus *someone* must have reference, which counts as actual in the relevant epistemic model $M_B(Ann)$. Likewise, if *Ann dreamt that someone came*, then *someone came* is true in Ann's dream model $M_D(Ann)$. The same can be said for cases of reported conversation. We should thus modify (108) as in (110):

(110) *Sensitivity in APIs*

  i. An affective polarity item α is a dependent existential quantifier.

ii. A existential quantifier $\exists x_{ni}$ is dependent iff the variable x_{ni} it contributes does not introduce a discourse referent in some individual's epistemic model $M(x)$.

Nonveridical contexts are compatible with the sensitivity semantics of dependent existentials because they don't force existence. In most cases, a hypothetical, non-actual context is created, like for instance in (109b), and also in nondeclaratives, and nonveridical attitudes. In such contexts dependent existentials are able to contribute discourse referents.

Negative sentences present, in this respect, an interesting case:

(111)   Dhen idha   kanenan.
        not   saw.3sg anyone
        '*I didn't see anyone.'

Recall how a context is updated with a negative sentence in dynamic semantics:

(112)   *Update with a negative sentence*
        $s[\neg\phi] = \{i \in s \mid i \text{ does not subsist in } s[\phi]\}$.
        [Groenendijk, Stokhof and Veltman 1996, def. 3.1]

Updating a state s with a negative sentence is done in two steps. First, s is updated hypothetically with the affirmative ϕ (which is, of course, not an actual ϕ). Then, the possibilities that subsist after this hypothetical update are eliminated from the original state s. It is this two-step procedure that satisfies the sensitivity requirement of APIs in negative sentences.

To conclude, the nonveridicality-based account of affective dependencies I pursue in this study succeeds in something its predecessors have consistently failed at: it provides the grounds for a successful answer to the sensitivity issue. APIs are sensitive to nonveridicality because dependent existential quantifiers can be used only in nonveridical domains. If we use a dependent existential in a veridical domain, as in (109a), the quantifier will not be able to introduce a discourse referent and the resulting formula cannot be assigned a truth value.

3.4 Negative polarity

In the present section, I consider negative polarity and NPIs. In the theory proposed here, negative polarity is a subcase of affective dependency: dependency to antiveridicality. Negation being the prototypical antiveridical operator, NPIs are primarily licensed in negative sentences, but *without* and *before* clauses are also appropriate environments, and antiveridical in a sense to be made precise. Antiveridicality is a logical property of certain propositional operators, yet in some cases, the licensing requirement can be met by an antiveridical implicature (in the sense of Linebarger 1980, 1987). Such cases of indirect licensing will be shown to be operative with NPIs as well as with the general class of APIs. Indirect licensing is a secondary licensing option, and languages vary as regards the extent to which they make use of it.

The discussion is based on Giannakidou (1997a) and (to appear). First, NPIs are defined as the subset of APIs sensitive to antiveridicality. In §3.4.2, I discuss indirect licensing, with emphasis on counterfactual conditionals and rhetorical questions. Indirect licensing for APIs will also be considered in this connection. In §3.4.3, a typology of APIs is proposed based on nonveridicality. It will be shown that this typology is superior to previous ones based on monotonicity. Finally, in §3.4.4 a possible modification of this typology will be proposed in order to accommodate some data from Polish and Serbian/Croatian.

3.4.1 NPIs as a proper subset of APIs

In §3.1, APIs were defined as expressions sensitive to nonveridicality, obeying the licensing condition in (46), repeated here:

(46)   *Licensing condition for affective polarity items*
         An affective polarity item α will be licensed in a sentence S iff S provides
         some expression γ which is *nonveridical*, and α is in the scope of γ.

Given the distribution of emphatics, illustrated in Table 1, we can say that NPIs form a subset of APIs exemplifying sensitivity to antiveridicality. NPIs are thus APIs subject to the condition in (113):

(113)   *Licensing condition for negative polarity items*
         A negative polarity item α will be licensed in a sentence S iff S is *antiveridical*.

(113) lacks the scope clause (46) has, and in chapter 4 it will become clear why. Recall now the definition of antiveridicality given in § 3.1:

(114)   Antiveridicality
  In a context c (where c = <cg(c), W(c), M, s, h, $w_0, f, ...$>),
  An operator *Op is* antiveridical iff it holds that:
  $[\![Op\ p]\!]_c = 1 \rightarrow [\![p]\!] = 0$ in some epistemic model $M(x) \in c$.

Negation and *without* were shown to be antiveridical[9]. I repeat here the relevant patterns:

(115)   a Frank didn't bring flowers. $\rightarrow$
     It is not the case that Frank brought flowers.

---

[9] *Andi* 'instead' presents an interesting case. Just like *xoris*, statements with this connective seem to give rise to an antiveridical inference too, as shown in (i). Yet, NPIs are not licensed under *andi,* as shown in (ii):

(i) Andi na milisi, protimise na mini siopilos. $\rightarrow$ He didn't speak.
   'Instead of talking, he preferred to remain silent.'
(ii) * Andi na pi {tipota/*TIPOTA}....
   'Instead of saying anything...'

I believe that this antiveridical inference of *instead* is a conventional implicature, rather than an entailment, because, though it cannot be canceled, it can be detached. If we use *or* instead of *instead,* the antiveridical inference is no longer available (disjunction as we saw is only non-veridical).

(iii) He talked or he remained silent -/$\rightarrow$ He didn't talk, -/$\rightarrow$ He didn't remain silent.

One could say that *instead* is equivalent to *or not. Without* is *and not.* These claims are supported by the following contrasts:

(iv) a * He talked without talking.
    b * He talked and he didn't talk.
(v)   a Instead of talking (as he should), he didn't talk.
    b He talked or he didn't talk.

The sentences in (iv) are both bad, because they lead to a contradiction. No contradiction arises in (v), as expected from the semantics of disjunction. Thanks to Adam Przepiórkowski for bringing these facts to my attention.

b   Jacob spoke without opening his eyes. →
        It is not the case that Jacob opened his eyes.

In addition, Zwarts (1995) characterizes *before* as veridical with respect to its first argument but nonveridical with respect to its second (for discussion see Zwarts 1995, and §3.1). *Before* can also be veridical, or antiveridical. The latter alternative is exemplified in (116), where we have a predicate like *die*. The truth of this sentence entails the falsity of the *before*-clause:

(116)   Ruth died before she saw her grandchildren. →
        It is not the case that Ruth saw her grandchildren.

We see below that this use of *before* licenses NPIs, as predicted by the condition in (113):

(117)   O Pavlos pethane prin   na di   KANENA apo ta egonia tu.
        the Paul died.3sg before subj see.3sg every from the grandschilrden his
        'Paul died before he saw any of his grandchildren.'

As also predicted by (117), emphatics are illicit under nonveridical *prin* 'before'; regular APIs like nonemphatics and *any* are fine:

(118) a   * Elenkse   tis plirofories prin   na agorasi   TIPOTA.
            checked.3sg the information before subj bought.3sg everything
            ('S/He checked the information before he bought anything.')
      b   Elenkse   tis plirofories prin   na agorasi tipota.

(119) a   * Egatelipse   ti xora   prin na simvi   TIPOTA.
            abandonded.3sg the country before subj happen.3sg everything
            ('S/He abandoned the country before anything happened.')
      b   Egatelipse   ti xora   prin na simvi   tipota.

(118) is ambiguous between a veridical and nonveridical reading, and it is the nonveridical one that sanctions the occurrence of the nonemphatic and *any*. (119) involves unambiguously nonveridical *before*: we don't know whether something happened by hearing that sentence. *Before* appears to be highly context sensitive, a fact also emphasized in Heinämäki (1974), and a reasonable question to ask is what determines the variability in the veridicality patterns. I will not address this issue here, though it is conceivable to argue that (non)veridicality of *before* in not

an inherent property of the connective itself, but it relates to the kind of predicate *before* combines with (and other, pragmatic factors). What matters for our purposes is that NPIs are only licensed in the scope of antiveridical *before*, whereas their nonveridicality sensitive counterparts are fine also when *before* is nonveridical. Considering, however, that NPI-licensing by *before* is generally more limited than licensing by negation and *without,* in §3.4.4 I will explore the possibility of analyzing licensing of NPIs by *before* as an instance of indirect licensing.

Other NPIs, e.g. minimizers, *epi xronia* 'in years', *ke toso ADJ* 'all that adj', exhibit exactly the same pattern. They are licensed by negation and *xoris* 'without', but not under nonveridical or veridical *prin* 'before'. I provide some examples below, but see Giannakidou (1997a) for a more detailed examination:

(120) a   *(Dhen) ipe   LEKSI oli mera.
             not   said.3sg word all day
             'S/He didn't say a word all day.'

       b   *(Dhen) tu kejete   KARFI ja to ti   tha pi   o   kosmos.
             not   him burn.3sg nail   for the what fut say.3sg the world
             'He doesn't give a damn about what people will say.'

       c   *(Dhen) idha   tin   Cleo epi mines.
             not   saw.1sg the Cleo in months
             'I haven't seen Cleo in months.'

       d   *(Dhen) ine   ke   toso spudheo.
             not   be.3sg and that important
             'It is not all that important.'

(121) a   Evale   tis fones *(xoris) na   tu   kejete   KARFI ja to ti
             put.3sg the voices without subj him burn.3sg nail   for the what
             pi   o   kosmos.
             say.3sg the world
             'He started screaming without giving a damn about what people
             would say.'

       b   ...*(xoris) na pi   LEKSI oli mera.
             without   subj say.3sg word all day
             '...without saying a word all day.'

       c   Milisa   me tin Cleo *(xoris) na   tin exo   dhi epi xronia.
             talked.1sg with the Cleo without subj her have.1sg seen in years
             'I talked to Cleo without having seen her in years.'

    d   Ton akuga,   *(xoris) na ime   ke toso enthusiasmeni.
        him heard.3sg without subj be.1sg and that enthusiastic
        'I was listening to him without being all that thrilled.'

(122) a   * Prin su kai   KARFI ja to ti   tha pi   o kosmos...
        before you burn.3sg nail   for the what fut say.3sg the world
        ('*Before you give a damn about what people will say...')
    b   * Milisa me tin Cleo prin na tin dho   epi   xronia.
        talked.1sg with the Cleo before subj her see.1sg in   years
        ('* I talked to Cleo before having seen her in years.')
    c   *Xamojelase prin na ine   ke   toso xarumenos.
        smiled.3sg   before subj be.3sg and that happy
        ('*He smiled before he was all that happy.')

As I also emphasized in §2.6, Greek NPIs are licensed only in the above con-texts. In this, certain Greek NPIs, e.g. minimizers, differ from their English counterparts whose distribution is considerably wider (for instance, English minimizers are grammatical in interrogatives, in conditionals, in the scope of fac-tives and DE DPs, unlike Greek NPIs). Very marginally, minimizers, but not emphatics, are licensed in rhetorical questions and counterfactual conditionals. I turn immediately to these cases, which I handle as instances of indirect licensing by a negative implicature.

3.4.2 Indirect licensing

In this section I examine indirect licensing as the licensing of NPIs and APIs in the absence of an apparent nonveridical or antiveridical trigger. I consider NPIs first, and then I discuss briefly some cases where indirect licensing can be in-voked to account for the grammaticality of APIs. The discussion will make clear that indirect licensing is as a secondary, auxiliary condition for licensing.

3.4.2.1 Rhetorical questions and counterfactual conditionals
Nonemphatics and minimizers are licensed in   counterfactual conditionals, and rhetorical *yes/no* and constituent questions, as we see in (123); emphatics are not licensed in these constructions:

(123) a   An iksere   {tipota/*TIPOTA} tha mas to ixe   pi.
        if   knew.3sg anything   fut us it had.3sg said
        'If he knew anything he would have told us.'

b   An eleje   {LEKSI/tipota/*TIPOTA}, tha ton skotona.
      if said.3sg word/anything   fut him kill.1sg
      'If he had said a word I would have killed him.'
      'If he had said something I would have killed him.'

c   Pjos dhini   {DHEKARA} ja to ti   th' apojino?
      who give.3sg dime   for the what fut become.1sg
      'Who gives a damn about what will happen to me?'

d   Pote ekanes esi {tipota/ * TIPOTA} ja na   me voithisis?
      when did.2sg you anything   forsubj me help.2sg
      'When did you ever do anything to help me?'

Not all minimizers are licit in both constructions. Some, like *leo leksi* 'say a word' above are fine in counterfactuals but ungrammatical in rhetorical questions (cf. (124a)), and some others, like *dhino dhekara* "give a damn" in (123c) are fine in rhetorical questions but are ruled out in counterfactual conditionals (cf. (124b)); (123) shows that nonemphatics are fine in either case.

(124) a   * Pjos ipe   LEKSI?
             who   said.3sg word
             ('Who said a word?')

       b   * An edhine   DHEKARA ja to ti   th' apojino...
             if   gave.3sg dime   for the what fut become.1sg
             ('If he gave a damn about what will happen to me...')

The occurrence of minimizers in rhetorical questions has been observed and discussed in a number of studies, see Linebarger (1987), Progovac (1994), Gutiérrez-Rexach (1996), and Han (1997).

In what sense are rhetorical questions and counterfactual conditionals nonveridical? Intuitively, we can tell that the answer to a positive rhetorical question must be a negative sentence and that the protasis of a counterfactual conditional must be false, but is nonveridicality a logical property of some operator present in these constructions, or is it due to a pragmatic effect the utterance of the sentences gives rise to? I show below that the latter is the case.

Regular *information* questions can be analyzed in terms of answerhood conditions as sets of propositions (consisting of their possible answers as in Hamblin 1973, or true answers as in Karttunen 1977), or sets of possible worlds (thus propositions; see Groenendijk and Stokhof 1984, 1997). For example, in a Karttunen-style semantics, the meaning of a yes/no question like (125) would be as in (125'), i.e. the set of true answers to that question:

(125)   Did John smile?

(125') [[did John smile]](w) =

$\lambda p[p(w) \wedge p= \lambda w(\mathbf{smile}(w)(j)) \vee p = \lambda w\ (\neg\mathbf{smile}(w)(j))]$

The condition *p(w)* ensures that we only consider true answers. Constituent questions like (126) are interpreted in a parallel fashion, as in (126'):

(126)   Who smiled?

(126') [[who smiled]](w) = $\lambda p\ \exists x\ (\mathbf{person}(x))\ [p(w) \wedge p = \lambda w\ (\mathbf{smile}\ (w)\ (x))]$

The answer space of constituent questions consists of a (possibly) infinite number of propositions, and negative answers may also be included: A = {Nobody smiled, Bill smiled, Roxanne smiled, Bill and Roxanne smiled,...}. Nevertheless, in a strict Karttunen semantics, constituent questions are assumed to give rise to an existential presupposition, as we see in (126'), where the existential condition $\exists x\ (\mathbf{person}(x))$ is outside the scope of λw (but see Groenendijk and Stokhof 1997 for a different view; the fact that constituent questions license APIs also casts doubt to Karttunen's take on these).

Rhetorical questions are different. Unlike information questions, rhetorical questions can be formally treated as assertions. Sadock (1971, 1974) proposed that rhetorical questions are assertions of the opposite polarity. So rhetorical questions like the ones in (127), are formally equivalent to the assertions in (128), given in (128'):

(127)   a   Does Lucy give a damn about what you think?
        b   Who gives a damn about what you think?

(128)   a   Lucy doesn't give a damn about what you think.
        b   Nobody gives a damn about what you think.

(128') a $\neg$ **give-a-damn-about-what-you-think** (Lucy)

(128') b $\neg \exists x[\mathbf{person}(x)\wedge$ **give-a-damn-about-what-you-think** $(x)]$

Under Sadock's approach, then, positive wh- and yes/no questions are semantically equivalent to negative assertions, thus antiveridical, and hence able to license NPIs. Negative rhetorical questions, on the other hand, will be equivalent to positive assertions, and hence unable to license NPIs. This is precisely what we see in the examples below:

(129)   * Who doesn't give a damn about what you think?
(130)   * Doesn't Lucy give a damn about what you think?

A question arises at this point concerning the locus of question-to-assertion shift (see also discussion in Han 1997). Where does this shift take place? In the semantics proper, or is it pragmatic? It turns out that the antiveridical inference has the force of an implicature since (131) is not contradictory:

(131)   Pjos mu efere   pote andirisi (ke ksero   oti ipirkse kapjos)?
        who me brought.3sg   ever objection (and know.1sg that was   somebody
        'Who has ever objected to me (and I know there was somebody)?

If the antiveridical inference was truly an entailment we would expect a contradiction to arise in (131) as is the case in (132) with negation:

(132)   # Paul didn't arrive and he in fact arrived.

If the implicature is canceled, NPIs become ungrammatical, which follows as a failure to satisfy the antiveridicality requirement:

(133)   * Pjos dhini DHEKARA ja mena (ke ime siguri oti kapjos   dhini)?
        who gives dime   for me (and am sure   that somebody gives)
        '*Who gives a damn about what will happen to me (and I'm sure somebody does)?'

On a par with rhetorical questions, antecedents of counterfactual conditionals also permit an antiveridical inference. Consider (134):

(134)   An ixe   erthi, tha to kserame.
        if   have.3sg come, fut it knew.1pl
        'If he had arrived, we would have known.'

From the antecedent *if he had come*, we are allowed to infer that *he didn't come*. The intuition that the antecedent of a counterfactual conditional is false is often voiced in the literature. With Karttunen and Peters (1979), I will take the inference in the counterfactual antecedent to be a conversational implicature, which, as shown in (135) may be canceled (I am grateful to Larry Horn for this example). We see in (136), minimizers, othewise grammatical, become illicit in

the counterfactual protasis when the negative implicature is canceled. (137) illustrates that the same effect is observed in English:

(135) An o O.J. ixe diapraksi to eglima tha ixame tis idies akrivos apodiksis pu exume tora.
'If O.J. had committed the crime, we would have the evidence we have right now.'

(136) * An ixe pi LEKSI stin astinomia, tha siberiferotane opos akrivos siberiferete tora.
('*If he had said a word to the police he would have behaved exactly as he now behaves').

(137) * If he gave a damn about his job, he'd be working exactly as hard as he is now.

The above discussion leads us to conclude the following. First, the general condition that affective items must be found inside a nonveridical domain is correct. Second, the nonveridicality and antiveridicality requirements on APIs and NPIs respectively can be satisfied occasionally by a negative implicature that the context makes available.

3.4.2.2 Indirect licensing as a secondary option for APIs
We can append indirect licensing in the licensing condition for APIs we postulated in (46), repeated here as (138), as follows (see also Giannakidou to appear):

(138) *Licensing conditions for affective polarity items*
i. An affective polarity item α will be licensed in a sentence S iff S provides some expression γ which is *nonveridical*, and α is in the scope of γ.
ii. In certain cases, *a* may be licensed indirectly in S iff S gives rise to a negative implicature ϕ, and α is in the scope of negation in ϕ.

Indirect licensing should be viewed in the context of the 'direct' conditions based on (non)veridicality and antiveridicality as a secondary option. For NPIs, antiveridicality provides the general condition on NPI-licensing: there are no NPIs that aren't licensed in antiveridical contexts. Indirect licensing, on the other hand, voices a weaker condition which, at least in Greek, is intended to capture the *exceptionally* wider distribution of some NPIs (i.e. minimizers).

We saw above that emphatics are ungrammatical in rhetorical questions and counterfactual conditionals. Other NPIs, e.g. *epi xronia*, 'in years' and *ke toso ADJ* 'all that adj' are also excluded; note that the corresponding NPIs in English are also ungrammatical:[10]

(139)   *Pjos mu egrapse   epi xronia / ke toso kala?
        who   me wrote.3sg in years/ and that good
        ('*Who wrote to me in years?')
        ('*Who wrote to me all that nicely?')

(140)   * An ton ixa   dhi epi xronia / ke toso kathara...
        if   him had.1sg seen for years/ and that clearly
        (* If I had seen him in years...)
        (* If I had seen him all that clearly...)

Languages may differ with respect to the extent they utilize an indirect licensing condition. Greek makes very limited use of it but other languages may be more generous. Consider, for instance, that English allows *any* to occur in the complement of 'negative' emotive factives such as *regret,* and *be surprised,* but Greek doesn't, as we see in (141):

(141)   a   * I Theodora metaniose   pu milise   se kanenan.
                the Theodora regretted.3sg that talked.3sg to anybody
                'Theodora regrets that talked to anybody (at all).'
        b   * Ekseplaji   pu irthe   kanenas.
                surprised.3sg that came.3sg anybody
                He is surprised that anybody turned up (at all).

In factive domains the nonveridicality condition is not satisfied since factives are veridical. The difference between Greek APIs and *any* is indicative of the different types of sensitivity to (non)veridicality involved, as I propose in §3.5.3.

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[10] In English, there is a contrast between *Who wrote to me in years* and *Who has written to me in years,* which is grammatical. The effect is due to the present perfect. The Greek present perfect, though, does not have this effect; (i) below, with the present perfect instead of the aorist, remains ungrammatical:

(i)   *Pjos mu exi grapsi epi xronia?
         who   me has written in years

Thanks to Jason Merchant for bringing this contrast to my attention.

3.4.2.3 Indirect licensing of APIs

We saw already that nonemphatics are indirectly licensed in counterfactual conditionals, and rhetorical questions. Indirect licensing can also be invoked to account for the occurrence of nonemphatics in *too*-clauses, *as if*-clauses, comparatives, superlatives, and the scope of DE DPs.

(i) too-clauses

Licensing of nonemphatics in *POLI-* 'too'-clauses is exemplified in (142); recall that the distinction between *very* and *too* is done in Greek by emphasis (see §2.3). I will claim, with Linebarger (1980, 1987), that (142) sanctions APIs because it gives rise to the negative implicature in (142'):

(142)   I   Theodora ine   POLI kurasmeni ja   na   pai   puthena.
        the Theodora be.3sg very   tired   in-order-to go.3sg anywhere
        'Theodora is too tired to go anywhere.'

 (142') Theodora cannot go anywhere.

(ii) as if-clauses

The *sa na* 'as if' construction with APIs is exemplified in (143). Intuitively, when the speaker utters (143), she assumes that *you are a baby* is false. I will take this to be an implicature, essentially like the one that arises in counterfactual conditionals:

(143)   Kanis sa na ise   kanena moro.
        do.2sg as if be.2sg any baby
        'You behave as if you are a baby.'

(iii) Comparatives

Consider the clausal comparative in (144):

(144)   I   Roxani   etrekse telika grigorotera apoti perimene   kanenas.
        the Roxanne ran.3sg finally faster   than expected.3sg anyone
        'Roxanne ran faster than anyone had expected.'

For the purposes of our discussion, it is not necessary to dwell on a general discussion of the semantics of comparatives (see, inter alia, von Stechow 1984, Seuren 1983, Hoeksema 1983, and more recently Kennedy 1997a; for a criticism of the monotonicity approach to comparatives see P. Hendriks 1995, Rull-

mann 1994 and discussion in §1.1). I assume that (144) comprises the following statements, where g and k are degrees and g > k:

(145)   i.   Roxanne ran g fast.
        ii.   k is the greatest degree that people expected Roxanne to run k fast.
        iii.   ¬ [people expected Roxanne to run g fast]

We can claim that sentence (145) asserts (145i), presupposes (145ii) and implicates (145iii). This implicature appears to be conventional in nature since it cannot be canceled, as evidenced by the contradictory (146):

(146)   # Roxanne run faster than anyone had expected; in fact, everyone expected her to run as fast as she did.

In many languages (expletive) negation actually appears in the *than*-clause (e.g. French and Italian, see Seuren 1983 for an overview). I argue that it is by virtue of this implicature that the clausal comparative allows for APIs. On the other hand, equatives like (147) do not give rise to a negative implicature, and hence do not license APIs (*any* included), as noted in §1.1.3 and illustrated in (147):

(147)   * I Roxani   trexi   (akrivos) oso grigora trexi kanenas stin   taksi tis.
        the Roxanne run.3sg exactly as fast as   runs anybody in-the class hers
        '*Roxanne runs exactly as fast as anybody in her class.'

(148)   Roxanne runs exactly as fast as people in her class do. →

        Roxanne runs g fast ∧ people in her class run g fast

An interesting case is presented by NP-comparatives. Nonemphatics are excluded from NP-comparatives because the phrasal comparative does not create a propositional domain. It is for the same reason that nonemphatics are excluded as direct objects of negative predicates, but they are fine in the propositional complement of these, as we see in (150b):

(149)   * I Roxani   etrekse grigorotera apo kanenan.
        the Roxanne run.3sg faster   than anyone

(150) a   *I Elena   arnithike   tipota.
              the Elena denied.3sg anything
              '?Elena denied anything.'

       b   I Elena   arnithike oti ipe   tipota.
              the Elena denied.3sg that said.3sg anything
              'Elena denied that she said anything.'

Unlike APIs, free choice items (FCIs) and *any* are fine in such cases (see §2.3 for why NP-comparatives are compatible with free choice semantics) which suggests that we are dealing with distinct dependencies to (non)veridicality. In §3.5.2 and 3.5.3 below, I will handle the occurrence of FCIs and *any* in NP-comparatives and in the direct object position of negative verbs as instances of indirect licensing. The difference between FCIs/*any* and nonemphatics will be attributed to the fact that the former are anti-licensed by veridicality whereas the latter are licensed by nonveridicality.

(iv) Superlatives

Superlatives can be handled on a par with clausal comparatives. They also give rise to a negative implicature, and this implicature is, again, conventional. For instance, (151) can be decomposed as in (152), where g and k are degrees, g > k, and (152iii) is the negative implicature. The implicature is conventional because (153) is contradictory:

(151) Ine   o   pjo omorfos andras pu   exo   dhi pote sti zoi mu.
       be.3sg the most handsome man   who have.1sg seen ever in life my
       'He is the most handsome man I have ever seen in my life.'

(152) i.   He is g handsome
       ii.   The men I have seen before were at most k handsome

       iii. $\neg$ [I have seen a man g handsome in my life]

(153) # O Pavlos ine o pjo omorfos andras pu exo dhi pote sti zoi mu ke exo
       dhi kapote enan toso omorfo andra.
       # Paul is the most handsome man I have ever seen in my life and I have
       seen such a handsome man before.

Hence nonequative comparatives and superlatives are nonveridical in virtue of the negative implicature they give rise to.

(v) Downward entailing DPs

Downward entailing DPs like *few* also give rise to a negative implicature and it is because of this that they license APIs (and not because of their monotonicity properties). I exemplify with *LIJI* 'few'. A sentence like (154) implicates something like (155):

(154)   LIJI fitites   ipan   tipota.
        few students said.3pl anything
        'Few students said anything.'

(155)   It is not the case that many students said something.

From the preceding discussion we can conclude that indirect licensing is indeed operative in Greek. Yet the negative implicature *per se* does not suffice for licensing. Ultimately, it is the nonveridicality condition that must be met. This is evidenced by the fact that if the negative implicature arises in a veridical context, nonemphatics are systematically ruled out. There are two indicative cases: *only* and 'negative' emotive factives (also pointed out above).

It is generally assumed that a sentence with *monon* 'only' like (156) would allow us to infer (157). I treat this inference here as an implicature for the sake of the argument (but see Horn 1989, 1996 and Atlas 1991, 1993, 1996a for various analyses):

(156)   Monon i   Theodora idhe   ti Roxani.
        only   the Theodora saw.3sg the Roxanne
        'Only Theodora saw Roxanne.'

(157)   Nobody other than Theodora saw Roxanne.

The negative implicature associated with *only* suffices to license *any* in English but if fails to license the nonemphatic in Greek as we see in (158). This is so because (156) also licenses the veridical inference in (159):

(158)   * Monon i   Theodora idhe   kanenan.
        only   the Theodora saw.3sg anybody
        'Only Theodora saw anybody.'

(159)   Monon i Theodora idhe kanenan. → Theodora saw someone.

Likewise, the negative implicature of 'negative' emotive factives (161) can license *any* in (160a) but cannot license nonemphatics, as we saw in §3.4.2.2, ex. (141), (142). In (160b) we see that 'positive' factive emotives like *be glad* do not license *any*:

(160)   a   Paul regrets that he talked to Lucy.
        b   * Paul is glad that we talked to anybody.

(161)   Paul wishes he had not talked to Lucy.

Items that must be *licensed* by nonveridicality cannot appear in veridical environments, even if these give rise to a negative implicature. The difference between nonemphatics and *any* suggests that the dependency of this item to (non) veridicality is not of the same nature as that of nonemphatics. If the latter is a positive (licensing), the former is negative (anti-licensing by veridicality), as I will propose in §3.5.3.

3.4.3 A typology of APIs based on nonveridicality

In the preceding discussion we have established that APIs are expressions sensitive to nonveridicality, and postulated a licensing condition which requires that APIs be in the scope of nonveridical operators. NPIs were isolated as the particular class of APIs which exemplify the narrow sensitivity to antiveridicality. The requirement for antiveridicality can be met in two ways. Either the context provides a semantically antiveridical expression which acts as a licenser for the NPI, or it gives rise to a negative implicature. Yet not all NPIs can be licensed indirectly by the negative implicature. Some can, for instance certain minimizers, but some others cannot, e.g. emphatics and NPIs like *epi xronia* 'in years', *ke toso adj* 'all that adj'.

    We can classify these results in the typology in Table 2. Nonemphatics exemplify the broad nonveridical dependency and are characterized as weak APIs. Minimizers are weak NPIs in the sense that they can be licensed directly or indirectly. As APIs, however, they should be characterized as strong, since they impose a stronger requirement on their licensers: that they be antiveridical. Finally, nonemphatics, *epi xronia* and *ke toso adj* are superstrong APIs, i.e. they are subject to an antiveridical dependency which is always met directly: they are licensed only in the scope of negation and *xoris* 'without' (and occasionally by antiveridical *prin* 'before').

Table 2 A typology of Greek APIs based on nonveridicality

Type	Licensed by	Directly	Indirectly	Examples
weak	nonveridicality	yes	yes	nonemphatics
strong	antiveridicality	yes	yes	minimizers
superstrong	antiveridicality	yes	no	emphatics, *epi xronia, ke toso adj*

The notion of strength assumed here relates to "how negative" (if at all) the API licenser must be. The more negative the licenser is, the stricter the distribution becomes. Nonveridical expressions are the weakest licensers because they are not negative; nonveridical contexts are undefined with respect to truth or falsity. APIs which require that their trigger be nonveridical are allowed in the largest number of environments. Negation and *without* are the strongest licensers because they are negative, which means that antiveridicality is a logical property of these expressions. APIs requiring that their licenser be logically antiveridical will have the strictest possible distribution and are in this sense 'superstrong'. In between we have counterfactual conditionals, rhetorical questions, and the other environments discussed in §3.4.2 which are not semantically antiveridical, but give rise to an antiveridical implicature. APIs that can be licensed by an antiveridical implicature have a distribution more restricted than weak APIs, yet more liberal than that of their superstrong counterparts.

The typology proposed here should be seen in comparison with its predecessors based on monotonicity, like the ones in Zwarts (1993, 1996) and van der Wouden (1994). Zwarts developed a hierarchy of PIs based on a hierarchy of DE functions. According to Zwarts, the set of DE functions contains *antiadditive* and *antimorphic* functions as proper subsets. The three types of functions are ordered along a dimension of strength which is derived from the number of the DeMorgan relations they satisfy. DE expressions satisfy the first and fourth of the DeMorgan relations and are the vehicle of *minimal* negation. Antiadditive phrases satisfy the first, second and fourth of the DeMorgan relations, and convey *regular* negation. Finally, antimorphic expressions are instances of *classical* negation; they denote set-theoretic complementation and satisfy all four DeMorgan relations:[11]

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[11] It should be noted here that, from a logical point of view, the link between the DeMorgan laws and degrees of *strength* of negation is not uncontroversial, and an appeal to the former in order to identify the latter is not entirely justified (for recent criticism see Atlas 1996b).

(162)   downward entailment: (a) $f(X \cup Y) \rightarrow f(X) \cap f(Y)$

                                       (b) $f(X) \cup f(Y) \rightarrow f(X \cap Y)$

(163)   antiadditivity: (a) $f(X \cup Y) \leftrightarrow f(X) \cap f(Y)$

                                       (b) $f(X) \cup f(Y) \rightarrow f(X \cap Y)$

(164)   antimorphicity: (a) $f(X \cup Y) \leftrightarrow f(X) \cap f(Y)$

                                       (b) $f(X \cap Y) \leftrightarrow f(X) \cup f(Y)$

Antiadditive functions form a subset of the DE, and antimorphic functions form a subset of the antiadditive. Antimorphicity gives rise to the strongest possible negation: it corresponds to antiveridicality. Sentential negation is prototypically antimorphic. Negative quantifiers like *nobody*, on the other hand, are antiadditive, and nonnegative quantifiers like *few* are just DE.

Depending on whether they are licensed by DE, antiadditive, or antimorphic expressions, Zwarts distinguishes between weak, strong and superstrong NPIs, respectively. *Any* is weak in this system, because presumably it can be licensed by any DE operator. *Ook maar iets* 'anything', on the other hand, is strong because it is not licensed by *weinig mensen* 'few people', but it is by *niemand* 'nobody'. *Voor de poes* is superstrong because *niemand* is not a strong enough trigger for it, but sentential negation is required:

(165)   a   *Weinig mensen hebben   ook maar iets gezien.
                few   people   have.3pl anything   seen
                'Few people saw anything.'
        b   Niemand heeft   ook maar iets gezien.
                nobody   have.3sg anything   seen
                'Nobody saw anything.'
        c   *Niemand is voor de poes.
                nobody   is for the cat
        d   Zij is niet voor de poes.
                she is not for the cat
                'She is not an easy person to deal with.'

In the light of the facts discussed in this book, we can safely conclude that a DE hierarchy alone cannot provide the basis for a characterization of APIs within a single language or crosslinguistically. First of all, any attempt to for-

mulate typologies based on DE would fail to characterize consistently the class of weak APIs. As we saw, nonemphatics and *any* are accepted in (a great number of) contexts which are not DE. Moreover, the presumably strong *ook maar iets* is licensed in nonmonotone contexts: questions, habituals, and future sentences, as we saw in §3.4, 3.5, and is further shown in Giannakidou and Zwarts (1998) (see also Sánchez-Valencia 1998). I illustrate this point here with a question:

(166)   Heb   je   ook maar iets gezien?
        have.2sg you anything   seen
        'Did you see anything?'

Such facts are extremely problematic for the assumption that strong APIs are licensed by antiadditivity.

A third problem concerns the difference between antiadditive *nobody* and sentence negation. It is hard to see what the conceptual content of this difference is, especially if we consider that a sentence with a negative quantifier entails the one containing sentence negation. The distinction is empirically motivated to account for the distribution of NPIs like *voor de poes* in (165), which can only co-occur with what appears to be sentence negation *niet*, and not with the negative quantifier. This fact, however, can have an alternative explanation without stipulating a distinction between antiadditivity and antimorphicity for negation and negative quantifiers respectively.

Consider the Greek NPI *efkatafroniti*. Like the Dutch *voor de poes,* it only occurs with negation, but as we see in (167), negation can be either senten-tial *(dhen)* or metalinguistic/constituent *(oxi)* (cf. §2.1.3):

(167)   a   I prosfora tu   *(dhen) itan efkatafroniti.
             the offer his   not was rejectable
             'His offer was not at all rejectable.'
        b   I prosfora tu   itan *(oxi) efkatafroniti.
             the offer his was oxi   rejectable
             'His offer was not at all rejectable.'

The two versions are fully equivalent. In a language like Dutch, where there is no lexical distinction between sentence and constituent/metalinguistic negation, the negation particle is ambiguous and one cannot tell the difference, but in Greek which distinguishes the two, the two options are there to see. Based on (167), and considering that *oxi* is never obligatory and that sentence negation *dhen* can also undertake its function, we can pursue the idea that NPIs like

efkatafroniti are in fact collocations containing internal negation, that is, constituent negation on the predicate phrase: *niet voor de poes zijn* 'not to be easy to deal with'. This seems to be in accordance with the most intuitive intepretation of such constructions, and also with the observation that such NPIs only occur with *be+adjective* (in Dutch as well as in Greek), a fact totally overlooked in Zwarts and van der Wouden.

But if we assume that negative idioms like *niet voor de poes zijn* contain constituent negation, the dependence on antimorphicity immediately breaks down, since constituent negation can be shown to be antiadditive, rather than antimorphic. Unlike sentence negation, *oxi* fails to validate the full set of the de Morgan relations. The decisive difference lies in the third and fourth relation. We see in (168) that *dhen* satisfies them both, but *oxi* fails to satisfy the third, thus exhibiting the antiadditive pattern in (169):

(168) a   dhen [efere   luludhia ke   glika]→
               not   brought flowers   and sweets
               [dhen efere   luludhia] i   [dhen efere   glika]
                 not brought flowers   or not   brought sweets

       b   [dhen efere luludhia]   i   [dhen efere   glika] →
               not   brought flowers or not   brought sweets
               dhen [efere luludhia ke glika]
               not   brought flowers and sweets

(169) a   oxi [lududhia ke   glika] -/→ [oxi luludhia] i   [oxi glika]
               not flowers   and sweets   not flowers   or not sweets

       b   [oxi luludhia] i [oxi   glika] → oxi [lududhia ke glika]
               not flowers   or not   sweets   not flowers and sweets

(169a) does not hold because in a situation in which flowers are excluded but not sweets, the consequent is true but the antecedent is not. Likewise, in a situation in which sweets, but not flowers are excluded.

So there is no real explanatory force in the antiadditivity-antimorphicity distinction, not even as regards the core case it is intended to account for. The contrast in (165c, d) can be accounted for directly under the assumption that idioms like *niet voor de poes zijn* contain predicate negation: when we use a negative quantifier in Dutch, as in (165c), the VP predicate is positive.

A monotonicity-based hierarchy makes wrong predications in all three cases, and it also unable to handle indirect licensing in counterfactual condition-

als and rhetorical questions, unless appeal to negation is made. The nonveridicality based hierarchy I propose is superior because by introducing a notion wider than monotonicity it avoids the empirical problems that plague DE. Essentially, the weak versus strong/superstrong distinction in APIs boils down to the negativity or lack thereof of the licensers, and this is captured straightforwardly in the split between nonveridicality and antiveridicality. Additionally, the nonveridicality hierarchy extends easily to other languages, an issue which I consider next (recall also the data about *ook maar iets* presented in this chapter, and see discussion of *any* in §3.5.3).

3.4.4 Crosslinguistic considerations

In this section, I consider briefly some data from Polish and Serbian/Croatian in order to show that the nonveridicality based approach to affective dependencies I develop here can successfully be extended to account for them. I focus on NPI-licensing, and show that there is considerable variation across languages, which can be accommodated into my system with some minor modifications.

We have seen that Greek NPIs are licensed by antiveridical operators. Besides negation, *xoris* 'without', and *prin* 'before' were also characterized as antiveridical, and in this sense, my proposal predicts that NPIs crosslinguistically should be licensed by those three operators. This prediction does not seem to be confirmed in Polish, however. Przepiórkowski and Kupsc (1997) report that Polish NPIs are licensed by negation and *bez* 'without', but they are not licensed by *before*. This contrast is illustrated in the data below (from Przepiórkowski and Kupsc 1997, and Adam Przepiórkowski p.c.) [12]:

(170) a   Jan   nikim   nie pogardza.
            John NPI-person not scorn.3sg
            'John doesn't scorn anybody.

---

[12] Polish has another word for 'before': *przed*, and Adam Przepiórkowski informs me that the judgment is exactly the same: Polish NPIs are not licensed there.

(i)   *Dziadek umart   przed zobaczeniem zadnych ze swoich wnukow.
        grandpa died   before seeing   no/none of self's   grandchildren
        `The grandpa died before seeing any of his grandchildren.'

The difference between the two *befores* is stylistic and syntactic: *przed* is a preposition which takes a DP complement, but *zanim* takes IP or CP as its complement (cf. *before he left* versus *before his leaving*).

     b   Zrobilem to bez   proszenia nikogo   o pomoc.
                did.1sg   it without asking   NPI-person for help
                'I did it without asking anybody for help.'

     c   *Dziadek umart   zanim zobaczyt zadne ze swoich wnukow.
                grandpa died.3sg before saw.3sg n-word of self's grandchildren
                'The grandpa died before he saw any of his grandchildren.'

In order to account for this contrast we have to reconsider the analysis of *before* as semantically antiveridical. Recall that in general the licensing potential of *before* is weak, even in Greek (cf. §3.4.1). Recall also that in the cases where sentences with *before* gave rise to an antiveridical inference, they did so because they contained a predicate which itself enforces antiveridicality, e.g. *die, leave*. In view of these facts, a plausible hypothesis is to argue that licensing under *before* is in fact an instance of indirect licensing. If we say this, then we can explain the contrast in (170) by postulating that Polish NPIs are superstrong NPIs: they are licensed by antiveridical operators and never indirectly.

     With this claim, however, a new picture emerges as regards the typology of APIs proposed in the previous subsection (Table 2). Emphatics will have to be analyzed as strong, rather than superstrong NPIs, since they can be licensed indirectly by *before*. This is not a problematic result; it only necessitates some rearrangement in the relevant table.

     The facts below from Serbian/Croatian (from Ljiljiana Progovac and Larisa Zlatic, p.c.) also indicate that further rearrangement is required, this time to accommodate a distinction between antiveridical and negative licensing. Like Polish NPIs, Serbian/Croatian NPIs are not licensed under *before*. Unlike their Polish and Greek counterparts, however, Serbian/Croatian NPIs are not licensed even under *without* :

(171) a   *Ucinio sam to bez   trazenja nicije   pomoci.
             did.1sg   aux it without asking   NPI-person's help
             'I did it without asking anybody for help.

       b   *Ona je otisla   pre   nego je nikoga   videla.
             she aux left.3sg before than that aux NPI-person seen
             'She left before she saw anyone.'

This fact is particularly interesting because it suggests that the distinction between negative and antiveridical is meaningful and that a theory of NPI-licensing should not collapse the two categories. Note, in this connection, that i-APIs in Serbian/Croatian, known from Progovac (1994) to exhibit anti-locality effects,

do so only with respect to negation. With *bez* 'without' i-APIs are fine as shown in (172):

(172)   Ucinio   sam to   bez   trazenja icije   pomoci.
         did.1sg aux it without asking   anybody's help
         'I did it without asking anybody for help.

This is in accordance with the previously discussed hypothesis that i-APIs are PIs licensed by one property (nonveridicality) and anti-licensed by another, but we have to say that the anti-licensing property is negation rather than antiveridicality (which is what I proposed in §3.1.5).

The facts discussed here can be captured in the typology in Table 3, where an additional group of *hyperstrong* NPIs has been postulated. Hyperstrong NPIs are licensed only by negation.

Table 3 A crosslinguistic typology of APIs based on (non)veridicality

Type	*Licensed by*	*Directly*	*Indirectly*	*Examples*
weak	nonveridicality	yes	yes	Greek nonemphatics
strong	antiveridicality	yes	yes	Greek emphatics, minimizers, *epi xronia, ke toso adj*
superstrong	antiveridicality	yes	no	Polish n-words
hyperstrong	negation	yes	no	Serbian/Croatian n-words

Note that a monotonicity-based hierachy cannot handle the difference between negative and antiveridical licensing. Finally, we will see from the discussion on *any* in §3.5.3 that another class of *superweak* APIs should also be allowed for to include APIs which are anti-licensed by veridicality.

I conclude that the nonveridicality based approach proposed here is refined enough to capture the crosslinguistic variation and provide a solid basis for the characterization of affective dependencies across languages. I examine now how (non)veridicality accounts for the constraints on nonaffective items and *any*.

3.5 Generalizing (non)veridicality: nonaffective dependencies and *any*

In the present section, I extend the (non)veridicality approach to nonaffective dependencies and *any*. Free choice items (FCIs), subjunctive relative clauses (SRs), and *any* will be re-examined, and the goal is to show that, in these cases too, the core dependency is to (non)veridicality. We saw in chapter 2 that FCIs and SRs exhibit a distribution distinct from that of APIs. For convenience, I repeat here the crucial data in Table 4 augmented with the three most prominent ungrammatical environments, i.e. affirmative episodic sentences, weak intensional verbs and factives.

Table 4 Comparative distribution of PIs in Greek

Environments	APIs	FCIs	SRs	NPIs
Negation	OK	*	OK	OK
before-clauses	OK	OK	*	OK
without-clauses	OK	OK	OK	OK
Polar/constituent questions	OK	*	OK	*
Conditionals	OK	OK	OK	*
Restriction of ∀	OK	OK	OK	*
too-clauses	OK	OK	*	*
S-comparatives	OK	OK	*	*
Superlatives	OK	*	*	*
Future particle	OK	OK	OK	*
Strong intensional verbs	OK	OK	OK	*
Modal verbs	OK	OK	OK	*
Imperatives	OK	OK	OK	*
Habituals	OK	OK	*	*
Disjunctions	OK	*	*	*
Downward entailing DPs	OK	*	OK	*
Negative verbs	OK	OK	OK	*
Generics	*	OK	*	*
NP-comparatives	*	OK	*	*
Affirmative episodic sentences	*	*	*	*
Weak intensional verbs	*	*	*	*
Factive verbs	*	*	*	*

The attested contrastive distribution can be interpreted in the following way. All PIs are excluded from veridical environments like affirmative episodic

sentences, and the scope of weak intensional, i.e. epistemic, dream/fiction, assertive, implicative, and factive verbs. This suggests that *all* PIs must avoid veridical environments and be found in nonveridical ones in order to be grammatical. FCIs and SRs are no different from APIs, in this respect.

Why, then, do we have contrastive distributions? The reason is because the sensitivity requirements of FCIs and SRs are distinct for those of APIs (and, in turn, from one another). Furthermore, sensitivity to (non)veridicality is a positive licensing dependency on nonveridicality for APIs, but a negative antilicensing dependency on veridicality for FCIs, SRs, and as we shall see, for *any*. This explains why FCIs and SRs are *not* licensed in certain nonveridical domains, unlike APIs, which are licensed in all of them.

3.5.1 Free choice items

Let us consider FCIs first. Recall that their sensitivity feature is the variation requirement we postulated in §2.4, repeated here as (173):

(173) *Sensitivity in FCIs*

    i. A free choice item α is an attributive existential quantifier.

    ii. Attributive existential quantifiers must be evaluated wrt a set of i-alternatives.

    iii. A world $w' \in M(x)$ is an i-alternative wrt α iff there exists some $w'' \in$

    $M(x)$ such that $[\![\alpha]\!]_{w'} \neq [\![\alpha]\!]_{w''}$.

This definition of sensitivity requires FCIs to receive different values in each relevant i-word. Because FCIs are specified this way, they can only occur in contexts where it is guaranteed that they will receive distinct values. Modal contexts, imperatives, habitual and the rest of nonveridical environments we have discussed appear to be fully compatible with this requirement. On the other hand, as we saw in §2.4, affirmative episodic, negative, and interrogative sentences fail to license FCIs, because they are episodic and force a non-varying intepretation for these items. Hence, though nonveridical, negation and questions fail to license FCIs because they fail to satisfy the variation requirement imposed by the FCI- sensitivity semantics.[13]

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[13] *Prin* before' and *xoris* 'without' allow for FCIs because they are not episodic, as indicated by the fact that they are construed with the subjunctive *na*. Note also that both connectives are only compatible with prospective tense, i.e. the perfective-nonpast, as emphasized in Giannakidou and Zwarts (1998) for *prin* in particular.

It is thus clear that FCIs are incompatible with negation not because of some strange incompatibility with antiveridical operators, but with its episodic nature in combination with perfective past (see (174b). As we see in the example (174a), negation in a habitual sentence has no blocking effect on FCIs; see also Quer (1998) for the relevant data (identical to Greek) in Catalan:

(174) a   Dhen miluse   (panda) m'   opjondhipote fititi.
            not   talked.imperf.3sg always with any   student
            'S/He didn't (always) use to talk to any student.'
       b   * Dhen milise   me   opjondhipote fititi.
            not   talked.perf.3sg with any   student

(174a) is grammatical because it is habitual: it bears imperfective marking and optionally a Q-adverb like *panda* 'always' can be present. Hence in this sentence negation is embedded under the habitual operator, as in (174'); in the absence of an explicit restriction like an *if*-clause, the restriction contains some contextual parameter indicated as C:

(174') ALWAYS$_s$ [C (s)] [$\neg\exists$x in s: **student** (x, in s) $\wedge$ **talked-to** (she, x, in s)]

It is this embedding that rescues the FCI, since in a habitual domain i-alternatives will be available which will enable a varying interpretation. Note, in this connection, that if the imperfective is interpreted as progressive, FCIs will not be admitted:

(175) * Dhen egrafa   olo to proi   opjodhipote grama.
        not   wrote.imperf.1sg all the morning any   letter
        'I wasn't writing any letter all morning.'

The presence of the durative adverbial in (175) forces the progressive reading. In Giannakidou (1995a) and Giannakidou and Zwarts (1998) the progressive is characterized as episodic (and thus veridical). If we assume that the progressive is an operator above negation, just like the habitual, then the ungrammaticality of the FCI is expected for two reasons. First because the resulting context is episodic, and second because it is veridical.

   Consider now the complements of veridical verbs; note that *any* is also excluded from the scope of implicatives and epistemics, as noted in §3.1.2:

(176) a   *I Elsa metaniose pu idhe   opjondhipote filo   tis.
              the Elsa regret.3sg that saw.3sg any   friend hers
              'Elsa regrets that she met any friend of hers.'
       b   I Elsa katafere   na aghorasi opjodhipote spiti.
              the Elsa managed.3sg subj buy.3sg   any   house
              '*Elsa managed to buy any house.'
       c   *I Elsa pistevi   oti aghorase   opjodhipote vivlio.
              the Elsa believe.3sg that bought.3sg any   book
              '*Elsa believes that she bought any book.'

As regards the requirement on variation, factive and epistemic (dream/fiction,
etc.) complements are equivalent to affirmative episodic sentences. For factives
and implicatives this is straightforward, since these verbs presuppose the truth of
their complement in the actual world, thus in the speaker's epistemic model (see
Karttunen 1971, and Kiparsky and Kiparsky 1971 for factives). Hence, from
(176a,b), we can strongly infer that Elsa met a friend of hers and that she bought
a house (let >> stand for "presupposes"):

(176') a   Elsa regrets that she met any friend of hers. >>
             Elsa met a friend of hers.
(176') b   Elsa managed to buy any house >>
             Elsa bought a house

The FCI receives the same value in all relevant i-alternatives, as indicated below;
recall that the relevant worlds are the ones in the epistemic model of the speaker:

(176") a $[\![$ metaniose pu idhe opjondhipote filo tis$]\!]_{MB(s)} = 1 \rightarrow$

             $\exists e [\exists x [\textbf{friend} (x, e) \wedge \textbf{saw} (Elsa, x, e)]]$, thus in $\forall w, w' \in$

             $M_B (s) [\![$opjondhipote filo tis$]\!]_w = [\![$opjondhipote filo tis$]\!]_{w'}$

(176") b $[\![$katafere na aghorasi opjondhipote spiti$]\!]_{MB(s)} = 1 \rightarrow$

             $\exists e [\exists x [\textbf{house} (x, e) \wedge \textbf{bought} (Elsa, x, e)]]$, thus in $\forall w, w' \in$

             $M_B (s) [\![$opjodhipote spiti$]\!]_w = [\![$opjodhipote spiti$]\!]_{w'}$

Exactly the same thing can be said for sentences under epistemic, dream/fiction
and the whole class of weak intensional verbs, with adjustments as regards the
model of evaluation. I illustrate in (176') the epistemic case, where as we saw,
the veridicality inference holds for the subjects's model, i.e. Elsa's:

(176') c   [pistevi oti ghorase opjondhipote vivlio]$_{MB(Elsa)}$ = 1 →

Ǝe [Ǝx [**book** (x, e) ∧ **bought** (Elsa, x,e)]], thus in ∀w, w'

∈ M$_{B\,(Elsa)}$ [opjodhipote spiti]$_w$ = [opjodhipote spiti]$_{w'}$

The conclusion should be that veridicality is incompatible with free choice semantics by virtue of its being episodic. FCIs are then correctly predicted to be ungrammatical in veridical contexts altogether.

3.5.2 Subjunctive relatives

Recall what we have identified as the sensitivity feature of SRs in §2.5.2:

(177)   *Sensitivity in subjunctive relatives*
        [*Op*   (DP + Subjunctive Relative Clause) VP] has a truth value iff it is not known whether the following is true: Ǝx [**NP**(x) ∧ **Subjunctive Relative Clause** (x)]

(177) states that SRs cannot be used felicitously if we know that an individual exists which meets the joined conditions expressed by the NP and the relative clause. I will not show here how this condition is satisfied in each of the grammatical cases (but the reader can check for herself that this is indeed so; see also Quer 1998). I would like to emphasize, however, as I did in §2.5.2, that the operators which guarantee that the condition in (177) will be met need not be intensional proper: negation and negative verbs, *xoris* 'without', and the restriction of nonveridical universals are not intensional, but they do allow for SRs. On the other hand, weak intensional verbs and generics do not allow them despite the fact that they are intensional.

Here, I concentrate on the ungrammatical veridical cases and show how the condition posed by the sensitivity semantics of SRs is *not* satisfied there. Consider first the case of an SR with an extensional verb like *vlepo* 'see':

(178)   * I Roxani   idhe   enan andra [pu   na   exi   musi]
        the Roxanne saw.3sg a   man that subj have.3sg beard
        (Roxanne saw a man who has a beard.)

SR modification is impossible in this sentence because *enas andras SR* 'a man SR' *must* exist in the actual world, i.e. in the speaker's epistemic model, as shown in (178'):

(178') $[\![$ I Roxani idhe enan andra pu na exi musi $]\!] = 1 \rightarrow$

   $[\![\exists x \; \mathbf{man}(x) \wedge \mathbf{has\text{-}a\text{-}beard} \; (x) \wedge \mathbf{saw} \; (\text{Roxanne, } x)]\!]_{MB(s)} = 1$

Existence is of course also entailed in Roxanne's model, but I will stay at the speaker's model here for simplicity. We see that the requirement imposed by (177) is not satisfied in (178'). An indicative relative must be used instead (recall the discussion in §2.5.2). Likewise, in a sentence like (179), the man exists in Roxanne's belief model, and in the factive case in (180), existence is presupposed in the actual world:

(179) * I Roxani pistevi   oti   idhe   enan andra [pu   na   exi   musi].
       the R.   believe.3sg that saw.3sg a   man that subj have.3sg beard
       (Roxanne believes that she saw a man who has a beard.)

(180) * I Ana metaniose   pu   filise   enan andra [pu   na   exi   musi.]
       the Ann regretted.3sg that kissed.3sg a   man that subj has beard
       ('Ann regrets that she kissed a man who has a beard.)

(181) $[\![$ I Roxani pistevi oti idhe enan andra pu na exi musi $]\!] = 1 \rightarrow$
       $[\![$ Roxanne saw a man who had a beard $]\!]_{MB(Roxanne)} = 1$, hence
       $[\![\exists x \; [\mathbf{man} \; (x) \wedge \mathbf{has\text{-}a\text{-}beard} \; (x) \wedge \mathbf{saw} \; (\text{Roxanne, } x)]\!]_{MB(Roxanne)} = 1$

(182) $[\![$ I Ana metaniose pu filise enan andra pu na exi musi $]\!] = 1 \rightarrow$
       $[\![$ Ann kissed a man who had a beard $]\!]_{MB(s)} = 1$, hence
       $[\![\exists x \; [\mathbf{man} \; (x) \wedge \mathbf{has\text{-}a\text{-}beard} \; (x) \wedge \mathbf{saw} \; (\text{Ann, } x)]\!]_{MB(s)} = 1$

Hence, veridicality turns out to be incompatible with the sensitivity requirement of SRs too. Given that this was the conclusion we reached in the previous subsection for FCIs, I take it that nonaffective PIs of this kind are anti-licensed by veridicality. (183) gives the general format for anti-licensing:

(183) *Anti-licensing condition for nonaffective polarity items* (general format).
       A nonaffective polarity item α will not be grammatical in a sentence S if S is veridical; otherwise α will be grammatical, provided that its sensitivity requirement is met.

This anti-licensing condition should be augmented with an indirect "licensing" clause, as will be become evident from the discussion of FCIs and *any* below.

3.5.3 Any

Any becomes less mysterious in the light of the theory presented in this chapter. Before I spell out a specific proposal, it will be useful to remember the distribution facts. Because *any*'s distribution relates to that of FCIs and APIs like the nonemphatics, I present its distribution in Table 5 contrastively with those items.

Table 5 Contrastive distribution of *any*, FCIs, and nonemphatics

Environments	Any	FCIs	Nonemphatics
Negation	OK	*	OK
before-clauses	OK	OK	OK
without-clauses	OK	OK	OK
Polar/constituent questions	OK	*	OK
Conditionals	OK	OK	OK
Restriction of ∀	OK	OK	OK
too-clauses	OK	OK	OK
S-comparatives	OK	OK	OK
Superlatives	OK	OK	OK
Future particle/will	OK	OK	OK
Strong intensional verbs	%	OK	OK
Imperatives	OK	OK	OK
Exclamatives	*	OK	OK
Habituals	OK	OK	OK
Disjunctions	*	*	OK
isos/perhaps	*	OK	OK
Downward entailing DPs	OK	*	OK
Negative verbs (objects of)	OK	OK	*
Generics	OK	OK	*
NP-comparatives	OK	OK	*
monon/only	OK	*	*
'Negative' factives	OK	OK	*
Affirmative episodic sentences	*	*	*
Weak intensional verbs	*	*	*
Factive verbs	*	*	*

Here is what Table 5 tells us about *any*. First, it shows that *any*, unlike FCIs, is allowed in contexts where FCIs are ungrammatical: questions, episodic negation, and DE DPs. In addition, *any* is ungrammatical in contexts where FCIs are grammatical, i.e. *perhaps*-clauses and exclamatives. These facts suggest that, although *any* has a free-choice reading, it would be wrong to assume that free-choice is represented as a sensitivity feature in its lexical semantics. If it did, *any* would have been unacceptable in the core cases of questions and episodic negation, at least, and it should also be fine in *perhaps*-clauses and exclamatives.

Table 2 also shows us that *any* is ungrammatical in certain nonveridical contexts where nonemphatics are accepted: *perhaps* clauses, exclamatives, disjunctions, and partially in the scope of strong intensional verbs, as illustrated below:

(184) Isos   o Pavlos na   milise   me kanenan.
       perhaps the Paul   subj talked.3sg with anybody
       '*Perhaps Paul talked to anybody.'

(185) As   erxotane kanenas!
       subj came.3sg anybody
       '*If only anyone came!'

(186) I   bike   kanenas mesa i afisame to fos anameno.
       or entered.3sg anyone   in   or left.3pl the light lit
       '*Either anyone came in or we left the light on.'

(187) a   Elpizo na emine kanena komati.
             hope.1sg subj left.3sg any piece
             '% I hope there is any left.'
       b   '*I want you to buy any book.'
       c   'I insist you allow anyone in.'

The contrast we observe here suggests that *any* and nonemphatics are APIs of different kinds. If *any* were indeed an item licensed by nonveridicality, as nonemphatics are, it would be expected to exemplify a distribution identical to that of nonemphatics, and be fine in all nonveridical environments we have identified thus far. This is clearly not the case (see nevertheless Zwarts 1995 for an attempt to analyze *any* as an item licensed by nonveridicality).

Crucially, an important difference between *any* and nonemphatics concerns indirect licensing. We saw in §3.4.2 that nonemphatics can be licensed in-

directly in certain environments provided that the nonveridicality condition is satisfied. We also saw that indirect licensing can never override the nonveridicality requirement: in veridical contexts giving rise to a negative implicature nonemphatics are not licensed. The complements of negative factives, and *monon*- 'only'-clauses were shown to be such cases, and nonemphatics are not accepted there. Unlike nonemphatics, *any is* allowed there, as indicated in Table 5, and shown throughout this chapter (Note that FCIs are also licit in negative factives).

Likewise, indirect licensing can be invoked to account for the acceptance of *any* as a direct object of negative verbs like *lack, deny* etc., and NP-comparatives. As we see in the sentences below, nonemphatics are unacceptable there:

(188) * Tu lipi   kamia esthisi tu xiumor.
      him lack.3sg any sense of humor
      'He lacks any sense of humor.'

(189) * I Anna   trexi   grigorotera apo kanenan.
      the Ann run.3sg faster   than anyone
      'Ann runs faster than anybody.'

Sentences (188) and (189) count as veridical assertions, since there is no nonveridical operator present (recall that (non)veridicality is a property of propositional operators and determiners). *Any* is licensed in theses sentence indirectly, because they give rise to the negative implicatures we see in (188') and (189'):

(188') He lacks any sense of humor → He doesn't have any sense of humor.

(189') Ann runs faster than anybody → Noone else runs as fast as Ann.

FCIs, as we saw, are also grammatical in these domains, so we have to assume that indirect licensing is available as an option for these items too.

Putting the pieces together, I propose that *any* is an API, like nonemphatics are, but unlike these, *any* is anti-licensed by veridicality. Because the relation of nonemphatics and nonveridicality is positive, these items are expected to occur in a given domain, as long as this domain is nonveridical. This is why we find them in all nonveridical contexts identified in this chapter. For items like *any*, on the other hand, which are anti-licensed by veridicality, we have no positive specification that they must appear in all nonveridical environments. What we know is that such PIs will be bad if the context of appearance is veridical. If it is nonveridical, PIs anti-licensed by veridicality may be good, or bad, de-

pending on the situation. The nature of their sensitivity does not allow us to predict grammaticality for all nonveridical environments.

I propose, then, the following anti-licensing conditions for *any* (see also Giannakidou to appear):

(190)   *Anti-licensing conditions for any*
     i. *Any* will not be grammatical in a sentence S if S is veridical; otherwise *any* will be grammatical.
     ii. In certain cases, clause i is satisfied if S gives rise to a negative implicature.

The negative implicature has a decisive effect: it voids veridicality, and thus "rescues" *any*. The two conditions together predict the correct distribution for *any*, and they explain immediately the observed differences between *any* and nonemphatics. According to (190), indirect 'licensing' is no longer 'licensing', but an alternative mechanism for the satisfaction of the anti-licensing requirement. In terms of the typology of APIs proposed in §3.4.3, *any* would be characterized as *superweak* (see also Giannakidou to appear).

The availability of a negative implicature can also "rescue" FCIs, hence in these cases too we should not really talk about 'licensing', but about indirect satisfaction of the anti-licensing requirement on veridicality. I formulate here, based on (183), the anti-licensing conditions for FCIs:

(197)   *Anti-licensing conditions for free choice items*
     i. A free choice item α will not be grammatical in a sentence S if S is veridical; otherwise α will be grammatical, provided that S is not episodic.
     ii. In certain cases, clause i is satisfied if S gives rise to a negative implicature.

Apart from NP-comparatives and negative verbs, (197ii) accounts for the occurrence of FCIs with lexical stative verbs (see §3.3.4 for data showing that nonemphatics are ungrammatical in this case).

As we see, the free choice flavor of *any* is not taken to contribute anything regarding the sensitivity of this item. One would still have to explain, however, two things. First, why is it that free choice readings arise in some cases but not in others? Second, in what sense is the sensitivity specification of nonemphatics different from that of *any* so as to determine distinct types of distributional constraints (licensing by nonveridicality in the former, and anti-licensing

by veridicality in the latter)? The first question is not difficult to answer. In nonepisodic contexts, the free choice interpretation will be allowed to surface; in episodic contexts, it won't. As for the latter issue, I will not address it here, though we may be optimistic that in the framework developed in this book there is enough room for pursuing a viable solution.

3.6 Conclusion

In this chapter I developed an analysis of polarity dependencies as instances of sensitivity to (non)veridicality. I showed that this sensitivity manifests itself in two ways: as a positive (licensing) dependency to nonveridicality, and as a negative (anti-licensing) dependency to veridicality. Greek APIs were taken to exemplify the former, and nonaffective PIs and *any* the latter. Within the class of licensed APIs, NPIs are defined as APIs sensitive to antiveridicality. I also argued that, for a limited number of cases, a comprehensive theory of polarity must allow for indirect licensing by a negative implicature. Indirect licensing is an auxiliary condition, and it can never function as the primary licensing force. As far as I know there are no PIs which are licensed only indirectly.

Crucially, the nature of sensitivity involved in items licensed by veridicality allows us to predict that such items will appear in all nonveridical environments. The nature of sensitivity involved in items anti-licensed by veridicality, however, does not allow such a prediction. Anti-licensing by veridicality predicts that there will be nonveridical contexts in which the pertinent items will not be licit. The distributional differences between nonemphatics and *any* were shown to follow from this difference.

Sensitivity to (non)veridicality was shown to follow from the sensitivity semantics of the relevant PIs. This is an important result, and it constitutes a considerable improvement against previous theories where the sensitivity issue was seriously overlooked. Although I didn't present a fully-fledged analysis for all types of contexts, the account I proposed here should be viewed as setting the foundation for such an analysis.

In sum, by introducing a notion broader than downward entailment and negation into the domain of polarity, we are able to build a theory which allows us to account for the extension from negation and downward entailment to nonveridicality in a natural way, since downward entailing and negative contexts are proper subsets of the nonveridical. In this sense, the (non)veridicality-based approach I proposed here is not in conflict with its predecessors based on monotonicity and negation. Rather, it subsumes both, but unlike these, it affords a

much greater empirical coverage, and it provides a solid basis for the unification of polarity sensitive contexts as a natural class across languages.

CHAPTER 4

The Syntactic Characterization of the Licensing Domain

Thus far, we have a fairly good understanding of the semantic nature of polarity dependencies. We saw that affective dependencies come in two flavors: as non-veridical dependencies, which is the general case and gives rise to affective polarity items, and as antiveridical dependencies giving rise to negative polarity items. We still don't know, however, how semantic dependency translates into syntactic wellformedness. It is precisely this question that will be addressed and dealt with in this chapter. The primary focus will be on negative licensing.

The goal is to provide a syntactic characterization of what constitutes a licensing domain. In doing so, it is important to realize that negative dependencies are not uniform either; rather, they come in two varieties, a fact connecting nicely with the divide observed in the semantic side of licensing. There is strong instance of negative dependency which involves quantificational interpretation of negative polarity items: negative concord. There is also a weak instance of negative dependency, which involves existential interpretations of affective items. The choice between the two is not present in all languages, but if available, the question is what determines it. I propose that the choice is regulated by the distinct pragmatics associated with either dependency.

As a first hypothesis, the syntactic licensing domain can be identified with the c-command domain of the licenser. This holds for weak dependencies involving affective items. I argue that the licensing domain for these items is the c-command domain of their licenser at LF, and not at s-structure (as is commonly held in the literature). The decisive arguments for the need to appeal to LF will be provided by cases where (a) affective items are ungrammatical despite the fact that they are c-commanded by negation at s-structure, and (b) affective items are grammatical but *not* c-commanded by negation at s-structure.

Bare fronting will be excluded as a result of the sensitivity semantics of affective items: these expressions are dependent existentials, and as such they cannot be topicalized. If they are embedded in a constituent which can be, however, affective items can indeed be fronted and precede their licenser in linear order.

The picture that emerges for strong negative dependencies is quite different. In negative concord the licensing dependency should be understood as an escape-the-scope-of-licenser condition. Negative polarity items participating in this structure, i.e. emphatics, *need* negation in order to be licensed, but for the proper intepretation of such structures as $\forall\neg$ emphatics must raise above negation at LF. This raising of emphatics over negation will be shown to be an instance quantifier raising (QR). If this analysis is correct, then we have a strong argument for retaining QR as a necessary device at the syntax-semantics interface: we need it in order to interpret negative concord.

The idea that the licensee must escape the scope of its licenser might seem counterintuitive, but it actually follows from the general vision of polarity sensitivity developed in this book. Semantic dependency may be positive (licensing) or negative (anti-licensing). In a parallel fashion, the syntactic mapping of the dependency may be positive, yielding a requirement that the polarity item be in the scope of its licenser, or negative yielding a requirement that it must *not* be. Nothing in the theory entails that a positive dependency will map onto a positive syntactic condition, and a negative one onto a negative syntactic condition.

The discussion is organized as follows. In §4.1, the phenomenon of negative concord is illustrated with data from a number of languages. Then, the most influential syntactic and semantic theories of negative concord are reviewed (4.2, 4.3, 4.4). In §4.5 I propose a novel compositional account of negative concord by analyzing negative polarity items in this structure as universal quantifiers which must *not* be c-commanded by negation at LF. Raising of emphatics above negation involves quantifier movement, and is subject to constraints that apply to this type of movement. In §4.6, weak negative dependencies are discussed. It is shown that these dependencies involve *in situ* licensing of affective polarity items in the c-command domain of their licenser. C-command will be understood as an LF-condition. The issue of what determines the choice between a weak and a strong negative dependency (negative concord) will be addressed in §4.7. Negative concord structures will be analyzed as *categorical*: affective items here are the logical subjects of negative predications. Weak negative dependencies, on the other hand are *thetic* statements, and affective items present there carry no particular informational weight.

4.1   Manifestations of negative concord

The literature lacks a precise definition of negative concord (NC). Jespersen (1917) discusses *double attraction* as a case of two different "tendencies" in the positioning of negation. The first tendency concerns placement of negation on the verbal nexus, the second to "amalgamating a negative element to some word capable of receiving a negative prefix" (Jespersen 1917: 64). Double attraction can be regarded as a label synonymous to NC. The intuition that NC involves attraction of negative expressions underlies also Labov's (1972) *negative attraction* rule, and Klima's (1964) neg-incorporation.

NC is invoked in situations where negation is interpreted just once although it seems to be expressed more than once. The phenomenon is observed in a number of languages, e.g. Romance, Slavic, Greek and Nonstandard English, to mention just some. It involves sentential negative markers (NM), which are the vehicles of the logical connective ¬, and the familiar n-words, i.e. affective polarity items (APIs) under negation.[1] Some basic patterns are illustrated in the sentences in (1). N-words are translated with *any* purely for expository purposes; for data on NC and recent discussions see *inter alia,* Laka (1990) for Basque and Spanish, Aronovich (1996) for Spanish, Zanuttini (1991, 1997), and Acquaviva (1993, 1996, 1997) for Italian, Quer (1993) for Catalan, Giannakidou (1997a) for Greek, Haegeman (1995) and den Besten (1986) for West Flemish and Afrikaans, Progovac (1988, 1994) for Serbian/Croatian, Brown (1996) for Russian, Przepiórkowski and Kupsc (1997) and Richter and Sailer (to appear) for Polish, and Haspelmath (1997) for an overview.

(1)   a   Gianni *(non) ha   visto niente.   Italian
            John   not   have.3sg seen n-thing
            'John didn't see anything.'

---

[1] In this sense, French must be excluded from the discussion of NC. The French NM *ne* does not convey logical negation. This is done by *pas,* as we see in (i). In (ii) we see that *pas* and n-words cannot co-occur:

(i)   Marie ne marche *(pas).
        Mary doesn't walk.
(ii)   * Marie n' a   pas   rien   dit.
        (Mary didn't say anything.)

Hence there is no issue of NC in French. Consider, finally, that in colloquial French the general tendency is to drop *ne.*

b	*(No) he dit res.	Catalan
	not have.1sg said n-thing	
	'I didn't say anything.'	
c	There ain't no cats.	NS English
d	Milan *(ne) vidi nista.	Serbian/Croatian
	Milan not see.3sg n-thing	
	'Milan cannot see anything.'	
e	Ja nicego *(ne) skazal.	Russian
	I n-thing not said.1sg	
	'I didn't say anything.'	
f	Janek *(nie) pomaga nikomu.	Polish
	Janek not help.3sg n-person	
	'Janek doesn't help anybody.'	
h	*(Dhen) ipa TIPOTA.	Greek
	not said.1sg n-thing	
	'I didn't say anything.'	

As indicated, the presence of the NM is obligatory, hence such NC patterns fall under the rubric of what has been described in the previous chapter as antiveridical dependency. These are not the only patterns available (as we see in §4.1.2). NC structures across languages are characteristically emphatic: n-words are always accented (a feature to which I return in 4.5.1).

From the semantic point of view, the existence of NC poses an obvious puzzle: if we have more than one occurrence of negation present in a clause why do we end up interpreting only a single negation? We do not want to give up compositionality as the principle of semantic interpretation, nor do we wish to argue that languages with NC are less "logical" than languages without it.

Of course, the extent to which NC constitutes a problem for compositionality depends on whether we take n-words to be semantically negative or not. We will see below that there is actually no conclusive evidence that n-words in NC languages are inherently negative (recall also the discussion of Greek emphatics and their characterization as universal nonnegative quantifiers in §2.3.4, 2.3.5) Note, in this connection, that n-words need not be morphologically negative either, a fact generally overlooked in the standard literature. Italian *niente, nessuno* and Serbian/Croatian *nista* bear negative morphology but their Catalan, and Greek counterparts do not, or do so but not consistently. Catalan, for instance, has *res* 'n-thing', but *ningú* 'n-person', Greek emphatics and nonemphatics do not have negative morphology.

Not all languages have NC and not all languages that have it are alike. Although there is a clear divide between languages that employ NC as a rule, and languages that do not, the availability of NC cannot be handled in terms of a ± NC parameter. Even languages that don't have it, may occasionally allow for it (for emphasis of this point see Acquaviva 1993, 1996). With this proviso, statements like "a language has" or "a language does not have NC" should be taken to mean "a language employs NC as a rule" or "a language does not do so".

4.1.1 A typology of n-words

Languages can be divided into five types depending on (i) the number of *n*-word paradigms they exemplify, (ii) the availability of NC, and (iii) the number of nonnegative environments n-words are allowed to occur in.

First, there are languages which exemplify one paradigm of n-words and do not exhibit NC. German and Dutch are such languages where an unambiguously negative *n*-word paradigm is used: German *niemand*, Dutch *niemand*, and k- (German *kein*) and g- (Dutch *geen*) indefinites. It makes sense to argue that German and Dutch n-words are semantically negative for two reasons. First, because they contribute negative meaning in isolation as we see in (2a). Second, because when they co-occur, or when they co-occur with a NM only double negative readings arise as we see in (2b,c):

(2) a   Heeft   Frank niemand gezien?   Dutch
          have.3sg Frank nobody seen
          'Is it true that Frank saw nobody?'
     b   Frank heeft   niet   niemand gezien.
          Frank have.3sg (not) nobody   seen
          'It is not the case that Frank didn't see anybody.'
          # 'Frank didn't see anybody.'
     c   Niemand zei   niets. Iedereen   had iets om te vertellen.
          nobody   said.3sg nothing everybody had something to say
          'It is not the case that nobody said anything. Everybody had something to say.'
     d   ⟦ niemand ⟧= $\lambda P \, \forall x$ [**person** (x) $\rightarrow \neg$ **P** (x)]

In the above sentences *niemand* is interpreted as a negative quantifier (and likewise *niets*), as indicated in (2d). It has also been argued that Dutch and German n-words must be lexically decomposed into *negation* + *indefinite* (see Jacobs

1980, von Stechow 1993, and Rullmann 1995; but consider also de Swart 1996 for a quite different point of view). At any rate, the intuition about Germanic n-words of this kind (English included) is that they are semantically negative.

Standard English provides the second language type. It makes use of two n-word paradigms (*anybody,* an n-word in the broad sense that it co-occurs *inter alia* with negation, and *nobody*), and does not exemplify NC. *Nobody* is semantically negative just like its German/Dutch counterparts, but *anybody* is an existential quantifier. Hence English is similar to the languages of the first type, with the additional option of having a nonnegative n-word.

Third, there are languages which utilize one paradigm of n-words, but do exhibit NC. Romance languages are cases in point, as in the examples in (1) above. Marginally, languages of this type exemplify a second paradigm of n-words, e.g. Italian makes use of *alcuno*. However, this paradigm belongs to a very formal register, sounds archaic and is disappearing in colloquial Italian (Maria Aloni and Elena Guerzoni p.c.).

A typical feature of Romance n-words is that they appear under negation as well as in nonnegative environments, as illustrated in (3) for Catalan (see Quer 1993, and Giannakidou and Quer 1995, 1997 for extensive discussion), and (4) for Italian (from Acquaviva 1997). Unlike their Germanic counterparts, however, Romance n-words do not contribute negation in nonnegative environments; rather, they contribute existential quantifiers (as indicated also by the glosses and translations) :

(3) a Li   diràs   res?   Catalan
         him/her tell.fut.2sg anything
         'Did you tell him/her anything?'

     b Si aneu   enlloc,   digueu-m'ho.
         if go.2pl anywhere, tell.imp.2pl me
         'If you go anywhere, let me know.'

     c Tothom   qui vulgui   res,   que m'ho digui.
         everybody who want.3sg anything, that me   tell.3sg
         'Everyone who wants something, should let me know.'

(4) a E   venuto nessuno?   Italian
         have.3sg come anybody
         'Has anyone come?'

     b E   l'idea   piu stupida che abbia   mai avuto nessuno.
         be.3sg the idea more stupid that have.subj.3sg ever had anybody
         'It's the dumbest idea I have ever had.'

Furthermore, when Romance n-words co-occur with negation as in (1), or with each other, as in (5), no double negation reading arises:

(5) a   Nessuno ha   detto niente.   Italian
          n-person have.3sg said n-thing
          'Nobody said anything.'
          # 'It is not the case that nobody said anything.'
     b   Ningú   ha   dit   res.   Catalan
          n-person have.3sg said n-thing
          'Nobody said anything.'
          # 'It is not the case that nobody said anything.'

The native speaker's intuition is that, unlike (2c) above, sentences like (5) are true in situations where there has been complete silence. These facts clearly suggest that Romance n-words are not inherently negative. There are some examples which seem to question this conclusion, but I defer discussion of them until §4.2.3.

Let it also be noted that Romance n-words do not constitute a uniform class as regards the nonnegative environments they occur in. In some languages, for instance in Italian, Spanish, and Portuguese, n-words are admitted in a very small number of nonnegative contexts, whereas in some others, e.g. in Catalan, the inventory of nonnegative contexts is arguably larger (see data in Quer 1993). Additionally, n-words in Italian, Spanish, and Portuguese exclude the NM if they appear preverbally but in Catalan no such restriction applies.

The fourth type involves languages which are like Romance, i.e. they use one *n*-word paradigm and exhibit NC, but differ from Romance in that n-words only occur under negation and antiveridical operators like *without*. Several languages of the Slavic family belong to this category. We saw in (1) examples from Serbian/Croatian, Russian, and Polish involving co-occurrence of n-words with a NM. Przepiórkowski and Kupsc (1997) also provide examples with Polish n-words under *bez* 'without'(see also Błaszczak 1998). Nonnegative contexts, e.g. interrogatives, as we observe in the examples below, do not admit n-words (see Progovac 1988, 1994 for Serbian/Croatian, Brown 1996 for Russian, and Błaszczak 1998, Richter and Sailer to appear for Polish):

(6) a   *Da li Milan voli nitkoga?   Serbian/Croatian
          that Q Milan love.3sg n-person
     b   *Nikto   zvonil?   Russian
          n-person called.3sg

   c   *Czy nikt   dzwonit?   Polish
         Q   n-person called.3sg

Unlike their Romance counterparts, Slavic n-words cannot be interpreted in the absence of negation. They are unable to contribute ∃, like Romance n-words do in nonnegative contexts, and, on the other hand, they cannot contribute ∀¬ all by themselves, despite the fact that their morphological make up grants them negative marking (*n-*). Przepiórkowski and Kupsc (1997) further note that Polish n-words cannot co-occur without the presence of the NM, a fact also emphasized in Brown (1996) for Russian, and Progovac (1988, 1994) for Serbian/Croatian. This ban suggests, again, that Slavic n-words are unable to contribute negation, unless they are construed with the NM which supplies it.

     Greek, finally, provides the fifth language type. Two paradigms of n-words are used, emphatics and nonemphatics, and NC is employed. As we know already, emphatics occur only under negation and antiveridical operators. Like Slavic, but unlike Romance n-words, Greek emphatics do not occur in nonnegative contexts, e.g. interrogatives, and they are ungrammatical in co-occurrence with each other in the absence of sentence negation:

(7)   a   *Idhes   KANENAN?
          saw.2sg n-person
     b   *KANENAS ipe   TIPOTA.
          n-person   said.3sg n-thing
     c   ⟦KANENAS⟧ ≠ $\lambda P \, \forall x$ [**person** (x) $\rightarrow \neg$ **P** (x)]
     d   ⟦KANENAS⟧ ≠ $\lambda P \, \exists x$ [**person** (x) $\wedge$ **P** (x)]

Emphatics are ruled out from nonnegative environments for the same reasons Slavic n-words are: they cannot be interpreted as ∃, and they cannot contribute ∀¬ in isolation.

     Nonemphatics, on the other hand, are accepted in the whole range of nonveridical environments, and are semantically equivalent to a dependent ∃. In this respect, Greek combines features of English and Romance/Slavic. I will take it here that only instances of negation with emphatics are genuine instances of NC (as I did in Giannakidou 1997a). Besides Greek, other candidates for this class are Afrikaans and Middle Dutch. I summarize in Table 1 the intended classification:

Table 1 N-words, their intepretation and negative noncord

Type	n-words	Interpretation	NC	Languages
I	*niemand*	$\forall x\neg$	No	German,Dutch
II	*nessuno*	$\forall x\neg$, or $\exists x$	Yes	Italian, Spanish, Catalan
III	*nista*	$\forall x\neg$	Yes	Slavic languages
IV	any no	$\exists x$ $\forall x\neg$	No	English
V	nonemphatics emphatics	$\exists x$ $\forall x\neg$	Yes	Greek

Consider now the two logically and truth conditionally equivalent possibilities of interpreting general negative sentences illustrated in (8). Universal negation in (8a) will be understood as a strong negative dependency between n-word and negation. Existential negation in (8b) will be characterized as a weak negative dependency. The content of this distinction will be further discussed in §4.7.

(8)   *Logical representations of general negative statements*

    (a) $\forall x\ [P(x) \rightarrow\neg\ Q(x)]$ (Universal negation)

    (b) $\neg\exists x\ [P(x) \wedge Q(x)]$ (Existential negation)

Given (8), Table 1 should be taken to imply the following. In languages without NC, n-words of the *no*-paradigm are arguably the vehicles of negation (whether decomposed into $\neg$ and $\exists$, or just by being negative quantifiers). In the absence of a nonnegative n-word paradigm, statements with n-words in these languages will be ambiguous between the two options in (8).[2] In languages with NC, n-words are either existential quantifiers (e.g. Romance n-words in nonnegative contexts) or they occur in negative sentences which receive one the two

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[2] Recall that, unlike emphatics, n-words in English, Dutch, and German, can be used as predicate nominals (cf. §2.3.4):

(i)   * Dhen ine KANENAS jatros.
      'He is no doctor.'

This asymmetry may be explained if we assume that n-words in Germanic are ambiguous between $\forall x\neg$ and $\neg\exists x$. In (i) it is the availability of the $\neg\exists x$ reading that licenses the use of the *n*-word as a predicate nominal.

interpretations indicated in (8). Given that neither in Slavic nor in Greek do NC n-words contribute ∃ in isolation, it seems reasonable to say that NC involves universal negation. On the other hand, considering that Greek and Slavic n-words always occur with negation, it seems plausible to argue that in NC sentence negation has its regular contribution ¬, and n-words contribute ∀, rather than arguing that n-words are inherently negative. This is the idea I will pursue in this study.

4.1.2 Varieties of negative concord

We can distinguish two varieties of NC (cf. van der Wouden & Zwarts 1993, Acquaviva 1995, *inter alia*). The first variety, which is usually referred to as *NC proper* (cf. den Besten 1986), involves the combination of a sentential negative marker (NM) with an *n*-word. Sometimes the NM is "light", and sometimes it is "heavy".

Romance, Slavic, Greek, and Nonstandard English exemplify NC proper with a light NM. Some of the examples in (1) are repeated here:

(1)   a   *(Non) ha   visto nessuno.   Italian
          not   have.3sg seen n-person
          'S/he din't see anybody.'
      b   *(Dhen) idhe   KANENAN.   Greek
          not   saw.3sg n-person
          'S/he din't see anybody.'
      c   Ja nicego *(ne) skazal.   Russian
          I n-thing not said.1sg
          'I didn't say anything.'

The characterization 'light' of the NM reflects its head status (see Zanuttini 1991, 1997 and discussion in chapter 2). As indicated by the examples above, absence of the NM leads to ungrammaticality.

Quebecois French, Bavarian, and Afrikaans exhibit NC with a heavy NM, as we see in the examples below (from Déprez 1995, Bayer 1990 and den Besten 1986, respectively):

(9)   a   J'   ai   vu   pas personne.   Quebecois
          I not have.1sg seen not n-person
          'I haven't seen anybody.'

b   Ich bin froh, dass ich keine Rede nicht halden brauch. Bavarian
I be.1sg glad that I   no   talk not   hold   must.1sg
'I'm glad I don't have to give a talk.'

c   Hulle het nooit gesing nie.   Afrikaans
they have n-ever sung not
'They have never sung.'

According to most analyses, the NMs involved here are XPs rather than heads (Pollock 1989, Belletti 1990, Bayer 1990, Zanuttini 1991, 1997 among others). Heavy NMs are more like adverbs, and need not be in a local relation to the verb.

West Flemish forms a mixed case; light *and* heavy NMs combine with n-words (cf. Haegeman 1995):

(10)   ...da   Valere nooit niemand (nie) en-kent.   West Flemish
      ... that Valere n-ever n-person not   not-know.3sg
      '...that Valere never knows anyone.'

Haegeman places *nie* in the specifier of NegP in West Flemish and *en* in the head of the same projection.

The second variety of NC involves co-occurrence of two (or possibly more) n-words without a NM. This variety is known as *negative spread* (again, after den Besten 1986) and we find it marginally in languages that typically do not exemplify NC, or it co-exists with the other two patterns in languages that do. To my knowledge, none of the NC languages that have been thoroughly studied in the literature makes exclusive use of negative spread:

(11) a   Je hebt   nooit geen tijd voor mij.   Dutch
       not have.2sg never no   time for me
       'You never have time for me.'

     b   Hier hilft   keiner   keinem.   German
       here help.3sg nobody nobody
       'Noone helps anyone here.'

     c   Nessuno ha   letto niente.   Italian
       n-person have.3sg read n-thing
       'Nobody read anything.'

Greek, Catalan, and the Slavic languages do not exhibit negative spread, as I emphasized in the previous subsection (see Quer 1993, Giannakidou and Quer 1995, 1997, Progovac 1988, 1994, Brown 1996, Przepiórkowski and Kupsc

1997, and Richter and Sailer to appear for the relevant data). Instead, the presence of the NM in these languages is obligatory. I will call varieties of NC that require the obligatory presence of the NM *strict* NC varieties, and languages that exhibit them 'strict NC languages'.

Finally, there are considerations regarding asymmetries within languages as to the surface position of n-words. This point becomes clear in the following contrast between Italian and Greek:

(12)   a   Nessuno (*non) ha   visto Paola.
                  n-person   not have.3sg seen Paola
                  'Nobody saw Paola.'
        b   Paola *(non) ha   visto nessuno.
                  Paola   not   have.3sg seen n-person
                  'Paola hasn't seen anybody.'
        c   KANENAS *(dhen) idhe   ti Roxani.
                  n-person   not   saw-3sg the Roxanne
                  'Nobody saw Roxanne.'

As we see in (12a,b), while preverbal NIs make *non* illicit in Italian, postverbal NIs require the precedence of *non* in order to be grammatical. Whatever the relevant constraint may be, (12c) illustrates that such a constraint is not operative in Greek, where the NM is obligatorily present regardless of the position of the *n*-word. The phenomenon is not limited to an idiosyncratic difference between Greek and Italian. Rather, it appears that we are dealing with a well established pattern which distinguishes between Greek, Catalan, and the Slavic languages (strict NC languages), on the one hand, and Italian, Spanish, and Portuguese (not strict NC) , on the other.

To sum up, we have identified here two types of NC: NC proper, and negative spread. We saw that languages split into two groups in this regard. Strict NC languages exhibit only NC proper, that is, the presence of sentential negation obligatorily coincides with the presence of n-words. In languages without strict NC the presence of sentential negation is not always necessary. There is no *prima facie* reason to believe that the two types of NC are subject to constraints of the same nature. Arguably, negative spread may be handled in terms of branching negative quantifiers, as originally proposed in van Benthem (1983), perhaps with some additional postulates which must be posed at the syntactic level in order to account for the full range of data. I will not deal with negative spread here, as it is not available in the language of primary focus in this study,

Greek. Instead, I concentrate on NC proper. Before I present my own analysis, however, I will consider the most prominent previous approaches in some detail.

Three types of analyses have been proposed. The first has taken as a basic premise the assumption that n-words are semantically negative, i.e. negative quantifiers, and postulated aside an ancillary *absorption* mechanism that allows any number of n-words and the NM to merge into one semantic negation. Alternatively, the thesis that n-words are inherently negative has been dismissed. Instead, it has been argued that in NC negation is expressed only by the sentential particle (overtly or abstractly at LF). N-words, in this view, are *Heimian* indefinites with no quantificational force of their own. Finally, it has been argued that n-words are *context sensitive*. Recourse to context sensitivity enables partial characterization of n-words as negative or existential quantifiers. The account I will defend here builds on the insight of the second approach that negation in NC structures is expressed only by the negative particle, but denies the nonquantificational analysis of n-words.

4.2 The NEG-criterion approach

4.2.1 N-words as negative quantifiers

Zanuttini (1991), Haegeman and Zanuttini (1991, 1996) and Haegeman (1995), among others, propose accounts of NC based on the assumption that n-words are negative quantifiers. This approach establishes a parallelism between NC and wh-dependencies which relies crucially on the notion of 'absorption'. I describe the basic features of the analysis here and in §4.2.3 I point out the problems it encounters.

(13) illustrates *wh-absorption*. The sentence contains two wh-words, *pjos* 'who' and *ti* 'what', but the interpretation of it is that of a single question.

(13) a Pjos ipe   ti?
          who said.3sg what
          Who said what?

      b ? x, y [**person** (x) ∧ **thing** (y)] [**said** (x,y)]

      c $[_{CP}$ ti$_2$ pjos$_1$ $[_{IP}$ ipe$_v$ $[_{VP}$ t$_1$ t$_v$ t$_2$]]]

The interpretation of (13a) involves just one wh-operator as we see in (13b) which binds two variables. A typical reply will be given by pairing persons with things these persons said. The effect is achieved by LF-adjunction of the non-

moved wh-constituent, i.e. *ti*, to the already moved one *pjos* in [Spec,CP], as in (13c). Absorption is thus an amalgamation process which, in the case of interrogatives, takes *n* syntactic occurrences of question words and merges them into one semantic occurrence of question (cf. Higginbotham and May 1981).

Zanuttini (1991) and Haegeman and Zanuttini (1991, 1996) extend the mechanism of absorption to NC, and analyze NC structures as cases of *negative* absorption. Sentence (14a) is assumed to contain a single negative quantifier which ranges over *n* variables, here over two:

(14)   a   KANENAS dhen ipe   TIPOTA.
             n-person   not   said.3sg n-thing
             'Nobody said anything.'

       b   No x, y [**person** (x) ∧ **thing** (y)] [**said** (x,y)]

In the above-mentioned works the claim is generalized to a number of languages. The general vision is that the same way languages vary as to whether they allow for wh-absorption (English, French, and Greek do, but Italian does not), they vary also as to whether they allow for NC (French, Italian and Greek do, standard English does not, nonstandard English does).[3]

Crucial to the idea of NC being negative absorption is the assumption that n-words are (syntactic) negative operators, hence semantically negative items. Zanuttini (1991), Haegeman and Zanuttini (1991, 1996) and Haegeman (1995) make this point very clear in stating that n-words in Romance and West Flemish are negative quantifiers. As such, n-words comprise a [+quantificational] and a [+negative] feature, where being [+quantificational] entails being a syntactic operator. Because n-words are quantifiers, their sentential scope must be syntactically derived by reaching a scope position at least by LF. Being negative too, n-words must agree with a head endowed with the same (negative) feature. Both requirements are claimed to be fulfilled by application of move-α, which raises n-words to [Spec,NegP] or adjoins them to that position either at s-structure or at LF (but see Haegeman 1995 for the stronger claim that the NEG-criterion is uni-

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[3] However, there is an asymmetry in the availability of the two kinds of absorption within the same language. For instance, Italian permits NC but disssallows wh-absorption. Why is it that languages are parametrized in displaying this asymmetry? Answering these questions will require, of course, diving into the more general principles governing the grammar of the languages in question, but the fact in itself suggests that the two instances of putative absorption are not identical.

formly satisfied at s-structure).[4] Once n-words reach [Spec,NegP], they enter a Spec-Head relation with the negative head. In this analysis, the relevant part of (14a) would look at LF as either (15) or (16) depending on whether we assume raising to [Spec,NegP] or adjunction to NegP:

(15)

```
                     NegP
              _____
             /                   \
          _____          Neg'
         /            \      _____
       XP₂          XP₁    /           \
       /\            /\   Neg°          IP
      /__\          /__\   |         _____
    TIPOTA       KANENAS   |        /         \
                          dhen               VP
                                         _____
                                        /         \
                                       t₁        t₂
```

(16)

```
                  NegP
          _____
         /                 \
       XP₂               NegP
       /\          _____
      /__\        /              \
    TIPOTA      XP₁            Neg'
                /\         _____
               /__\       /         \
            KANENAS     Neg°          IP
                         |        _____
                         |       /         \
                        dhen              VP
                                     _____
                                    /          \
                                   t₁         t₂
```
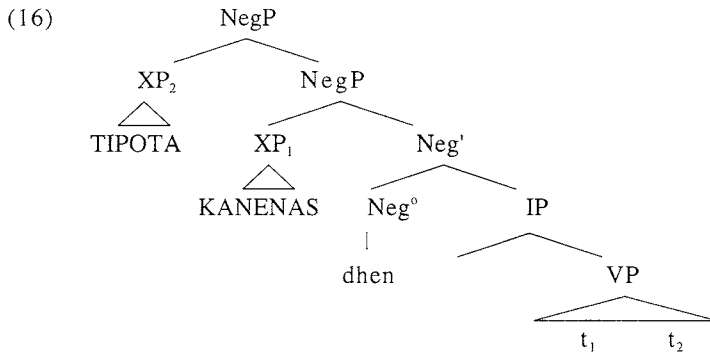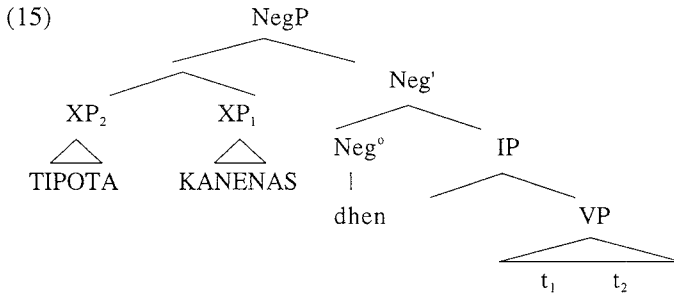
The driving force for such configurations the NEG-criterion. The NEG-criterion is a well-formedness condition which applies to all elements bearing the feature [+negative] and which determines their distribution and interpretation. It requires that such expressions check their negative feature against a head endowed with it. Based on the WH-criterion as formulated in Rizzi (1990), Zanuttini and Haegeman, and Zanuttini state the NEG-criterion as in (17):

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[4] In Haegeman (1995) [Spec,NegP] is assumed to be always filled at s-structure, either by a contentive element (an *n*-word) or by a phonologically null expletive NEG-operator. In West Germanic languages (West Flemish, Dutch, German, Afrikaans) and in Hungarian, the NEG - criterion is met via overt movement of n-words. In Romance (French, Spanish, Italian, Portuguese) and in English operator-CHAINS are invoked (in the spirit of Brody 1995) to ensure satisfaction of the NEG-criterion.

(17)   **The NEG-criterion**
       a. A NEG-operator must be in Spec-head agreement relation with an X^0 [NEG].
       b. An X^0 [NEG] must be in Spec-head agreement relation with a NEG-operator.

Additionally, the following definitions obtain:

(18)   a. NEG-operator: a negative phrase in a scope position;
       b. Scope position: left-peripheral A'-position [Spec,XP] or [YP,XP].

In fact, the NEG-criterion may be regarded as a particular realization of a more general constraint, the AFFECT-criterion (cf. Rizzi 1990, Haegeman 1992). The formulation of Brody's (1990) FOCUS-criterion must be seen against this background too.

Under this analysis, the configuration created at LF permits *KANENAS* and *TIPOTA* to undergo a process of factorization of negation resulting in the single instance of negation present in the interpretation of the NC structure. At the same time, the quantificational component of the n-words undergoes absorption which, as we said, turns several instances of unary quantifiers into an *n*-ary quantifier on a par with wh-structures.

(17) tells us nothing about the phonological realization of Neg^0, although a possible implementation of it would imply that the availability of NC must be linked to the realization of Neg^0 (covert or overt), as in Zanuttini (1991); see also Moritz and Valois (1994). The negative head may be overt or covert, depending on language specific constraints. Strict NC languages like Greek, Catalan, and Slavic (where no negative spread is allowed) require that Neg^0 be always overt. In languages allowing for negative spread like Italian, Spanish, and Portuguese such a requirement is absent. At any rate, the NEG-criterion provides a way to capture NC as an agreement phenomenon, at least syntactically not different from other kinds of agreement.

Evidently, the movement involved for the satisfaction of the NEG-criterion is an instance of A'-movement (but see Déprez 1997 for arguments in favor of an A-movement analysis and Haegeman 1995 for some reflections on the potential A/A' status of [Spec,NegP]).

The NEG-criterion proposal should be seen against the background of a more or less standard assumption within the generative tradition: that the analysis of negative sentences is closely related to that of interrogative sentences. In the more recent literature which makes use of criteria, it has always been tempting to

conflate the two into a unique principle stated in terms of semantic primitives such as negation and interrogation. Because I am going to argue against the conflation of wh- and negative dependencies, it would be useful to elaborate briefly on the motivations underlying the need to view them on a par, as instances of the same phenomenon.

4.2.2 N-words and wh-phrases

Haegeman 1995 discusses a number of well-known empirical arguments for relating the syntax of negation to that of interrogation. Here I will briefly consider some of them and, for expository purposes, confine the scope of the discussion in English.

(i) *Licensing of polarity items*
Both sentence negation and interrogatives license APIs:

(19)   a   I didn't see anybody.
       b   Did you see anybody?

A standard view has been that APIs are licensed by a c-commanding element, in the case of (19a) by negation *n't* , and in (19b) by the abstract question operator assumed to reside in C^0. The c-command requirement appears to have the force of an s-structure condition, as the ungrammaticality of (20) indicates (but see discussion §4.6):

(20)   a   * Anyone I didn't see.
       b   *Anyone didn't come.

Things are not as simple as that, however. Consider, for example, that the c-command restriction on s-structure does not rule out instances of *any* such as the one in (21), where *any student of linguistics* precedes its licenser *can*:

(21)   Any student of linguistics can attend this meeting.

The issue of c-command as defining the syntactic licensing domain of APIs will be discussed in great detail later on (§4.6).

(ii) *Subject auxiliary inversion*

Wh- and negative elements give rise to subject-auxiliary inversion in English main clauses, resulting to residual V2 orders:

(22)   a   What did you see?
        b   * What you saw?

(23)   a   Under no circumstances would I do that.
        b   * Under no circumstances I would do that.

Since Rizzi (1990), who modified and updated earlier proposals by May (1985), it has been standardly assumed that subject-auxiliary inversion in interrogatives (and the ensuing adjacency between the two) involves I-to-C movement driven by the wh-criterion. The latter requires that a wh-XP and a wh-X^0 be in Spec-head configuration with each other. In main clauses the requirement is met by raising the auxiliary from I^0 to C^0, because I^0 is specified with [+wh] features in those clauses. The wh-word, *what* in (22a) moves to a targeted position [Spec,CP] yielding thereby the right Spec-head configuration which satisfies the wh-criterion at s-structure. In embedded clauses, the wh-criterion is satisfied via selection by a lexical head. In these contexts, the relevant feature in C^0 is provided by lexical selection by another head, namely the verb which selects the wh-complement, so that verb raising is not necessary.[5]

An analogous argument can be built for (23a,b). The preposed negative constituent has supposedly moved to [Spec,CP] (but see Haegeman 1996 for a more refined analysis in terms of a split CP system, see Rizzi 1997). Under the assumption that it is I^0 that carries the required negative feature, the auxiliary moves to C^0 and the observed V2 order obtains.

Although interrogative and negative inversion appear to provide a quite appealing argument in favor of a unified principle from which both are derived, there is a set of facts that actually makes the parallelism break down. To start with, there are many reasons not to adopt Rizzi's proposal for a number of languages, French, Spanish and Greek being just a few of them. The literature on *obligatory* and *free inversion* is relevant here, but we cannot go into the details (see Torrego 1984 for Spanish, and Anagnostopoulou 1994 for arguments against I-to-C movement in Greek interrogatives).

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[5] Exempted from the wh-criterion are relative wh-phrases and wh-phrases *in situ*. For the latter the wh-critetion does not apply, since they are found *in situ* and not in a scope position, therefore they do not qualify for operators proper. It is not so clear why relative wh-elements are exempted. For discussion see also Acquaviva (1993).

Second, interrogative inversion is a root (i.e. main clause) phenomenon whereas negative inversion is not. That negative V2 occurs in embedded clauses is illustrated in (24) (see also Haegeman 1996):

(24)   Paul said that under no circumstances would he do that.

A way of dealing with this difficulty within the NEG-criterion approach would be to say that, contrary to what the case is with the WH-criterion, there is only one way to satisfy the NEG-criterion, namely I-to-C movement, and that the head selection strategy is not available, because verbs do not subcategorize for negative sentences. This solution cannot be justified, though. In Greek, verbs of fear like *fovame* 'be-afraid' typically select as their complements clauses preceded by negation *mi(n)* 'not' or the negative complementizer *mipos* 'lest' which has *mi(n)* as one of its components. This is illustrated in (25):

(25)   Fovame   {min erthi /   mipos erthi}.
         be-afraid.1sg not come.3sg/ lest come.3sg
         'I am afraid s/he might come.'
         'I am afraid lest s/he comes.'

In fact, the other complementizers *oti* and *pu*, are excluded, as shown in (26). The subjunctive *na* can be used, but only if it is followed by negation, as we see in (27). In this case, it means exactly what (25) means:

(26)   * Fovame   {oti /pu} erthi.
         be-afraid.1sg that   come.3sg/that come.3sg

(27)   Fovame   na   min erthi.
         be-afraid.1sg subj   not come.3sg.
         'I am afraid s/he might come.'
         'I am afraid lest s/he comes.'

Probing into details here would lead us too far afield. Suffice it to see that verbs may indeed subcategorize for negative complements, so the head selection strategy is in principle available. Hence the question why we have the observed asymmetry between wh-inversion and negative inversion remains unanswered.
       A third problem concerns register differences. While sentences with interrogative inversion are not stylistically marked, sentences with negative inversion have the flavor of a somewhat formal register. It is not at all obvious

whether, and if so, how this difference follows from the view that there is a single syntactic and interpretive principle that governs both interrogative and negative inversion.

Finally, a potential problem arises with the fact that preposed negative constituents which express constituent negation do not trigger subject-auxiliary inversion:

(28)   Not many years ago, Paul was in love with Lucie.

Haegeman (1995, 1996) discusses this asymmetry in detail. She considers Rizzi's idea that *not many years ago* is not a real operator since it does not have sentential scope, and rejects it because it is at odds with the fact that *not many years ago* is found in a left peripheral A'- operator position. Yet, (28) is not a negative sentence, as can be shown, among other things, by the fact that it accepts only negative question tags. Thus the intuition that the NEG-criterion concerns only negatives with sentential scope seems to be correct, and cases like (28) do not really present a problem. What appears to be problematic instead is the definition of operators as elements found in a left peripheral scope position.

(iii) *Weak islands*
It is argued that the syntactic similarity between negative and interrogative constituents becomes apparent when we examine their interaction with wh-movement (cf. Rizzi 1990, Acquaviva 1993, Zanuttini 1991, Haegeman 1995 and references therein). Wh-elements give rise to weak island effects and so do negative elements. Weak islands are selective, as we see in (29) and (30); they allow argument wh-extraction, but they block adjuncts:

(29)   a   ? Who$_1$ do you wonder [$_{CP}$whether they will fire t$_1$]?
        b   *Why$_1$ do you wonder [$_{CP}$whether they will fire Lucie t$_1$]?

(30)   a   It is for this reason that everyone believes that Bill was fired.
        b   *It is for this reason that no-one believes that Bill was fired.

The reasoning in Rizzi (1990) goes as follows. In (29a) *who*, whose trace is an argument, occupies the matrix [Spec,CP], as in (31). The slightly degraded status of the sentence is due to the island effect created by *whether* in the embedded [Spec,CP]. In (29b) we only consider the reading where *why* is extracted from the lower CP. We see that the long construal of the moved adjunct *why* is

not possible: *why* cannot be connected back to its trace in the embedded clause, as we see in (32):

(31)   [$_{CP}$ who$_1$ do [$_{IP}$ you [$_{VP}$ wonder [$_{CP}$ whether [$_{IP}$ they will fire t$_1$]]]]]

(32)   * [$_{CP}$ why$_1$ do [$_{IP}$ you [$_{VP}$ wonder [$_{CP}$ whether [$_{IP}$ they will fire Lucy t$_1$]]]]]

Whether is claimed to block the connection between *why* and its trace in the embedded CP because it is a potential A'-binder for the *why*-trace, in violation of relativized minimality. Argument traces are identified via their relation to the verb, thus *whether* is harmless in (31).

According to Rizzi, *no-one* in (30b) is like *whether* in (29b). It blocks interpretation of the reason cleft *it is for this reason* with the lower CP and only the reading with the matrix clause is allowed. (30b) cannot mean "This is the reason such that no-one believes that Bill was fired for that reason". It can only mean "This is the reason that motivates the fact that no-one believes that Bill was fired" (cf. Rizzi 1990: 19, examples (30a,b)). In the absence of *no-one* both construals are possible, hence (30a) can have both readings.

The obvious implication of the analysis outlined above is that negation and negative elements are A' specifiers, just like *whether*. This assumption appears to be independent of the workings of the NEG-criterion, but recent developments, most notably Haegeman (1995), venture an incorporation of this idea into the technical apparatus of the NEG-criterion. In order to reconcile the conception of negation as an A'-specifier and the formulation of the NEG-criterion as it stands, one will be forced ultimately to claim that an (expletive) null negative operator is always present at [Spec,NegP]. While this move grants unification of wh-elements and negation in terms of weak island effects, which is undoubtedly a strong desideratum for theories inspired by the common features between the two, it is hard to see what the empirical or conceptual advantages would be. First of all, as pointed out in Acquaviva (1993, 1994) empirical problems arise with sentences like (32):

(32)   What did no-one say?

How can we account for the A' status of *no-one* which in (32) occupies the subject (A-) position?

Second, and most importantly, it is highly improbable that Rizzi's account of wh- and negative islands is on the right track. Recall the semantic fac-

tors that interfere: adjunct versus argument distinctions, the semantic nature of the intervening element and the wh-phrase and, as pointed out in Szabolcsi and Zwarts (1993, 1997), scopal interactions between the two (see also data in Kuno and Takami 1997). Given the compelling evidence that the condition on weak islandhood should be stated in semantic/pragmatic terms, I take it here that weak islands are semantic/pragmatic in nature.

Consider, in this connection, that data with grammatical occurrences of adjunct extractions have also been cited in the literature; such examples are given below (from Kuno and Takami 1997):

(33)   a   How much money$_1$ isn't he willing to contribute t$_1$?
         b   How much$_1$ shouldn't I pay for the new car t$_1$?

Cases like (33) should be ungrammatical under Rizzi's (1990) account, but they can be accounted for in terms of Szabolcsi and Zwarts if an additional coercion mechanism is assumed, which will allow a well-defined list-like domain for the extractee. It is not of immediate interest to go into the details here. It should be emphasized, however, that the parallelism between wh-elements and negation in weak islands, to the extent that it is real, follows from semantic and pragmatic factors determining the availability of informative answers, rather than from a common syntactic representation of negation and interrogative elements.

In §4.5, empirical arguments against collapsing wh-movement and NC in Greek will be provided. Next, I point out the basic problems NEG-criterion encounters as it stands.

4.2.3 Problems with the NEG-criterion

Before going into the problems with the NEG-criterion, let me first highlight what I believe to be an important contribution of it. The NEG-criterion postulates a quantificational component in n-words, together with a negative one. Though the latter will prove untenable, the position that n-words are quantificational is correct, and a successful theory of NC should incorporate it somehow.

The problems with the NEG-criterion reside in the two assumptions it relies on: (a) the characterization of n-words as negative, and (b) the idea that NC and wh-dependencies are governed by the same principles. I show below that there is actually no evidence that n-words are negative, a point emphasized also in the literature on Slavic n-words (see Blaszczak 1998, Richter and Sailer to appear for Polish n-words). I also present an asymmetry between NC and wh-movement (more will be provided in §4.5) which indicates clearly that the two

are not instances of the same type of dependency. In §4.5 it will also be shown that NC exhibits the characteristics of quantifier- rather than wh-movement, and it will be analyzed as such.

As I pointed out in §4.1, n-words are admitted in negative as well as in nonnegative contexts and they may be interpreted either as ∀¬ or as ∃ depending on whether they are construed with negation or not. When they *are* construed with negation, the structure is interpreted as negative. When not, no negative meaning arises. The sentences below illustrate the relevant facts in Greek, Catalan, Spanish, and Italian (see also the examples in (3) and (4); examples (35c,d,e) are from Laka 1990):

(34)   a   Dhen idha   TIPOTA.   Greek
              not   saw-1sg n-thing
              'I didn't see anything.'

         b   No he   dit   res.   Catalan
              not have.1sg said n-thing
              'I didn't say anything.'

(35)   a   Li   diras   res?   Catalan
              him/her tell.fut.2sg n-thing
              'Will you tell him/her anything?'

         b   Ha   telefonato nessuno?   Italian
              have.3sg phoned   n-person
              'Did anybody call?'

         c   Pedro duda   que venga   nadie.   Spanish
              Peter doubt.3sg that come.3sg n-person
              'Peter doubts that anybody will come.'
              'Peter doubts that nobody will come.'

         d   Perdimos la esperanza de encontrar ninguna salida.   Spanish
              lost.1pl   the hope   to find   n-   exit
              'We lost hope of finding some way out.'

         e   Todo aquel que tenga   nada   que dicir...   Spanish
              all   who that have.3sg n-thing that say
              'Everyone who has anything to say...'

         f   Si et fes   res,   m'ho dius.   Catalan
              if you do.subj.3sg n-thing,   me-it tell.2sg
              'If (s) he did anything to you, let me know.'

In (35), the alleged negative n-words appear to contribute no negative meaning in the absence of negation (with the exception of (35c), which is ambiguous). When used in questions, n-words yield no anticipation of a negative answer: (35a,b) are equally felicitous as information or rhetorical questions. It is hard to see how one can account for the intepretation of n-words in the sentences above and retain their characterization as inherently negative at the same time. At most, one should say about Romance n-words that they are ambiguous.

As a way out, we might want to follow Zanuttini (1991) and use *almost/absolutely* modification as diagnostics for the 'negativity' of n-words. Indeed, n-words in Romance languages can be modified by *almost* and *absolutely*, as the following Catalan example indicates (the same holds for Greek emphatics as we saw in §2.3.4, and for Slavic n-words (see Przepiórkowski and Kupsc 1997, and Richter and Sailer to appear for Polish n-words) :

(36)   No he   dit   absolutament res.
       not have.1sg said absolutely   n-thing
       'I said absolutely nothing.'

Crucially, however, *almost/absolutely* modification is good only in the context of negation. If negation is absent, *almost/absolutely* becomes ungrammatical, as we see in the examples below, taken from Quer (1993):

(37)   a   * Si aneu absolutament enlloc,   digueu-m'ho.
             if go.2pl absolutely   n-where, tell.imp.2pl me
             ('If you go anywhere, let me know.')
       b   * Dubto   que ens cridin   absolutament mai.
             doubt.1sg that us   call.3sg absolutely   n-ever
             ('I doubt that (s)he will ever call us.')
       c   * Tothom qui vulgui   absolutament res,   que m'ho digui.
             everybody who want.3sg absolutely n-thing, that me tell.3sg
             ('Everyone who want anything, let me know.')

If *almost/absolutely* are tests for universal quantifiers, then we have to say that n-words are ambiguous between ∀-interpretations (modifiable by *almost/ absolutely*) and ∃ (not modifiable). The *almost/absolutely* test tells us nothing about inherent negative force of the *n*-word (as emphasized also in Richter and Sailer to appear).

There are three cases which might indicate that n-words contribute negative meaning: (a) fragment answers, (b) co-ordinations, and (c) some apparent

equative structures which are interpreted as superlative-like comparatives. I provide here the Greek examples but similar facts are known for Romance (Zanuttini 1991) and Slavic (Przepiórkowski and Kupsc 1997): [6]

(38) Q: Pjon idhes?
          who saw.2sg
          'Who did you see?'
    A: KANENAN.
          'Nobody.'

(39) Thelo   na   pandrefto   ton Petro i   KANENAN (alo).
      want.1sg subj marry.1sg the Peter or n-person   (else)
      'I want to marry either Peter or nobody.'

(40) O Petros ine toso psilos oso KANENAS (alos) stin   taksi tu.
      the Peter is as   tall   as n-person   (else) in-the class his
      'Nobody else in Peter's class is as tall as Peter is.', implicating that
      'Peter is taller than anybody else in his class.'
      Not: 'Peter is as tall as everybody else in his class.'

In the above sentences, it seems that emphatics are interpreted as negative in the absence of overt negation. This, however, is an illusive impression due to the fact that we are dealing with ellipsis. Note that if we were to spell out full non-elliptical structures, the presence of negation would be indispensable, as indicated below:

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[6] Note that nonemphatics cannot be licensed in such elliptical structures, as I illustrated in §2.3.4 with fragment answers and as can be seen in the co-cordination in (i) as well:

    (i)   *Thelo   na   pandrefto i ton Petro i kanenan.
          want.1sg subj marry.1sg or the Peter or anybody

Given that the remnants in fragment answers are accented (for reasons that are of no immediate interest here), one could say that nonemphatics are excluded from such elliptical structures because they are non-accented elements. Considering that utterances with nonemphatics typically involve pitch accent on negation, one may argue alternatively that ellipsis does not allow nonemphatics because of the fact that the accented negation itself must be deleted, as suggested to me Jason Merchant. Thanks to Jason Merchant and Adam Przepiórkowski for bringing this issue to my attention.

(38')   A: KANENAN [*(**dhen**) **idha**].
                n-word   not   saw.1sg
                'Nobody [I saw].'

(39')   ... i [*(**dhen**) **thelo   na pandrefto**] KANENAN.
        or   not   want.1sg subj   marry.1sg n-person
        '... or I don't want to marry anybody.'

(40')   ... oso [*(**dhen**) **ine**] KANENAS alos stin   taksi tu.
           as   not   is   n-person   else   in-the class his
        'Peter is as tall as nobody else in his class.'

Whatever the mechanism of resolving ellipsis may be, we have to say that the
negative meaning in fragment answers, disjunction, and equative/comparative
structures arises not as an inherent contribution of the emphatics, but rather as
the result of their being associated with negation at the level at which ellipsis is
resolved. As regards fragment answers in particular, consider that bare NP rem-
nants of minimizers can also be used, as *leksi* 'word' in (41):

(41)   Q: What happened? Did he say anything all night?
        A: LEKSI!
                word
                'Not a word!'

It would be too far-fetched to invoke inherent negative meaning for *leksi* 'word'
here. Rather, the ability of *leksi* to serve as a felicitous fragment answer with
negative meaning arises as a result of the fact that the minimizer is always con-
strued with negation (or other appropriately antiveridical operators). Exactly the
same can be said for the emphatics in (38)-(40) above. Finally, consider the fol-
lowing case from Irish. As pointed out to me by Paolo Acquaviva, Irish allows
PIs like *duine ar bith, N ar bith* 'person at all, N at all' as fragment negative an-
swers. Yet these items mean 'any person' rather than 'no person' in other con-
texts, and are *not* modifiable by *almost/absolutely*.

        Based on the above discussion, and considering the facts presented in
§4.1.1, we may safely conclude that there is no real evidence that n-words are
inherently negative.[7]

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[7] In support of this conclusion, I should mention here that items with inherent negative mean-
ing, like *udhis* 'nobody' and *udhen* 'nothing', are not construed with negation. *Udhis, udhen*

Another source of trouble for the NEG-criterion emerges when we consider the parallelism between n-words and wh-dependencies it relies on. Observe the Catalan sentences below, where n-words are licensed in syntactic islands (from Quer 1993):

(42) a   No$_1$ vindra   [perque vulgui   fer res   amb ningú$_1$].
           not come.fut.3sg because want.subj.3sg do n-thingwith n-person
           '(S)he won't come because he would like to do anything with
           anybody.'
      b   * Que$_1$ non vindra   [perque vulgui   fer t$_1$]?
           who   not come.fut.3sg because want.subj.3sg do

(43) a   No$_1$ dire   secrets [que puguin   ofendre ningú$_1$]
           not tell.fut.1sg secrets that can.subj.3pl offend n-person
           'I will not tell secrets that might offend anybody.'
      b   * A qui$_1$ no em diras   secrets [que puguin   ofendre t$_1$]?
           to   who not me tell.fut.2sg secrets that can.subj.3pl offend

That Catalan n-words are systematically licensed in syntactic islands was first documented in Quer (1993). The relevant list includes causal, manner, purpose and temporal adjuncts, sentential subjects, complex NPs, and relative clauses. (42a) illustrates licensing of an *n*-word by matrix negation in a causal finite adjunct. As we see from the ungrammaticality of the *b*-sentence, overt wh-extraction is prohibited from these clauses. Accordingly, (43) shows that relative clauses are islands for wh-phrases but not for n-words.

If the movement involved in NC is the same as the one involved in a wh-dependency, how can we explain the attested contrast between the two? The observed asymmetry between wh- and n-word movement is quite unexpected under the assumption that the two are instances of the same type of movement.

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are remnants from ancient Greek with very limited use in modern Greek, have inherent negative meaning, and, as we see in (i), cannot co-occur with negation.

(i)   Udhen neoteron (*dhen) exomen.
        nothing new   not   have.1pl
        'There were no new developments.'

Sentences like (i) belong to a very formal register, but when appropriate, they don't allow negation. The absence of NC in ancient Greek should be linked to the absence of NC in English, German and Dutch, and this in turn to the fact that an inherently negative paradigm of n-words is employed.

Two conclusions should be drawn from the preceding discussion. First, it should be obvious that the NEG-criterion fails to account for the distribution and intepretation of n-words in Romance and crosslinguistically. Romance n-words are not inherently negative; at most, they are ambiguous between universal (under negation) and existential interpretations. N-words in Slavic and Greek, however, always associate with negative meaning since they always co-occur with negation, but the NEG-criterion approach is not refined enough to capture this difference. Second, as suggested by the asymmetries between wh-fronting and NC, and the Catalan data just discussed, NC and wh-movement do not appear to be instances of the same phenomenon. In §4.5 more asymmetries between NC and wh-movement will be discussed, which will enable us to establish the point that wh-dependencies and NC are in fact distinct dependencies (see also Acquaviva 1997 for discussion towards this direction).

4.3 The nonquantificational approach: n-words as indefinites

Ladusaw (1992) rejects the position that n-words are semantically negative, and proposes that their semantic representation should be that of indefinites in the Heimian sense. In this view, n-words are open formulae with no quantificational force of their own. Like indefinites, n-words contribute a free variable (to be bound by the appropriate operator), and a condition that on that variable.

Following Ladusaw (1992), Ladusaw (1994), Acquaviva (1993), Giannakidou (1997a), and Giannakidou and Quer (1995, 1997) propose analyses of NC based on the idea that n-words are Heimian indefinites. Although these works are inspired by the same assumption, the individual analyses are by no means identical. Acquaviva's proposal is intended as a syntactic proposal. Ladusaw (1992, 1994), and the account developed in Giannakidou (1997a) and Giannakidou and Quer (1995, 1997), on the other hand, are proposed as theories about the syntax-semantics interface. Here I consider Acquaviva first, and then discuss the other proposals as one type of account.

4.3.1 Acquaviva (1993)

Based on the idea that n-words are indefinites, Acquaviva builds a syntactic proposal which subsumes specifically the details of some version of the NEG-criterion, and which consists of the following claims:

(i) N-words are licensed *in situ* through a mechanism of unselective binding. Their scope does not derive from their movement to scope positions, but from the fact that they are bound by a negative operator OP which is itself located in a scope position. The operator in question is a syntactic entity and it may be abstract or overt. OP is generated in [Spec,NegP] and it is able to unselectively bind one or more instances of n-words through a mechanism of operator-variable coindexing at LF. What forces the generation of OP in [Spec,NegP] is the structural constraint expressed by the NEG -criterion. Since NIs are not analyzed as operators, the NEG-criterion applies only to the negative OP in [Spec,NegP] or to negative phrases moved to A'-positions.

(ii) Acquaviva assumes a phrase structure like (44). AgrP is above NegP, Agr^0 hosts an abstract existential quantifier $\exists$, and Neg^0 raises to Agr^0, which is claimed to be a generalized phenomenon:

(44)
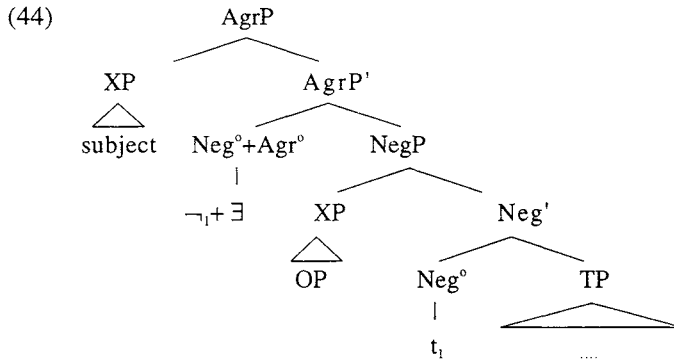
Neg^0 expresses $\neg$. By raising to Agr^0, Neg^0 compounds with the abstract existential quantifier $\exists$ argued to be present in that position. Under the additional assumption that the verbal predicate is associated with an event variable e, sentential negation is understood as the closure of e by $\neg\exists$, which is brought about from incorporation of Neg^0 into Agr^0:

(45)   Sentential negation $= \neg\exists e$

The idea that I hosts an event variable e is first proposed in Higginbotham (1985). The negated existential expressed by $Neg^0 + Agr^0$ is a *semantic* but not a *structural* binder for coindexed indefinites in its scope. In the event that n-words are bound by Neg^0, Acquaviva argues that *Negation identification* applies:

(46) *Negation Identification*   [Acquaviva 1993:106]
      If two or more indefinites are associated with the negative connective ¬
      and they are all bound by a single operator, then the connective ¬ is
      uniquely interpreted on the operator.

Negation identification is reminiscent of negative absorption: it refers to the se-
mantics of multiple negation merger. Its application is not confined to NC. Even
in languages with no NC the merger of two negatives is available as a semantic
property, hence NC is predicted to arise ideally in all languages.

        (iii) The syntactic binder for n-words is, as stated above, the negative OP
in [Spec,NegP]. The binding relation between OP and n-words is subject to
government at LF, a locality constraint intended to ensure that the NI will be as-
signed sentential scope.

        (iv) As is obvious from the above, from Acquaviva's point of view, the
split between NC and non-NC languages is not basic. What *is* basic is the mor-
phological negative feature which Neg^0 endows the OP in [Spec,NegP] with so
that OP will turn to an appropriate syntactic binder for n-words. The difference
between NC and non-NC languages arises from the fact that in the former the
crucial negative feature must (or may) be overtly realized at s-structure in Neg^0
whereas in the latter, if an n-words is present, the entire NegP and its compo-
nents must be abstract.

        A first step towards evaluating Acquaviva's proposal is to distinguish the
syntactic part from the semantic one. The two are arguably independent and the
suggested syntactic implementation does not follow from the chosen semantic
analysis (the syntax implemented in Ladusaw-Giannakidou-Giannakidou and
Quer is quite different from Acquaviva's). An important contribution of Ac-
quaviva's analysis is that it establishes uniformity between NC structures and
structures of the Germanic type (with n-words, but without NC). One may won-
der, however, given the facts presented in 4.1, whether this is indeed desirable.
To be fair to Acquaviva, this consideration applies generally to the view that n-
words are semantically indefinites, and it does not strictly speaking concern his
exploration of it. More criticism on this principal choice to treat n-words uni-
formly as indefinites will be given in 4.3.2.

        Binding n-words *in situ* is an attractive feature of the analysis, but as we
shall see below, it cannot be claimed that *all* n-words are licensed *in situ*. Ac-
quaviva himself proposes raising accounts for English and Romance n-words
licensed long distance, thus obscuring what exactly is licensed *in situ*, and also

prompting questions as to whether we can have semantic licensing *in situ* and syntactic licensing by movement at the same time.

The syntactic part of the proposal makes crucial use of the negative OP, which is claimed to be situated at [Spec,NegP] by default, and is responsible for the syntactic binding of n-words. Yet, the postulation of OP, which follows as an ultimate consequence of the NEG-criterion (cf. also the reformulation of it in terms of CHAINS proposed in Haegeman 1995), has only theory internal motivation, and lacks empirical support. A related problem involves Acquaviva's distinction between semantic binding and syntactic binding (which is done by OP at [Spec,NegP]). In my opinion, it is not desirable to distinguish the two, especially since there is no empirical reason to do so.

Finally, the generalized Neg^0-to-Agr^0 movement appears to also lack motivation. Why not generate Neg^0 higher than Agr^0, as is proposed in Zanuttini (1991), since this is the resulting surface position anyway? For languages like Greek one could not tell the difference and the most economical way to derive the specific relative order should be preferred (cf. discussion in §2.2). On top of this, the idea that the two heads incorporate does not seem appealing, especially if one considers that it is possible for clitics and particles to intervene. Should we argue for an incorporation analysis for all these elements? It seems highly improbable that such an argument could be made.

4.3.2 Two mechanisms for the licensing of n-words: weak and strong licensing

Ladusaw (1994) conjectures that it is plausible to account for the distribution and intepretation of n-words by invoking not one, but two mechanisms for their licensing. N-words may be licensed via Spec-Head agreement (in the spirit of the NEG-criterion, the *strong* construal), or they may be a *roofed* by an operator of the appropriate semantic type (i.e. a nonveridical operator, the *weak* construal). Being roofed by an operator is a synonym for being bound by that operator. In Ladusaw's vision, then, the negative and existential readings of n-words are derived as products of two distinct syntactic mechanisms coupled with the assumption that they are indefinites.

In Giannakidou (1997a), and Giannakidou and Quer (1995, 1997), Ladusaw's proposal is embedded in the framework of affective dependencies as nonveridical, and a formal spell-out of his program was proposed in terms of *weak* and *strong* licensing. Weak and strong licensing, which were proposed as a general theory of affective licensing are formulated as in (47) (where *Op* stands for semantic operator):

(47) a   ANTIV Op_x [$_{restriction}$...x..]. [$_{scope}$ Main Predication] (Strong)

      b   NONV/ANTIV Op [$_{scope}$.∃x..].   (Weak)

Strong licensing takes place only under antiveridical operators. When n-words
are licensed strongly, their variable is bound by an antiveridical operator in its
restriction as indicated in (47a); as a result, the universal negative (∀¬) interpre-
tation arises. Greek emphatic indefinites are licensed strongly.

    Weak licensing, on the other hand, involves nonveridical operators. In
this case, the variable is existentially closed in the scope of the operator yielding
the corresponding existential interpretation, as illustrated in (47b). Nonemphatics
are licensed weakly. Given that antiveridical operators form a subset of the non-
veridical, it follows that antiveridical operators, e.g. negation, will be able to li-
cense both weakly and strongly. Empirically, this is correct: under negation, em-
phatics and nonemphatics are equally acceptable.

    The representations in (47) imply that when Ops license weakly they are
not quantificational, but when they license strongly they are, hence the pattern
restriction-scope is available only in the latter cases. The intuition behind the
proposed quantificational-nonquantificational contrast was connected to the *cate-
gorical* (quantificational) versus *thetic* (nonquantificational) distinction (especially
in Ladusaw 1994, and Giannakidou 1997a). Negation is thus ambiguous: cate-
gorical negation is quantificational, but thetic negation is not.

    It also assumed that the semantic distinction between weak and strong
licensing maps onto distinct syntactic conditions. Weak licensing involves *in situ*
binding of the *n*-word by a c-commanding nonveridical operator. The licensing
of nonemphatics and Catalan n-words in islands and long distance provided con-
siderable empirical evidence for this argument. The Greek facts concerning is-
lands are illustrated in (48a,b); cf. the Catalan facts in (41)-(42) :

(48) a   Dhen itan isixi [epidhi fovithike   {kanenan/*KANENAN}].
            not was.3sg quiet because was-scared.3sg anyone
            'S/he wasn't quiet because (s)he was scared of anybody.'
      b   Dhen prodosa mistika [pu eksethesan {kanenan/*KANENAN}].
            not betrayed.1sg secrets that exposed.3pl anybody
            'I didn't reveal secrets that exposed anybody.'

    Strong licensing was taken to involve LF-movement of the emphatic to
[Spec, NegP], more or less in the spirit of the NEG-criterion. The ungrammatical-
ity of emphatics in islands (cf. (48) above) and the constraints on their licensing
long distance indicates that their dependency, unlike that of nonemphatics, is

strictly local. Hence, the universal negative interpretation of emphatics was taken to be the semantic reflex of syntactic movement, whereas the existential interpretation of nonemphatics was linked to the absence of any kind of movement. NC, in that framework, was an instance of strong licensing under negation.

In the analysis I will present here, I adhere to the idea that two mechanisms are involved in the licensing of n-words. I will keep weak licensing as is: *in situ* licensing by an appropriate c-commanding nonveridical operator. I will reject, however, the nonquantificational analysis of strong licensing. Before entering into the main part of my analysis, let me comment briefly on this choice.

4.3.3 Problems with the nonquantificational approach

The theory of weak and strong licensing contributes an important insight, which we should retain: negative dependencies are not uniform. This fact connects nicely with the partition observed in the semantic side of licensing between APIs and NPIs. NC is the strong instance of negative dependency involving NPIs, but there is also a weak instance of it that involves existential interpretations of APIs. The two would correspond to the distinct interpretations of (the truth conditionally equivalent) (49a) and (49b):

(49)   a   Frank didn't see anybody.   (Weak Negative Dependency)
        b   Frank saw nobody.   (Negative Concord)

The choice between these two structures is not available in all languages. If available, the question is what determines the choice between the two structures. An answer to it in terms of the informational content of the relevant utterances should be given (see especially the analysis I developed in Giannakidou 1997, and discussion in §4.7 below).

Yet the insight that there are two instances of negative dependencies does not depend on the nonquantificational analysis of n-words, nor does it follow from it. Rather, it can be stated independently of such an analysis (as I will show in the rest of this chapter). Moreover, a number of problems arise with the very assumption that n-words are uniformly indefinites.

First of all, there are significant differences between emphatics and nonemphatics which cannot be accommodated by treating them as indefinites. We discussed these differences in §2.3.4, so I will not repeat them here. The conclusion we drew there was that nonemphatics do behave like existential quantifiers (thus as indefinites if one prefers to characterize them that way), but emphatics do not: they are not modifiable by modifiers of existentials like *ke,*

they cannot be used as predicate nominals, and they do not allow donkey anaphora, as their nonemphatic counterparts do. An analysis of n-words as indefinites does not predict contrasts like those between emphatics and nonemphatics.

Second, and most importantly, the indefinite approach cannot handle the issue of locality arising in NC. If n-words are indefinites, no locality constraints should apply, as indefinites are known to have 'unbounded' scope. We saw however, that an asymmetry is observed between NC, on the one hand, and weak negative dependencies, on the other, as regards locality: nonemphatics are not subject to locality constraints (cf. §4.6, and the examples above involving islands), but emphatics are, as noted in Giannakidou (1997a) and Giannakidou and Quer (1995, 1997); the relevant facts will be considered also in §4.5. In the indefinite approach, the fact that weak licensing is assigned a nonmovement analysis but strong licensing is taken to involve movement does not follow from anything (let alone from the nature of the items themselves); it is merely a stipulation. In the analysis I propose in §4.5, however, locality in NC will be shown to follow directly from the assumption that NC involves quantifier movement.

In the approach I developed in Giannakidou (1997a), I shifted the quantificational load from n-words to negation, by claiming that in strong licensing negation is "quantificational" (for a similar claim see Partee 1991, Quer 1998). This claim, however, is not unproblematic. Disguised in the characterization of negation as quantificational is the need to capture the fact that, when negation applies to an utterance it does not always affect it as a whole. In certain cases, some parts are not affected by negation (see the discussion of metalinguistic negation, especially in Horn 1989, McCawley 1990, and van der Sandt 1988, 1990). I believe it is conceptually and intuitively more attractive to capture this fact in terms of presupposition and backgrounded information- as suggested, for instance, in Geurts and van der Sandt (1997)- rather than by building an ambiguity into the logical connective (see also §4.7).

For the above reasons, I reject the nonquantificational approach to NC. In the present study, I will propose a reformulation of weak and strong licensing in terms of *in situ* binding of an n-word contributing $\exists$ (§4.6) and quantifier scope (LF movement of the n-word contributing $\forall$ to a scope position above negation; see §4.5). The pragmatic import of this difference will be tackled in §4.7.

Before probing into the specifics, for the sake of completeness we should look at the third approach to NC discussed in the literature.

4.4 N-words as context sensitive expressions

In lexical semantics, it is often stated that the polysemy of adjectives such as *red* and verbs such as *bake* we observe in (50) can be implemented by adopting a disjunctive meaning function along the lines of (51) (cf. Keenan 1974, Dowty 1979 among others). This meaning function would associate the form *red* with various semantic values depending on the noun being modified:

(50) red grapefruit, red army, red carpet
(51) $f(x) = \{...\text{if } P_1(x), \text{if } P_2(x),..., otherwise\}$

Van der Wouden and Zwarts (1993) provide an account of NC based on this idea of context sensitive assignment of semantic values. They put forward the following hypotheses (van der Wouden and Zwarts 1993: 207):

(52) *Hypothesis 1*
       Negative doubling [i.e. NC proper] involves the formation of a marked verbal projection by means of a designated element that has the morphological shape of a negative, but denotes the identity function. This designated element itself must be licensed by an expression with the appropriate semantic properties. Though these properties may vary from language to language, it is a necessary condition that the licensing expression be downward monotonic. Consequently, the designated element can be regarded as a semantically vacuous polarity item.

(53) *Hypothesis 2*
       Negative spread involves context dependent assignment of semantic values to quantified expressions. In particular, a universal negative within the scope of the negative is interpreted as an existential quantifier. From the semantic point of view, universal negatives can be characterized as anti-additive. The corresponding existential quantifier belongs to the class of additive expressions.

I will not wrestle here with the syntactic details nor shall I address the issue of downward entailment versus antiveridicality, as it has been discussed in chapter 3. Van der Wouden and Zwarts's proposal is based on the assumption that n-words are lexically ambiguous. In one of their meanings, as 'semantically vacuous polarity items', n-words are existential. In the other, they are negative quantifiers. Although I have nothing against an ambiguity analysis of at least some n-

words (in fact, Romance n-words call for an ambiguity analysis, as I have emphasized a couple of times already), we concluded in §4.2.3 that there is no evidence that they are negative quantifiers. In this sense, it is hard to see what the content of van der Wouden and Zwarts's ambiguity could be. If n-words are ambiguous, then they are ambiguous between existential and universal readings, rather than anything else.

In addition, Hypothesis 2 fails on the empirical side. In (54a) below, from European Portuguese, *quase* 'almost' and *absolutamente* 'absolutely', modifiers of universal quantifiers, can modify both n-words. Hypothesis 2 predicts that only the first *n*-word will accept *almost/absolutely* modification (data from Joao Costa, p.c):

(54) a   Quase ninguém viu   quase   nada.
           almost n-person saw.3sg almost n-thing
           lit. Almost everybody saw almost nothing
           i.e. 'Very few people saw anything at all.'

      b   Absolutamente ninguém disse absolutamente nada   a ninguém.
           absolutely   n-person   said.3sg absolutely n-thing to n-person
           lit. Absolutely everybody said absolutely nothing to anybody.
           i.e. 'Nobody at all said absolutely anything to anybody.'

Similar examples can be given (at least) for Greek, Spanish, and Slavic languages (see Richter and Sailer to appear for Polish), *contra* van der Wouden and Zwarts. In view of cases like (54), the claim that non-initial n-words are interpreted as existential quantifiers cannot be maintained. Recall, finally, that the fact that n-words can be modified by *almost/absolutely* does not imply that they are negative. Rather, it implies that they are universals.

4.5   Negative concord and quantifier scope

In this section I propose a compositional account of NC based on the idea that n-words participating in this structure are universal quantifiers which are sensitive to negative polarity. As NPIs, n-words require the presence of negation for grammaticality; as quantifiers, however, they must undergo QR and take scope over negation in order to be properly interpreted as $\forall\neg$ (which is the only reading NC structures have). NC is thus reduced to a quantifier scope phenomenon. Given that the usefulness of QR has been questioned recently (most forcefully in Hornstein 1995), the analysis proposed here, if correct, will provide a strong

argument for retaining QR as a necessary device at the syntax-semantics interface: we need it in order to interpret NC.

Though I focus below on Greek NC patterns, the analysis should, *ceteris paribus,* carry over to other varieties of NC proper. The account will have an important consequence for the definition of the syntactic domain of PI-licensing: it entails that this domain does not always correspond to the c-command domain of the licenser. Rather, in the case of NC, syntactic licensing corresponds to a condition that the NPI *escapes* the scope of the licensing negation.

The discussion proceeds as follows. The main analysis is given in §4.5.1. In §4.5.2 I point out the consequences of the proposed analysis for the characterization of the licensing domain for PIs. Then I provide further evidence for the point that emphatics move in a QR manner. I do so, by excluding two other possibilities: that emphatics undergo wh-like movement (§4.5.3), and focus movement (§4.5.5). It will be shown in §4.5.4 that emphatic movement is essentially clause-bounded, as the movement of quantifiers typically is. Thus the locality observed in NC will be shown to follow from the locality characterizing quantifier movement.

4.5.1 The compositionality puzzle solved

We concluded in §2.3.4 that emphatics are universal quantifiers. The conclusion was based on the following facts. First, emphatics are compatible with modifiers of universal quantifiers like *almost/absolutely.* Second, they are incompatible with modifiers of existentials like *ke* 'and' (comparable to Dutch *ook maar* and German *auch nur*). Third, just like universal quantifiers, emphatics do not license donkey anaphora. Finally, on a par with universals, emphatics cannot be used as predicate nominals. Emphatics will henceforth be glossed as *every.* When possible, I will translate them into their English *no*-counterpart, to indicate that we are dealing with a strong negative dependency.

In §2.3.4 I further identified the following as the sensitivity feature of emphatics:

(55) *Sensitivity in emphatics*
      Emphatics are *topical* universals which can only combine with antiveridical predications.

Emphatics (and comparable items crosslinguistically) are the logical subjects of antiveridical predications. Their limitation to negative and negative-like contexts follows directly from this sensitivity specification. Unlike nonsensitive univer-

sals, e.g. *kathe* 'every', emphatics need negation (or some other antiveridical operator) to be licensed, but from their topic nature it follows that they will always take wide scope with respect to negation.

Consider now the two basic NC patterns illustrated in (56), with an emphatic subject, and (57) with an emphatic object. Greek is a VSO language, so these orders are natural and quite common. Overt movement is also allowed (and will be analyzed as a kind of topicalization in §4.7):

(56)   Dhen irthe   KANENAS.
       not came.3sg everybody
       'Nobody came.'

(57)   Dhen ipe   o   Pavlos TIPOTA.
       not said.3sg the Paul   everything
       'Paul said nothing.'

What these sentences mean is illustrated in (58) and (59) for (56) and (57), respectively:

(58) $\forall x$ [**person** $(x) \to \neg$ **came** (x)]

(59) $\forall x$ [**thing** $(x) \to \neg$ **said** $(Paul, x)$]

The emphatic quantifier is thus interpreted above negation, resulting in a universal negative statement. Since we are dealing with quantifiers, the obvious way to derive this reading is to assume that KANENAN and TIPOTA undergo QR in order to be assigned scope above negation.

Note that *kathe* 'every' cannot scope over negation. In default VSO orders, *kathe* necessarily scopes *under* negation. This is illustrated in (60)-(61) for a subject *kathe* and in (62)-(63) for *kathe* in object position:

(60)   Dhen irthe   kathe fititis.
           not   came.3sg every student
           'Not every student came.'

(61)   a $\neg$ [$\forall x$ [**student** $(x) \to$ **came** (x)]]

       b   # $\forall x$ [**student** $(x) \to \neg$ **came** (x)]

(62)   Dhen idhe   o   Pavlos kathe fititi.
            not said.3sg the Paul   every   student
            'Paul didn't see every student.'

(63)   a   ¬ [∀x [**student** (x) → **saw** (Paul, x)]]

        b   # ∀x [**student** (x) → ¬ **saw** (Paul, x)]

Sentence (60) has only one reading, the one with *kathe fititis* taking narrow scope with respect to negation as indicated in (61). Likewise, (62) has only the narrow scope reading for *kathe fititis* indicated in (63a). Note that SVO orders, where ∀ would be forced to take wide scope in one of its readings (because of its surface position), are ungrammatical:

(64)   a   ?? Kathe agori dhen efije.
            every   boy   not left.3sg
            (??Every boy didn't leave.) [cf.Beghelli and Stowell 1997: (28a)]
        b   ?? Kathe agori dhen idha.
            every   boy   not saw.1sg
            'I didn't see every boy.'

In not being able to scope over negation, Greek *kathe* is not alone; as we see in the English translations, *every* is also unable to scope over negation, a fact extensively discussed in Beghelli and Stowell (1997). Distributive universals in many languages appear to lack this option.[8] A possible explanation of this fact can be given by appealing to Beck's (1996) restriction on LF movement known as the *minimal quantified structure constraint* (MQSC). The MQSC, which is proposed as a universal filter on LF-movement, states that no LF movement past negation or another quantifier is allowed. *Kathe* and *every* respect the MQSC: when negation is present, *kathe* can only be QRed to a position lower than negation, possibly adjoining to VP (for arguments in favor of VP as a possible adjunction site for quantifiers see May 1985, and more recently Merchant 1998).

It appears, then, that emphatics supply the reading that *kathe* cannot. In NC languages lacking negative quantifiers, there would be no other way to ex-

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[8] I have ignored here the distributive-collective distinction, to keep things simple. For our purposes it doesn't matter if emphatics are collective or distributive, since the effect will be obliterated by negation anyway: most of the distributivity/collectivity tests employed in Beghelli and Stowell (1997) are not applicable.

press the universal-over-negation reading. Hence the use of NPI ∀s can be seen as remedying this 'deficiency'.

Given that negation precedes emphatics in the linear order, I take it that the universal-over-negation reading is achieved by QR raising of emphatics at LF. The proposed LFs for (56) and (57) are then in (56') and (57'), respectively; for the '.'convention see Heim and Kratzer (1998).

(56')   NegP: $\lambda P \forall y$ [**person** (y) → P(y)] ($\lambda x_1 \neg$ **came** (x_1))=...

$\forall y$ [**person** (y) → $\neg$ **came** (y)]

XP$_1$. : $\lambda x_1 \neg$ **came** (x_1)

KANENAS$_1$: λ_1 Neg': $\neg$ **came** (x_1)
$\lambda P \forall y$ [**person** (y) → P(y)]

Neg^0: $\neg$ IP: **came** (x_1)
|
dhen   I': **came** (x_1)

I^0: **came**$_v$ VP: $\mathbf{X}_v(x_1)$
|
irthe$_v$ t_1: x_1 t_v: $\mathbf{X}_v$
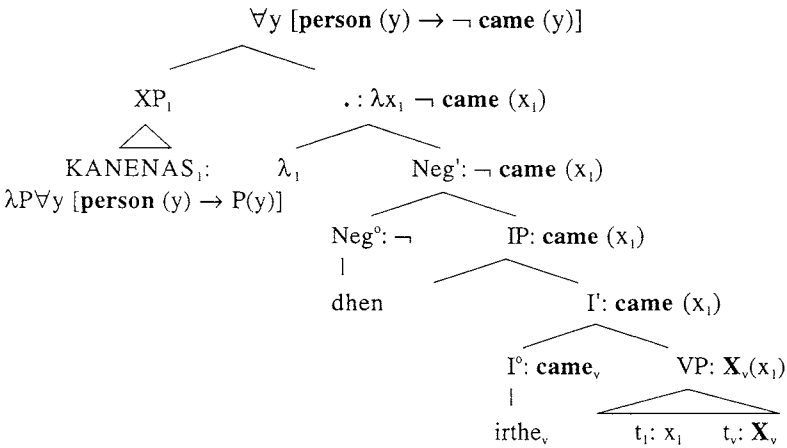
In such configurations, KANENAS and TIPOTA undergo QR past NegP and land in [Spec, NegP] (though an orthodox implementation of QR as adjunction (May 1977, 1985), in this case to NegP, is equally conceivable). Emphatics are interpreted outside the scope of negation, arriving at the desired logical representations in (58) and (59). Nothing special has been done, besides applying λ-abstraction above Neg' in order to provide the negative predicates the emphatics need to combine with. '...' indicates the intermediate steps where λ-conversion applies.

In this analysis of NC, the construction poses no threat for compositionality. The emphatic contributes a universal quantifier, and the sentential NM contributes negation. Hence there is no issue of absorption, as in the NEG-criterion approach, nor is there an issue of concord in the sense of agreement or the like.

(57')   NegP: $\lambda P \forall y$ [**thing** (y) $\to$ P(y)] $(\lambda x_i \neg$**said** (Paul, x_i)) =...
               $\forall y$ [**thing** (y) $\to \neg$**said** (Paul, y)]

```
           XP_i                    . : λx_i ¬said (Paul, x_i)

      TIPOTA_i:          λ_i            Neg': ¬ said (Paul, x_i)
   λP∀y [thing (y)→P(y)]
                           Neg°: ¬          IP: said (Paul, x_i)
                             |
                            dhen                I': said (Paul, x_i)

                                      I°:said_v          VP: X_v (Paul, x_i)
                                        |
                                       ipe_v  XP          V': X_v (x_i) (Paul)

                                        o Pavlos:   V°         t_i:x_i
                                                     |
                                                  t_v: X_v
```
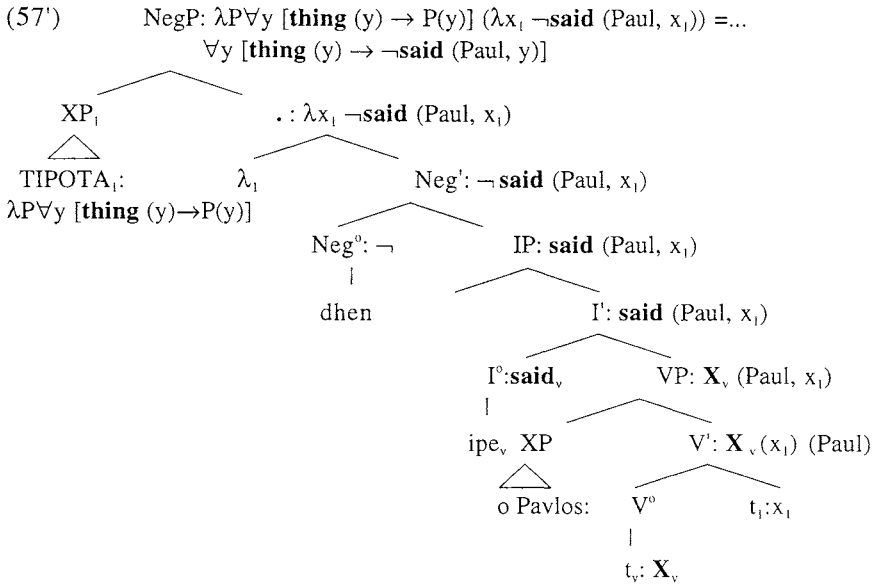
Note that if this analysis is correct, then we have to say that NPI universals are exempted from Beck's MQSC, hence this constraint cannot be proposed as a universal LF filter.[9]

Multiple occurrences of emphatics are possible and will be handled as successive adjunctions to NegP. Recall that no double negation reading arises in these cases. The relevant example is given in (65), where two occurrences of emphatics are observed, but in principle, the number of emphatics allowed is not limited:

(65)   Dhen ipe   KANENAS TIPOTA.
        not said.3sg everybody   everything
        'Nobody said anything.'

First, the object emphatic TIPOTA moves to [Spec, NegP], and then the subject emphatic KANENAS moves to adjoin to it. A formulation in terms of multiple specifiers, as in Chomsky (1995), is also conceivable, and as far as I can see

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[9] Of course, one could weaken Beck's claim and argue that the MQSC applies only to wh-like movement. Beck in fact says that her filter is intended for 'wh-related LF movement'(Beck 1996:1). But if this is so, then we can no longer invoke the MQSC for the impossibility of *kathe* and *every* to scope over negation.

nothing crucial hinges on either choice. The intepretation proceeds composition-ally as indicated in (65') (the intermediate λ-conversion steps have been omitted):

(65')   NegP: $\lambda P \forall z$ [**person** (z) $\rightarrow$ P(z)] $(\lambda x_2 \forall y$ [**thing** (y) $\rightarrow \neg$ **said** $(x_2, y)])$
            = $\forall z \; \forall y$ [(**person** (z) $\wedge$ **thing** (y)) $\rightarrow \neg$**said** (x,y)]

XP$_2$. : $\lambda x_2 \; \forall y$ [**thing** (y) $\rightarrow \neg$ **said** (x_2,y)]

KANENAS$_2$ λ_2 NegP: $\lambda P \forall y$ [**thing** (y) $\rightarrow$ P(y)] $(\lambda x_1 \neg$**said** $(x_2,x_1))$
$\lambda P \forall z[$**person**$(z) \rightarrow P(z)]$ = $\forall y$ [**thing** (y) $\rightarrow \neg$ **said** (x_2,y)]

XP$_1$. : $\lambda x_1 \neg$**said** (x_2 , x_1)

TIPOTA$_1$: λ_1 Neg': $\neg$**said** (x_2 , x_1)
$\lambda P \forall y[$**thing** (y) $\rightarrow$ P(y)]

Neg°:$\neg$ IP: **said** (x_2, x_1)
|
dhen   I': **said** (x_2,x_1)

I°:**said**$_v$ VP: $\mathbf{X}_v$ (x_2,x_1)
|
ipe$_v$:   t$_2$: x$_2$ V':$\mathbf{X}_v$ (x_1)

V°   t$_1$:x$_1$
|
t$_v$: $\mathbf{X}_v$
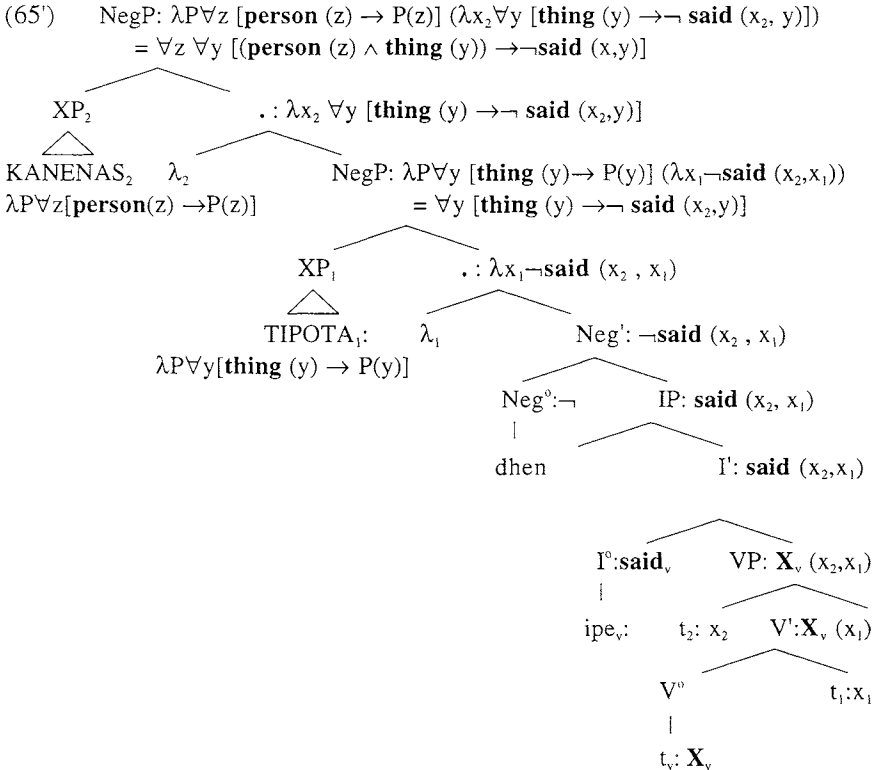
First, λ-abstraction applies to the negative sentence $\neg$**said** (x_2,x_1) provided by the IP combined with Neg°, which supplies the negative predicate required for composition with TIPOTA. The resulting sentence $\forall y$ [**thing** (y) $\rightarrow \neg$ **said** (x_2, y)] must again be λ-abstracted over the variable x_2 for composition with KANENAS. The result is the formula $\forall z \; \forall y$ [(**person** (z) $\wedge$ **thing** (y)) $\rightarrow \neg$**said** (x,y)] which is precisely what the sentence means.

The analysis presented above has one thing in common with the NEG-criterion approach: it relies on movement of the *n*-word to [Spec,NegP]. The motivations of this movement, however, are very different in the two analyses. In the NEG-criterion approach, the *n*-word moves in order to check its negative feature and undergo absorption. In the account I outlined here there is nothing special about n-word movement to [Spec,NegP]. As quantifiers, n-words move

to a scope position which, because of their sensitivity requirement, must be higher than negation. The correct intepretation for NC structures thus arises in a very simple and economical way, by invoking a mechanism which is employed in grammar for the scope of quantifiers anyway, and no recourse to additional processes like agreement and absorption is made (which are impossible to justify empirically in the first place, as we have seen).

Crucially, if NC involves scoping of a universal quantifier above negation, then it is predicted that sentences like the ones in (66a,b) will be odd, as the case is:

(66) a   # I Cleo   dhen idhe   KANENA monokero.
           the Cleo not   saw.3sg every   unicorn
           'Cleo saw no unicorns.'
      b   # I Cleo dhen psaxni   KANENA monokero.
           the Cleo not   seek.3sg every   unicorn
           'Cleo seeks no unicorns.'

The source of oddity is that emphatics must move above negation in both cases, yielding the structures in (66a') and (66b'). But this would imply a *de re* reading for unicorns which is absurd, since unicorns do not exist in the actual world.

(66') a $\forall x$ [**unicorn** (x) $\rightarrow \neg$ **saw** (Cleo,x)]
       b $\forall x$ [**unicorn** (x) $\rightarrow \neg$ **seek** (Cleo,x)]

Crucially, the impossibility of the sentences in (66) indicates that the narrow scope possibility (with respect to negation or the intensional operator) which would provide a *de dicto* reading (and thus not entail existence) is not an option for emphatics. This is precisely what we expect under the proposed analysis. The *de dicto* reading arises, as the only possible reading, with nonemphatics and bare NPs:

(67) a   I Cleo   dhen {idhe/   psaxni}   kanena monokero.
           the Cleo not   saw.3sg seek.3sg   any   unicorn
           'Cleo didn't see any unicorns.'
           'Cleo doesn't seek any unicorns.'
      b   I Cleo   dhen {idhe/   psaxni}   monokerus.
           the Cleo not   saw.3sg seek.3sg   unicorns
           'Cleo didn't see unicorns.'
           'Cleo doesn't seek unicorns.'

Cleo can be a unicorn-seeker if a nonemphatic or a bare plural is used. This fact, and the ensuing contrast between emphatics and nonemphatics/bare plurals, is in accordance with the assumptions we have been making that nonemphatics and bare NPs are interpreted inside the scope of the licensing operator (see discussion in §4.6 for nonemphatics, and §1.3.4.2 for bare NPs and minimizers).[10]

A final remark is in order concerning emphatic accent. As I noted in §2.3.6, emphatic accent in Greek marks scope (at least) under negation. When a DP co-occurs with negation, application of accent on the DP assigns unambiguously wide scope to that DP with respect to negation. I will not repeat the relevant examples here; I would just like to emphasize that the fact that emphatics bear emphatic accent is totally consistent with their analysis as wide scope universals proposed here. Most importantly, the fact that NC is emphatic crosslinguistically suggests that this analysis generalizes easily to crosslinguistic patterns.

Having outlined the main features of the proposal, I would like to point out now an important consequence of this analysis for our understanding of what constitutes the syntactic licensing domain for PIs. Then I discuss the issue of locality in §4.5.3, 4.5.4. The pragmatic import of NC and the differences between NC and weak licensing under negation will be postponed until §4.7.

4.5.2 Dependency and scope for polarity items

As regards the relation between licensing and scope-of-the-licenser in PIs, the analysis of NC described here suggests that the former does not necessarily translate into the latter. NPI ∀s *need* negation in order to be licensed; in order to be properly interpreted, however, they must reach a scope position outside negation's semantic and syntactic scope. For some instances of NPI-licensing, then, a licensing dependency should be understood as the opposite of the be-in-the-scope-of-licenser requirement. (In other cases, for instance with minimizers, a scope condition is precisely what we need, as we noted in §1.3.4.2).

This conclusion might seem counterintuitive at first glance, but in fact it follows from the general vision of polarity sensitivity developed in this book.

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[10] N-words in Polish differ from emphatics in this respect, as noted in Richter and Sailer (to appear): they interact scopally with negation and intensional operators. This difference should be linked to the fact that, unlike emphatics, Polish n-words may appear as predicate nominals too. The contrasts suggests that my analysis of emphatics cannot carry over directly to Polish. A parameter to consider here is that Greek also has the option of existential APIs (nonemphatics) under negation which Polish lacks. Hence, it could be plausible to argue that Polish n-words may be ambiguous between ∀ and ∃ readings, which is ultimately what Richer and Sailer propose.

The core notion of semantic dependency may be positive (licensing) or negative (anti-licensing). In a parallel fashion, the syntactic mapping of the dependency may be positive or negative. A positive syntactic condition must be formulated in terms of a be-in-the-scope-of condition, and this maps onto c-command. This is the case with APIs, as we see in §4.6. A negative syntactic condition, on the other hand, translates into an escape-the-scope-of condition. Nothing in the theory entails that positive dependency will map onto a positive syntactic condition, and negative dependency onto a negative one. In fact, it is predicted that four possibilities should exist. Table 2 illustrates that all four of them are realized in Greek:

Table 2 Semantic dependency and syntactic condition

Dependency	Condition	Polarity Items
positive	positive	APIs (nonemphatics), minimizer NPIs
positive	negative	NPI-universals (emphatics)
negative	negative	PPIs (*kapjos*- 'some' series)
negative	positive	FCIs (-*dhipote* series)

Anti-licensing of free-choice items was also shown to involve a "contradiction" when it comes to translating dependency into scope: the dependency condition is negative- "don't be in a veridical or episodic domain"-, but the scope condition is positive- "be in the scope of an operator satisfying the variation requirement". By contrast, positive polarity items like *kapjos* 'some' do not come with a positive requirement on the types of contexts they occur in.

In the reminder of this section, I will concentrate on justifying that NPI-∀s move at LF and that the involved movement is quantifier movement, rather that wh- (4.5.3) or focus movement (4.5.4). It will be shown that the kind of locality involved in NPI-∀ movement is much stricter than the locality involved in a wh- or focus dependency. NC is clause bounded the same way QR is.

4.5.3 Emphatic movement and wh-movement

In this section I compare the movement of emphatics to wh-movement. The goal is to establish that the two are not identical (for a similar point about Italian see Acquaviva 1997). I will not provide here a description of wh-movement in Greek (but see Anagnostopoulou 1994). I will only consider those aspects of wh-movement in which it differs crucially from that of NPI-∀s.

4.5.3.1 Overt wh-movement and emphatics long-distance

Greek lacks infinitives, but has three types of complement clauses: *oti-, na,* and *pu* clauses. *Oti* is the indicative nonfactive complementizer and *pu* is the indicative factive one. *Na* introduces subjunctive clauses, but it is not a complementizer (or if it is, it is a very different one from *oti/pu;* cf. §2.1). *Na*-domains are the Greek equivalent to infinitival and 'restructuring' domains of other languages (see Aissen and Perlmutter 1983, Rizzi 1978; for the selectional restrictions see discussion in §3.1). Restructuring domains are known to be 'transparent' with respect to certain long distance dependencies, and have been analyzed as involving not two but one clausal domain.

Wh-extraction is generally unproblematic out of *oti* and *na* clauses, as illustrated in (69) and (70):

(69) a   Pjon$_1$ ipe   o Pavlos [oti idhe   t$_1$]?
           who said.3sg the Paul   that saw.2sg
           'Who did Paul say that he saw?'
      b   Pote$_1$ ipes   [oti idhes   ton Pavlo t$_1$]?
           who said.2sg that saw.2sg the Paul
           'When did you say that you saw Paul?'

(70) a   Pjon$_1$ theli   o Pavlos [na   dhi   t$_1$]?
           who want.3sg the Paul   subj see.3sg
           'Who does Paul want to see?'
      b   Pote$_1$ theli   o Pavlos [na fiji   t$_1$]?
           who want.3sg the Paul subj leave.3sg
           'When does Paul want to leave?'

Factive *pu*-complements, like the complements of factive verbs in English, create weak islands (*contra* Roussou 1994, and Varlokosta 1994, where it is claimed that the island effect is strong). Extraction of arguments is fine, but extraction of adjuncts is barred. This is illustrated in (71):

(71) a   Pjon$_1$ lipase   [pu pligoses   t$_1$]?
           who be-sorry.2sg   that hurt.2sg
           'Who do you regret that you hurt?'
      b   *Pote$_1$ lipase   [pu efijes   t$_1$]?
           when   be-sorry.2sg that left.2sg
           'When do you regret that you left?'

Hence, as regards long distance overt wh-movement, indicative and subjunctive domains are equally transparent, with the exception of the weak island effect of factives (for a possible explanation see Szabolcsi and Zwarts 1993).

The licensing of emphatics long distance by matrix negation gives a quite different picture (see Giannakidou 1997a, Giannakidou and Quer 1995, 1997). A dependency between negation and emphatics is possible in *na* complements (see (72)), but it is totally blocked in *oti* and *pu* complements (cf. (73), (74)):

(72)   a   O Pavlos dhen$_1$ theli   [na   dhi   KANENAN$_1$].
            the Paul   not   want.1sg   subj see.1sg everybody
            'Paul doesn't want to see anybody.'

       b   Dhen$_1$ thelo   [na   me ksexasis   POTE$_1$].
            not   want.1sg subj me forget.2sg ever
            'I want you to never forget me.'

(73)   a   * O Pavlos dhen$_1$ ipe   [oti   idhe   KANENAN$_1$].
            the Paul   not   said.3sg that saw.3sg everybody
            ('Paul didn't say he saw anybody.')

       b   * Dhen$_1$ ipa   [oti   se   ksexasa POTE$_1$].
            not   said.1sg that you forget.1sg ever
            ('I didn't say that you ever forgot me.')

(74)   a   * Dhen$_1$ lipame   [pu   pligosa KANENAN$_1$].
            not   be-sorry.1sg that hurt.1sg everybody
            ('I didn't regret that I hurt anybody.')

       b   * Dhen$_1$ lipame   [pu   efija   POTE$_1$].
            not   be-sorry.1sg that left.1sg ever
            ('??I don't regret that I ever left.')

Emphatic dependencies are thus strictly local[11]: they are limited to one sentence boundary and restructuring domains, which can also be analyzed as monoclausal. Occasionally, emphatics may be licensed in the indicative complements

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[11] I should mention here that there are NC NPIs in other languages that exhibit even stricter locality. Przepiórkowski and Kupsc (1997) report that Polish n-words are not licensed long distance at all, and in this they clearly contrast with wh-dependencies in that language. If strict locality of NC follows from its quantificational nature, as I propose here, then my account predicts that in Polish (and languages similar to it) the scope of universal quantifiers will be limited to the clause they occur in, and it will never exceed it. Hence contrasts like the ones observed in Farkas and Giannakidou (1996) should not arise.

of epistemic neg-raising verbs, for instance in the *oti* complement of *pistevo* 'believe' in (75) (for a detailed overview of neg-raising, see Horn 1979):

(75)   Dhen$_1$ pistevo [oti   idhes   KANENAN$_1$].
       not   believe.1sg that saw.2sg everybody
       'I don't believe you saw anybody.'

Emphatic licensing in the complements of epistemic neg-raising verbs is gener- ally very weak, and subject to performativity constraints: person (the sentence must be 1st person singular), and tense constraints (only present tense is accept- able). In Giannakidou and Quer (1995, 1997) and in Giannakidou (1997a), the availability of cases like (75) was linked to the possibility of neg-raising. The weakness of the effect and the performativity constraints were also attributed to this factor (on the latter, see also Horn 1979). Building on the insights of the works cited above, I assume here that neg-raising comes about as a result of a parenthetical use of the epistemic verb. Sentences like (75) are not real attitude reports (relational and biclausal), but rather, they constitute monoclausal do- mains, and *pistevo* 'believe' functions as an adverbial like 'personally'. Em- phatic licensing is thus sanctioned by the parenthetical use of the epistemic verb.

   Note that if *pistevo* is modified by an adverb, neg-raising is blocked, and so is the occurrence of emphatics. This happens because adverb modification enforces the attitude epistemic reading. This fact is illustrated in the sentences below:

(76)   Dhen pistevo   adhikeolojita oti me apata.
           not believe.1sg unreasonably that me cheat.3sg
           'I don't believe unreasonably that (s)he cheats me.'
           # I believe unreasonably that (s)he doesn't cheat me.

(77)   *Dhen$_1$ pistevo   adhikeolojita oti m'aghapai   KANENAS$_1$.
           not   believe.1sg unreasonably that me love.3sg everyone
           ('I don't believe unreasonably that anybody loves me.')

Since *adhikeolojita* in (76) is an attitude modifier, *pistevo* here cannot be used parenthetically. As a result, neg-raising and emphatic licensing are not possible (since the domain is no longer monoclausal). The significance of this fact re- garding the link between NC and quantifier dependencies will be emphasized in §4.5.4.

The emerging pattern, then, is the following. Overt wh-movement is quite unconstrained: only a weak island effect is observed with adjunct extraction from factive complements. Emphatic LF movement, on the other hand, is restricted to monoclausal domains and *na*-clauses, which are transparent the way infinitives and restructuring domains are. The contrast clearly indicates that overt wh-movement and emphatic LF licensing are not instances of the same phenomenon.

4.5.3.2 *Emphatics versus Wh-in situ*

Besides overt wh-movement, the distribution of emphatics also contrasts with that of wh-*in situ* in multiple wh-structures. Unlike emphatics, wh-*in situ* are fine in *oti, pu* and *na* complements alike. Compare sentences (72)-(74) above to the sentences below:

(78) a   Pjos ipe   [oti idhe   pjon] ?
              who said.3sg that saw.3sg who
              'Who said that he saw who?'

      b   Pjos ipe   [oti pije   pu] ?
              who said.3sg that went.3sg where
              'Who said that he went where?'

(79) a   Pjos theli   [na   dhi   pjon] ?
              who want.3sg subj see.3sg who
              'Who wants to see who?'

      b   Pjos theli   [na   pai   pu] ?
              who want.3sg subj go.3sg where
              'Who wants to go where?'

(80) a   Pjos lipithike   [pu idhe   pjon] ?
              who was-sorry.3sg that saw.3sg who
              'Who regrets having seen who?'

   b   Pjos lipithike   [pu pije   pu] ?
              who was-sorry.3sg that went.3sg where
              'Who regrets that he went where?'

The sentences above are regular multiple wh-structures eliciting pair-list answers. As we see in (80), with wh-*in situ* even the weak island effect, otherwise observed in factive complements, disappears. This connects to a more general feature of wh-*in situ:* in Greek, as in English, *in situ* wh-phrases can appear in-

side islands (this applies to focused phrases too, which are also unbounded in
this sense as we shall see in §4.5.5). Emphatics, however, cannot appear in is-
lands. Sentences (81)-(83) illustrate this contrast. In (81), the complex NP con-
straint is violated by the wh-*in situ* but not by the emphatic; in (82) and (83) the
same is shown to happen in an adjunct and a relative clause, respectively; upper
case indicates pitch accent:

(81) a Pjos dhiedhose [$_{NP}$ti fimi oti o Pavlos agorase TI]?
     who spread.3sg the rumor that the Paul bought.3sg what
     'Who spread the rumor that Paul bought what?'
  b * Dhen dhiedhose [$_{NP}$ti fimi oti o Pavlos aghorase TIPOTA].
     not spread.3sg the rumor that the P. bought.3sg everything

(82) a Pjos eksagriothike [$_{CP}$otan ipes TI]?
     who was-outraged.3sg when said.2sg what
     'Who was infuriated when you said what?'
  b * Dhen stenoxorithika [$_{CP}$otan me prosevale KANENAS].
     not was-sad.3sg when me offended.3sg everybody

(83) a Pjos prodose mistika [$_{CP}$pu bori na vlapsun PJON]?
     who betrayed.3sg secrets that might.3sg subj hurt.3pl whom
     'Cleo betrayed secrets that might harm who?'
  b * Dhen prodose mistika [$_{CP}$pu bori na vlapsun KANENAN].
     not betrayed.3sg secrets that might.3sg subj hurt.3pl everybody

If we assume wh- *n situ* undergo LF movement, then their movement is very
different from emphatic movement which appears to obey subjacency. A similar
observation is found in Longobardi (1991) concerning *nessuno* and *niente* in
Italian.

In view of the asymmetries between wh- (overt and covert) and emphatic move-
ment discussed in 4.5.3, the obvious conclusion seems to be that emphatic
movement cannot be reduced to wh-movement. Emphatic LF dependencies are
strictly local, where strict locality is understood as "being restricted to one clause
boundary". The strict locality of emphatic dependencies is to be expected under
the assumption that emphatics are universal quantifiers.

4.5.4 Emphatic licensing and the scope of universal quantifiers

In this subsection, I point out a number of similarities between emphatic licensing and scope dependencies with universal quantifiers. These similarities follow from the idea that emphatics are universal quantifiers.

Consider first the blocking effect of adverbs on emphatic licensing we observed in (76)-(77). Adverbs turn out to exhibit a blocking effect on quantifier scope too. As shown in Farkas and Giannakidou (1996), *para poli* 'very much' prevents *kathe* 'every' from taking scope over *kapjos* 'some' in (84), although this is possible in (85), without the adverb:

(84) a   Kapjos kathijitis ithele   para poli   kathe ipopsifios s' afti
            some professor wanted.3sg very much every candidate in this
            ti   lista na vri   dhulja.
            the list subj find.3sg job
            'Some professor wanted very much every candidate on this list to find a job.'
      b   some > every
      c   * every > some

(85) a   Kapjos kathijitis ihele   kathe fititis   s'afti ti lista na vri   dhulja.
            some prof. wanted.3sg every student in this list subj find.3sg job
            'Some professor wanted every student on this list to find a job.'
      b   some > every
      c   every > some

Sentence (85) can be true in a situation in which professors co-vary with students (for instance if we have different recommendation letters for each candidate). This indicates that *kathe ipopsifios* 'every candidate' takes scope over the existential *kapjos kathijitis* 'some professor', which is consequently interpreted as 'some professor or other'. Sentence (84) lacks this reading: only one professor is involved.

Likewise, in Farkas and Kiss (1996) it is shown that adverbs block monoclausal inverse scope of quantifiers. This is illustrated in (86):

(86) a   Some reporter infuriated very much every candidate who gave a speech at this rally.
      b   some > every
      c   * every > some

(87) a   Some reporter infuriated every candidate who gave a speech at
             this rally.
      b   some > every
      c   every > some

Reporters cannot co-vary with candidates in (86a), though they may in (87b),
where the universal can scope over the indefinite. Though no explanation of the
phenomenon is offered in either of the above-mentioned works, the observation
as such points out a parallelism between *kathe, every*, and emphatics. The
blocking effect of adverbs supports the quantificational analysis of emphatics
pursued here.

       Observe next that on a par with emphatics in (72)-(74), *kathe* can scope
over an indefinite in the *na*-complement (as we see in (88)), but it cannot do so
in a *pu* and *oti* complement, as indicated in (89) and (90):

(88)   Kapjos kathijitis ithele   kathe fititis   s'afti ti lista na   vri   dhulja.
       some prof. wanted.3sg every student in this the list subj find.3sg job
       'Some professor wanted every student in this list to find a job.'
(88') some professor > every student; every student > some professor

(89)   Kapjos fititis ipe   oti kathe kathijitis   tis sxolis   apolithike.
       some student said.3sg that every professor the department got-fired.3sg
       'Some student said that every professor in the department got fired.'
(89') some student > every professor; *every professor > some student

(90)   Kapjos fititis lipithike   pu kathe kathijitis   tis sxolis apolithike.
       some student was-sorry.3sg that every professor the department got-
       fired.3sg
       'Some student regrets that every professor in the department got fired.'
(90') some student > every professor; *every professor > some student

The *na*-sentence (88) has a reading in which professors co-vary with students,
but the sentences in (89) and (90) lack this reading, as indicated in the primed
sentences. These and similar facts are extensively discussed in Farkas and Gian-
nakidou (1996).

       The strict locality involved in emphatic licensing should thus be seen as a
facet of the clause-boundedness which generally characterizes quantifier scope
(for relevant discussion see Farkas 1981, and Farkas and Giannakidou 1996

where some exceptions to this generalization are presented, and Kennedy 1997b). Exceptions aside, the general divide seems to be along the lines of (91):

(91)   *Clause-boundedness of universal quantifiers*
        The scope of ∀ is clause-bounded, except when ∀ occurs in an infinitival (or restructuring) domain.

The locality of the movement of emphatics can be straightforwardly captured by (91). Hence the locality of licensing in emphatics follows from the inability of universal quantifiers to take scope outside the clause they occur in (with the exception of restructuring domains). This conclusion is important because it implies that locality in polarity licensing is not a special kind of locality specifically observed in NPIs, but it follows from the semantic characterization of those NPIs that exhibit it as universals. Polarity constraints are thus shown to follow, once again, from the nature of PIs.

4.5.5 Emphatic dependency and focus

Because emphatics are accented, it is tempting to view them as focused items, and attempt to reduce their movement to a focus dependency. In this section, I consider this possibility, and reject it on three grounds.

First of all, an analysis of NC in terms of focus is incompatible with the semantic/pragmatic features of the construction. NC sentences do involve topic-focus partition, but emphatics are always associated with the backgrounded, topic information, rather than with focus. This is captured in the claim that emphatics are the logical subjects of negative predications (a claim *prima facie* consistent with the fact that emphatics are interpreted outside negation). Focus conveys new information (cf. the Prague school, e.g. Sgall et al. 1986, also Rooth 1985 among many others). Granting emphatics the status of foci would be plainly wrong.

Second, as already mentioned in chapter 2, there are other instances of pitch accent which cannot be analyzed as involving focus. Emphatic accent may also be used to disambiguates scope, a point emphasized in Büring (1997), and shown to be describe correctly the Greek facts concerning the scopal interaction between negation and quantifiers in §2.3.6. In the same section, it was shown that emphatic accent in Greek has lexical effects: it distinguishes between *few* and *a few*, i.e. *LIJI* versus *liji*, and between *very* and *too*, i.e. *poli* versus *POLI*. I will not consider these objections here, as they have been extensively discussed in §2.3.6. Instead, I will concentrate specifically on the claim that emphatics un-

dergo focus movement, as proposed in Tsimpli 1995, and Tsimpli and Roussou 1996 (see also Puskas 1996 for Romance languages and Hungarian). I show that the syntactic features of focus movement are significantly different from those of emphatic movement.

First, unlike emphatics, focus is licensed in syntactic islands. The examples below illustrate this fact for Greek.

(92)   Dhiadhothike [$_{NP}$i   fimi   oti o Pavlos pandreftike TIN ELSA].
        was-spread.3sg the rumor that t he Paul   married.3sg the Elsa
        'The rumor was spread that Paul married ELSA.'

(93)   O Pavlos thimose   [$_{CP}$otan i Elsa edikse   TO VIVLIO sta pedhia].
        the Paul got-angry.3sg when the Elsa showed.3sg the book in-the kids
        'Paul got upset when Elsa showed THE BOOK to the kids.'

(94)   Idha   ton anthropo [$_{CP}$pu apilise   TI ROXANI me maxeri].
        saw.1sg the man   that threatened the Roxani   with knife
        'I saw the man that threatened Roxanne with a knife.'

If we assume that focus is licensed via LF movement, then the above data suggest that the movement at hand is quite unconstrained. Unboundedness is a well known feature of focus assignment. The fact that focus is licensed in islands supports primarily *in situ* accounts of the phenomenon (see Rooth 1985, and von Stechow 1989 among many others). At any rate, emphatics contrast clearly with foci in this respect.

Second, in focus structures, the preposed constituent is linked to a gap in the base position, i.e. in the position from which it is claimed to have been moved (Rizzi 1997 and earlier work). As we see in (96), emphatics may optionally be co-indexed with a clitic.

(95)   TON PAVLO$_i$ (*ton) idha t$_i$.
        the Paul   him saw.1sg
        'It was Paul that I saw.'

(96)   KANENA PEDHI$_i$ dhen (to$_i$) akusa   na lei   tetja loja.
        every child   not him heard.1sg subj say.3sg such words
        'I haven't heard any child saying such words.'

In allowing for clitics, emphatics align with topics, which *are* coindexed with clitics, as we see in (97):

(97) Ton Pavlo$_i$, *(ton$_i$) idha.
   the Paul   him saw.1sg
   'As for Paul, I saw him.'

The issue of topicalization and the role of clitics will be examined in §4.7. For now let it simply be noted that emphatic preposing looks more like topicalization than focus preposing at least as regards the gap versus clitic parameter.

A third difference has to do with the fact that multiple foci are not allowed, but multiple emphatics are: [12]

(98) a   KANENAS dhen edhose TIPOTA se KANENAN.
        everybody   not gave.3sg everything to everybody
        'Nobody gave anything to anybody.'
   b   * O Pavlos ehdose TO VIVLIO sti   ROXANI.
        the Paul   gave.3sg the book   in-the Roxanne

(98a) illustrates that multiple emphatics are allowed to appear within a clausal domain. (98b) shows that this is not the case for multiple foci. The only possible way to explain this contrast is to resort to the negative nature of the emphatics, which is what Tsimpli and Roussou (1996) ultimately do, but then the original appeal to focus becomes redundant.

Fourth, although focus voids weak crossover (WCO) in Greek (*contra* what is claimed in Rizzi 1997 about Italian), WCO is observed with emphatics. This contrast is illustrated in (99) for emphatics and focus in situ; in §4.7 it is shown that the contrast is observed also with overt preposing:

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[12] Multiple *contrastive* accent is indeed allowed in elliptical constructions such as (i):

(i)   Edhosa to VIVLIO sti THEODORA ke oxi tis KASETES ston PAVLO.
      'I gave the book to Theodora and not the tapes to Paul.'

Sentences like (i) have an echo corrective interpretation, and they are dependent on a previous utterance. In this they differ crucially from sentences with emphatics which do not have such an intepretation. Contrastive accent of this kind has been characterized as topic, rather than focus accent in Büring (1997).

(99) a   Dhen agapai   i mitera tu$_{*1/2}$ KANENA PEDHI$_1$.
           not love.3sg the mother his   every   child
           '*His mother$_1$ loves no child$_1$.'
      b   I   mitera tu$_{1/2}$ agapai   TON PAVLO$_1$.
           the mother his love.1sg   the   Paul
           'It is Paul that his own mother loves.'

Focus ik known to void WCO (see Kiss 1995). The fact that WCO arises with emphatics is in line with their analysis as universal quantifiers pursued here. In §4.7 the parallelism between emphatics and *kathe* 'every' as regards WCO will be emphasized.

Finally, a fifth difference arises if we consider the interaction between focus and wh-phrases on the one hand, and emphatics and wh-phrases on the other. A focus XP precedes a wh XP, as shown in (100), and noted in Tsimpli (1995), but emphatics follow it, as shown in (101). The reverse orders are ungrammatical:

(100) a   Ematha   tin ELSA pjos idhe.
           learned.1sg the Elsa who saw.3sg
           'I found out who saw ELSA.'
       b   *Ematha   pjos tin ELSA idhe.
           learned.1sg who the ELSA saw.3sg

(101) a   ?Ematha   pjos KANENAN dhen idhe.
           learned.1sg who everybody not saw
           'I found out who didn't see anybody.'
       b   *Ematha   KANENAN pjos dhen idhe.
           learned.1sg everybody   who   not saw

In other words, emphatics, unlike foci, cannot appear higher than CP. In this they are similar to topics, which appear lower than C (as argued in Anagnostopoulou 1994, a position which I adopt in this study), but foci can. I believe that cases like (100) suggest that focus adjoins to CP, but I will not pursue this issue here.[13]

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[13] Tsimpli and Tsimpli and Roussou argue for the existence of a Focus phrase (FP) in Greek which is assumed to be the highest maximal projection below CP, as in (i):

(i)   [$_{CP}$ C^0 [$_{FP}$ Focus^0 [$_{TP}$ T^0 [$_{AgrP}$ Agr^0]]]]

In view of the material presented in this subsection, we can safely conclude that NC cannot be reduced to a focus dependency. Instead, the facts discussed in §4.5, lead to the conclusion that NC should be understood as a quantifier dependency, requiring that the involved NPIs escape the scope of licensing negation at LF.

I turn now to weak negative dependencies.

4.6 Weak negative dependencies

Unlike NC, weak negative dependencies involve APIs which are interpreted existentially. Typical examples are sentences with nonemphatics and negative statements with *any*:

(102) Dhen idha   kanenan.
       not   saw.1sg anybody
       'I didn't see anybody.'

The conditions determining the choice between a NC structure and a weak negative statement (and likewise, between the use of *no-* or *any* in English) are of a pragmatic nature, and will be considered in the next section. Here, I

In an attempt to empirically motivate FP, it is argued that the (preposed) focused phrase must be adjacent to the verb. Adjacency is claimed to be associated with verb-movement to F^0 for the satisfaction of the FOCUS-criterion in the sense of Brody (1990). *Modulo* the reasoning for the wh/neg-criterion, the verb moves because it is assumed to be endowed with the feature [+focus].

However, the argument for adjacency is not empirically supported. According to many speakers, myself included, sentences like (ii), where the subject appears between the preposed focus and the verb, are perfectly grammatical. Adverbs may also intervene, as shown in (iii):

(ii)   TO YANI i Maria idhe.
       the John the Maria saw.3sg
       'It was John that Mary saw.'
(iii) STON PAVLO xthes   dhosame   ta egrafa.
       in-the Paul   yesterday gave.1pl the documents
       'It was to Paul that we gave the documents yesterday.'

The grammaticality of these sentences casts serious doubt on the adjacency argument. Given that adjacency is used to detect Spec-head relations in syntax, we may conclude that no such relation is involved in focus licensing. A related problem arises with the optionality of overt focus preposing: in Greek it is not obligatory (as it is for instance in Hungarian). I take it here that there is no real argument for postulating FP in Greek.

concentrate on the syntactic characteristics of weak negative dependencies, which will turn out to be very different from those of NC: no movement is involved, but APIs must be found in the c-command domain of their licenser, and sometimes they may be deeply embedded in it.

There is a well-known debate as to the level at which c-command should hold. The standard assumption since Klima (1964) has it that c-command is a condition on s-structure, but recently attempts have been made to formulate it as a condition which holds at LF (as in Uribe-Etxebarria 1994). I will consider both options in §4.6.2, and conclude that c-command should be stated as an LF condition. Bare fronting of APIs, which has been the primary motivation for the appeal to s-structure c-command will be explained away as resulting from a ban on topicalizing dependent existentials (which is what APIs are, as we saw in §2.3.5). Finally, certain 'specificity effects' will be discussed in §4.6.3 as further supporting the LF-account proposed in §4.6.2.

4.6.1 In situ licensing of APIs

Nonemphatics are licensed anywhere within the c-command domain of their licenser. Unlike emphatics, they are licensed in *na* as well as *oti* complements:

(103) a   Dhe thelo   na   xeretisis   kanenan.
            not want.1sg subj greet.2sg anyone
            'I don't want you to greet anybody.'

       b   Dhen bori   na   bike   mesa kanenas.
            not   can.3sg subj entered.3sg in   anyone
            'It can't be the case that anybody came in.'

(104) a   Dhen isxirizome oti kerdhisame tipota.
            not claim.1sg   that won.1pl   anything
            'I don't claim that we have won anything.'

       b   O Andreas dhen ipe   oti idhe   tipota.
            the Andreas not said.3sg that saw.3sg anything
            'Andreas didn't say that he saw anything.'

       c   Dhen onireftika   oti me xtipise kanenas.
            not   dreamt.1sg that me hit.3sg anybody
            'I didn't dream that anybody hit me.'

The embedding is not limited to just one complement clause, as we see in (105); the translation indicates that the same holds for English:

(105) Dhen ipa   oti   pistevo   oti   itheles   na   me   katigorisis
not said.1sg that   believe.1sg that wanted.2sg subj me   accuse.2sg
se kanenan.
to anybody
'I didn't say that I believe that you wanted to spread rumors about me to anybody.'

Considering that veridical as well as nonveridical operators intervene between negation and API in the above examples, we have to say that no intervention effect is observed in negative licensing of APIs. Yet in Giannakidou (to appear) it is observed that intervention effects are visible in nonnegative licensing, based on sentences like (106):

(106) * Thelo   na   pistepsis   oti milisa   me   kanenan.
want.1sg subj believe.2sg that talked.1sg with anybody
'*I want you to believe that I talked to anybody.'

Though nonemphatics are generally acceptable in the scope of *want*, if *believe* intervenes, as in (106), they are ruled out. So in nonnegative licensing the requirement seems to be that APIs be in the *immediate* c-command domain of their licenser, as I suggest in Giannakidou (to appear). The contrast is important, but I will not have more to say about it here, besides that it supports the argument that API-licensing is *semantic* in nature. If all we needed for APIs were a syntactic requirement based on c-command, the attested contrast between negative and nonnegative licensing in intervention effects would not be expected to arise.

    Returning to negative licensing, the fact that APIs appear so deeply embedded in the c-command domain of their licenser suggests strongly that they don't move. This conclusion is further supported by the fact that these items are licensed freely in syntactic islands (where emphatics were shown to be ungrammatical), an observation found in Quer (1993), and Giannakidou and Quer (1995, 1997). I provide here the relevant examples:

(107) a   Dhen itan   isixi   [epidhi fovithike   kanenan].
         not   was.3sg quiet because was-scared.3sg anyone
         'S/he wasn't quiet because (s)he was scared of anybody.'
     b   Dhen prodosa   mistika [pu eksethesan kanenan].
         not   betrayed.1sg secrets that exposed.3pl anybody
         'I didn't reveal secrets that exposed anybody.'

c   Dhen akusa   [ti fimi   oti sinelavan   kanenan].
        not   heard.1sg the rumor that   arrested.3pl anybody
        'I didn't hear the rumor that they arrested anybody.'

In the above examples *kanenan* is licensed in an adjunct clause, a relative clause, and a complex NP.

Moreover, nonemphatics never move overtly. As we see in (108), they cannot appear in sentence initial position, unlike emphatics and minimizers, which can:

(108) a   Dhen idha   kanenan.
             not   saw.3sg anybody
             'I didn't see anybody.'
      b   * Kanenan dhen idha.
             '*Anyone I didn't see.'

(109) a   Dhen idha   KANENAN.
             not   saw.3sg everybody
             'I saw nobody.'
      b   KANENAN dhen idha.

(110) a   Dhen evale BUKIA sto   stoma tu.
             not   put.3sg bite   in-the mouth his
             'He didn't eat a bite.'
      b   BUKIA dhen evale sto stoma tu.

The impossibility of (108b) suggests that nonemphatics, and *any*, are totally immobile. It is the existence of such cases (also involving subject *any* preposing) that motivated appeal to s-structure c-command for the formulation of the syntactic condition on API-licensing.

Based on the data presented thus far, we can safely conclude that APIs are licensed *in situ* in the c-command domain of the element which licenses them (a conclusion also reached in Giannakidou 1997a, and Giannakidou and Quer 1995, 1997). This appears to be the general condition on API-licensing, as is standardly assumed in the literature (cf. Klima's 1964 "be in construction with" condition, Jackendoff's 1972 "precede and command", Lasnik's 1972 "command"; also Ladusaw 1979, Linebarger 1980, Progovac 1988, 1994, and Laka 1990). We still have to decide, however, which level the c-command condition should be taken to hold. Examples like (108) suggest that s-structure

considerations apply. But are these considerations so crucial as to force the formulation of the c-command condition at s-structure? I show next that the s-structure effects can be given an alternative explanation in terms of a constraint on topicalizing APIs. If this account is correct, then an LF c-command condition turns out to be fully adequate.

4.6.2 C-command: s-structure or LF?

In this section I propose that the licensing domain for APIs is the c-command domain of their licenser at LF. Two cases will be considered: (a) sentences where APIs are c-commanded by negation at s-structure but are nevertheless ungrammatical, and (b) structures where APIs are grammatical although they appear outside the c-command domain of negation at s-structure. In both cases it will be argued that the crucial c-command condition must hold at LF.

Bare fronting of APIs will be excluded as a result of their sensitivity semantics: APIs are dependent existentials, and as such they cannot be topicalized. If, however, they are embedded in a constituent that can be, APIs can indeed be fronted and appear outside the c-command domain of their licenser at s-structure.

Consider the following sentence which shows that nonemphatics are ruled out in factive *pu*-complements:

(111)   * Dhen lipame   pu pligosa kanenan.
          not   regret.1sg that hurt.1sg anyone
          'I don't regret that I hurt anybody.'

Why is the nonemphatic excluded from this sentence? *Kanenan* is in the c-command domain of negation, and we saw in the previous subsection that veridical *pistevo* 'believe' can intervene between *dhen* and *kanenan,* with no harmful effect. So (111), with a veridical factive, should also be grammatical, contrary to fact. Ungrammaticality arises, I will argue, because *kanenas,* though c-commanded by negation at s-structure, it is not c-commanded by it at LF.

Factive complements are presuppositional, that is, their truth is presupposed rather than asserted in the context. We can capture this by saying that *pu*-complements undergo QR and adjoin to the matrix IP at LF, ending up *above* negation, as in (112):

(112)   * [$_{IP}$ [$_{CP}$ pu pligosa kanenan]$_i$ [$_{IP}$ dhen lipame [$_{VP}$ [$_{CP}$ t$_i$]]]]

In this configuration, *kanenan* is not c-commanded by negation, since the *pu*-clause does not reconstruct, due to its being presupposed. Hence, the ungrammaticality of nonemphatics in *pu*-complements provides a positive indication that nonemphatics must be c-commanded by their licenser at LF rather than at s-structure.

Note that *any* is grammatical in factive complements. The difference should be attributed to the difference between a *pu* and a *that*-clause. Greek employs a special factive complementizer, *pu,* but English doesn't. Being presuppositional, *pu*-clauses always undergo QR and do not reconstruct. But English *that*-clauses are not special in this way. For these, we can postulate either that they do not undergo QR, or that they do, but then they reconstruct to their base position. The latter possibility is illustrated in (113), where boldface indicates reconstructed material:

(113) $[_{IP}$ $[_{CP}$~~that I hurt anybody~~$]_i$ $[_{IP}$ I don't $[_{VP}$ regret $[_{CP}$ **that I hurt anybody**$]_i$]]]

That the c-command condition should be stated at LF is evidenced further by cases like (114), where the API is embedded in a topicalized clause (see also Klidi 1997). Similar facts have been observed for *any* (Ross 1967, Linebarger 1980), and Dutch APIs (Hoekstra, de Hoop and Zwarts 1988, Hoeksema 1997, de Swart 1997). Some English examples are given in (115) and (116) (from Ross and Linebarger):

(114)   {Fimes oti sinelavan kanenan} dhen kikloforisan {fimes oti sinelavan kanenan}.
        rumors that arrested.3pl anybody not were-circulated.3pl
        'Rumors that they arrested anybody were not circulated.'

(115)   That he has stolen anything was never proved.

(116)   Finding any green vegetable in impossible there.

In the above sentences the clause containing APIs is topicalized, and thus APIs appear to the left of negation, in violation of s-structure c-command. In the topicalized version of (114), there is no c-command relation between negation *dhen* and *kanenan* at s-structure. There is, however, such a relation at LF, if we assume that the preposed clause reconstructs there, as in (117):

(117) [$_{IP}$[$_{NP}$~~fimes oti sinelavan kanenan~~]$_1$ [$_{IP}$ dhen kikloforisan [$_{VP}$ [$_{NP}$ **fimes oti sinelavan kanenan**]$_1$]]]

It appears, then, that although bare fronting of nonemphatics is prohibited (cf. (108)), fronting them if they are embedded in a larger constituent is possible, as long as this constituent reconstructs under negation. If it doesn't, as is the case with *pu*-complements, nonemphatics are not c-commanded by negation at LF and as a consequence are ruled out.

The remaining question is why bare fronting of APIs is not possible. After all, nothing excludes a reconstruction analysis of nonemphatic and *any* fronting in (108). I propose that the explanation for bare API-fronting resides in their sensitivity semantics. APIs are dependent existentials, which means that they lack the ability to assert existence. As such, they are unable to introduce discourse referents in the actual world (or in some individual's model of it, see discussion in §2.3.5, 3.3.6). But if a quantifier fails to introduce a discourse referent, then it will also fail to topicalize, since reference is a prerequisite for topichood (see also discussion in §4.7). The fact that nonemphatics cannot be topics has also alluded to in earlier work by Veloudis (1982).

Emphatics, on the other hand, and bare NPs, *can* be topicalized, as we see in (118) below for bare NPs (see §4.7.2 for topicalization of emphatics):

(118) Vivlia, agorasa   pola.
       books, bought.1sg many
       'Books, I bought many.'

Split topicalization structures such as the one in (118) abound in Greek, as well as in Germanic, and Romance. It appears, then, that we have reached an explanation as to why bare fronting of APIs is prohibited: APIs cannot be topics. Hence the s-structure c-command condition on nonemphatics can be rephrased in terms of their impossibility to topicalize, as in (119):

(119) *Ban on the topicalization of dependent existential quantifiers*
       Dependent existential quantifiers cannot be topicalized.

The lack of bare fronting of APIs follows from (119). Crucially, (119) predicts that local fronting of nonemphatics will be prohibited even *under* negation at s-structure. This prediction is borne out, as shown in (120a), though topicalization is generally allowed in embedded contexts (cf. (120b)):

(120) a   * Dhen ipa   oti kanenan (ton) idha.
             not   said.1sg that anybody him saw.1sg
             '* I didn't say that anybody, I saw.'
       b   Ipa   oti ton Andrea ton agapo.
             said.1sg that the Andreas him love.1sg
             'I said that, as far as Andreas is concerned, I love him.'

In (120a) *kanenan* moves locally inside the lower clause, thus remaining inside the surface c-command domain of negation; likewise for *any*. Yet the structures are ungrammatical, because *kanenan* and *any* cannot be successful topics. If *kanenas* and *any* were merely subject to an s-structure c-command condition, (120a) should be grammatical, contrary to fact.[14]

Based on the above discussion, we can propose (121) as the syntactic licensing condition for APIs; note that (121) is an *only if* condition (and not *iff*), since intervention effects *are* observed in nonnegative licensing, as we saw in §4.6.1:

(121) *Syntactic licensing of affective polarity items*
       An affective polarity item α will be grammatical only if it is c-commanded
       by a nonveridical operator β at LF.

Unlike a condition requiring s-structure c-command, (121) explains why (111) is bad, and why APIs are fine in topicalized clauses which reconstruct under negation.

If (121) is the correct licensing condition, then it is predicted that clauses which could be analyzed as base-generated above negation, for instance sentential subjects, will not tolerate APIs. (122) shows that this indeed the case:

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[14] The impossibility of bare nonemphatic subject fronting also follows from (119), under the assumption that subjects in Greek are topics (cf. discussion in §2.1.1). The question, however, remains, why subject *any* fronting is bad in English:

(i)   *Anyone didn't come.

The standard assumption in the literature is that subject fronting in English, unlike in Greek, is motivated by the EPP and does not involve topicalization. I will not provide an account here, though it doesn't seem implausible to argue that EPP considerations and topicalization might be linked in some way. If one can build such an argument, then we can indeed invoke (119) in order to explain (i).

(122) a   * Oti o Andreas ipe   tipota   stin Cleo   dhen ine alithia.
              that the Andreas said.3sg anything to   Cleo   not is   true
              '* That Andreas said anything to Cleo is not true.'

       b   Dhen ine alithia oti o   Andreas ipe   tipota   stin Cleo.
              not   is true   that the Andreas said.3sg anything to Cleo
              'It is not true that Andreas said anything to Cleo.'

The effect is observed in English too, although a constraint on the factivity of the
preposed *that*-clause might blur the picture (see Svenonius 1994 for discussion).

4.6.3 'Specificity' effects

In further support of (121), I show here that appeal to LF c-command is also
motivated by certain specificity effects observed in the licensing of nonemphatics
in relative clauses. These effects were noted in Ladusaw (1979) and May (1985).
The relevant contrast is illustrated below in (123) and (124). We see in (123) that
tipota is ungrammatical in an indicative relative clause modifying a definite
specific (referential) DP. In (124), *tipota* occurs grammatically in a subjunctive
relative modifying a *nonspecific* (nonreferential) indefinite.

(123) * I astinomia dhen boruse   na   vri   [$_{DP}$ton martira   [$_{CP}$pu itan
         the police   not   could.3sg subj find.3sg the witness   that was.3sg
         siguros oti ixe   dhi   tipota]].
         sure   that have.3sg seen anything
         '* The police could not find the witness that was sure he saw anything.'

(124) I astinomia dhen boruse   na   vri [$_{DP}$ enan martira [$_{CP}$pu
         the police not could.3sg subj find.3sg a   witness that
         na itan   siguros oti ixe   dhi   tipota]].
         subj was.3sg sure   that have.3sg seen anything
         'The police could not find a witness that was sure he saw anything.'

Crucially, (123) presupposes the existence of a witness who was sure that he
saw something, whereas (124) does not, a fact supported also by mood choice:
the relative clause in (123) is indicative, and in (124) it is subjunctive. We saw in
§2.5.2 that indicative modification is allowed only if existence is warranted;
subjunctive modification, on the other hand, is sanctioned if this is not the case.
Under normal circumstances, referential definites presuppose existence in the
actual world, which means that they are interpreted as *de re* with respect to

negation, hence subjunctive modification is disallowed (but see Giannakidou 1997a for some cases of attributive definites which are compatible with subjunctive relatives). Indefinites will allow subjunctive modification only if they are interpreted as *de dicto*, that is, inside the licensing operator. If indefinites are interpreted as specific, with 'wide scope', then subjunctive modification will fail. In (124), the indefinite is thus interpreted inside the scope of negation.

API-licensing squares neatly with the wide scope indicative versus narrow scope subjunctive opposition. APIs are not licensed in indicative relatives which modify DPs taking wide scope, but they *are* licensed in subjunctive relatives which modify DPs taking narrow scope with respect to negation. We can explain (123), then, by postulating that the DP containing the relative clause undergoes QR to adjoin to Topic phrase in the matrix clause, and is not reconstructed in its base position, as indicated in (123'):

(123') * $[_{\text{TopicP}}$ $[_{\text{DP}}$ton martira pu itan siguros oti idhe tipota$]_1$ $[_{\text{TopicP}}$ i astinomia $[_{\text{IP}}$ dhen boruse $[_{\text{VP}}$ $[_{\text{CP}}$ na vri $[_{\text{DP}}$ t_1]]]]]]

In (124), on the other hand, we can say that the DP hasn't moved at all. So, although both relative clauses appear to be in the c-command domain of negation at s-structure, only the one in (124) is in fact in the scope of it. Again, we need LF as the relevant level to state the licensing condition.

Note that overt fronting of the indefinite DP with the subjunctive relative containing the API is possible, resulting in (125); as we see this is also possible in English (the sentence might be a little degraded due to the effect of further embedding in the relative clause):

(125) Enan martira pu **na** (itan siguros oti) ixe dhi tipota dhen boruse na vri i astinomia.
'?A witness that (was sure he) saw anything, the police couldn't find.'

Examples like (125) involving fronted indefinite DPs containing APIs are related to similar examples given in Linebarger (1980), and recently revived in Uribe-Etxebarria (1994), like the ones below:

(126) Examples with any relevance to that issue didn't come up in the discussion.

(127) A doctor that knew anything about acupuncture was not available.

Sentence (126) is attributed to Barbara Partee, and (127) is from Linebarger. Linebarger's sentence can be translated into Greek in two ways: either as the grammatical (128), where the fronted DP is modified by a subjunctive relative, or as the ungrammatical (129) where the fronted DP is modified by an indicative:

(128)   Enas jatros pu **na** iksere tipota ja velonismo dhen itan diathesimos.
        'A doctor who knew anything about acupuncture was not available.'

(129)   * Enas jatros pu iksere tipota ja velonismo dhen itan diathesismos.

Again, the subjunctive relative admits *tipota* , and does not entail the existence of a doctor who knows anything about acupuncture, but the ungrammatical indicative is interpreted outside the scope of negation and rules out the API. In (128) the DP reconstructs to its base position as in (130), but in (129) it doesn't, as shown in (131):

(130)   [$_{IP}$ [Enas jatros pu na iksere tipota ja velonismo]$_1$ [$_{IP}$ dhen [$_{IP}$ itan [$_{VP}$ **enas jatros pu na iksere tipota sxetika me velonismo$_1$** [$_{AP}$ diathesimos]]]]]

(131)   * [$_{IP}$ [Enas jatros pu na iksere tipota ja velonismo]$_1$ [$_{IP}$ dhen [$_{IP}$ itan [$_{VP}$ [$_{AP}$ t$_1$ diathesimos]]]]]

Hence we can account for the effect here again by invoking (121) without further stipulations. Interestingly, reasoning along these lines also explains why APIs are licensed with VP predicates like *be available* and not *run in the park*, a fact discussed in Uribe-Etxebarria (1994):

(132)   *Enas jatros pu na iksere tipota ja velonismo dhen etrexe sto parko.
        '*A doctor that knew anything about acupuncture was not running in the park.'

Uribe-Etxebarria proposes that the relevant factor for the contrast between (127) and (132) is the 'lightness' of the predicate (and not the stage-level versus individual level contrast, as both *be available* and *run in the park* are stage level; for this point see also de Swart 1997). Yet it is unclear what exactly could serve as a criterion of lightness in these cases, as many of the involved predicates can be quite heavy (for instance *could find* in (125) above).

In the analysis I develop here appeal to lightness of the VP predicate is made redundant. With negative predicates like *not be available* subjunctive and indicative modification is equally acceptable, since it is not decided in the context that the subject DP has reference: it might be the case that doctors who know about acupuncture are not available because they have something else to do instead, but it might also be the case that such doctors are not available because there aren't any such doctors in this hospital. With a negative predicate like *not run in the park*, however, the second option does not arise. *Doctors who know about acupuncture don't run in the park* cannot entail that such doctors do not exist, rather it presupposes that they do, and it further implicates that they are busy doing something other than running in the park. The Greek sentence in (132) above is bad not only because of the *tipota* but also because of *na*: subjunctive modification is impossible with a predicate like *run in the park* because is associated with existence.

Hence, what matters for mood choice in relative clauses and API-licensing is (non)existence, and thus (non)veridicality rather than anything else. These in turn translate into scope and reconstruction versus nonreconstruction at LF. Though I have by no means proposed here a general theory of API-licensing patterns, I hope to have shown that the attempts to formulate the syntactic condition on API licensing as c-command at LF are well founded.

Next, I consider the question of what determines the choice between a weak and a strong negative dependency.

4.7 The pragmatic import of negative sentences

Having established that negative dependencies come as strong or weak, the question arises what determines the choice between a weak and a strong negative dependency. In this final section, I address this issue. I will argue that strong and weak negative dependencies differ in their pragmatics. Negative concord structures will be analyzed as *categorical*: affective items here are the logical subjects of negative predications. Weak negative dependencies, on the other hand, are *thetic* statements, and affective items present in this context have no particular role, other than being arguments of event predications.

This section is divided into two parts. In §4.7.1, the pragmatic content of negative sentences is discussed. Having reached the conclusion that emphatics are topics of negative sentences, overt preposing of these items is analyzed as topicalization in §4.7.2.

4.7.1 The pragmatics of negative sentences

Consider the following sentences in Greek and English. In (133), APIs are used, i.e. *any* and *kanenan*, but (134) contains strong elements: a negative quantifier and an NPI-∀:

(133)   Dhen agorasa   kanena vivlio.   Weak Dependency
        not   bought.1sg any   book
        'I didn't buy any book(s).'

(134)   Dhen agorasa   KANENA vivlio.   Strong Dependency
        not   bought.1sg every   book
        'I bought no book(s).'

The two sentences are, of course, truth conditionally equivalent, as indicated in (135) and (136):

(135) $\forall x$ [**book** (x) $\rightarrow \neg$ **bought** (I, x)]

(136) $\neg \exists x$ [**book** (x) $\wedge$ **bought** (I, x)]

Since the difference between a weak and a strong negative dependency is not to be found in their truth conditions, why is it that some languages allow for both options? If we exclude the possibility that we are dealing with some kind of spurious redundancy, the obvious hypothesis is that the difference between weak and strong negative dependencies is pragmatic in nature.

In support of this position, the native speaker's intuition has it that the two sentences do not 'feel' the same. Admittedly, the use of strong negative sentences is "less preferred", i.e. more restricted, than that of their weak counterparts in English. Likewise in Greek, negative sentences with emphatics have more constrained distribution: they cannot be uttered just out of the blue. Those with nonemphatics, however, can be used in a larger number of circumstances and pose no requirement on the initial context.

4.7.1.1 Negative dependencies and the thetic-categorical distinction
Negative sentences, then, have distinct pragmatic weight. One way to capture this is by invoking the *thetic-categorical* distinction. The literature on the topic, including the work of Brentano (1871), Kuroda (1992), and Ladusaw (1994), emphasizes the interaction between this distinction and the organization of the

grammar. We need not go into the details for our purposes. A simple under-
standing of what the distinction is meant to encode will suffice.

As originally postulated in Brentano, the terms thetic and categorical
characterize judgments. Statements expressing categorical judgments are struc-
tured statements comprising a logical subject and a predicate, such that given the
subject, the predicate tells us something *about* it. The notion of 'logical subject of
predication' corresponds to what is known as topic, and I will use it here in this
sense. Read categorically, a positive sentence like (137) is a statement about
Paul, and it has the structure we see in (137'):

(137)   Paul arrived last night.
           'As for Paul, he arrived last night.'

(137') λx **arrived-last-night** (x) (Paul) = **arrived-last-night** (Paul)

The logical subject of predication should not be identified with the grammatical
subject. Various objects can be logical subjects of predication in categorical
statements: any argument of the verb, or even adjuncts. The example in (137)
involves the subject, but object and adjuncts can also be logical subjects, as il-
lustrated below for the case of an object:

(138)   I saw Frank yesterday. 'As for Frank, I saw him yesterday.'

(139) λx **saw-yesterday**(I, x) (Frank) = **saw-yesterday** (I, Frank)

Statements can also express thetic judgment. Thetic statements have no
internal structure, they are merely existential statements about events, where
events are understood in a Neo-Davidsonian way (cf. Davidson 1967, Parsons
1990, Kratzer 1995). The thetic interpretation of (137), for instance, would be
about the event of Paul's arrival last night, as in shown in (140):

(140) $\exists e$ [**arrived** (Paul, at e) $\wedge$ **last-night** (e)]

According to Ladusaw (1994), every English sentence is in principle ambiguous
between the thetic and the categorical mode of judgment. In other languages, for
instance in Japanese, the ambiguity is resolved through morphological marking
of the logical subject.

4.7.1.2 The Pragmatic Non-Uniformity Hypothesis
As I said above, the notion of the logical subject of predication, present in categorical but absent in thetic statements, can naturally be identified with the notion of topic. Only categorical statements, then, exemplify the topic-comment partition (cf. Sgall et al. 1986, Vallduví 1991). Here I will argue that strong negative dependencies are such statements, and that weak negative dependencies are thetic. Emphatics are thus topics, but nonemphatics carry no particular discourse weight.

(141)   *The Pragmatic Non-uniformity Hypothesis*
          (i) Sentences with a strong negative dependency are partitioned into topic and comment.
          (ii) Sentences with a weak negative dependency have no such information structure.

This hypothesis is in line with the general feeling that sentences with a strong negative dependency cannot be uttered out of the blue. Simplifying somewhat, the notion of topic assumed here is in terms of "aboutness" and *pragmatic referentiality* (Reinhart 1982, building on Strawson 1954; for recent discussions see also Vallduví 1991, Jäger 1995 and Büring 1996). Pragmatic referentiality means that the topic should be given in the discourse, it should belong to the background information, i.e. it should be part of what we know. This has often prompted characterizations of topics as *D-linked, specific,* or *partitive.* In requiring established reference, topics are *presuppositional*, though no actual existence presupposition need be involved (although in most cases it is): Japanese marks generic subjects as topics, but we know that generic statements come with no existential presuppositions (cf. Condoravdi 1994, Krifka et al. 1995).
          Quantifiers can be topics as long as they introduce a set referent (see Kamp and Reyle 1993, and Szabolcsi 1997 for the claim that quantified DPs introduce set referents). Quantifiers can generally be topicalized across languages, as the following examples from Greek, Dutch, and Italian show (cf. Anagnostopoulou 1997, and Rizzi 1997) :

(142) Kathe dhema to paredhosa   ston paralipti tu.   Greek
       every parcel it   delivered.1sg in-the recipient its
       'As for every parcel, I delivered it to its recipient.'

(143) Iedereen in de tuin,   die kende ik.   Dutch
       everyone in the garden, that knew.1sg
       'As for everyone in the garden, I knew them all.'

(144) Tutti i tui libri,   li   ho   rimesso al posto.   Italian
       all   your books, them have.1sg put back in place
       'As for your books, I put them back to their place.'

These sentences involve syntactic topicalization, but it should be emphasized that there is no strict correlation between topics as logical subjects of predication and syntactic topics (a point also stressed in Büring 1996). An element in a sentence can be its topic without having to undergo syntactic topicalization. Emphatics, as I am arguing, are topics in negative sentences, but topicalization of them is optional and never obligatory (see discussion below).

Under the Pragmatic Non-uniformity Hypothesis in (141), negative sentences with nonemphatics will pose no requirements on the initial context, so it is predicted that they will be by default available everywhere. For a felicitous use of emphatics, however, reference must first be established. In the contexts below it is illustrated that these predictions are indeed borne out (A and B indicate the participants in the conversation).

Context 1.
Background: A: You were shopping all day. What happened? Did you find anything interesting? I thought you were planning to buy books, if you found anything that you liked.
B: a   A, oxi. Dhen aghorasa   kanena vivlio.
               oh no Not   bought.1sg any   book
               'Oh, no. I didn't buy any books.'
        b   # A, oxi. Dhen aghorasa   KANENA vivlio.
               oh no Not bought.1sg every   book
               # 'Oh, no. I bought no books.'

In the background of this context, no reference to a particular set of books is established. In such a situation, the use of nonemphatic *kanena vivlio* is felicitous, but the use of the emphatic is totally inappropriate. The contrast is expected under the assumption that emphatics are topics.

Context 2.
Background: A: I remember you told me about those books that you saw at the "Griekse Eiland". You wanted to buy them, right? What happened? Did you buy them actually?

B: a   A, oxi. Piga ke ta idha, ala dhen aghorasa telika kanena vivlio.
                'Oh, no. I went and looked at them, but I didn't buy any books after all.'
        b   A,oxi. Piga ke ta idha, ala dhen aghorasa telika KANENA vivlio.
                'Oh, no. I went at looked at them but I bought no books after all.'

Unlike in Context 1, in Context 2, reference to a set of books has been established in the background. This renders the utterance of a strong negative statement felicitous. As expected, the weak negative statement is fine too.

Context 3.
Background: A: What happened with the meeting?

B: a   Dhen irthe   kanenas fititis.
                not came.3sg any   student
                'No student came'.
        b   # Dhen irthe   KANENAS fititis.
                not came.3sg every   student
                'No student came'.

With only A's question as the background, the utterance of Bb is infelicitous. Again, the utterance of a sentence with a nonemphatic is fine. *What happened* questions are typical triggers of thetic readings. Syntactic constraints rule out the occurrence of *any* here (namely that it must prepose but it can't).

Context 4.
Background: A: Many of the students promised that they will come to the
            meeting.

B: a   Ne, ala dhen irthe telika kanenas fititis.
                'Yes, but in the end no student came.'
        b   Ne, ala dhen irthe telika KANENAS fititis.
                'Yes but in the end not as single student came.'

With the existence of students established in the background, the use of the emphatic becomes felicitous.

The above contrasts are fully expected under the Pragmatic Non-uniformity Hypothesis, and they are predicted to arise, one way or another, in all languages employing both varieties of negative dependencies (regardless of the availability of negative concord).

As topics, emphatics may undergo topicalization. It this issue that I turn to next.

4.7.2 Overt emphatic preposing as topicalization

Emphatic items may appear preceding negation in overt syntax, as in (145):

(145)   KANENAN dhen idha.
        everybody   not   saw.1sg
        'I saw nobody.'

Preposing in these cases is always optional. Building on Giannakidou (1997a), I propose that overt preposing of emphatics is an instance of *topicalization*, more precisely, a case of left dislocation. Syntactic evidence for the topic status of preposed emphatics is provided by the structural similarities between these items and left dislocated constituents. Given that often emphatics may be linked to clitics, I will propose that we are dealing with some version of Clitic Left Dislocation (CLLD; a phenomenon also observed in Romance, cf. Cinque 1990, and more recently Rizzi 1997).[15]

CLLD and related structures in Greek have been thoroughly examined in Iatridou (1991), Anagnostopoulou (1994, 1997), and Alexiadou (1994). I present below the basic features of CLLD and compare them to those of emphatic preposing. It will be shown that, though similar in crucial respects, the two phenomena are not identical.

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[15] Greek exhibits also a variant of *contrastive left dislocation* (CLD), which is a phenomenon observed in many languages. In Greek, the CLD-ed topic is coindexed with a clitic with which it does not agree in case, as standardly happens in CLLD (see discussion below):

(i)   I   patates,   dhen tis   troo.
        the potatoes.nom. not them.acc. eat.1sg
        'Potatoes, I don't eat (them).'

For details, see Anagnostopoulou (1994, 1997) and references therein.

4.7.2.1 Presence of a clitic

Argument CLLD involves a dependency between a sentence initial phrase and a clitic pronoun inside the sentence. The clitic, which is obligatory, marks the argument position to which the initial phrase is linked. The left dislocated phrase agrees in number and case with the clitic. A typical example is given in (146):

(146)   Ton Pavlo, ton idha.
        the Paul,   him saw.1sg
        'As for Paul, I saw him.'

The left dislocated phrase is a topic. Linking to a clitic is expected under the assumption that clitics are markers of referentiality (see Anagnostopoulou and Giannakidou 1996). Various kinds of DPs may be left dislocated in a CLLD manner, as long as they are referential (in the sense assumed above). Proper names and definite DPs admittedly make the best topic candidates, but indefinite DPs and quantifiers may also topicalize if reference is first established.

   As first observed in Philippaki and Veloudis (1984), emphatics may be left dislocated and co-indexed with clitics, but the presence of the clitic is never obligatory, as indicated in the examples below:

(147)   KANENOS$_1$ dhen (tu$_1$)   aresi   i   kakometaxirisi.
        everybody.gen not   he.gen like.3sg the   maltreatment
        'Nobody likes being treated badly.'

(148)   [KANENAN fititi]$_1$ dhen (ton$_1$) idha   na erxete stin ora tu.
        every   student   not   him   saw.1sg subj come.3sg on time
        'I saw no students arriving on time.'

(149)   [KANENA apo ta vivlia]$_1$ dhen to$_1$ agorasa   telika.
        every   from the books not   it   bought.1sg finally
        'I bought none of the books after all.'

It appears that the licensing of the clitic is sensitive to two things: (a) the "richness" of the descriptive content of the preposed emphatic, and (b) the "richness" of the sentence predicate. As we see in (150a), emphatics as independent DP constituents are incompatible with clitics if the sentence predicate is also "poor", i.e. it lacks other arguments or adverbial modification; emphatics as modifiers admit clitics, even with poor predicates, as shown in (150b):

(150) a   * KANENAN₁ dhen ton₁ idha.
             everybody   not him saw.1sg
             'Nobody I saw.'
       b   [KANENA pedhi]₁ dhen to₁ xeretisa.
             every   child   not it greeted.1sg
             'I greeted none of the children.'

In (147), with a richer main predicate, the clitic is allowed with a bare emphatic. Main predication in (148)-(149) is also rich in this respect, and it is combined with emphatics as modifiers and in partitive DPs, hence sanctioning the occurrence of the clitic.

A parallel is observed in the preposing of Italian n-words. As noted in Rizzi (1997), bare *nessuno* cannot be coindexed with a clitic (cf. (151)), but if we enrich its descriptive content and combine it with a relatively "heavy" predicate, clitics become fine; the judgments of the sentences below are from Maria Aloni and Carlo Cecchetto):

(151) * Nessuno l' ho   visto.
         nobody him have.1sg seen

(152) Nessuno di loro l' ho   visto parlare con Maria.
       nobody of you him have.1sg seen talk   with Maria
       'None of you did I see taking to Mary.'

(153) Nessuno in questo dipartimento l' ho   visto parlare con Maria.
       nobody in this   department him have.1sg seen talk   with Maria.
       'I saw no-one in this department talking to Mary.'

Emphatics and *nessuno* are not the only left dislocated items exhibiting this behavior. The same situation is observed with bare indefinites and cardinal DPs:

(154) a   *{Enan /Kapjon} ton idha.
             one/   someone him saw.1sg
             '* One, I saw.'
             '*Someone, I saw.'
       b   Enan₁   ton₁ idha   na trexi   grigora pros to parko.
             someone him saw.1sg subj run3sg fast towards   the park
             'I saw someone running fast towards the park.'

(155) a   * Tris fitites   tus   idha.
              three students them saw.1sg
              '?? Three students, I saw.'

      b   Tris fitites$_1$ tus$_1$ idha   na   erxonde apo makria.
              three students, them saw.1sg subj come.3pl from far
              'Three students, I saw them coming from far away.'

A bare indefinite in (154a) cannot be a successful topic: in the absence of any background information, it is hard to imagine what 'someone' could refer to. A richer predicate, like the one in (154b), does precisely this: it provides us information which will facilitate reference. The same can be said for (155a,b).

      These facts are no mystery for the approach we are developing here. Topichood requires givenness: established reference in the background discourse. When definite DPs and proper names are used as topics, the topichood requirement is satisfied by default, since definites and proper names are referential. With quantifiers and indefinite DPs a little more work has to be done. Enrichment of the descriptive content or the sentence predicate enables identification of the objects being talked about so that reference is established. Only then can DPs which are not inherently referential become good topics, and only then can referentiality markers (clitics) be successfully linked to them.

4.7.2.2 Unboundedness

CLLD, in Greek as well as in Romance, is claimed to be unbounded in that it is not limited in monoclausal domains (see especially Anagnostopoulou 1997). (156) illustrates the standard case with an *oti*-complement and (157) shows that emphatic preposing is no different in this respect:

(156)   Tin Elena, su ipa   xthes   oti   tin idha.
        the Elena, you told.1sg yesterday that her saw.1sg
        'As for Elena, I told you that Paul saw her yesterday.'

(157)   KANENAN su ipa   xthes   oti dhen idha.
        everybody   you told.1sg yesterday that not   saw.1sg
        'I told you that I saw nobody yesterday.'

Na-complements are, of course, also fine. In *pu*-complements, however, standard CLLD contrasts with emphatic preposing: although the former is fine (cf. (158)), the latter yields ungrammaticality, as we see in (159):

(158) a   Ti Maria, metaniosa   pu tin idha.
           the Maria regret.1sg that her saw.1sg
           'As for Maria, I regret that I met her.'

     b   Ti Maria, su   ipa   oti metaniosa pu tin idha.
           the Maria you told.1sg that regret.1sg that her saw.1sg
           'As for Maria, I told you that I regret that I saw her.'

(159) a   * KANENAN metaniosa pu dhen idha.
           everybody   regret.1sg that not saw.1sg
           '*Nobody I regret that I saw.

     b   *KANENAN su ipa   oti metaniosa pu dhen idha.
           everybody   you told.1sg that regret.1sg that not saw.1sg
           '*Nobody I told you that I regret that I saw.'

This fact should be connected to the general resistance emphatics exemplify in scoping over factives, which I return to below.

    Another asymmetry here between regular CLLD and emphatic preposing has to do with the fact that, in the presence of an overt subject in the main clause, emphatic preposing seems more natural with the VS order. The SV order is not excluded, but it is considerably less preferred. Such a constraint does not seem to be operative in regular CLLD:

(160)   Tin Elena, o Pavlos su ipe   xthes   oti tin idhe.
        the Elena, the Paul   you told.3sg yesterday that her saw.3sg
        'As for Elena, Paul told you yesterday that he saw her.'

(161)   KANENAN   su ipe   o Pavlos xthes   oti dhen idhe.
        everybody   you told.3sg the Paul yesterday that not saw.3sg
        'Paul told you that he saw nobody yesterday.'

(162)   ?? KANENAN o Pavlos su ipe   xthes   oti   dhen idhe.
        everybody   the Paul you told.3sg yesterday that not saw.3sg
        'Paul told you that he saw nobody yesterday.'

The above observations make it plausible to argue that topicalization of emphatics and regular CLLD are not derived the same way. I will assume, following Anagnostopoulou (1994, 1997), that regular CLLD involves base generation of the dislocated XP to an IP adjoined position, as in (163), an analysis supported by the attested insensitivity to islands (see discussion below). I will propose,

however, that emphatic topicalization involves *movement* of the emphatic to the left peripheral position. I argue that this position is the Spec of TopicP (cf. Müller and Sternefeld 1993). The general schema for emphatic preposing is shown in (164):

(163)   IP   (Anagnostopoulou 1997: (39))

XP$_1$ IP

clitic$_1$

(164)   TopicP

XP$_1$ Topic'

emphatic   Topic^0 NegP

Neg'

Neg^0 IP

|

dhen   t$_1$ clitic$_1$ verb
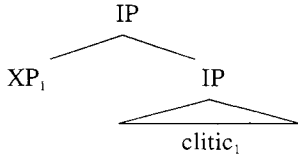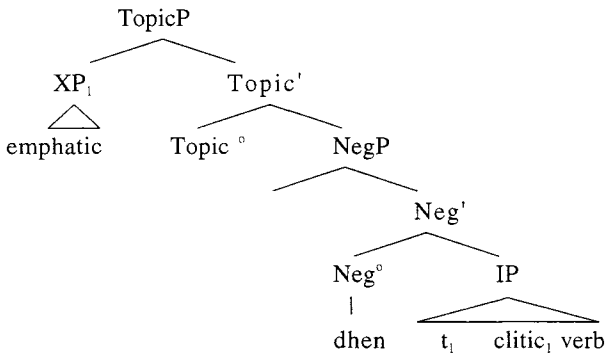
As NPIs, emphatics must be licensed by local negation, so they have to be base-generated sentence internally. Then, in order to be properly interpreted, they must leave the syntactic domain of negation and appear above it. Hence topicalization is another way of achieving the result otherwise achieved with QR.[16] Other left dislocated phrases are not subject to a licensing requirement, they are thus allowed to be base generated in sentence initial position (as assumed in Anagnostopoulou 1994, 1997).

From this analysis of emphatic topicalization, sensitivity to islands is predicted. We will see in §4.7.2.4 that this prediction is indeed borne out.

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[16] Note that emphatic topicalization and emphatic LF movement for the resolution of NC have empirical differences. The clause-boundedness observed with covert emphatic movement is not observed in emphatic topicalization: we saw that emphatic preposing is allowed from *oti*-complements in (157).

4.7.2.3 Stacking

Just like left dislocated elements, emphatic items may be stacked. The possibility of stacking in the case of CLLD is illustrated in (165) and in the case of emphatic preposing in (166). The position of the fronted elements is not fixed:

(165)   {tis Roxanis} to vivlio {tis Roxanis} tis to edhosa.
         the Roxanne the book   her it gave.1sg
         'To Roxanne, the book, I gave it to her.'

(166)   a   {POTE} i Roxani {POTE} dhen tha eleje   kati   tetjo.
                ever   the R.   not fut said.3sg something such
                'Never would Roxanne say something like this.'
         b   {KANENAS} ti Roxani {KANENAS}dhen tin idhe na   fevgi.
                everybody   the Roxanne   not her saw.3sg subj go.3sg
                'Nobody saw Roxanne leaving.'
         c   ? KANENAS TIPOTA   dhen mu xrostai   pja.
                everybody   everything not   me owe.3sg anymore
                'Nobody owes me anything anymore.'

Examples (166a,b) are impeccable. The slightly degraded status of (166c) should be attributed to phonological constraints on emphasis. Stacking can be analyzed either as multiple adjunction to IP/TopicP, or in terms of recursive Topic phrases, but the details do not concern us here.

4.7.2.4 Island sensitivity

CLLD appears to violate islands, as shown in the sentences below (recall also that CLLD is enabled across factive *pu*-clauses).This fact is well known in the literature, since Cinque (1990):

(167)   Ton Pavlo, anastatothika [$_{CP}$otan ton   idha].
         the Paul,   got-excited.1sg when him saw.1sg
         'Paul, I got excited when I saw him.'
(168)   Ton Pavlo, i Elena akuse [$_{NP}$ti fimi   oti ton apelisan].
         the Paul, the Elena heard the rumor that him fired.3sg
         'Paul, Elena heard the rumor that they fired him.'
(169)   Ton Pavlo, mu ipe   i Elena [$_{CP}$ pu   ton idhe].
         the Paul, me   told.3sg the Elena where him saw.3sg
         'As for Paul, Elena told me where she saw him.'

(170)   Ton Pavlo, ipes oti [$_{DP}$ to oti i Elena ton agapa]   enoxli   polus.
       the Paul   said.2sg that the that the E. him loves bother.3sg many
       'As for Paul, you said that the fact that Elena loves him bother many
       people.'

As we see, strong (adjunct, complex NP, sentential subject) and weak (wh-,
factive clause) islands are equally violated (contrary to what has been claimed in
Anagnostopoulou 1997). This behavior is expected under the analysis of CLLD
as involving base generation of the dislocated topic XP to its surface position.
       Note, however, that CLLD does not violate all islands. There are some
islands where a CLLD dependency is blocked. Relative clauses are one such
case, as illustrated in the example below (from Anagnostopoulou 1997):

(171)   * Ton Kosta, sinandisa tin kopela pu ton   idhe.
       the   Kostas met.1sg the girl   that him saw.3sg
       'As for Kostas, I met the girl who saw him.'

Hence we can say that CLLD exhibits selective island sensitivity (see Cinque
1990). I will not deal with this issue here, since regular CLLD is not the topic of
this book.
       Unlike CLLD, emphatic preposing obeys *all* islands. I illustrate this in
the examples below:

(172)   * KANENAN$_1$ anastatothika [$_{CP}$otan   dhen (ton) idha t$_1$].
       everybody   got-excited.1sg when not him saw.1sg

(173)   * KANENAN$_1$ i Elena akuse [$_{NP}$ti fimi   oti dhen (ton) apelisan t$_1$].
       everybody   the Elena heard the rumor that   not him fired.3sg

(174)   * KANENAN$_1$ mu ipe   i Elena [$_{CP}$ pu   dhen (ton) idhe t$_1$].
       everybody   me told.3sg the Elena   where not   him saw.3sg

(175)   *KANENAN$_1$ ipes oti [$_{DP}$to oti i Elena dhen (ton) agapa t$_1$] enoxli polus.
       everybody   said.2sg that the that the E.not him loves bother.3sg many

(176)   * KANENAN$_1$ sinandisa [$_{DP}$tin kopela pu   dhen (ton) idhe t$_1$].
       everybody   met.1sg   the girl   that not   him saw.3sg

Island sensitivity is consistent with the movement analysis of emphatic topicalization I have been assuming.

The WCO effect which is also observed further supports (164), and of course it also relates to the fact that we are dealing with quantifier movement. That WCO arises with emphatic preposing is illustrated in (177). (178) shows the parallel with *kathe* 'every':

(177) KANENA PEDHI$_1$ dhen agapai   i mitera tu$_{*1/2}$.
       every   child   not   love.3sg the mother his
       '*His mother$_1$ loves no child$_1$.'

(178) KATHE PEDHI$_1$ agapai   i mitera tu$_{*1/2}$.
       every   child   love.3sg the mother his
       '*His mother$_1$ loves every boy$_1$.'

A clitic in both cases above voids WCO. It is well-known that clitics ameliorate WCO effects; see discussion in Hornstein (1995):

(179) KANENA PEDHI$_1$ dhen to$_1$ agapai   i mitera tu$_1$.
       every   child   not love.3sg the mother his
       'No child is loved by his own mother.'
(180) KATHE PEDHI$_1$ to$_1$ agapai   i mitera tu$_1$.
       every   child   love.3sg the mother his
       'Every child is loved by his own mother.'

Interestingly, WCO is voided in Greek also with focus preposing, contrary to what has claimed to be the case for Italian by Rizzi (1997); see discussion in §4.5.5:

(181) TON PAVLO$_1$ agapai   i   mitera tu$_{1/2}$.
       the Paul   love.1sg   the mother his
       'It is Paul that his mother loves.'

This assymetry between emphatic (177) and focus (181) preposing provides an additional argument against collapsing the two.

I conclude that emphatic preposing exhibits most of the typical characteristics of topicalization. This result is consistent with the idea that emphatics are topical quantifiers.

4.8 Conclusion

In this chapter, we examined the syntax of affective dependencies, as it is manifested under negation. We have reached three important conclusions. The first conclusion concerns the nature of negative dependencies. It was shown that these come in two varieties: weak and strong. Weak negative dependencies involve existential interpretations of APIs and give rise to thetic statements. Strong negative dependencies are quantificational, and give rise to statements that are discourse partitioned into topic and comment. Previous approaches, based on the NEG-criterion, as well as nonquantificational approaches to APIs and NPIs are unable to capture this difference in a consistent way.

Second, we postulated that the licensing domain in weak negative dependencies corresponds to the c-command domain of negation at LF. The ungrammaticality of bare API-fronting was reduced to a ban on topicalizing quantifiers which do not assert existence. Hence the syntactic constraint follows from the sensitivity semantics of APIs themselves, a result which further supports the leading idea in this book that limited distribution is a result of the sensitivity semantics of PIs.

The third conclusion concerns the analysis of strong negative dependencies, i.e. negative concord. We saw that there is no real evidence that the items participating in this structure are inherently negative. In this sense, appeal to the NEG-criterion and the ensuing absorption mechanism is made redundant. Instead, I proposed that n-words in negative concord are universal quantifiers sensitive to negative polarity, thus essentially reducing negative concord to an instance of quantifier scope. NPI-licensing in negative concord was shown to correspond to an escape-the-scope-of-licenser condition. NPIs participating in this structure, i.e. emphatics, *need* negation in order to be licensed; for the proper intepretation of such structures as $\forall\neg$, however, emphatics must raise above negation at LF. In this account, interpretation proceeds straightforwardly, and no problem with compositionality arises.

As regards the greater PI-picture, the implication of the proposed analysis of negative concord is that the licensing domain does not always correspond to the c-command domain of the licenser. This conclusion is in fact expected in the general framework of polarity sensitivity developed in this book.

Conclusions

The primary claim of this study has been that polarity phenomena in natural language are manifestations of sensitivity to (non)veridicality. Polarity items have been analyzed as dependent expressions: they depend on the (non)veridicality of the context of appearance for their proper intepretation. The source of dependency and the ensuing limited distribution is thus semantic, and it resides in the lexical-semantic properties of polarity items, i.e. their sensitivity features. This result presents a considerable improvement upon previous theories of polarity, where the main focus was to identify the licensing property and the connection between that property and polarity items has never been seriously dealt with.

As far as their quantificational force is concerned, polarity items were shown to be no different from the quantifiers familiar from predicate logic: ∀ and ∃. Unlike these, however, polarity items are "special" in that additional requirements are imposed as regards the link between the variable associated with the quantifier and the object assigned to that variable. Because of these additional constraints, polarity items can be used successfully only if certain conditions obtain. Dependent existentials like Greek *kanenas*, English *any*, and Dutch *ook maar iets* do not assert existence in the actual world (or in some individual's model of it), so they are excluded from contexts that would force them to do exactly this. It is then only expected that we cannot use affective quantifiers in veridical contexts; the sentences containing them cannot have a truth value in these contexts. Attributive existential quantifiers, on the other hand, require that they be interpreted with respect to i-alternatives and receive distinct values in those alternatives. Veridicality is, again, at odds with this requirement. Subjunctive relative clauses are compatible with a state of ignorance as regards the existence of the objects they intend to modify. By guaranteeing existence, veridical contexts turn out to be inappropriate environments in these cases too.

On the other hand, for polarity items that rely on existence, e.g. indicative relative clauses, veridicality is exactly what we need. These items will therefore be grammatical in veridical contexts.

Another important result of this study is that it acknowledges a negative dependence on veridicality. Unlike polarity items which are positively dependent on nonveridicality, the nature of sensitivity involved in items anti-licensed by veridicality does not allow us to predict that they must appear in all nonveridical environments, although it surely raises the expectation that they will appear in most of them. With polarity items of this latter type it is quite feasible that there will be nonveridical contexts in which the items will not be licit. The distributional differences between Greek APIs and *any* were shown to follow directly from this fact.

This book was also concerned with the syntactic mapping of the sensitivity dependency. Two important conclusions were drawn in this connection. First, it was shown that the syntactic licensing domain for affective items should be identified with the c-command domain of their licenser at LF, and not at s-structure, as is commonly held in the traditional literature. The decisive arguments for the need to appeal to LF were provided by cases where affective items are ungrammatical despite the fact that they are c-commanded by negation at s-structure. The second conclusion was that the relation between licensing and scope is not as self-evident as we are inclined to think. Licensing does not necessarily correspond to a requirement that the licensee be in the scope of the licenser. In some cases, for instance for the interpretation of negative concord, it is required that they licensee escape the scope of the licenser. The idea that the licensee must escape the scope of its licenser might seem counterintuitive at first glance, but it actually follows from the general vision of polarity sensitivity developed in the book. Semantic dependency may be positive (licensing) or negative (anti-licensing). In a parallel fashion, the syntactic mapping of the dependency may be positive or negative. Nothing in the theory entails that a positive dependency will map onto a positive syntactic condition, and a negative dependency onto a negative one.

As a final remark, I would like to emphasize that the approach I proposed here is not in conflict with its predecessors based on monotonicity and negation. Rather, it subsumes both since downward entailing and negative contexts are proper subsets of the nonveridical. Unlike these, however, the (non)veridicality-based approach to polarity affords a much greater empirical coverage, and it provides a solid basis for the unification of polarity sensitive contexts as a natural class across languages.

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