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AFFECTIVE DEPENDENCIES

Limited distribution phenomena related to negation and negative polarity are usually thought of in terms of *affectivity* where *affective* is understood as negative or downward entailing. In this paper I propose an analysis of affective contexts as *nonveridical* and treat negative polarity as a manifestation of the more general phenomenon of sensitivity to (non)veridicality (which is, I argue, what affective dependencies boil down to). Empirical support for this analysis will be provided by a detailed examination of affective dependencies in Greek, but the distribution of *any* will also be shown to follow from (non)veridicality.

1. Introduction

Polarity phenomena are observed in many languages. The pattern involves expressions which are not grammatical just anywhere but only in sentences exemplifying some particular semantic characteristic. Limited distribution expressions of this kind are traditionally known as polarity items (PIs).

We can capture the limited distribution of PIs as a result of their *sensitivity*: PIs are dependent on some semantic property of the context for their proper interpretation. The aim of this paper is to argue that this property is (non)veridicality, and define PIs as in (1):

(1) DEFINITION 1 (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: negative polarity items, free choice items, positive polarity items (PPIs), and mood alternation in relative clauses. I have shown elsewhere (Giannakidou 1998) that the distribution and interpretation of these 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). In the present paper, I concentrate on the particular class of PIs whose distribution is restricted to what Klima (1964) called affective contexts. Such PIs are known as negative polarity items (NPIs), but given that (a) affective contexts do not include only negative contexts, and (b) we can indeed isolate a class of expressions that depend exclusively on

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negation for grammaticality, I will keep the label 'NPI' for the latter PIs, and refer to the general class as 'affective polarity items' (APIs).

In this paper, affective phenomena are considered under the hypothesis that affective contexts are nonveridical. The analysis relies mainly on the examination of affective dependencies as they are manifested in Greek, although it should be clear that the scope of the proposed theory is not limited to Greek only. We will see that the constraints on affective items like *any*, and Dutch *ook maar iets*, as well as other expressions shown in Haspelmath (1993, 1997) to have parallel distribution to the Greek APIs, follow directly from the idea that polarity sensitivity is dependency to (non)veridicality.

The sensitivity of PIs can be represented in terms of sensitivity features, i.e., lexical features which are present in sensitive items but absent in nonsensitive items, and which encode the semantic "deficiency" that characterizes the former but not the latter (for a slightly different but related view on sensitivity see Tovena 1996).[1] Semantic dependency can be viewed as a relation R between PIs and context which can be positive or negative. Positively, R can be regarded as an attraction relation, and negatively, as an avoidance relation, reflecting some kind of incompatibility between PI and context:

(2) DEFINITION 2 (Two kinds of semantic dependency).
A polarity item α will be grammatical in a context β iff at least one of the following holds, for some relation R:[2]
(i) $R(\alpha, \beta)$.
(ii) $\neg R(\alpha, \beta)$.

We can say, for instance, that *any student* is grammatical in (3a) with the interpretation in (3d) because there is a positive relation between *any student* and negation. By contrast, *some student* in (3b) can only be interpreted outside negation as in (3c), because a negative relation holds between negation and this item (this is the assumption underlying the standard analysis of *some* as a PPI):

[1] This view of sensitivity should be seen in relation to recent proposals in the literature on DP-interpretation put forth in the volume Szabolcsi (1997), and elsewhere. A substantial part of this literature seems to agree that intepretation drives distribution: constraints on the interpretation of DPs pose restrictions as to when and where they occur, and the scopal patterns they exemplify.

[2] The requirement here is that 'at least one of (i), (ii) holds' to allow for cases of PIs with multiple senstivity which are licensed *and* antilicensed at the same time; PIs exemplifying anti-locality effects vis-à-vis negation can be analyzed as such PIs (see also Section 4.3).

(3)a. Margo didn't see any student.
b. Margo didn't see some student.
c. $\exists$x [**student** (x) $\wedge$ $\neg$**saw** (Margo, x)]
d. $\neg\exists$x [**student** (x) $\wedge$ **saw** (Margo, x)]

When (2i) holds we talk about *licensing*; (2ii) can be understood as *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 to Ladusaw (1979) (see also Progovac 1994 for a syntactic implementation of this idea). Licensing and anti-licensing represent different strategies for determining the grammatical contexts for PIs. If a PI α is licensed by a property β, we expect α to occur in all environments that have β. If, on the other hand, α is anti-licensed by β, what we expect is that α will *not* occur in a context which has β. But we don't have a positive specification of where α *must* occur. While a licensing condition is a *must* condition, an anti-licensing condition is a *must not* condition. This difference will have repercussions for the contrastive analysis of Greek APIs and *any*.

The paper is organized as follows. In Section 2, a review of the major classical approaches is given, with emphasis on the problems they encounter. In Section 3, I present the Greek data and distinguish between two paradigms of APIs. In Section 4, the general semantic constraints on the licensing of APIs are discussed. It is shown that nonveridicality unifies affective contexts as a natural class in Greek. Negative polarity will be identified as a subcase of nonveridical dependency, namely dependency to antiveridicality, and a well-defined class of NPIs will be isolated as a proper subset of APIs.[3] In Section 5 I propose an extension of (non)veridicality to the domain of determiners and quantifiers which relies on their (ir)referentiality properties. Section 6 deals with what I call *indirect licensing* of APIs, i.e., licensing by a negative implicature. A typology of APIs based on nonveridicality will also be presented. This typology is compared to previous ones based on monotonicity, and is shown to be empirically superior. The paper concludes with an analysis of *any* in terms of anti-licensing by veridicality in Section 7.

[3] In earlier work (Giannakidou 1994, 1995, 1997a), the property of *antiveridicality* is referred to as '*averidicality*'. In Giannakidou 1998, I abandoned 'averidicality', as it assigns the wrong logical content to the property the term 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. I follow here the terminology of Giannakidou (1998).

2. Previous Approaches to APIs

Any is probably the best-known API. As we see in (4), *any* occurs in negative but is barred in affirmative sentences:

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

Any is atomic, but APIs may be complex too, e.g. the minimizer *lift a finger* in (5). APIs may belong to various syntactic categories. They may be DPs like *any*, prepositions like *until* (6), adverbs like *yet* in (7), adjectives like *efkatafroniti* "rejectable" in (8). Even verbs can be APIs, e.g., the modal *xriazete* "need" in (9):

(5) Elly did*(n't) lift a finger to help me.

(6) Elly did*(n't) start writing until midnight.

(7) Elly has*(n't) arrived yet.

(8) I prosfora tu *(dhen) ine katholu efkatafroniti.
the offer his not be-3sg at-all rejectable
His offer is not all rejectable.'

(9) *(Dhen) xriazete na feris lefta.
not need.3sg subj bring-2sg money
You need not bring money with you.'

A comprehensive theory of polarity sensitivity must deal with two fundamental issues: the issue of sensitivity, and the 'licenser question' (Ladusaw 1996, Israel 1996). The former concerns the relation between licenser and licensee, namely why APIs are sensitive to the types of environments they are. The licenser question, on the other hand, addresses the issue of what the formal property is that all affective environments share. Though the former issue has received remarkably little attention, the licenser question has been extensively discussed in the earlier and current literature. Generally, it is believed that affective environments can be understood as forming a natural class in terms of some formal property. Through the decades, two distinct traditions have been developed. Affective contexts have been characterized as 'negative' (Baker 1970, Linebarger 1980, 1987), or as 'downward entailing' (or monotone decreasing, or scale reversing (Fauconnier 1975); see Ladusaw 1979,

Zwarts 1986, Hoeksema 1983, Dowty 1994, and Van der Wouden 1994, *inter alia*).[4]

2.1. *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 nature of this feature is not given a precise semantic characterization (though it is claimed that it should include at least a negative and an interrogative feature). Baker (1970) proposes a condition for NPIs (as opposed to PPIs), which requires that NPIs be "within the scope of negations" (Baker 1970: (47a)). Negations need not be present in the actual sentence where the NPI occurs, but rather, they can be *entailed* by it:

(10) *Baker 1970* (Baker 1970: (47b))
Given semantic representations P_1 and P_2 satisfying the following conditions:
(A) $P_1 = X_1\ Y\ Z_1$ and $P_2 = X_2\ Y\ Z_2$, where Y is itself a well-formed semantic representation;
(B) P_1 entails P_2;
then the lexical representation appropriate to Y in P_2 is also appropriate to Y in P_1.

Any is thus acceptable in a sentence S either if negation is present in S, or if S gives rise to an entailment S′, and then *any* is licensed in S *indirectly* via S′. The essence of Baker's proposal is adopted in Linebarger (1980, 1987), but for Linebarger the crucial inference is an implicature:

(11) *Availability of negative implicatum* (Linebarger 1987, Part B (ii))
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

[4] A third type of approach can be distinguished, advocated in Quirk et al. (1985) and Haspelmath (1997), where the licensing force is attributed 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 I propose here, but not identical. I should also note that the (non)veridicality approach is quite distinct from accounts based on nonexistence like Dayal (1995).

event that S is distinct from S′, we may say that in uttering S the speaker is making an allusion to S′.

(11) derives APIs, for instance, in the scope of *only* and factive emotive verbs like *be surprised* from the implicatures we see in the *b*-sentences below. In these cases, APIs are claimed to be in the scope of negation at *Logical Form* (LF). Additionally, it is required that at that level, nothing intervenes between APIs and negation (the *immediate scope constraint*, Linebarger 1987: Part A).

(12)a. Only John has a hope in hell of passing.
b. Whoever is not John does not have a hope in hell of passing.
(13)a. Jacob is surprised that Ruth has any friends.
b. Jacob expected that Ruth does not have any friends.

Although appeal to a negative implicature is indeed desirable for some cases, as will be shown in Section 6, the negative implicature alone cannot provide a solid basis for a general condition on API-licensing. One problem is that if we assume that the availability of a negative implicature is the primary licensing force, we result with a too general condition, as is often pointed out in the literature. Another problem is that there are licensing environments for APIs which are not at all negative, as we see in Section 2.3.

2.2. *Affective as Downward Entailing*

Ladusaw (1979) offers a semantic characterization of affective environments as downward entailing (DE) which is adopted and further developed in the work of Hoeksema (1983), Zwarts (1986), Van der Wouden (1994), and Dowty (1994), among others. Ladusaw proposed that APIs are acceptable only if they are found 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:

(14) DEFINITION 3 (Upward entailing function).
A function f is upward entailing iff for every arbitrary element X, Y it holds that: $X \subseteq Y \rightarrow f(X) \subseteq f(Y)$

(15) DEFINITION 4 (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 sets to supersets is supported, but in the scope of expressions which are DE inference from sets to subsets is allowed. Negation and negative DPs like *no children*, and determiners like *few* and *at most* are DE. *Some*, on the other hand, is UE. Functions can also be non-monotone (NM), e.g., *exactly n N*. Ladusaw's condition postulates that an expression will "trigger", i.e., license, "NPIs" only if it is DE:

(16) *Licensing condition based on downward entailment*
α is a trigger for NPIs in its scope iff α is downward entailing.

(16) predicts that negation and negative DPs will be appropriate API-licensers whereas *some* and *exactly n* will not be. We observe in (17) that this prediction is for the most part borne out (% indicates judgement variation across speakers):

(17) 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 (17c) as grammatical: *exactly three students* ϕ gives rise to the negative implicature *no more than three students* ϕ and it can thus license NPIs. If (17c) is indeed partially acceptable, then we already have a counterargument for the monotonicity approach to NPIs. At any rate, (16) also predicts grammaticality of APIs in the clausal complement of negative predicates, in clausal comparatives (see especially Hoeksema 1983), and in the restrictor of the universal quantifier, since these constructions can be characterized (albeit not uncontroversially) as DE. This prediction is borne out:

(18) a. Few children saw anything.
b. Frank denied that he said anything.
c. Bill runs faster than anybody thought he could.
d. Every student who knows anything about the case should speak now.

Hence for this type of data, conditions like (16) can be adequate.

2.3. *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 (16).

Perhaps the most serious problem is that, crosslinguistically, PIs are licensed in contexts which are not DE (see discussion in Section 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 (16) 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 (nonexhaustive) distribution of *any*, illustrated in (19); examples (19h, l) and (19n) are due to Jason Merchant and Larry Horn, respectively:[5]

(19) 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, I will never forgive you. [*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 predicate]
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 (19) 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

[5] Cases known as 'subtrigging' (LeGrand 1975, Dayal 1995), where *any* is found in an environment which is not negative or modal, at least not in an obvious way, also pose a serious problem for monotonicity, but I will not consider those here.

Faltz 1985). The DE of *only* and the conditional protasis have also been questioned (Heim 1984). Finally, a NM quantifier like *nobody but Paul* in (19l) provides a licensing context for *any*, yet it lacks inherent monotonic properties (see Keenan 1996).

As an objection, one might argue that some instances of *any* above are actually instances of free-choice *any*. This is not a real objection, however, since it presumes that the free-choice versus polarity-sensitive *any* distinction is lexical, which is quite controversial. In fact, it makes sense to handle *any* as one item anti-licensed by veridicality, as I argue in Section 7.

More problems arise if we examine more closely the DE area. Consider first *any* in the restrictor of universal quantifiers. According to (16), in (20), where the relative clause provides the restriction of *every*, it is the DE of that clause that permits *anything* to appear. Note, however, the contrast between *every* and *each/both* illustrated below (first observed in Horn 1972):

(20) Every student who knows anything about the case should speak now.

(21) *Each student who knows anything about the case should speak now.

(22) *Both students who know anything about the case should speak now.

Since *both/each* and *every* are ∀, and if it is the DE of the ∀-restriction that sanctions APIs, why should there be a contrast? The contrast suggests that the DE of the ∀-restriction is not what we need to account for API-licensing. I will argue in Section 5 that *both/each* and *every* differ in their veridicality properties, and it is this difference that affects APIs.

Additional problems arise with APIs in comparatives and the characterization of comparatives as DE. These problems were pointed out in Giannakidou (1997a, 1998); for a general criticism of the DE-analysis of comparatives see Hendriks (1995), Rullmann (1994).

Finally, another problem for DE is that monotonicity-based research confines itself to the identification of the triggering contexts and offers no grounds for addressing the issue of sensitivity, i.e., the relation between APIs and their licensers. This issue should be 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. In Giannakidou (1998) I show that in the (non)veridicality approach the link between the lexical semantics of PIs

and their triggers can be successfully explained (but I will not consider this issue here; see Giannakidou (1998) for extensive discussion).

I conclude that previous approaches to PIs based on DE and negation do not succeed in unifying affective environments as a natural class. These approaches were shown to make too narrow predictions, and leave a vast body of data unexplained.

3. Two Classes of Affective Dependencies in Greek

In this section I present the data from affective dependencies in Greek. I show that affective phenomena in this language actually come in two varieties: (i) one which manifests itself as sensitivity to negation (and negative-like operators in a sense to be made precise), and (ii) one which includes sensitivity to negation along with other operators which are not strictly speaking negative but nonveridical. The latter dependency constitutes the general case; sensitivity to negation is a subcase thereof.

Greek exemplifies the series of APIs reproduced under (23):

(23)		
	kanenas/KANENAS	anyone, anybody/no-one, nobody
	tipota/TIPOTA	anything/nothing
	pote/POTE	ever/never
	puthena/PUTHENA	anywhere/nowhere
	katholu/KATHOLU	at all/not at all

The uppercase/lowercase convention is used to capture a difference in terms of emphasis. As first noted in Veloudis (1982), Greek APIs may bear emphatic stress (uppercase items). I will call emphatic APIs *emphatics*, and their nonemphatic counterparts *nonemphatics*. In Giannakidou (1997a, 1998) I showed that the two paradigms differ not only in terms of pitch accent, but also in their syntactic distribution, and semantics (emphatics are universal quantifiers, but nonemphatics are existentials). The overall picture leads to the conclusion that emphatics and nonemphatics are lexically distinct, a position which I adopt here.[6] Below, I discuss the distribu-

[6] Emphatic accent, then, has a lexical effect. This is a welcome result, as the same effect is attested elsewhere in the Greek grammar: emphasis is employed to distinguish between 'few' *LIJI* and 'a few' *liji*, and 'too' *POLI* and 'very' *poli* (see Giannakidou 1997a, 1998 for details, and ex. (30)). Crucially, the involved emphasis cannot be analyzed as focus. In Giannakidou (1997a, 1998), I offer numerous arguments as to why this is so, and repeating the arguments here would lead me too far afield. I should mention, however, that emphatic items are best analyzed as topics, i.e., logical subjects of negative predications. A focus analysis would then be in conflict with this, and it would also be contradicted by the fact that, syntactically, emphatic fronting displays the characteristics of topicalization rather than of focus preposing.

tional differences, as these only relate to the argument that affective dependencies come in two varieties.

Emphatics and nonemphatics are both grammatical under negation, *xoris* 'without' and *prin* 'before', as illustrated here; both APIs are glossed as *any* for convenience:

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

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

(26) O papus pethane prin na dhi KANENA/kanena
the grandpa died.3sg before subj see.3sg any
apo ta egonia tu.
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 their occurrence in negative and *xoris* clauses (a point to which I return in Section 4.3).

Nonemphatics are admitted in a much larger number of environments, partly exemplified in the sentences below (for the full range of data, see Giannakidou 1997a, 1998):

Questions (rhetorical *or* information readings)

(27)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

(28) 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 (cf. May 1985), and free relative clauses; see Section 5)

(29) Oli osi gnorizun tipota/*TIPOTA ja tin ipothesi,
all who know.3pl anything for the issue,
as milisun.
subj talk.3pl
Everyone who knows anything about the case should speak.

too-clauses

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

Clausal comparatives

(31) Apodhixtike pjo eksipni apoti perimene
proved.3sg more intelligent than expected.3sg
kanenas/*KANENAS.
anybody
She turned out to be more intelligent than anyone had expected.

Future

(32) 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.

Strong intensional verbs

(33) Elpizo na emine kanena/*KANENA komati.
hope.1sg subj left.3sg any piece
I hope there is a piece left.

Modal verbs (epistemic, deontic)

(34) Prepi na episkeftis kanenan/*KANENAN jatro.
must.3sg subj visit any doctor
You should visit a doctor.

Imperatives

(35) Pijene se kanenan/*KANENAN jatro.
go.imp.2sg to any doctor
Go to a doctor!

Habitual sentences (nongeneric)
(The monotonicity properties of the Q-adverb (if present) are irrelevant; see Giannakidou 1995, 1997a, 1998).

(36) O Pavlos me proidhopiouse molis evlepe
the Paul me warned.imperf.3sg as soon as saw.imperf.3sg
tipota/*TIPOTA.
anything
Paul used to warn me as soon as he saw anything.

Disjunctions

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

Perhaps-clauses

(38) Isos na irthe kanenas/*KANENAS.
perhaps subj came.3sg anybody
Perhaps somebody came.

'Negative' verbs

(39) Arnithike oti idhe tipota/*TIPOTA.
denied.3sg that saw.3sg anything
S/He denied that he saw anything.

A mere glance suffices to indicate that only a (very) small number of environments are DE; the rest can be shown to be either UE, or with no inherent monotonicity properties at all (for instance intensional and modal predicates, interrogatives, imperatives and habituals). The overall picture is summarized in Table 1:

Table 1. Comparative distribution of emphatics and nonemphatics

Environments	Emphatics	Nonemphatics
Negation	OK	OK
before-clauses	OK	OK
without-clauses	OK	OK
DE quantifiers	*	OK
Yes-no/constituent questions	*	OK
Conditionals	*	OK
Restriction of ∀	*	OK
too-clauses	*	OK
S-comparatives/superlatives	*	OK
Future	*	OK
Strong intensional verbs	*	OK
Modals	*	OK
Imperatives	*	OK
Habituals	*	OK
Disjunctions	*	OK
perhaps-clauses	*	OK
negative verbs	*	OK

Many of these contexts are licensing environments for *any*, e.g., the complement of strong intensional verbs (*I insist that you allow anyone in*), future sentences (*any sane doctor will tell you that what you do is wrong*), imperatives (*pick any apple*), and modals (*anyone can solve this problem*).[7] Like nonemphatics, *any* is grammatical also in habitual sentences (ex. (36); see Giannakidou 1998 and Giannakidou and Zwarts 1998). *Any* is interpreted as free-choice in some cases, but Greek APIs do not receive

[7] 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. Here, I employ the terms as descriptive labels, and show in Section 4 that the underlying semantic difference is one in terms of (non)veridicality.

free-choice interpretations; Greek employs a distinct free choice paradigm (see Giannakidou 1997a, b, 1998 for extensive discussion).

Nonemphatics exemplify the broad affective dependency, emphatics, on the other hand, are NPIs proper: they are licit only in negative and negative-like contexts. Since the distribution of the latter is contained in that of the former, we conclude that NPIs form a proper subset of APIs: NPIs $\subset$ APIs. Greek is not unique in having APIs. Comparable items are: *any*, Dutch *ooit* 'ever', and *ook maar iets* (Hoeksema 1995, Giannakidou and Zwarts 1998), *jemals* 'ever' in German, *vreo* 'any' in Romanian, *is*-indefinites in Ossetic, the Lithuanian *nors*-series, and Russian *libo*-series (cf. Haspelmath 1993, 1997).

4. Affective Contexts as Nonveridical

In the present section, I argue that Greek APIs are items sensitive to nonveridicality: they must be found in a nonveridical context in order to be properly interpreted. Sensitivity to nonveridicality is instantiated as a positive (licensing) dependency in Greek: as long as a context is nonveridical, nonemphatics should be grammatical there. But this is not the only option. Sensitivity to (non)veridicality may also be realized as a negative dependency (anti-licensing) on veridicality: *any* will be taken to exemplify this case in Section 7.

First, the link between mood and nonemphatics is highlighted in Section 4.1, as the former affects the licensing of the latter in a particular way. The facts are immediately explained if we assume that nonveridicality is the regulating factor (Section 4.2). Once this is established, a licensing condition for APIs will be formulated in Section 4.3, and NPIs will be identified as a subset of APIs sensitive to antiveridicality.

4.1. *Mood Choice and Affective Polarity Items*

Mood choice affects the licensing of APIs. The basic observation is that nonemphatics are grammatical in subjunctive clauses but ungrammatical in indicative clauses. I present here the relevant facts and link API-licensing to the veridicality properties of the embedding predicates.

Grammars of modern Greek distinguish two moods, the indicative and the subjunctive (cf. Mackridge 1985, Holton et al. 1997). Since the modern Greek verb, unlike its ancient Greek counterpart, is not inflected for mood, the indicative bears no morphological marking. The subjunctive is morphologically marked by the presence of particles such as *na*, *ja na* and

as. Here, I discuss *na*-clauses but what is said for *na* carries over to *ja na*- and *as*-clauses too.

The subcategorization frames of Greek verbs are quite similar to those attested in Romance, although there are certain differences, not of immediate relevance here (see Giannakidou 1997a, 1998, for Greek, and Farkas 1985, 1992, Quer 1998 for discussion of the semantic parameters regulating mood choice in Romance). The pattern is as follows. Indicative is the mood of unembedded assertions, and is also selected by factive verbs (where the special factive complementizer *pu* is used), and weak intensional–epistemic, dream/fiction, assertive verbs (Farkas 1985, 1992). Strong intensional verbs – volitionals, directives, modals, and permissives – subcategorize for the subjunctive, and so do aspectual, perception and implicative verbs which are extensional.

APIs are sanctioned in the complements of strong intensional verbs (see (40)), but are excluded from the complements of the weak intensional, factive, aspectual, perception and implicative verbs (cf. (41) and (42) (see also Giannakidou 1994, 1995, 1997a, 1998); note that *any* is also ungrammatical in the latter (a point to which I return in Section 7):

(40)a. Protino na simvuleftite kanenan jatro.
suggest.1sg subj consult.2pl any doctor
I suggest you get a doctor's opinion.

b. Thelo na mu agorasis kanena vivlio.
want.1sg subj me buy.2sg 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.

(41)a. *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.)

b. *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.)

(41)c. *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.)

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

(42)a. *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.)

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

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

d. *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 attested contrast can surely not be handled in terms of monotonicity. In addition, considering that nonemphatics are excluded from certain *na*-complements, the most obvious hypothesis is that it is not mood that

matters for affective licensing but the semantics of the selecting predicate.[8] In the next subsection, I show that the contrast can be immediately accounted for by appealing to the (non)veridicality properties of the involved verbs.

4.2. *(Non)veridicality and the Semantics of Propositional Attitudes*

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. 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, and in Giannakidou (1994, 1995) and Zwarts (1995) a formalization of (non)veridicality is given along the lines of (43):

(43) DEFINITION 5 ((Non)veridicality, first approximation).
Let *Op* be a monadic propositional operator. The following statements hold:
(i) *Op* is veridical just in case *Op* $p \rightarrow p$ is logically valid. Otherwise, *Op* is nonveridical.
(ii) A nonveridical operator is antiveridical just in case *Op* $p \rightarrow \neg p$ is logically valid.

(Non)veridicality in this definition does not involve existence but truth entailment. A propositional operator *Op* is veridical iff *Op p* entails *p*, that is, whenever *Op p* is true, *p* is true too (where *p* is an arbitrary proposition). *Op p* is nonveridical if this does not hold, hence with nonveridical operators, if *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 (43), antiveridical operators form a subset of the nonveridical, so every antiveridical operator is also nonveridical but not *vice versa*. Zwarts (1995)

[8] Based on the contrast observed here and a number of other asymmetries discussed in Giannakidou (1995a, 1998), I argued in those works that *na* is ambiguous. In one of its instances it is the subjunctive particle; but with extensional verbs *na* should be seen on a par with what appears to be a *deictic* use it, exemplified in (i):

(i) Na i Roxani!
Here is Roxanne!

This deictic use was already noted and connected to *na* after perception verbs in Christides (1981) and earlier work. Unlike subjunctive *na*, deictic *na* is veridical, see discussion below.

further proposes that dyadic operators can also be classified as veridical, nonveridical and antiveridical and he offers analogous definitions with respect to each argument position. Most significantly, Zwarts (1995) shows that DE operators form a proper subset of the nonveridical (**DE ⊂ nonveridical**) along with operators which are UE or NM (see Zwarts 1995 for details and proofs).

With the aid of (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, and they are nonveridical (see Giannakidou 1993, 1994, 1997a, 1998 and Zwarts 1995 for extensive discussion). Blocking environments, on the other hand, like affirmative unembedded assertions and perception verbs are veridical. Moreover, there is a viable way to characterize interrogatives, the future, imperatives and conditionals as nonveridical, as is shown in Giannakidou (1997a, 1998). Hence, if we appeal to nonveridicality to account for the distribution of nonemphatics, it seems that we can explain the cases of DE triggers as well as those of NM, or UE ones.

However, if we consider the contrast between strong intensional and weak intensional/extensional domains described in the previous subsection, the notion of (non)veridicality defined in (43) is inadequate. Weak *and* strong intensional verbs are nonveridical according to (43); 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. So, if it is (non)veridicality in this absolute sense that matters, APIs should be equally acceptable, or unacceptable, in the scope of *believe* and *want*.

4.2.1. *Models and Individual Anchors*

In order to deal with the veridicality properties of propositional attitudes, one has to take into consideration *individual anchors*. The term is borrowed from Farkas (1985, 1992), where it is postulated that sentences are not true or false in isolation but always 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 relative to individuals (see, among many others Quine 1953, 1956, Hintikka 1962, 1969, Lewis 1973, and more recently Heim 1992 and Van Rooy 1997).

We can spell out this intuition in the notion of a *model*, defined in (44):

(44) DEFINITION 6 (Models of individuals).
Let $c = \langle cg(c), W(c), M, s, h, w_0, f, \ldots \rangle$ be a context.
A model $M(x) \in M$ is a set of worlds associated with an individual x. x is the individual anchor.

The context assumed in (44) is Stalnakerian. It is a tuple consisting of a common ground ($cg(c)$; the set of propositions the participants in the conversation mutually take to be true), a context set ($W(c)$; the set of worlds in which all the propositions in the cg(c) are true, i.e., $W(c)$ is the set of worlds compatible with what is believed to be true by the agents prior to any assertion), an assignment function f, and a number of Kaplanian parameters corresponding to the speaker s, the hearer h, the actual world w_0, and possibly other parameters. Models are construed as collections of worlds c, corresponding essentially to the accessibility functions we know from the treatment of attitudes in modal logic and possible world semantics.

In the most straightforward case, i.e., 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 (45), where M(x) is indexed with B:

(45) DEFINITION 7 (Belief model).
Let $c = \langle cg(c), W(c), M, s, h, w_0, f, \ldots \rangle$ 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 according to some individual; M(x) in this case includes worlds compatible with what x dreams or imagines. I record this in (46) by indexing D to M(x):

(46) DEFINITION 8 (Dream model).
Let $c = \langle cg(c), W(c), M, s, h, w_0, f, \ldots \rangle$ 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 belief's need not be, and in fact 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 (47) by the index RC. Under realistic assumptions, $M_{RC}(x)$ includes worlds different from the ones in $M_B(x)$ and $M_D(x)$:

(47) DEFINITION 9 (Model of reported conversation).
Let $c = \langle cg(c), W(c), M, s, h, w_0, f, \ldots \rangle$ 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 M(x) 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.[9] 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 true or false in *c*, if it is true or false in the speaker's belief model $M_B(s)$, where "s" stands for "speaker":

(48) *Unembedded assertions*
(i) $[\![p]\!]_c = 1$ iff $M_B(s)$ is such that $\forall w \in M_B(s)$, $[\![p]\!]_w = 1$.
(ii) $[\![p]\!]_c = 0$ 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 (49), 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.

A prerequisite for *p* to be true in (49) is that Jacob's epistemic model be a subset of the worlds where *p* is true: $M_B(J) \subseteq p$, that is Jacob must

[9] Other kinds of models are also conceivable, for instance *buletic* models. Such non-epistemic models, however, are not relevant for truth assignment. Likewise, they are not relevant for (non)veridicality, as it becomes clear in Definition 10 below.

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.

(49)a. $[\![\text{Jacob believes that Lucy loves Paul}]\!]_c = 1$ iff
$[\![\text{Lucy loves Paul}]\!]_{MB(\text{Jacob})} = 1$

b. $[\![\text{Jacob believes that Lucy loves Paul}]\!]_c = 1$ if
$[\![\text{Lucy loves Paul}]\!]_{MB(s)} = 0$

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.

4.2.2. *Relativized (Non)veridicality*

Against the above background, (non)veridicality can be defined as follows:

(50) DEFINITION 10 (Relativized (non)veridicality).
Let $c = \langle cg(c), W(c), M, s, h, w_0, f, \ldots \rangle$ 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 (50), a propositional operator is veridical iff the truth of *Op p* in *c* requires that *p* be true in some individual's epistemic model M(x) in *c*. If the truth of *Op p* in *c* does not require that *p* be true in some such model in *c*, *Op* is nonveridical. A nonveridical operator *Op* is antiveridical iff the truth of *Op p* in *c* requires that *p* be false in some epistemic model M(x) in *c*. Antiveridical operators form a proper subset of the nonveridical (**antiveridical** $\subset$ **nonveridical**), so the original insight of Definition 5 is retained. Propositions can accordingly be characterized as veridical, nonveridical, or antiveridical depending on the properties of the embedding operators.

What about the crucial attitude verbs? Consider first those which do not allow APIs: perception, commissives, aspectual, implicatives, epistemic, dream/fiction, assertive and factive verbs. Take, for instance, *vlepo* "to see":

(51) 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 (51) to be true it is required that p be true in the speaker's epistemic model $M_B(s)$. If the speaker considers (51) 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* vis-à-vis the subject, i.e., the one who sees. Perception verbs are standardly characterized as veridical in Montague (1969) and Barwise (1981) (see also Svenonius 1994). Aspectual, commissive, implicative and factive predicates can be analyzed on a par, as shown in (52) (where *su* stands for the matrix subject):

(52) *Veritical 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, i.e., epistemic, dream/fiction, and assertive, express relations between individuals and propositions which are veridical. They differ from the attitudes in (52) in that it is required that their complement proposition be true in a model associated with the individual standing for the matrix clause subject, i.e., the bearer of the attitude. The model could be the subject's belief state, or her/his dreams, or the model of reported conversation. This is expressed in (53):

(53) *Veridical attitudes II*

(i)	$[\![\text{pistevo (su}, p)]\!]_c = 1 \rightarrow [\![p]\!]_{MB(su)} = 1$	believe
(ii)	$[\![\text{onirevome (su}, p)]\!]_c = 1 \rightarrow [\![p]\!]_{MD(su)} = 1$	dream
(iii)	$[\![\text{leo (su}, p)]\!]_c = 1 \rightarrow [\![p]\!]_{MRC(su)} = 1$	say
(iv)a.	$[\![\text{ksero (su}, p)]\!]_c = 1 \rightarrow [\![p]\!]_{MB(su)} = 1$	know
b.	$[\![\text{ksero (su}, p)]\!]_c = 1 \rightarrow [\![p]\!]_{MB(s)} = 1$	

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 *believe* (x, p) entails *know* (x, p). As we see in (53iv), the factivity of *know* gives rise to an additional entailment, namely that p holds in the speaker's epistemic model too, 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 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 matrix clause subject; *know* and the verbs in (52) are strongly veridical in this definition. Weak veridicality, on the other hand, describes the situation where p is true just in the embedded model; epistemics, dream/fiction, and assertives are thus weakly veridical.

Strong intensional verbs are nonveridical. Consider *thelo* 'want'. The anchoring model here is the subject's epistemic model which, crucially, includes worlds which represent future realizations of the actual world, designated as $M_{Bfut}(su)$. $M_{Bfut}(su)$ 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 $W_1 \subset M_{Bfut}(su)$, $[\![p]\!] = 1$ in w', therefore $W_1 \subseteq p$. W_2, the complement of W_1, contains worlds where p is false: $\forall w''$, $w'' \in W_2$ and $W_2 \subset M_{Bfut}(su)$, $[\![p]\!] = 0$ in w'', therefore $W_2 \not\subseteq p$. The worlds in W_1 are more desired alternatives than the worlds in W_2, but still, from *want* (su, p) we cannot infer that p is true in $M_{Bfut}(su)$. It is this understanding of (non)veridicality that underlies (54):[10]

[10] The nonveridicality of *want*, *suggest*, etc. relates also to their directive character. Directives are always evaluated with respect to future alternatives, and the future, as we know, is non-deterministic. We can capture this by saying that the future involves branching times, but I will not take a stand here. Most significantly, the future itself licenses APIs (see Section 3) in virtue of its non-deterministic, and thus nonveridical character. There is an issue, of course, with counterfactual and past wishes, but for more discussion see Giannakidou and Zwarts (1998).

(54) *Nonveridical attitudes*

(i) $[\![\text{thelo (su}, p)]\!]_c = 1 \dashrightarrow [\![p]\!]_{\text{MBfut(su)}} = 1$	want
(ii) $[\![\text{protino (su}, p)]\!]_c = 1 \dashrightarrow [\![p]\!]_{\text{MBfut(su)}} = 1$	suggest
(iii) $[\![\text{zito (su}, p)]\!]_c = 1 \dashrightarrow [\![p]\!]_{\text{MBfut(su)}} = 1$	ask

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 Stalnaker (1984), Asher (1987), Heim (1992). 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 (55):

(55) [Heim 1992: 193]
'α wants that ϕ' is true in w_0 iff for every $w \in \text{Dox}_\alpha(w_0)$: every ϕ-world maximally similar to w is more desirable to α in w_0 than any non-ϕ-world maximally similar to w.

$\text{Dox}_\alpha(w_0)$ 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 (56), 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):

(56) [Heim 1992: 197]
$w \in [\![\alpha \text{ wants that } \phi]\!]$ iff $\forall w \in \text{Dox}_\alpha(w_0)$,
$\text{Sim}_{w'}([\![\phi]\!]) <_{\alpha,w} \text{Sim}_{w'}([\![\neg \phi]\!])$

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 (albeit as the least preferred ones). Note that this semantics derives correctly non-monotonicity for desire reports, a position generally accepted in the literature; see Asher (1987), and Heim (1992).

From the above discussion we can conclude, then, that API-licensing correlates with the veridicality properties of propositional attitudes: nonemphatics are legitimate only in the scope of the nonveridical verbs of the strong intensional class. In addition, veridicality appears to be the reg-

ulating factor in mood choice: subjunctive *na* is licensed only by nonveridical verbs; veridical ones select for the indicative, or the deictic *na* (see fn. 8). The subjunctive *na* itself can be thus regarded as a PI sensitive to nonveridicality (for an explicit proposal see Giannakidou 1995b).

Negation, finally, as a prototypically antiveridical operator will also allow for APIs. The antiveridicality of a negative assertion is illustrated in (57):

(57) $[\![\text{not } p]\!]_c = 1$ iff $[\![p]\!]_{MB(s)} = 0$

Additionally, nonemphatics are licit in the scope of epistemic and deontic modals, which further supports the nonveridicality hypothesis pursued here. Deontic and epistemic modals are nonveridical with respect to the speaker's epistemic model. If I know that *Frank is ill*, i.e. if he just told me so, then I cannot utter *Frank must be ill*; rather, I should say *Frank is ill*. So, if I say that *Frank must be ill*, it is implied that I don't know for sure that Frank is ill, hence I am not committed to the truth of *Frank is ill*. The nonveridicality of epistemic and deontic modals in illustrated in (58), where K is the modal base (Kratzer 1981):

(58) *Nonveridicality of modals*

(i)	$[\![\text{bori } p]\!]_{c,\ K\text{epistemic}} = 1 \not\rightarrow [\![p]\!]_{MB(s)} = 1$	epistemic may
(ii)	$[\![\text{bori } p]\!]_{c,K\text{deontic}} = 1 \not\rightarrow [\![p]\!]_{MBf\,ut(s)} = 1$	deontic may
(iii)	$[\![\text{prepi } p]\!]_{c,\ K\text{deontic}} = 1 \not\rightarrow [\![p]\!]_{MBf\,ut(s)} = 1$	deontic must
(iv)	$[\![\text{prepi } p]\!]_{c,\ K\text{epistemic}} = 1 \not\rightarrow [\![p]\!]_{MB(s)} = 1$	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:

(59) $[\![\text{prepi } p]\!]_{c,K\text{aleithic}} = 1$ iff $[\![p]\!]_{MB(s)} = 1$ aleithic must

Modals in rules, mathematics and analytical 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 see in (60); note that *any* is also ungrammatical:

(60) *Enas ergenis prepi na ine kanenas enilikas,
a bachelor must subj be-3sg any adult
anipandros andras.
unmarried man
(A bachelor must be an adult, unmarried man.)
*A bachelor must be any adult, unmarried man.

Hence nonveridicality predicts correctly the licensing of APIs under modal verbs too.

4.3. *Licensing Conditions for APIs*

The preceding discussion enables us to postulate (61) as a licensing condition for APIs:

(61) *Licensing condition for affective polarity items* (preliminary)
(i) An affective polarity item α will be licensed in a sentence S iff S is *nonveridical*.
(ii) A sentence is nonveridical if it is in the immediate scope of a nonveridical operator.

In Giannakidou (1997a, 1998), the condition is formulated in terms of APIs being required to be in the scope of a nonveridical operator, but this is not crucial for the discussion here. The requirement on 'immediate scope' is reminiscent of Linebarger's immediate scope constraint (cf. Section 2.1), and is required to account for the ungrammaticality of cases like (62), where *dream* intervenes and the sentence containing the API is not in the immediate scope of *want*:[11]

(62) *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.)

Since antiveridical expressions form a subset of the nonveridical, it follows that APIs will be licit in antiveridical environments too (although it is conceivable that there be APIs which will be anti-licensed by antiveridicality; possible candidates are APIs known from the literature to exhibit antilocality effects vis-à-vis negation: i-APIs in Serbian/Croatian, *vala*-APIs

[11] In Giannakidou (1998), however, it is shown that the requirement of immediate scope is only operative in the licensing under propositional attitudes. Negative licensing can be relatively unconstrained, and veridical attitudes may intervene, as long as the API is c-commanded by negation at LF. For details see Giannakidou (1998).

in Hungarian, see Progovac 1994 and Giannakidou 1997a, 1998 for discussion).

Interrogatives, the protasis of conditionals, imperatives, future particles, non-universal habituals, 'negative' verbs, disjunctions, *perhaps*, and the bulk of environments in Table 1 can be shown to be nonveridical (for extensive discussion see Giannakidou 1995, 1997a, 1998).

From (61) we can derive (63) as the licensing condition for NPIs:

(63) *Licensing condition for negative polarity items*[12] (preliminary)
(i) A negative polarity item α will be licensed in a sentence S iff S is *antiveridical*.
(ii) A sentence is antiveridical if it is in the scope of an antiveridical operator.

Negation is the prototypical antiveridical operator, but *without* is also antiveridical, and emphatics are correctly predicted to be grammatical in its scope:

(64)a. Jacob spoke without opening his eyes. →
It is not the case that Jacob opened his eyes.

b. I Roxani irthe xoris na feri TIPOTA.
the Roxanne came.3sg without subj bring.3sg anything
Roxanne came without bringing anything.

Before presents an interesting case. Zwarts (1995) characterizes *p before q* as veridical with respect to the *p* argument but nonveridical with respect to *q* (for discussion see Zwarts 1995; cf. Heinämäki's 1974 *non-committal before*). *Before* can also be veridical with respect to *q*, as pointed out in Anscombe (1964); cf. Heinämäki's *factual before*. In certain cases, for instance with a predicate like *die*, *before* gives rise to an antiveridical inference (Heinämäki's *non-factual before*). In (65) we see that in such cases NPIs are licensed in the *q*-clause:

[12] In Giannakidou (1998) I showed that licensing in NPIs does not necessarily mean that the NPI must be found in the scope of its licenser. Rather, emphatics must take the licensing negation in their scope. More things can be said about how licensing (and anti-licensing) map onto scope conditions, and the role or locality, but as these issues are not of immediate interest here, I will omit consideration (but see Giannakidou 1998, especially chap. 4, for extensive discussion).

(65)a. O Pavlos pethane prin na di KANENA apo
the Paul died.3sg before subj see.3sg any from
ta egonia tu.
the grandchildren his
Paul died before he saw any of his grandchildren.

b. Paul died before he saw his grandchildren. →
It is not the case that Paul saw his grandchildren.

As predicted by (63), emphatics are illicit under veridical and nonveridical *prin* 'before' (though regular APIs like nonemphatics and *any* are fine):

(66)a. *Elenkse tis plirofories prin na agorasi TIPOTA.
checked.3sg the information before subj bought.3sg anything
(S/He checked the information before s/he bought anything.)

b. Elenkse tis plirofories prin na agorasi tipota.

c. *Egatelipse ti xora prin na simvi TIPOTA.
abandoned.3sg the country before subj happen.3sg anything
(S/He abandoned the country before anything happened.)

d. Egatelipse ti xora prin na simvi tipota.

(66a) is ambiguous between veridical and nonveridical *before*. It is the nonveridical reading that sanctions APIs. (66c) involves nonveridical *before*: we don't know whether something happened. *Before* appears to be highly context sensitive (a fact also emphasized by Heinämäki), and a reasonable question to ask is what determines the variability in the veridicality patterns. I will not address this issue here. What matters for our purposes is that, as expected from (61) and (63), NPIs are only licensed in the scope of antiveridical *before*, whereas their nonveridicality sensitive mates are fine also when *before* is nonveridical.[13]

Besides emphatics, there are many other expressions in Greek which qualify for NPIs: minimizers like *leo leksi* 'say a word', *dino dhekara* 'give a damn', constructions of the form *epi xronia/mines* 'in years/months', *ke*

[13] It is feasible to characterize the antiveridical inference of *before* as an implicature, and view NPI-licensing under *before* as a case of indirect licensing (see Section 6). This option, and its consequences for the typology of APIs I propose here (Section 6.3) is discussed in some detail in Giannakidou (1998).

toso spudheo 'all that great', etc; for a detailed presentation see Giannakidou (1997a, 1998).

In Section 6, we will see that the nonveridicality and antiveridicality requirements on the licensing of APIs and NPIs may sometimes be met indirectly, by the availability of a negative implicature. Before we go into this issue, however, I would like to consider the (non)veridicality properties of determiners and quantifiers in order to establish that API-licensing in these cases too follows from the general condition in (61).

5. Determiners, Quantifiers and (Non)veridicality

We saw in Section 3 that nonemphatics are licensed in clauses which provide restrictions of universal, strong (in the sense of Milsark 1977) quantifiers: relative clauses modifying DPs headed by the determiner *oli* "all", *kathe* "every" and the definite determiner *i* "the", as well as free relatives. Licensing of APIs in these contexts is attested in many languages. I provide here the relevant Greek examples (which are parallel to English, as we see):

(67) Oli osi gnorizun tipota sxetika me tin ipothesi,
all who know.3pl anything about with the case,
as milisun tora.
subj talk.3pl now
Everyone who knows anything about the case should speak now.

(68) Kathe fititis pu gnorizi tipota sxetika me tin
every student that know.3sg anything about with the
ipothesi, as milisi tora.
case, subj talk.3sg now
Every student who knows anything about the case should speak now.

(69) 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.

(70) Opjosdhipote gnorizi tipota sxetiko me tin ipothesi,
whoever know.3sg anything about with the case,
as milisi tora.
subj talk.3sg now
Whoever knows anything about the case, should speak now.

Under the standard assumptions of generalized quantifier theory (Barwise and Cooper 1981; van Benthem and ter Meulen 1985; Zwarts 1983; Keenan and Stavi 1986 among others), in structures of the form [[$_{DP}$ DET NP] VP], determiners are functors D_E on a universe E, which relate a set of individuals A to a set of individuals B, where A = [[NP]], B = [[VP]] and A, B $\subseteq$ E. Determiners can also be seen as functions mapping a property to a generalized quantifier (the *functional* perspective), thus of type $\langle\langle e, t\rangle, \langle\langle e, t\rangle, t\rangle\rangle$. In this setting, the content of sentences like the ones above can be represented as DET$_{[\ldots x\ldots]}$[$_{\text{restriction}}$ . . . . x . . . .] [$_{\text{scope}}$ . . . x . . .], where DET stands for determiner, x is a variable ranging over individuals, the restriction is provided by the NP argument of DET, and the scope corresponds to the VP.

Abstracting away from issues like uniqueness and exhaustivity, determiners like *every*, *each* and *the* express the subset relation, as shown in (71). Accordingly, the sentences above can be represented as in (72) below:

(71)a. [[*every* NP VP]] = 1 iff [[NP]] $\subseteq$ [[VP]]
b. [[*the* NP VP]] = 1 iff [[NP]] $\subseteq$ [[VP]], and |[[NP]]| = 1
c. [[*each* NP VP]] = 1 iff [[NP]] $\subseteq$ [[VP]]
d. [[*both* NP VP]] = 1 iff [[NP]] $\subseteq$ [[VP]], and |[[NP]]| = 2

(72) $\forall$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 restrictions in (72) as nonveridical. Second, we have to explain why, although the determiners in (71) express the same relation, *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 (but note that the same holds for *any*):

(73) *O kathe fititis pu gnorizi tipota sxetiko me tin
each student that know.3sg anything about with the
ipothesi, as milisi tora.
case, subj talk.3sg now
*Each student that knows anything about the case should speak now.

(74) *Ke i dhio fitites pu gnorizun tipota sxetiko me tin
both students that know.3pl anything about with the
ipothesi, as milisun tora.
case, subj talk.3pl now
*Both students that know anything about the case should speak now.

As I emphasized in Section 2.3, the contrast between *every/all/the*/free relatives and *each/both* in licensing *any* and Greek APIs is quite unexpected under the DE approaches to APIs, since the restriction of ∀ is DE in all cases. I argue in this section that the licensing of *any* and Greek APIs in the restrictions of ∀ 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.

5.1. *(Non)veridicality for Determiners and Quantifiers*

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 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 1998):[14]

(75) DEFINITION 11 ((Non)veridicality of determiners).
Let $c = \langle cg(c), W(c), M, s, h, w_0, f, \ldots \rangle$ be a context.
(i) A determiner DET is veridical wrt its NP argument iff it holds that: $[\![DET\ NP\ VP]\!]_c = 1 \rightarrow [\![NP]\!]_c \neq \emptyset$; otherwise, DET is nonveridical.

[14] The definition below could also be formulated in terms of witness sets, but nothing crucial hinges on this choice.

(ii) A determiner DET is veridical wrt its complex NP ∩ CP argument iff it holds that: $[\![\text{DET}(\text{NP} \cap \text{CP})\text{VP}]\!]_c = 1 \rightarrow [\![\text{NP} \cap \text{CP}]\!]_c \neq \emptyset$; otherwise, DET is nonveridical.

Accordingly, DP interpretations, i.e., quantifiers, may be veridical, or 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 is, in the speaker's belief model) 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 Beghelli and Stowell (1997). Nonveridical determiners 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 this argument be nonempty.

Note that no antiveridical determiners are defined in (75). 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 can indeed imply existence, a fact which becomes particularly visible in the case of the so-called 'comp(lement)-set anaphora' (Moxey and Sanford 1992), illustrated below:

(76) No students came to the meeting. They preferred to stay home instead.

In (76), *no students* has obviously introduced a discourse referent, which is being picked up by the pronoun *they* in the second sentence (*they* = the students who didn't come to the meeting). What the exact mechanism is of comp-set anaphora need not concern us here. Suffice it to see that in these cases the NP denotation need not be empty.

5.2. *(Non)veridicality of Determiners and Affective Licensing*

5.2.1. 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 their underlying referentiality.

From their being referential, we can conclude that *o kathe/ke i dhio* are veridical in the following way. Referential DPs are about fixed (sets of) individuals. We can understand this as association with a (Strawsonian) existential presupposition like the one (singular) definite descriptions like *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*. This is why statements with *each* and *both* cannot be uttered just out of the blue. If the sentences in (73) and (74) 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:

(77) $[\![$Each student that knows anything about the case should speak now$]\!]_c = 1 \rightarrow$
$[\![\textbf{student}]\!] \cap [\![\textbf{knows something about the case}]\!]_c \neq \emptyset$.

(78) $[\![$Both students that know anything about the case should speak now$]\!]_c = 1 \rightarrow$
$[\![\textbf{student}]\!] \cap [\![\textbf{knows something about the case}]\!]_c \neq \emptyset$, and
$|[\![\textbf{student}]\!] \cap [\![\textbf{knows something about the case}]\!]| = 2$ in c.

The ungrammaticality of *tipota* "anything" follows, then, as a violation of the nonveridicality requirement on its licensing. The fact that the sentences below are infelicitous, supports the idea that veridicality of *o kathe* "each" and likewise of *ke i dhio* "both" is a semantic property of these determiners:

(79) 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; # *this means that we don't have to invite anybody because there are no students in this city*.

(80) O kanonismos lei na proskalesoume ke tus dhio 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; # *this*

means that 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.

5.2.2. *Plural 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 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 harder to maintain Strawson's position. Consider (81) first. This discourse, unlike the ones above, with *both/each*, is fine; note that the same holds for *every*:

(81) O kanonismos lei na proskalesoume tus fitites/kathe fititi; epomenos de xriazete na proskalesoume KANENAN, afu dhen iparxun fitites s'aftin tin poli.
The regulation says that we have to invite the students/every student; this means that we don't have to invite anybody because there are no students in this city.

No existence presupposition is present in sentence (69) either, repeated here:

(69) 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.

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:

(69′) [[The students who know anything about the case should speak now]]$_c$ = 1 $\not\rightarrow$ [[**student**]] ∩ [[**knows something about the case**]]$_c$ ≠ ∅.

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.[15] Crucially, if the context establishes somehow that there are students who know something about the case, *tipota* becomes bad. Exactly the same is observed with *any*:

(82) *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
the students that knew.3pl anything/something about
me tin ipothesi apodixtikan poli xrisimi.
with the case proved.3pl very helpful
The students who knew *anything/something about the case proved very helpful.

We know from the background context in (82) 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: (82A) 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]] ∩ [[CP]] will be empty or not. Nonveridical determiners are compatible with either situation. The licensing of APIs, however, is not.

In the grammatical cases (67)–(70) the VP contains a modal (English) and a future oriented subjunctive (Greek), and in all those cases, the required nonveridical inference is available: it is not entailed that students who know anything about the case exist. *Tipota* and *anything* are fine because of this. In a context like (82), however, or simply with episodic past in the VP, as we see below, APIs become ungrammatical:

[15] Singular definites, on the other hand, are veridical, as expected from the Stawsonian analysis, and do not license APIs:

(i) *O fititis pu kseri tipota sxetika me tin ipothesi, as milisi tora.
??The student who knows anything about the case should speak now.

(83) Kathe fititis pu gnorize *tipota/ kati sxetiko me
every student that knew.3sg anything/something about with
tin ipothesi apodixtike poli xrisimos.
the case proved.3sg very helpful
Every student who knew *anything/something about the case proved very helpful.

(84) Oli i fitites pu gnorizan *tipota/ kati sxetiko
all the students that knew.3pl anything/something about
me tin ipothesi apodixtikan poli xrisimi.
with the case proved.3pl very helpful
All the students who knew *anything/something about the case proved very helfpul.

(85) Opjosdhipote fititis gnorize *tipota/ kati sxetiko
whoever student knew.3sg anything/something about
me tin ipothesi apodixtike poli xrisimos.
with the case 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* (recall the felicity of (81) above), 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.

(86)a. [[Every student who knows anything about the case should speak now]]$_c$ = 1
↛ [[**student**]] ∩ [[**knows something about the case**]]$_c$ ≠ ∅.
b. [[All students who know anything about the case should speak now]]$_c$ = 1
↛ [[**student**]] ∩ [[**knows something about the case**]]$_c$ ≠ ∅.
c. [[Any student who knows anything about the case should speak now]]$_c$ = 1
↛ [[**student**]] ∩ [[**knows something about the case**]]$_c$ ≠ ∅.

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*.

To sum up, in this section we have established that strong determiners and quantifiers, are not uniform with respect to their (non)veridicality properties. Veridicality is linked to referentiality: veridical determiners require that their NP or NP ∩ CP argument be nonempty. *O kathe* "each", *ke i dhio* "both", do not license APIs (*any* included) because they are veridical. Plural definites, free relatives, *kathe* "every", and *oli* "all", on the other hand, license APIs because they are nonveridical. Nonveridical determiners are unspecified as to whether their NP or NP ∩ CP argument has extension or not. If the context forces extension, APIs are ruled out. Hence the licensing of PIs in the restriction of universal quantifiers does not follow from the monotonicity properties of this position, as it was previously believed, but rather it follows from its veridicality properties.

In Sections 4 and 5 I have defined (non)veridicality for propositional operators and determiners. It appears that these are the only types exhibiting (non)veridicality properties; there are, for instance, no (non)veridical adjectives or propositions (though there are *intensional* adjectives like *alleged* that could be thought of as potential candidates). Most importantly, propositional operators and determiners appear to be the only types allowing for APIs too, which confirms the hypothesis we are pursuing that (non)veridicality is the prerequisite for the grammaticality of APIs. *Without* and *before* may license APIs in DP complements, as in *He did the translation without any help*, but these complements are always quasi-sentential (*without any help* = *without getting any help*).

6. Indirect Licensing

In this section I examine indirect licensing as the licensing of NPIs and APIs by a negative implicature (in the sprit of Linebarger 1980, 1987), in the absence of an apparent nonveridical or antiveridical trigger. The discussion will make clear that indirect licensing should be regarded as a secondary, auxiliary condition for licensing.

6.1. *Rhetorical Questions and Counterfactual Conditionals*

Nonemphatics and minimizer-NPIs are licensed in counterfactual conditionals, and rhetorical *yes/no* and constituent questions, as we see in (87), but emphatics are not licensed there; minimizers are always accented (as indicated by uppercase letters):

(87)a. An iksere tipota/*TIPOTA tha mas to ixe pi.
if knew.3sg anything fut us it had.3sg said
If s/he knew anything s/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/anything 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 for subj me help.2sg
Have you ever done 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 (see (88a)), and some others, like *dino dhekara* "give a damn" in (87c) are fine in rhetorical questions but are ruled out in counterfactual conditionals (88b):

(88)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 become.1sg
If he gave a damn about what will happen to me . . .

We see from the translations that the distribution of the corresponding minimizers in English does not overlap with that of their Greek counterparts (see Giannakidou 1997a for a some comparisons between Greek and English). The occurrence of minimizers in rhetorical questions has been observed and discussed in a number of studies, see Linebarger (1987), Progovac (1994), and Han (1997).

In what sense are rhetorical questions and counterfactual conditionals nonveridical? Intuitively, we can say 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?

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 ones as in Karttunen 1977), or sets of possible worlds (thus propositions; Groenendijk and Stokhof 1984, 1997). In a Karttunen-style semantics, the meaning of a yes/no question like (89) would be as in (89′), i.e. the set of true answers to the question. The condition $p(w)$ ensures that we only consider true answers. Constituent questions are interpreted in a parallel fashion:

(89) Did John smile?
(89′) [[did John smile]](w)
= λp[p(w) ∧ p = λw(**smile**(w)(j)) ∨ p = λw(¬**smile**(w)(j))]
(90) Who smiled?
(90′) [[who smiled]](w) = λp∃x(**person**(x))[p(w) ∧ p =
λw(**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 (90′), where the existential condition ∃x (**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 (91), are formally equivalent to the assertions in (92), which correspond to (93) and (94), for a and b:

(91)a. Does Lucy give a damn about what you think?
b. Who gives a damn about what you think?
(92)a. Lucy doesn't give a damn about what you think.
b. Nobody gives a damn about what you think.
(93) ¬**give-a-damn-about-what-you-think** (Lucy)
(94) ¬∃x[**person**(x) ∧ **give-a-damn-about-what-you-think**(x)]

Under Sadock's approach, then, positive rhetorical questions are anti-veridical, and hence able to license NPIs. Negative rhetoricals, on the

other hand, will be veridical and thus unable to license NPIs. This is indeed the case (see also Han 1997):

(95)a. *Who doesn't give a damn about what you think?
b. *Doesn't Lucy give a damn about what you think?

Rhetorical questions provide the antiveridical inference which is necessary for the licensing of APIs and NPIs, but from the fact that (96) is not contradictory we conclude that this inference is an implicature. If the implicature is canceled, NPIs become ungrammatical, as indicated in (97):

(96) Pjos mu efere pote andirisi (ke ime siguri oti
who me brought.3sg ever objection (and am sure that
ipirkse kapjos)?
was somebody
Who has ever objected to me (and I am sure there was somebody that did)?

(97) *Pjos dhini DHEKARA ja mena (ke ime siguri oti
who give.3sg dime for me (and am sure that
kapjos dhini)?
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 (98):

(98) 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. Sometimes it is characterized as a presupposition, but I will follow Karttunen and Peters (1979) who show convincingly that the effect is due to an implicature which is highly context sensitive and can be canceled under certain circumstances. Indeed, examples like the following suggest that the antiveridical inference in counterfactuals cannot be an entailment per se (thanks to Larry Horn for providing this example):

(99) 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.

We see in (100) that minimizers, otherwise grammatical, become illicit in the counterfactual protasis when the negative implicature is canceled. (101) illustrates that the same effect is observed in English:

(100) *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).

(101) *If he gave a damn about his job, he'd be working exactly as hard as he is now.

In both instances, the antecedent is true, hence the lack of the antiveridical inference should be held accountable for the ungrammatical result.

6.2. *Indirect Licensing as a Secondary Option for APIs*

The above discussion leads us to conclude that the nonveridicality and antiveridicality requirements on APIs and NPIs respectively can be satisfied occasionally by a negative implicature that the context makes available. We can append this as indirect licensing in the licensing conditions for APIs and NPIs we postulated in (61) and (63):

(102) *Licensing conditions for affective polarity items*
(i) An affective polarity item α will be licensed in a sentence S iff S is *nonveridical.*
(ii) A sentence is nonveridical if it is in the scope of a nonveridical operator.
(iii) In certain cases, α may be licensed indirectly in S iff S gives rise to a negative implicature ϕ, and α is in the direct scope of negation at ϕ.

(103) *Licensing conditions for negative polarity items*
(i) A negative polarity item α will be licensed in a sentence S iff S is *antiveridical.*
(ii) A sentence is antiveridical if it is in the scope of an antiveridical operator.
(iii) In certain cases, α may be licensed indirectly in S iff S gives rise to a negative implicature ϕ, and α is in the direct scope of negation at ϕ.

I will not deal here with the details of how exactly indirect licensing works, as my goal is simply to acknowledge that a theory of API-licensing should allow for this mechanism as an auxiliary option for some items (but see Han 1997 for an attempt to spell out a derivation in rhetorical questions). Indirect licensing should be viewed in the context of the 'direct' conditions based on (non)veridicality and antiveridicality as a secondary, limited option. For NPIs, antiveridicality provides the general case: there are no NPIs that won't be licensed in antiveridical contexts. Indirect licensing, on the other hand, voices a weaker, *parasitic* condition: as far as I know, there are no APIs which are licensed only indirectly. In Greek, indirect licensing is intended to capture the *exceptionally* wider distribution of some NPIs (i.e., minimizers). We saw above that emphatics cannot be licensed indirectly in rhetorical questions and counterfactual conditionals. Other NPIs, e.g., *epi xronia*, 'in years' and *ke toso ADJ* 'all that adj' are also excluded (for more details see Giannakidou 1997a, 1998).

As we saw, indirect licensing can be invoked for NPIs in rhetorical questions and counterfactual conditionals. For nonemphatic items, appeal to indirect licensing can account for their occurrence in *too*-clauses, in the scope of nonmonotone quantifiers such as *nobody but Paul*, *exactly n N*, DE quantifiers such as *few*, comparatives and superlatives (Giannakidou 1997a, 1998 for details).

In Greek, indirect licensing is a very limited option, and it never overrides the nonveridicality requirement on licensing. This becomes obvious in two cases: with *monon* 'only', and with 'negative' factive emotive verbs:

(104)a. *Monon i Theodora idhe kanenan.
only the Theodora saw.3sg anybody
Only Theodora saw anybody.

b. *I Theodora metaniose pu milise se kanenan.
the Theodora regretted.3sg that talked.3sg to anybody
Theodora regrets that talked to anybody (at all).

In factive domains the nonveridicality condition is not satisfied since factives are veridical, as we saw in Section 4. *Only* also gives rise to a veridical implicature, as we see in (105b):

(105)a. I Theodora metaniose pu milise se kanenan. → Theodora talked to somebody.
b. Monon i Theodora idhe kanenan. → Theodora saw someone.

Any, on the other hand, is allowed to occur in the complement of

'negative' emotive factives and also in the scope of *only*. Hence the negative implicatures below can create an appropriate environment for this item:

(106)a. Theodora wishes she had not talked to anybody.
b. Nobody other than Theodora saw anybody.

In Section 7, I take these contrasts between *any* and Greek APIs to be indicative of the different types of sensitivity to (non)veridicality involved in the two paradigms.

6.3. *A Typology of APIs Based on Nonveridicality*

Given the options of direct and indirect licensing and the possibilities of licensing by nonveridicality or antiveridicality, the following typology arises for Greek APIs:

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

Nonemphatics exemplify the broad nonveridical dependency and are characterized as weak APIs. Minimizers are strong because they impose a stronger requirement on their licensers: that they be antiveridical. Finally, nonemphatics 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').

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 APIs that can be licensed by an antiveridical implicature,

and hence exhibit 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:

(107)

downward entailment:	(a)	$f(X \cup Y) \rightarrow f(X) \cap f(Y)$
	(b)	$f(X) \cup f(Y) \rightarrow f(X \cap Y)$
antiadditivity:	(a)	$f(X \cup Y) \leftrightarrow f(X) \cap f(Y)$
	(b)	$f(X) \cup f(Y) \leftrightarrow f(X \cap Y)$
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 (as we see in (107), satisfying the first, second and fourth of the DeMorgan relations); antimorphic functions form a subset of the antiadditive and convey *classical* negation: they denote set-theoretic complementation and satisfy all four DeMorgan relations. Antimorphicity gives rise to the strongest possible negation: it corresponds to antiveridicality. Sentential negation is antimorphic, but negative quantifiers like *nobody* are antiadditive, and *few* is 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 by *niemand* 'nobody'. *Voor de poes* is superstrong because *niemand* is not a strong enough trigger for it; rather, sentential negation is required:

(108)a. *Weinig mensen hebben ook maar iets gezien.
few people have.3pl anything seen
Few people saw anything.

(108)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 paper, we can safely conclude that a DE hierarchy alone cannot provide the basis for a characterization of APIs within a single language or crosslinguistically. I will elaborate on this briefly here, but see Giannakidou (1998) for more extensive discussion.

First of all, any attempt to formulate 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 NM contexts: questions, habituals, and future sentences, as shown in Giannakidou (1998) and Giannakidou and Zwarts (1998) (see also Sánchez-Valéncia 1998), and illustrated in the examples below:

(109)a. Heb je ook maar iets gezien?
have.2sg you anything seen
Did you see anything?

b. De kinderen vertrokken zodra zij ook maar iets
the children left.3pl as soon as they anything
ontdekten.
discovered.3spl
*The children left as soon as they discovered anything.
OK, as: The children used to leave as soon as they saw anything.

c. De kinderen zullen vertrekken zodra zij ook maar iets
the children will leave.3pl as soon as they anything
ontdekken.
discover.3pl
The children will leave as soon as they will discover anything.

The facts in (109) are extremely problematic for the assumption that strong APIs are licensed by antiadditivity.

Third, alleged superstrong APIs like the Greek NPI *efkatafroniti* in Section 2: (8) can also be licensed by metalinguistic/constituent negation *oxi*, which is anti-additive: the third DeMorgan relation is not satisfied, as we see in (111) (see also Giannakidou 1997a, 1998):

(110) I prosfora tu itan oxi efkatafroniti.
the offer his was oxi rejectable
His offer was not at all rejectable.

(111) oxi [lududhia ke glika] $\not\rightarrow$ [oxi luludhia] i [oxi glika]
not flowers and sweets not flowers or not sweets

(111) 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. 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. If this is so, we can pursue the idea that NPIs like *efkatafroniti* and *voor de poes* 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' (cf. *unwise*). 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 seriously overlooked in Zwarts and Van der Wouden.

But if we assume that idioms like *niet voor de poes zijn* contain constituent predicate negation, the dependence on antimorphicity immediately breaks down, since constituent negation was shown to be antiadditive, rather than antimorphic. 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 (108c, d) can be accounted for directly under the assumption that idioms like *niet voor de poes zijn* contain predicate negation: in (108) the VP predicate is positive.

Hence, a monotonicity based hierarchy makes wrong predications in all three cases, and it also unable to handle indirect licensing in counterfactual conditionals and rhetorical questions, unless appeal to negation is made. The nonveridicality based hierarchy is superior because by introducing a notion wider than monotonicity it avoids all 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, there is good reason to believe that the nonveridicality hierarchy may extend easily to other languages, as shown in Giannakidou (1998); see also below discussion of *any*.

7. Generalizing (Non)veridicality: *Any*

Any becomes less mysterious in the light of the theory developed in this paper. Before I proceed, I should emphasize that the goal here is not to spell out a detailed proposal about the distribution and interpretation of this item (for recent analyses of any, which could be compatible with the (non)veridicality hypothesis, see Kadmon and Landman 1993 and Dayal 1995). My aim is quite modest: I just want to outline how the (non)veridicality hypothesis I am pursuing would account for the distribution of *any*. To this end, it will be useful to remember the distribution facts. Because *any*'s distribution relates closely to that of nonemphatics in Greek, I consider the two contrastively in Table 3, where the most prominent ungrammatical environments for nonemphatics are also included (recall also the data in Sections 3 and 4.1):

Table 3. (Nonexhaustive) Contrastive distribution of *any* and nonemphatics

Environments	*any*	Nonemphatics
Negation	OK	OK
before-clauses	OK	OK
without-clauses	OK	OK
Polar/constituent questions	OK	OK
Conditionals	OK	OK
Restriction of ∀	OK	OK
too-clauses	OK	OK
S-comparatives	OK	OK
Superlatives	OK	OK
Future particle/*will*	OK	OK
Strong intensional verbs	%	OK
Imperatives	OK	OK
Habituals	OK	OK
Disjunctions	*	OK
isos/perhaps	*	OK
Downward entailing DPs	OK	OK
monon/only	OK	*
Affirmative episodic sentences	*	*
Weak intensional verbs	*	*
Perception, implicative, comissive, aspectual verbs	*	*
Factive verbs	%	*

Table 3 shows clearly two things. First, that both nonemphatics and

any are ruled out from veridical contexts; they are ungrammatical in affirmative episodic sentences, and in the scope of veridical verbs: weak intensional and perception, implicative, commisive and aspectual verbs. *Any* may be licensed in a veridical factive complement, but only if it gives rise to a negative implicature (thus %). Note the contrast between *regret* and *be glad* below:

(112)a. Lucy regrets that she talked to anybody.
b. *Lucy is glad that she talked to anybody.

The contrast suggests that *any* is generally unacceptable in veridical factives, unless it is "rescued" by the negative implicature. As we saw, this "rescuing" mechanism has no effect on nonemphatics.

Second, *any* is ungrammatical in certain nonveridical contexts: *perhaps* clauses, disjunctions, and partially in the scope of strong intensional predicates, as illustrated below:

(113)a. Isos o Pavlos na milise me kanenan.
perhaps the Paul subj talked.3sg with anybody
*Perhaps Paul talked to anybody.

b. I bike kanenas mesa i afisame to fos anameno.
or entered.3sg anyone in or left.1pl the light lit
*Either anyone came in or we left the light lit.

(114)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* was 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, the ones above included. This is clearly not the case (see nevertheless Zwarts 1995 for an analysis of *any* as an item licensed by nonveridicality).

Crucially, an important difference between *any* and nonemphatics concerns indirect licensing. We saw 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. Factive complements, and *monon-* 'only'-clauses were shown to be such cases, and nonemphatics are not accepted there. Unlike these, *any* is allowed in these constructions, (see Section 6.2 and (112) above).

Putting the pieces together, I argue 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 domain, as long as this domain is nonveridical. This is why we find them in all nonveridical contexts identified in this paper. The nature of sensitivity involved in items like *any*, on the other hand, which are 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. The crucial difference between a PI licensed by nonveridicality and one anti-licensed by veridicality is that only in the former case do we have a positive specification as to when the PI should be grammatical. With APIs like *any*, it is quite feasible that there will be nonveridical contexts in which the item will not be licit.

Any is thus subject to the anti-licensing conditions in (115):

(115) *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 voids veridicality and "rescues" *any*. Hence indirect 'licensing' is no longer 'licensing', but an alternative mechanism for the satisfaction of the anti-licensing requirement. The two conditions together predict the correct distribution for *any*, and they explain immediately the observed differences between *any* and nonemphatics. If we were to place items anti-licensed by veridicality like *any* in the typology proposed in the previous subsection, we would have to create a new category and characterize them as *superweak*.

A final issue concerns the free choice flavor of *any*. One has to explain why it is that free choice readings arise in some cases but not in others. This is not difficult to answer, if we consider that the free choice interpretation arises only in nonepisodic contexts (as I argued in Giannakidou 1997b, 1998, and for the reasons I proposed there; see also Quer 1998). In such

contexts, then, the free choice interpretation of *any* will be allowed to surface, but in episodic contexts, it won't. Verification of this claim will be left as an exercise to the reader.

8. Conclusion

In this paper I developed an analysis of affective 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 non-emphatics were taken to exemplify the former, and *any* the latter. Within the class of licensed APIs, NPIs are defined as APIs sensitive to antiveridicality. It is also argued that, for a limited number of cases, a comprehensive theory of affective dependencies 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.

By introducing a notion broader than downward entailment and negation into the domain of polarity, we are able to construe a theory which allows us to account for the extension from negation and downward entailment to nonveridicality in a natural way, since DE 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 affective environments as a natural class across languages.

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