

# How much can we weaken downward entailment?

Anastasia Giannakidou  
University of Chicago  
Draft: March 2004  
[giannaki@uchicago.edu](mailto:giannaki@uchicago.edu)

## Abstract

This paper discusses the occurrence of certain polarity items (PIs) in the complements of factive verbs and *only*, which are not downward entailing (DE). Two solutions in the direction of weakening classical monotonicity are discussed: *Strawson DE*, von Stechow 1999; and weak DE, Hoeksema 1986. Both rely on the idea that monotonicity is computed only after the inference to the subset is made part of the background knowledge. We see that this weakening systematically either overgeneralizes or undergeneralizes, in either case failing to characterize the correct set of licensors. It is proposed that a more promising account must rely on the notion of nonveridicality (Giannakidou 1998, 1999), augmented with the premise that certain PIs, i.e. the liberal class represented by *any*, are subject to a weaker polarity dependency identified as *anti-licensing* by veridicality.

## 1 The problem and the suggested remedies

The main observation, which goes back to Linebarger 1980 (see also Atlas 1993, 1996, Horn 1996, to appear, Giannakidou 1998, von Stechow 1999) is that polarity items (PIs) like *any* and English minimizers occur in the scope of *only*, and in the complements of negative factive verbs:

- (1) a Only Larry ate anything.  
b Only Larry slept a wink.
- (2) a Larry regrets that he said {anything/a word}.  
b \* Larry is glad that he said {anything/a word}.

The fact in (1) as well as the grammaticality of (2a) and its contrast with (2b) do not follow from Ladusaw's classical thesis that PIs are licensed in the scope of expressions that denote downward entailing functions:

- (3) *Ladusaw's (1979) licensing condition*  
 $\alpha$  is a trigger for NPIs in its scope iff  $\alpha$  is downward entailing.
- (4) *Downward entailing function*  
A function  $f$  is downward entailing iff for every arbitrary element  $X, Y$  such that  $X \subseteq Y$ :  $f(Y) \rightarrow f(X)$ .

Negation, negative quantifiers, quantifiers like *few students*, and the restriction of *every* obey the DE- pattern and are thus capable of licensing *any*:

- (5) a **No students** saw anything.  
 b linguistics students  $\subseteq$  students  
 c  $\therefore$  No linguistics students are anything.
- (6) a John **didn't** see anything.  
 b {Few/No} students saw anything.  
 c Every student who bought any books reported to the teacher.

But *only* and factive verbs do not obey the DE pattern (see especially Atlas 1996 for extensive illustration), hence they license PIs *in violation* of (3):

- (7) Only Larry ate a vegetable  $\not\rightarrow$  Only Larry are broccoli.  
 Larry may have eaten spinach, for instance.
- (8) Larry regrets that I bought a car.  $\not\rightarrow$  Larry regrets that I bought a Honda.  
 Because, in fact, I bought a Ferrari, and Larry might not regret this at all.

This fact has been long noted, and taken, at least by Linebarger 1980, to argue against a purely semantic treatment of polarity, since DE was the only semantic offer in the market those days—but we will see that Linebarger's attack does have the same strength against another semantic notion that has been shown to be relevant for PI licensing—(non)veridicality (Giannakidou 1998, 1999).

Recently, in an effort to rescue Ladusaw's hypothesis, attempts have been made to produce a pattern of DE weaker than that of classical DE, just enough to account for the occurrence of *any* in the renegade contexts. The main idea, as stated in von Fintel 1999, is that we need to check for DE only in contexts where presuppositions are satisfied. However, as we can see in the definitions below, the move is really to the effect that we check for DE in contexts where the inference to the subset is part of the common ground, without it necessarily being a presupposition of the sentence containing *only* or the factive verb:

- (9) Weak DE (Hoeksema 1986)  
 If  $a \in C$  and  $C \subseteq B$ , then **only** a is B  $\rightarrow$  **only** a is C.
- (10) Strawson DE (von Fintel 1999: 14)  
 A function  $f$  of type  $\langle \sigma, \tau \rangle$  is Strawson-DE iff  
 for all  $x, y$  of type  $\sigma$  such that  $x \rightarrow y$ , and  $f(x)$  is defined:  $f(y) \rightarrow f(x)$ .

As we see, *only* and negative factives are indeed DE in this weaker sense:

- (11) a. Broccoli is a vegetable. ( $C \subseteq B$ ;  $x \rightarrow y$ )  
 b. John ate broccoli. (a is C,  $f(x)$  defined)

c. **Only John ate a vegetable.**

d. ∴ Only John ate broccoli.

- (12) a. Honda is a car. (C ⊆ B; x → y)  
b. John bought a Honda. (a is C, f(x) defined)  
c. **Larry {regrets/is surprised} that John bought a car.**  
d. ∴ Larry {regrets/is surprised} that John bought a Honda.

As I just mentioned, it is not the presuppositions of the highlighted *c* sentences that are part of the common grounds in (b)— those presuppositions would be that *someone ate a vegetable* (Horn 1996), and *John bought a car*, respectively. Rather, it is the inference to the subset that must be guaranteed in the context, which leads to a more radical weakening, and allows an undesirable degree of freedom, as we shall see. Notice also that the move to grant monotonicity properties to intensional verbs goes against the more usual treatments of intensional verbs as non-monotone (Keenan and Faltz 1985, Asher 1987, Heim 1992). At any rate, admitting weak and Strawson DE allows a possible account of the occurrence of *any* with *only* and *regret*. Unfortunately, it also predicts *any* to be good with positive factives, since these too exhibit weak DE:

- (13) a. Honda is a car. (C ⊆ B; x → y)  
b. John bought a Honda. (a is C, f(x) defined)  
c. **Larry is glad that John bought a car.**  
d. ∴ Larry is glad that John bought a Honda.

But if both negative and positive factives are DE, then we can no longer explain the original contrast in (2), which is not a good result. This gives a first taste of the more general problem of overgeneralization that comes with this analysis. Von Stechow, actually, introduces some additional assumptions in order to distinguish positive propositional attitudes from negative ones, and argues that unlike the former, the latter are upward entailing (UE), again, going against the more accepted view that propositional attitudes are non-monotonic. If positive attitudes are UE, then von Stechow correctly predicts the contrast in (2), and, at a more general level, that PIs will not occur with positive attitudes, factive or not, like *want*, *would like*, *insist*, since these are Strawson UE.

To summarize, weakening theories of DE replace Ladusaw's original condition (3) with (10) below, which requires PIs to be in the scope of Strawson entailing operator:

- (14) Strawson DE licensing condition  
α is a trigger for (N)PIs in its scope iff α is at least Strawson downward entailing.

By the addition of *at least*, this condition derives the results of Ladusaw's original one based on classical DE, while at the same time making *only* and negative factive seem perfectly expected triggers. In particular, the following specific predictions are made:

- (15) Predictions of (14):

1. Free licensing of <i>any</i> and PIs crosslinguistically as long as a context satisfies DE in the von Stechow/Hoeksema sense.
--

- |  |
|--|
| 2. Free licensing of <i>any</i> and PIs crosslinguistically with negative factives and <i>only</i> . |
| 3. No <i>any</i> and PIs with positive propositional attitudes.                                      |

In the remainder of the paper, I will show that none of these predictions is borne out: the first one yields overgeneralization (section 2); the second one opens the door to intra- and crosslinguistic comparisons which indicate that PI-licensing with *only* and factives is not a general phenomenon, and concerns only a particular subset of PIs, e.g. *any*, some minimizers, and *at all* (section 3). The third prediction, finally, is violated in English as well as crosslinguistically. In section 4 it is shown further that the relevant distinction in propositional attitudes is one between epistemic and directive attitudes, which is not predicted by the weaker versions of DE. The obvious conclusion will then have to be that the condition in (14), or variants of it, systematically fail to capture the correct set of facts and must therefore be abandoned. An alternative will be proposed based on the notion of nonveridicality in section 5.

## 2 Overgeneralization

The problem of overgeneralization with weak DE was already noted by Atlas (Atlas 1996): if we allow the givenness of subset inference to influence DE, then *everything* can become DE, even positive sentences. And if we allow this form of DE to be responsible for PI-licensing, then we predict PIs in positive sentences routinely, as long as the subset inference is part of shared knowledge:

- (16) a. Broccoli is a vegetable.      ( $\{x, C\} = \text{broccoli}; \{y/B\} = \text{vegetable}$ )  
 b. John ate broccoli.               $F(x)$  defined;  $j \in C$   
 c. John ate a vegetable  $\rightarrow$       John ate broccoli.

In a context in which I know that (16b) is true, we get monotonicity in (16c); I should thus be able to sanction *any* and similar PIs even in a positive episodic sentence, contrary to fact:

- (17) a        \*John ate anything (at 8 pm).<sup>1</sup>  
 b        \*John ever ate.

This is clearly a result we want to exclude. In the same vein, when we look at other focus exclusive structures similar in terms of presuppositions to *only*, the same problem arises. Consider clefts and preposed focus:

- (18) a. Broccoli is a vegetable.                      ( $\{x, C\} = \text{broccoli}; \{y, B\} = \text{vegetable}$ )  
 b. John ate broccoli.                                   $F(x)$  defined;  $j \in C$   
 c: It was John who ate a vegetable.  $\rightarrow$       It was John who ate broccoli.

---

<sup>1</sup> As opposed to habitual sentence below where *any* – and PIs generally – are fine (for extended discussion see Giannakidou 1998):

(i) John used to eat anything with great appetite.



- (24) \* **Sólo** el profesor mostró **cualquier** confianza. (Spanish)  
*only the teacher showed any confidence.*
- (25) \* **Metaniosa** pu agorase {**opjondhipote/kanena**} aftokinito. (Greek)  
*I.regret that she.bought any /NPI car.*
- (26) a \* **Ekplisome** pu exi {**opjondhipote/kanenan**} filo.  
*be-surprised.Isg that has FC / NPI friend*  
 ‘I’m surprised she has any friends.’
- b \* **Xerome** pu exi {**opjondhipote/kanenan**} filo.  
*be-glad.Isg that has FC / NPI friend*  
 ‘\*I’m glad she has any friends.’

There is no reason to believe that the Greek counterparts of *only* and *be-surprised* are not weakly DE in the understood sense, therefore the non-licensing here is problematic<sup>2</sup>. We could try to say that these items are sensitive to the stronger condition based on ‘classical’ DE; however, it has also been noted that these items are licensed in a number of environments that are not classically DE, e.g. questions, imperatives, modal verbs, habituals with varying quantifiers, and intensional verbs, hence such a condition again would fail to characterize the proper set of licensors. I will not repeat the examples here—but I will focus on some of the core cases in the next section.

The problem of non-licensing or restrictive licensing is also visible in English, once we move to stronger PIs, i.e. PIs that need more negative licensors:

- (27) a \* Only Bill came either.  
 b \* Only Bill is all that intelligent.  
 c \* Only Bill arrived until Friday.

This point is raised also in Atlas (1996: 285) where similar examples are given. The data here indicate that *only* is not a free licensor; rather, it blocks PIs that exhibit a stricter dependency to a more ‘negative’ licensor. In this context, and considering also the cases of Greek and Spanish PIs that we just saw, it seems legitimate to conclude that the PIs that *only* admits are the class of weak English NPIs-- such as *any*, *at all*, and minimizers. To confirm this, note that in the other languages we are considering minimizers are again excluded from *only* and negative factives, as shown in Giannakidou 1998, 1999:

- (28) a \* Mono o Janis **dini dekhara**.

---

<sup>2</sup> In earlier work (Giannakidou 1998, 2001), it is shown that FCIs, at least in the languages we are talking about here (and in many more, if we consider the evidence from Haspelmath 1997), are indeed polarity sensitive. Hence one cannot do away with the facts above by naively invoking the FCI- NPI distinction. Moreover, we see that NPIs are equally bad. A final comment on terminology: I use here the more familiar, but less accurate, term “NPI” to refer to the class of items referred to also by the less familiar, but more accurate, term ‘affective PIs’ (Giannakidou 2008, 2001). These are PIs that are licensed with negation as well as in a broad array of non-negative environments, which is why I consider the term NPI misleading. *Any* exhibits a similar distribution.

- Only John **gives a damn**.
- b \* Mono o Janis **kounise to daxtilaki tou**.  
Only John lifted a finger.
- (29) a \* I Maria metakiose pou **kounise to daxtilaki tis**.  
Mary regrets that **she lifted a finger**.

(The \* in these cases indicates the impossibility of the minimizer reading. The literal meaning, of course, is still available if it exists, as in the case of ‘lift a finger’).

So we get this systematic contrast between comparable items in English and Greek— *any* and *kanenas/opjoshipote*, and Greek versus English minimizers—which demonstrates that the English PIs are more ‘liberal’ than the Greek ones in appearing in a variety of contexts which are not negative, plus *only* and negative factives. In fact, *any* and *at all* can even appear in a plain positive context, if it allows a pragmatic inferencing that contains negation. Again, this is impossible with the Greek PIs:

- (30) a Bill **is glad** that we got **any** tickets (at all).  
(Kadmon and Landman 1993; also Linebarger 1980 for similar examples)
- b \* O Janis xerete pou pirame {**kanena/opjodhipote isitirio**}.  
The John is-glad that got.1pl {anyNPI/anyFCI} ticket.

(30b) is understood against the assumption that it would be hard, or even impossible to get tickets. The fact that *any* and *at all* are possible in this case directly contradicts von Stechow’s analysis of positive intensional verbs as UE, thus non-licensors; and the contrast with the respective Greek items illustrates, again, the more liberal character of English weak NPIs. We come back to this contrast in section 5.

#### 4 Alleged UE verbs and nonveridicality

We can now test prediction 3: that alleged UE verbs, i.e. positive directive verbs like *want*, *would like* cannot license PIs. As we just noted, this was shown to be false for positive factives, as *any* can be fine in the scope of *be-glad*. Below, we see that *any* is also fine in the scope of directive verbs in general (Giannakidou 1998, 1999, 2001):

- (31) a John would like to invite any student.  
b John asked us to invite any student.  
c John is willing to invite any student.

Again, a possible objection raising the point of FCI-*any* would be irrelevant here since FCIs *are* PIs<sup>3</sup>; and FCIs, as we see below, *are* licensed with directive verbs (for details

<sup>3</sup> Though, of course, it would be very relevant to ask why *any* favors free choice interpretation in this environment. If free choiceness *is* part of lexical content of *any*, as in the semantics of Giannakidou 2001: (179) where the FCI meaning is treated as an implicature of *any*, then we expect the FCI-meaning to arise whenever a context permits it. Modal contexts and propositional attitudes do, but episodic negation and questions do not, hence the observed variation in the interpretation of *any*.

see Giannakidou 2001, Quer 1998, and also Chierchia 2002). Plus, unless there is really evidence to the contrary, we want to adhere to non-ambiguity for *any*. Hence, in order to explain the above data, we have to give up either the UE analysis of directive verbs of von Stechow, or the significance of Strawson-DE itself, a dooming result in either case.

On the other hand, Giannakidou 1998, 1999 has shown that, although positive directive attitudes license *any* and other PIs, epistemic attitudes do not:

- (32) a \* John believes that we invited any student.  
 b \* John dreamt that we invited any student.

This contrast is confirmed in a number of languages, e.g. Greek, Spanish, Catalan, and Russian (see Haspelmath 1997, Pereltsvaig 2000), as the following examples show. Notice that these examples involve FCIs as well as regular NPIs:

Greek (Giannakidou 1998, 1999, 2001)

- (33) I Ariadne **epemine** na afiso {**opjondhipote/kanenan**} na perasi mesa.  
*the Ariadne insisted.3sg SUBJ let.1sg FCI/ NPI-person subj come.3sg in*  
 ‘Ariadne insisted that I allow anyone in.’

- (34) a \* O Pavlos **pistevi** oti akuse {**kanenan/opjondhipote**} thorivo.  
*the Paul believe.3sg that IND heard.3sg NPI/ FCI noise*  
 \* Paul believes that he heard any noise.  
 b \* **Onireftike** oti agorasa {**kanena/opjodhipote**} aftokinito  
*dreamt.3sg that ind bought.1sg NPI/ FCI car*  
 \* He dreamt that I bought any car.

Spanish, Catalan (Quer 1998, 1999)

- (35) a \* La Paola **creu** que desapareix **qualsevol** llengua minoritària. (Catalan)  
 b \* Paola **cree** que desaparece **cualquier** lengua minoritaria. (Spanish)  
*Paola believe.3sg that disappear.ind.3sg FC language minority*  
 \*Paola believes that any minority language is disappearing.

- (36) a La Paola **vol** evitar que desaparegui **qualsevol** llengua minoritària. (Catalan)  
 b Paola **quiere** evitar que desaparezca **cualquier** lengua minoritaria. (Spanish)  
*Paola want.3sg avoid disappear.subj.3sg FC language minoritaria*  
 Paola wants to prevent any minority language from disappearing.

PI-licensing here correlates with the distinction between subjunctive complements (introduced with *na* in Greek)—which license PIs—and indicative complements, introduced with *oti*, which don’t, as we can see from the glosses above. Crucially, this contrast in the class of positive propositional attitudes is not expected by Strawson DE, which uniformly treats positive attitudes as UE and predicts no PIs at all; but it *is* captured by the hypothesis that PIs are licensed in nonveridical contexts (Zwarts 1995, Giannakidou 1998, 1999). Giannakidou 1998, 1999 specifically proposes a veridical semantics for epistemic attitudes and indicative complements, and shows that directives attitudes and the subjunctive complements they embed are nonveridical. I am not going

to repeat the discussion here, as the facts and the analyses are well-known. I will only give the basic definitions, which will be useful for the discussion in section 5:

(37) *Polarity item* (Giannakidou 2001)

A linguistic expression  $\alpha$  is a polarity item iff:

- (i) The distribution of  $\alpha$  is limited by sensitivity to some semantic property  $\beta$  of the context of appearance; *and*
- (ii)  $\beta$  is (non)veridicality, or a subproperty thereof:  $\beta \in \{\text{veridicality, nonveridicality, antiveridicality, modality, intensionality, extensionality, episodicy, downward entailingness}\}$ .

This definition acknowledges the fine structure of polarity, and presents a general heuristic format from which various conditions can be derived, predicting of course distinct distributions, as is the case with PIs. Simplifying somewhat, the set of properties subsumed under (non)veridicality is presented as a closed set in (ii) in order to cover the PI-paradigms that have thus far been identified in the literature.

(38) (Non)veridicality for propositional operators

- i. A propositional operator  $F$  is veridical iff  $Fp$  entails  $p$  in some individual's epistemic model:  $Fp \rightarrow p$  in some  $M_E(x)$ ; otherwise  $F$  is nonveridical.
- ii. A nonveridical operator  $F$  is antiveridical iff  $Fp$  entails *not*  $p$  in some individual's epistemic model:  $Fp \rightarrow \neg p$  in some  $M_E(x)$ .

An epistemic model is a set of worlds representing the epistemic status of individuals. A propositional operator is a proposition embedding function: a sentence modifier (type  $\langle t, t \rangle$ ; a sentence-level adverb, modal operators, tense, temporal/aspectual adverbs, connectives), or an expression taking a proposition as its first argument, e. g. a propositional attitude verb (type  $\langle t, \langle e, t \rangle \rangle$ ), or the question operator (type  $\langle t, \langle s, t \rangle \rangle$ ).  $F$  is veridical iff whenever  $Fp$  is true,  $p$  is also true; if this does not hold,  $F$  is nonveridical. A nonveridical  $F$  is antiveridical iff whenever  $Fp$  is true  $p$  is not true. Modal verbs, intensional operators, and questions are nonveridical and license PIs:

(39) a John may talk to anybody.

b Any minors must be accompanied by their parent.

c The search committee can give the job to any candidate.

d John will talk to anybody.

(40) a. John {may/can/ must} buy ice cream  $\not\rightarrow$  John {may/can/ must} Italian ice cream.

b. John {may/can/ must} buy Italian ice cream  $\rightarrow$  John {may/can/ must} buy ice cream.

We also see that modal verbs are not DE hence the nonveridicality approach has an obvious advantage here. Antiveridical operators, finally, are a proper subset of the nonveridical—the negative ones: negation and *without*; these are the prototypical licensers of negative PIs.

We can conclude, then, that nonveridicality, but not Strawson, weak, or classical DE, gives the right predictions for PIs in propositional attitudes, modalities, and questions. The reader is referred to the works cited above for a more comprehensive illustration of this point.

## 5 Back to only and negative factives

The theory of nonveridicality I just outlined makes the following predictions. If a PI is licensed by nonveridicality, then:

1. The PI should be good in the scope of UE *and* DE expressions as long as they are nonveridical.
2. The PI should be unacceptable with *only/regret* equivalents because these are veridical.

Prediction 1 is indeed borne out: it derives the facts with directive attitudes, and the contrast with epistemic ones we just discussed. It also predicts PIs with modal verbs, questions, and in the restriction of *every*. The observed contrast of *every* with *each/both* is also predicted (see Giannakidou 1998, 1999 for a definition for nonveridicality of determiners that relies on their presuppositional properties).

Nonveridicality also predicts (Prediction 2) that *only* and negative factives will not be licensers, since they are veridical.

- (41) Only John ate broccoli  $\rightarrow$  John ate broccoli.  
Where “ $\rightarrow$ ” reads as either *presupposes* or *entails*
- (42) I regret that John ate broccoli  $\rightarrow$  John ate broccoli.  
Where “ $\rightarrow$ ” reads as *presupposes*

We can remain neutral as to whether the veridical inference with *only* is an entailment (as in Atlas 1993, 1996), or a presupposition. In fact, for Horn 1989, 1996, [*only* + Proper name] has an existential presupposition, distinct from the one in (41):

- (43) Only John ate broccoli  $\rightarrow$  *Someone* ate broccoli.

This is a veridical inference, and will block PIs that need a nonveridical expression to license them. Factive and implicative verbs, likewise, are traditionally handled as presuppositional in that they presuppose the truth of the complement (which is in the indicative in Greek). So the Greek weak NPIs *kanenas* and the FCIs *opjsodhipote* (as well as their Spanish and Catalan counterparts) are well-behaved in terms of being licensed by nonveridicality, and appear in the scope of nonveridical operators only.

We still have to account for the class represented by *any*, though. Conceivably, we can allow the negative component of *only* to do the job: *Nobody other than John ate broccoli*. For Horn, this exclusive inference *is* the truth conditional contribution of *only*: it is what a sentence with *only* asserts and entails. Hence, the occurrence of *any* with *only* is rendered equivalent to the occurrence of *any* in negative exceptives like ‘nobody but John’ :

(44) Nobody but John saw any animals.  $\neg \rightarrow$  Nobody but John saw any tiggers.

And, again, it will be helpful to recall the problematic DE pattern of exceptives of this kind (a fact pointed out in Keenan 1996). Whether invoking Strawson-DE would help seems questionable in the context of the preceding discussion.

But here is a legitimate question: if *only* entails the exclusive negative proposition, wouldn't this make it also *nonveridical*, thus a licenser? The answer will have to be no, given that *only* also comes with the veridical Horn presupposition (or Atlas's entailment in (41)). We have to say then that if an expression gives rise to conflicting veridicality inferences, like *only* (veridical presupposition, but non-veridical assertion), the expression will not be a licenser for PIs that require a nonveridical environment for licensing. *Any* and its ilk, apparently are not such PIs: they are weaker in that they will be 'rescued' as long as the environment of appearance can void veridicality somehow. The nonveridicality of the exclusive component of *only* achieves precisely this: it voids veridicality, and weaker items can thus be sanctioned.

The observed difference with *only* (and negative factives) can thus be taken to reflect a fundamental difference in the relation between the *any*-class and nonveridicality, on the one hand, and the stronger PI classes and nonveridicality, on the other: in the latter case nonveridicality *licenses* the PIs; but in the former, the PIs are *anti-licensed* by veridicality, i.e. they must *avoid* veridicality. The possibility of anti-licensing was considered already in the earlier works of Ladusaw (1979) and Progovac (1994)—the latter mostly from the syntactic point of view, which is very different from the perspective I adopt here. Here, I am employing anti-licensing in the sense of Giannakidou (1999: 414-417; see the discussion of *any*):

- (45) *Anti-licensing condition for any*
- i. *Any* will not be grammatical in a sentence S if *any* is interpreted in the scope an expression  $\beta$  in S which is veridical.
  - ii *Any* will be allowed in S if the expression  $\beta$  in S, which yields a veridical inference, also allows a nonveridical inference (typically an entailment).

In other words, *any* is an item that must avoid veridicality: it will be good with a veridical expression as long as this expression also allows a nonveridical inference. Quite successfully, this condition describes the more liberal behavior of the *any*-class, and predicts that items of this class will appear with expressions allowing conflicting veridicality inferences. It also captures the occasional sensitivity of *any* to global inferencing (e.g. *any* with positive *be-glad* that we noticed earlier); this is a case where the 'rescuing' nonveridical inference comes from global pragmatic inferencing. Stronger NPIs, i.e. the ones requiring a nonveridical expression for *licensing*, cannot be accepted in these cases; if an expression allows a veridical inference this inference alone will rule them out. This is why such items are consistently bad with factive verbs (positive *and* negative) and *only*.

As an interesting twist, this difference between a PI licensed by nonveridicality and one anti-licensed by veridicality also yields an empirical difference with respect to appearance in nonveridical contexts. For the former, nonveridicality is a sufficient and

necessary condition, which means that as long as we have a nonveridical expression the PI should be grammatical in its scope. With the latter, this is not the case: there may be nonveridical environments where the PI is actually not well-formed. This is precisely the contrast we observe below (noted originally in Giannakidou 1999):

- (46) *Efxome* na me voithouse kanenas!  
 \* I wish anybody helped me!
- (47) I bike mesa kanenas i afisame to fos anameno.  
 \* Either anybody came in or we left the light on.

In (46), we see that the Greek NPI *kanenas* is grammatical in the complement of a nonveridical verb like *efxome* ‘wish’, but English *any* isn’t. Likewise, in (47) we see that disjunction, which is nonveridical, allows *kanenas* but not *any*. The contrast is expected if the dependencies involved are of the nature described here: for a licensed item, nonveridicality is a necessary and sufficient condition; for *any* it is not.

Ultimately, we want to know why this contrast exists, i.e., what it is in the lexical-semantic specification of the class represented by *any* that makes them subject to a weaker anti-licensing condition. I will not address this question here, but suggest that a possible explanation must make use of the fact that the PIs that need nonveridicality have the semantic deficit of not being able to introduce a discourse referent (they are *dependent* in Giannakidou’s 1998, to appear, terminology): in a veridical sentence, and *only* sentences and complements of factives count as such as we saw, these PIs will be forced to do something they cannot do, and will thus be ruled out. If some explanation along this line is plausible, then *any* must be acknowledged as a species of polarity indefinite distinct from the Greek ones.

A final point to consider is the role of *assertoric inertia* defined in Horn to appear: 28):

- (48) Assertoric inertia  
 Semantically entailed material that is outside the scope of the asserted, and hence potentially controversial aspect of the utterance meaning counts as assertorically inert and hence as effectively transparent to NPI-licensing and related diagnostics of scalar orientation.

In this context, we would have to parametrize PIs wrt to whether they can be licensed, or not, by assertorically inert material. According to Horn, the impact of assertoric inertia can explain why the negative inference of *almost* cannot do the trick for *any* in the scope of *almost*:

- (49) a \* John bought almost any book.  
 b Gore almost won the election. → Gore did not win the election

The relation → with *almost* reads as *presupposes*, *entails*, or *con conversationally implicates* (see Horn, to appear, for an extensive survey). The problem is obvious: if *almost* has a negative component, just like *only*, then why can’t it license *any*? Horn argues that this is

so because the negative inference with *almost* is assertorically inert, and assertorically inert material cannot sanction PIs. But why should assertoric inertia have this effect? In terms of what I just said above the answer is obvious: assertorically inert material cannot change the veridicality of the context. A positive sentence remains positive, thus veridical, despite the use of *almost*, and *any* will not be admitted. Needless to say, the stronger PI-classes are also out, quite expectedly:

- (50) \*O Alexandros agorase sxedhon kanena *vivlio*.  
\*Alexander almost bought any book.

Horn uses assertoric inertia in a similar way to account for *any* with *barely/hardly* in the is case, it is the positive inference that becomes assertorically inert, and *any* is fine:

- (51) John {hardly/barely} talked to anybody.

Note, however, that the Greek licenced PIs are not admitted with the equivalents of *barely/hardly*:

- (52) \* O Janis meta **vias milise** me {kanenan/opjondipote}.  
John *barely/hardly* talked to anybody.

Assertoric inertia can thus only affect PIs that are anti-licensed by veridicality, and cannot influence the licensing pattern of licensed PIs: if *John barely talked to anybody* is true then that John talked to somebody is also true, hence *barely* is veridical and the Greek PIs are out. Hence, the effect of assertoric inertia falls naturally within the general context of licensing and anti-licensing dependencies that we are assuming, and is correctly predicted to play a role only for the weaker class of PIs represented by *any*.

The licensing, anti-licensing, and non-licensing of PIs with *only*, then, forces a reconsideration of the nature of the dependency relation of PIs and the property that sanctions them (or not). In my discussion above I concentrated on *only* but it is easy to see how we can capture factives. Factives in general are non-licensors since they are strongly veridical, i.e. they presuppose their complement. *Any* appears in negative factives, despite veridicality, because the following inference holds:

- (53) John regrets that I bought a car. → John would prefer it if I had not bought a car.

The inferred sentence is a counterfactual containing negation. This negative inference is readily available with a negative factive verb, and is not assertorically inert, hence it sanctions *any*. This echoes Horn's to appear account of *any* with negative factives, who argues that it is the positive (veridical) inference that becomes inert with factive verbs. At the same time, this joint reasoning also explains why, although global pragmatic inferencing occasionally allows *any* with a positive factive, it is with negative factives that *any* occurs more systematically.

## 6 Conclusion

The main conclusion of this paper can be summarized as a negative answer to the question of the title: weakening DE can not get us very far in terms of deriving the correct distribution of *any*, and other PIs in English and crosslinguistically. It systematically leads to overgeneralization, or, as is the case of directives and other modal expressions, undergeneralization; a wealth of data are left in either case unaccounted for. The nonveridicality approach to polarity, on the other hand, offers a more fruitful avenue once we acknowledge a weaker form of dependency identified here as anti-licensing by veridicality. This weaker dependency predicts the greater freedom of distribution that characterizes the liberal class of *any* and the other PIs with similar behavior. In the light of this result, Linebarger's criticism of semantic theories being unable to handle the variation in PI-licensing is eschewed: the semantic properties of the licenser are decisive, i.e. whether it is veridical, nonveridical, or with conflicting veridicality properties; and conflicting veridicality patterns can sanction only the weaker class of PIs represented by *any* (for reasons that we still need to understand).

Hence appeal to nonveridicality, coupled with a more refined understanding of the nature of the dependency between PI and context, can lay the foundation for a viable way to reconcile a semantic explanation of PI-licensing with the rich variation attested within and across languages. Yet, to be fair to Linebarger and Horn, one must still acknowledge that the weaker anti-licensed class identified here can indeed be influenced by pragmatic inferencing, as indicated in the effects of assertoric inertia, and the occasional appearance of *any* with positive factives. But as I took pains to show, such items are not really sanctioned, but merely *tolerated* in the environment in which they occur. Ultimately, then, in the global picture of polarity we might want to distinguish between licensing, which is a semantic relation, and the magnanimous act of tolerance which will, naturally, also be sensitive to the conditions of use.

## Acknowledgement

I am grateful to Larry Horn for his extremely helpful, and quite extensive, comments and discussion. This paper was presented at the 2004 LSA meeting in Boston, MA; many thanks to the audience of the Meeting for their feedback.

## References

- Asher, Nicholas. 1987. A typology of attitude verbs and their anaphoric properties. *Linguistics and Philosophy* 10: 125-197.
- Atlas, Jay David. 1993. The importance of being Only: Testing the Neo-gricean versus Neo-entailment paradigms. *Journal of Semantics* 10:301-318.
- Atlas, Jay David. 1996. *Only* Noun Phrases, Pseudo-negative quantifiers, negative polarity items, and monotonicity. *Journal of Semantics* 13: 265-328.
- Chierchia, Gennaro (To appear). Scalar implicatures, polarity phenomena, and the syntax/pragmatics interface. In Belletti, Adriana (ed.), *Structures and beyond*. Oxford: Oxford University Press.
- von Stechow, Kai. 1999. NPI-Licensing, Strawson-Entailment, and Context-Dependency. *Journal of Semantics* 16: 97-148.

- Giannakidou, Anastasia. 1998. *Polarity Sensitivity as (Non)veridical Dependency*. John Benjamins, Amsterdam and Philadelphia.
- Giannakidou, Anastasia. 1999. Affective dependencies. *Linguistics and Philosophy* 22: 367-421.
- Giannakidou, Anastasia. 2001. The meaning of free choice. *Linguistics and Philosophy* 24: 659-735.
- Giannakidou, Anastasia. To appear. Licensing and sensitivity in polarity items: from downward entailment to nonveridicality. In the Proceedings of *CLS* 38.
- Haspelmath, Martin. 1997. *Indefinite Pronouns*. Oxford: Clarendon.
- Heim, Irene. 1992. Presupposition projection and the semantics of attitude verbs. *Journal of Semantics* 9: 183-221.
- Hoeksema, Jacob. 1986. Monotonie en superlatieven. In C. Hoppenbrowers et al. (eds), *Proeven van taalwetenschap*, TABU: 38-49.
- Horn, L.R. 1972. *On the semantic Properties of Logical Operators in English*. PhD thesis, UCLA.
- Horn, L.R. 1989/2001. *A Natural History of Negation*. CSLI Publications.
- Horn, L. R. 1996. Exclusive company: *only* and the dynamics of vertical inference. *Journal of Semantics* 13: 1-40.
- Horn, L. R. To appear. Assertoric inertia and NPI-licensing. In the the Proceedings of *CLS* 38.
- Keenan, Edward L. 1996. "The semantics of determiners". In Sh. Lappin (ed), *The Handbook of Contemporary Semantic Theory*. Blackwell, Oxford. 41-65.
- Keenan, E. and L. Faltz. 1985. *Boolean Semantics for Natural Language*. Reidel, Dordrecht.
- Kadmon, Nirit and Fred Landman. 1993. Any. *Linguistics and Philosophy* 16: 353-422.
- Ladusaw, William A. 1979. *Polarity Sensitivity as Inherent Scope Relations*. Garland.
- Linebarger, Marcia. 1980. *The Grammar of Negative Polarity*. PhD thesis. MIT.
- Quer, Josep. 1998. *Mood at the Interface*. PhD thesis, University of Utrecht.
- Quer, Josep. 1999. Licensing free choice items in hostile environments: the role of aspect and mood. Ms. University of Amsterdam.
- Pereltsvaig, Asya. 2000. Monotonicity-based versus veridicality based approaches to negative polarity: evidence from Russian. In T.H. King, and A. Sekerina (eds.), *Formal Approaches to Slavic Linguistics*. 328-346. Ann Arbor, Michigan Slavic Publishers.
- Progovac, Ljiljana. 1994. *Positive and Negative polarity: a binding approach*. Cambridge University Press, Cambridge.
- Zwarts, Frans. 1995. Nonveridical contexts. *Linguistic Analysis* 25, 3-4: 286-312.