Non-monotonic Negativity

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Abstract

The main aim of this paper is to provide a new analysis of licensers of negative polarity items (NPIs). The problems with Fauconnier-Ladusaw's downward entailment analysis have been argued since Linebarger (1980). I will show that there exists a class of weak NPI licensers characterized by *non-monotonicity* and *exclusivity*. Weak negation, which is monotone decreasing, has been known to license weak NPIs such as *any* and *ever* (Zwarts 1993). However, non-monotonic items also trigger these wideners. *Exclusivity* or uniqueness characterizes non-monotonic operators, such as *only, exactly n*, superlatives, ordinal numerals, the determiner *the*, generic NPs, and also *if and only if* clauses, *hope*, *happy*, *glad* and others. Many of them function as generalized quantifiers which prohibit either downward or upward entailment. As Jespersen (1917) traces the origin of NPIs back to the strengthening of negation, non-monotonic contexts also favor strengthening by these words.

We begin by considering the limited distribution of polarity items. The following section presents shortcomings of previous analyses, and then, non-monotonic expressions and their exclusivity are discussed.

1 Introduction: Licensing Negative Polarity Items

Certain lexical items have been known to appear only in negative contexts. These, having been called negative polarity items (henceforth, NPIs), are such as *any, anything, anymore, ever, at all, whatsoever, budge an inch, care to VP*, and *bother V-ing*.

(1) *Not*:
a. I didn't realize that he admired her **at all**.
b. *He admired her **at all**.

(Klima 1964:282)

(2) *None*:
a. None of the rivals said **anything whatsoever**.
b. *Some of the rivals said **anything whatsoever**.

(Hoeksema 1986a:35)

The distribution of NPIs is not limited to explicit negatives. Various contexts accommodate NPIs.

(3) *At most*:
a. At most three women have **ever** loved him.
b. ?At least three women have **ever** loved him.

(ibid.)

(4) *Every*:
a. Every student who had **ever** read **anything** about phrenology attended the lecture.
b. * Some student who had **ever** read **anything** about phrenology attended the lecture.

(Ladusaw 1980:3)

(5) *Only*:
a. Only Bill had **ever** read **anything** about phrenology.
b. *Even Bill had **ever** read **anything** about phrenology.

A number of scholars have attempted to capture the common feature of NPI licensers from semantic (Ladusaw 1979, von Fintel 1999), syntactic (Progovac 1988, 1992, 1994), pragmatic (Yoshimura 1992), syntactic-pragmatic (Linebarger 1980), and semantic-pragmatic (Giannakidou 1998) viewpoints. None of them, however, are without shortcomings, as we will examine in the next section.

2 Previous Analyses and Problems

2.1 Ladusaw's DE Analysis and Counterexamples

Downward-Entailingness, proposed by Ladusaw (1979), is valid in characterizing numerous NPI licensers. It, however, is not exempt from counterexamples (Linebarger 1980).

(6) A negative-polarity item is acceptable only if it is interpreted in the scope[1] of a downward-entailing expression.

(Ladusaw 1980:13)

A monotone decreasing (DE) scope corresponds to polarity sensitivity:

(7) *Every*: ↓MON[2] .TRIGGER[3]
a. Every man walks. → Every father walks.
b. Every man walks. −/→ Every man walks slowly. (ibid.:6)
c. Every student who had **ever** read **anything** on phrenology attended the lecture.
d. Every student who attended the lecture had **ever** read **anything** about phrenology.
(ibid.:15)

The problem of DE analysis lies in that it fails to predict the NPI licensing in the scope of *only, exactly n* and superlatives, which are neither monotone decreasing nor increasing (Linebarger 1980, Hoeksema 1986b).

(8) *Only*: ..MON.. .TRIGGER.
a. Only people who know a language will be admitted to the lecture. →?? Only people who know a Romance language will be admitted to the lecture.
b. Only people who have **ever** been to Paris will be admitted to the lecture.
(Linebarger 1980:136)

(9) Superlatives: ..MON.. .TRIGGER.
a. John is the greatest man who **ever** lived. ←/→[4]
b. John is the greatest man who **ever** lived in Japan.

Various attempts have been made to resolve the insufficiency of Ladusaw's DE analysis, with the emergence of two alternative methods: .) to discard DE theory and seek for another approach as Linebarger (1980) and others did; and, .) to adjust or expand DE analysis. Zwarts (1993, 1995, 1998), Giannakidou (1998), von Fintel (1999), van der Wouden (1997), Yoshimura (1992) and so forth have sought after this methodology. These suggestions are, however, not without inadequacies, as we discuss in the following sections.

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[1] Ladusaw (1980) defines *scope* as follows:
"For any two expressions α and β, constituents of a sentence ϕ, α is in the scope of β with respect to an interpretation of ϕ, ϕ', if the interpretation of α is used in the formulation of the argument to β's interpretation in ϕ'." (Ladusaw 1980:12)

[2] Monotonicity in the first argument is called left monotonicity, and the one in the second argument is right monotonicity. Upward monotonicity in the first argument is described as ↑ MON, downward monotonicity in the second argument is MON ↓

[3] For notational convenience, in this paper, '.TRIGGER' stands for NPI licensing in the first argument, and 'TRIGGER.' for triggering in the second argument.

[4] In this paper the symbol './.' represents invalidity in either upward or downward entailment.

2.2 Problems with Linebarger (1980, 1987)

Linebarger sets two-fold conditions for NPI licensing. First, NPIs must be in the immediate scope of negation, and if not, Negative Implicature (NI) should provide negative contexts.

(10) *Immediate Scope Contraint (ISC)*

A negative polarity item is acceptable in a sentence S if in the LF of X the subformula representing the NPI is in the immediate scope of the negation operator. An element is in the immediate scope of NOT only if (.) it occurs in a proposition that is the entire scope of NOT, and (.) within this proposition there are no logical elements intervening between it and NOT.

(Linebarger 1987:338)

For example, NPI is grammatical in the next sentence (13), for the reason that negation does not have scope over the because-clause in LF:

(11) He didn't **budge an inch**, because he was just a wooden statue.
LF: CAUSE ((NOT) he **budged an inch**)), he was just a wooden statue)

On the contrary,

(12) *He didn't **budge an inch** because Mary pushed him (but because he was restless).
LF: NOT (CAUSE (he **budged an inch**, Mary pushed him))

(ibid.)

The NPI is ungrammatical, for negation has scope over the because-clause.

Second, the alternative condition, NI, grants *any* in the following sentence, although it fails to meet the first criterion, ISC:

(13) The ocean isn't blue because it has **any** blue paint in it.
LF: NOT (CAUSE (it has **any** blue paint in it, The ocean is blue))
NI: The ocean doesn't have **any** blue paint in it.

(ibid.)

Even though there is CAUSE which occupies the place between NOT and NPI, (13) is grammatical, by having negative implicature which permits *any*.

However, her dual standard fails to predict that *glad* and *happy,* which lack NI, trigger NPIs.

(14)a. A: But these tickets are terrible!
B: Be glad we got ANY tickets!

(Kadmon and Landman 1993:384)

b. I am glad that John bought a Honda. --/-- >
I had expected that John would not buy a Honda.

Being *glad* that John bought a Honda does not necessarily indicate that the speaker did not expect it. "I was sure John would buy a Honda. I am glad he did so." is a possible utterance. Moreover, an example with *happy* is:

(15) I am happy you passed the entrance exam. --/-- >
I had expected that you would not pass the entrance exam.

The first sentence does not necessarily indicate that the admission was the last thing the speaker expected. Thus, Linebarger's two-fold theory proves to be incomplete.

2.3 Nonveridicality (Zwarts 1995; Giannakidou 1998, 1999, 2001)

Zwarts and Giannakidou investigate the relationship between nonveridicality (Montague 1969) and monotonicity. Giannakidou claims that 'affective'[5] dependencies come in two varieties: (.) "narrow" sensitivity- NPIs are sensitive to negation and negative operators, and (.) "broader" sensitivity– affective polarity items (APIs) are sensitive to nonveridicality). The former forms a proper subset of the latter, as NPIs are included in the APIs.

(16)•. A polarity item α is an expression whose distribution is limited by sensitivity to some semantic property β of the context of appearance.

[5] The term 'affective' was first used by Klima (1964), meaning negative feature.

.. β is (non)veridicality.

(Giannakidou 1998:17)

(17) *Op* is veridical just in case *Op p* → *p* is logically valid. Otherwise, *Op* is nonveridical. (ibid.:106)

The merit of nonveridicality analysis is that it can rightly describe NPI licensing by non-monotonic (NM) operators such as strong intentional verbs like *hope.*

(18) I hope there is **any** left. ./. There is any left.

Nevertheless, although nonveridicality catches the common feature of NPI licensers such as modals and intentional verbs, it falls short in explaining NPI licensing by superlatives, *only*, and *exactly n*, which are *veridical.*

(19) Only John eats oatmeal. → John eats oatmeal.

Being aware of this problem, she adds another condition, namely, negative implicature, which resembles Linebarger.

(20) *Licensing condition for affective polarity items*

.. An affective polarity item α will be licensed in a sentence S iff S provides some expressions γ which is *nonveridical*, and α is in the scope of γ.

.. In certain cases, α may be licensed i

(ibid.:149)

The second condition, NI, manages to explain the affectivity of *only*:

(21)a. Monon i Theodora idhe it Roxani. (Greek)
only the Theodora saw.3sg the Roxanne
'Only Theodora saw Roxanne.' --->

b. Nobody other than Theodora saw Roxanne.

(ibid.:154)

Yet, the obvious counterexamples are, NPI licensing by *glad* and *happy* which are neither nonveridical nor accommodating negative implicature.

(22) I was glad that John had llamas in his apartment. →
John had llamas in his apartment. (veridical)

(23) I was glad that John had llamas in his apartment. --/-->
I had expected that John would not have llamas in his apartment.

Being glad that John had llamas presupposes the veridicality of having llamas, without indicating unexpectancy. Therefore, her suggestions do not cover the whole range of affective contexts.

2.4 Strawson DE (von Fintel 1999)

von Fintel (1999) claims that NPI licensing is sensitive to Strawson Entailment, which is the expansion from logical DE-ness, for the purpose of accounting for the affectivity unexplainable by Ladusaw's DE theory.

(24) *Strawson Downward Entailingness*

A function f of type <σ, τ>is Strawson- DE
iff for all x, y of type σ such that x → y and f(x) is defined:
f(y) → f(x)

(von Fintel 1999:104)

The additional process, 'define f(x),' suffices for the presupposition of the conclusion.

To illustrate, *only*, which is not logical DE, is Strawson DE.

(25)a. Only John ate vegetables for breakfast. --->

b. Only John ate kale for breakfast.

Since *only John ate vegetables* does not guarantee that he ate kale, *only N* is not logical DE. But (a) *Strawson Entails* (b), under the assumption that the presupposition of (b), namely, *John ate kale for breakfast,* is satisfied.

However, even though the notion of Strawson DE-ness succeeds in solving certain problems, it fails to offer sufficient explanation for the triggerhood of *exactly n* and *the n.*

(26)a. Exactly five children ate vegetables for breakfast. —/→
b. Exactly five children ate kale for breakfast.
(27) Kale is a vegetable.
Children ate kale for breakfast.
Exactly five children ate vegetables for breakfast.
∴ ?Exactly five children ate kale for breakfast.

Provided that the presupposition of the (b) sentence, *Children ate kale for breakfast,* is satisfied, it does not ensure that kale was the only vegetable they ate. Possibly, three of them ate kale, while the other two ate broccoli. Although such a situation does not falsify the presupposition, the conclusion, *Exactly five children ate kale for breakfast,* is not inferred, therefore, (a) does not *Strawson Entail* (b). The same reasoning applies to *the n*. Thus, Strawson DE-ness also has to account for counterexamples.

2.5 A Hierarchy of Negative Expressions (Zwarts 1993; van der Wouden 1997)

Zwarts (1993, 1998) classifies three types of NPIs which are "weak", "strong", and "superstrong", according to DE-ness, anti-additivity and anti-morphy respectively. van der Wouden (1997) develops these features as follows:

(28)			
	monotone decreasing	$f(X)\cup f(Y)\subseteq f(X\cap Y)$ $f(X\cup Y)\subseteq f(X)\cap f(Y)$	*few, seldom, hardly*
	anti-additive	$f(X)\cup f(Y)\subseteq f(X\cap Y)$ $f(X\cup Y)\subseteq f(X)\cap f(Y)$ $f(X)\cap f(Y)\subseteq f(X\cup Y)$	*nobody, never, nothing*
	antimultiplicative	$f(X\cap Y)\subseteq f(X)\cup f(Y)$ $f(X)\cup f(Y)\subseteq f(X\cap Y)$ $f(X\cup Y)\subseteq f(X)\cap f(Y)$	*not every, not always*
	antimorphic	$f(X\cap Y)\subseteq f(X)\cup f(Y)$ $f(X)\cup f(Y)\subseteq f(X\cap Y)$ $f(X\cup Y)\subseteq f(X)\cap f(Y)$ $f(X)\cap f(Y)\subseteq f(X\cup Y)$	*not, not the teacher, not Judas*

(van der Wouden 1997:106)

The problem of these analyses is that non-monotonic NPI licensers such as *only*, *the first*, or *the* do not fit even the weakest category, that is DE, but still they accommodate weak type of NPIs such as *any* or *ever*.

(29) *Only*: non-DE
Only John smokes or only Mary smokes. -/→ Only John and Mary smokes.
Only John or Mary smokes -/→ Only John smokes and only Mary smokes.

(30) *The first*: non-DE
The first man who comes in smokes or the first woman who comes in smokes. -/→
The first man who comes in and the first woman who comes in smoke.

(31) *The*[6]: non-DE
The man who came in smokes or the woman who came in smokes. -/→
The man who came in and the woman who came in smoke.

These examples clearly indicate that monotone decreasingness is not a sufficient description of affective contexts. Rather, anti-UEness should be the key notion to polarity sensitivity, as we will discuss in section 3.

2.6 A Binding Approach (Progovac 1988, 1992, 1994)

Progovac advocates a binding-theoretic approach, assuming that NPIs obey locality conditions as anaphors do:

(32) NPIs are subject to Principle A of the Binding Theory.

[6] See 3.1.1.

(33) PPIs are subject to Principle B of the Binding Theory.[7]

(Progovac 1994:2)

The basis of her claim is the fact that NPIs always take narrow-scope interpretation with respect to negation, while other quantifiers produce scope ambiguity:

(34) Many/every people didn't come.

(*many/every* > *not*; *not*>*many/every*)

(35) I didn't do anything wrong.

(**anything*>*not*; *not*>*anything*)

The potential binders for polarity items are functional categories: negation in Infl or a truth conditional polarity operator (Op) generated in Comp (Laka 1990).

Noticeably, in order to integrate questions, which are not DE, into Ladusaw's framework, she suggests the possibility to expand the range of non-negative licensing contexts to non-UE-ness:

(36) An NPI is prohibited in an Upward Entailing clause.

(Progovac 1994:135)

As questions are not upward entailing, they can license NPIs:

(37)a. Do you have a dog? (No) →

b. Do you have a pet? (No)

However, her analysis wrongly predicts that any non-UE context would trigger any kind of NPIs.

(38)a. *Exactly five children **lifted a finger**.

b. Exactly five children have **ever** done **anything** for her.

Obviously, more restrictions are necessary. In section 3, I will show that non-monotonic scope can license only weak NPIs. Also, an additional condition should restrict non-UE NPI licensers.

2.7 The Cognitive Structure of Negation (Yoshimura 1992, 1996)

Yoshimura, advocating Ladusaw's DE theory, suggests the cognitive structure of negation in the framework of Relevance Theory.

(39) *The Cognitive Structure of Negation (CSN)*

$<\phi, \{...\phi...\}>$, where the logical forms ϕ and ϕ lead to a contradiction.

(Yoshimura 1992:258)

The advantage of this analysis is the validity in explaining polarity sensitivity of adversative predicates, which are not outward DE as the following examples demonstrate:

(40)a. Mary was surprised that John bought a car. —/→
Mary was surprised that John bought a Mercedes.

b. Mary was surprised that John knew **any** spies.

According to Yoshimura, the contradictory assumption that John would not have any spy acquaintances forms a mental process adequate for NPIs.

CSN, however, is not able to explain why *only* and *exactly n* license NPIs, which are not equipped with contextual contradiction. Being aware of this problem, she acknowledges the need for amendments to DE theory. Superlatives are also problematic to CSN.

(41) John won the game. Actually he was the *first* student to have won the game.

The speaker does not have any contradictory assumption that John would not win the game.

So, as we have seen, all previous analyses have their shortcomings respectively. A better description of the whole range of NPI licensers is called for. The next section presents one.

3 Solution: Anti-UE and Exclusivity Condition

In this section, I propose a new description of NPI licensers; that is, anti-UEness (Upward Entailingness) and exclusivity condition, which non-monotonic NPI licensers should meet. I will show that non-monotonic licensers as a class can trigger weak NPIs. In order to support this argument, I will

[7] 'PPIs' stand for Positive Polarity Items, e.g., *some*.

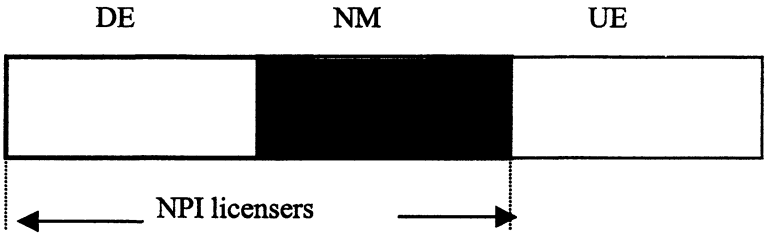
present an overview of this class, by way of listing its members, starting from NM determiners, and next NM non-determiners. Afterward, the exclusive feature of this class comes to the fore, which gives rise to NPIs in their scope. Lastly, pragmatic strengthening is considered as the force behind it.

3.1 Anti-UE

As indicated by Progovac (1992), non-UE contexts can license NPIs.

(42) A function f of type $<\sigma, \tau>$ is the NPI licenser iff
for all x, y of type σ such that $x \rightarrow y$, $f(x) \not\rightarrow f(y)$

Anti-UE contexts, which include the unified class both DE and NM scope, can be polarity sensitive.



No literature has paid much attention to NM determiners or expressions as a class so far. Let us list NM determiners and expressions.

3.1.1 NM Determiners and NPI Licensing

The NM polarity sensitivity of *only, exactly n,* and superlatives have been argued over for the last two decades, as we have already considered. We will expand the list of NM determiners by Zwarts (1996),[8] and investigate if their NM scope can license NPIs. Moreover, I add ordinal numerals, *the,* and generic NPs to NM determiners.

(43) *Exactly n*: ..MON..,.TRIGGER. (Ladusaw 1980)

a. Exactly five people who had **ever** learned **anything** about phrenology attended the lectures.

b. Exactly four people have **ever** read that book: Bill, Mary, Tom and Ed.
(van der Wouden 1997:158)

c. Exactly ten people played sports. $\leftarrow/\rightarrow$
Exactly ten women played volleyball.

d. Exactly two children came home. $\leftarrow/\rightarrow$
Exactly two children came home late.
(de Swart 1998:187)

Exactly two children came home does not specify the time they returned. In case that those children came back immediately after school, *Exactly two children came home late* is false. So, *exactly n* is not DE.

Additionally, (precisely) *n*, which is both left and right NM; *nearly all, few,* and *the n* are left NM (Zwarts 1996). They trigger NPIs in the NM scope respectively:

(44) *The n*: ..MON .TRIGGER

a. The five men walk. $\leftarrow/\rightarrow$ The five young men walk.

b. The four people who **dared** to **have a bite** were poisoned.

Walking of the five men does not ensure that they are young, so downward inference is invalid. On the other hand, walking of five young men does not ensure walking of the five men, for the five men of the first sentence may refer to another group of the five men. Therefore, *the n* is non-monotonic.

(45) *(Precisely) n* : ..MON.. .TRIGGER.

a. Seven men walk. $\leftarrow/\rightarrow$ Seven young men walk.

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[8] Although the main focus of Zwarts (1996) is not on non-monotonicity, but on the hierarchical strength of negativity, it indicates that several determiners are NM.

b. Seven men walk. ←/→ Seven men walk slowly.
c. Five people who **dared** to **have a bite** were poisoned.

The number of male walkers and young male walkers may vary, and so do the numbers of male walkers and male slow walkers. Among seven male walkers, five might be quick walkers. In this situation, downward inference is impossible, and vice versa.

In case of *nearly all*:

(46) *Nearly all*: ..MON .TRIGGER
a. Nearly all men walk. ←/→ Nearly all young men walk.
b. Nearly all men who have **ever** learned **anything** about phrenology were admitted to the lectures.
c. Nearly all people who **dared** to **have a bite** were poisoned.

In (46a), for instance, consider a situation when nine out of ten men walk. In such a case, *nearly all men walk* is true. Suppose these nine men are all young, when *nearly* all young men walk should be false. Downward inference is not valid. In the other direction, when nine out of ten young men walk, *nearly all young men walk* is true, but if there are a great number of non-walkers in other age groups, say, one hundred old men do not walk, *nearly all men walk* is false. Upward inference is also invalid.

(47) *Few*[2]: ..MON .TRIGGER
a. Few men walk down the street. ←/→ Few young men walk down the street.
b. Few men who have **ever** learned **anything** about phrenology were admitted to the lectures.
c. Few men who **dared** to **have a bite** were poisoned.

Few has two interpretations: cardinal and proportional (de Swart 1998):

(.) Cardinal interpretation:
[[few[1]]([[walk-down-the-street]])([[men]]) =1 iff
| [[walk-down-the-street]] . [[men]] | <f(| U |) [9]

When the number of men walkers is considered to be few, arbitrary relative to the universe of discourse, the number of subset members, young walkers will be considered small, too. So, in cardinal interpretation, *few* is left-DE.

(.) Proportional interpretation:
[[few[2]]([[walk-down-the-street]])([[men]])=1 iff
|[[walk-down-the-street]] . [[men]])| < c.|[[men]]|

In proportional interpretation, even if the proportion of walking men in the set of all men is considered few, the proportion of walking young men might not be few in comparison with the number of young men. Therefore, downward entailing is not guaranteed. Rather, *few* is left-no monotone.

Moreover, ordinal numerals, not only *first* (Hoeksema 1986b) but *second,* and *third* are left NM and left NPI triggering.

(48) Ordinal numerals: ..MON .TRIGGER[10]
a. Fred was the first to **ever** swim across the Adriatic.
(Hoeksema 2000:116)
b. **FPM 369** It was the first time she had **ever** seen fear in Connor O'Dell's eyes.
(British National Corpus)
c. *The first thing Andrea did was to **ever** eat oatmeal.
d. The first thing Andrea **ever** did was to eat oatmeal.
e. John is the second European who has **ever** seen that sacred statue. ←/→ John is the second European who has **ever** seen that sacred female statue.[11]

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9 'f' stands for arbitrary set function, and 'U' for universe of discourse

10 The informants indicate that the ordinal numbers greater than a third is not really compatible, due to pragmatic reasons rather than for grammaticality. Takao Gunji (personal communication) also indicates that even second or third are less likely to trigger NPIs than first, although they are found in the corpus data.

11 I owe these examples to Paul A. S. Harvey.

The determiner *the* is also left NM, left triggering,[12] and so is generic NP.

(49) *The*: ..MON,.TRIGGER
The man who has **ever** learned **any** language was admitted to the lectures.←/→
The man who has **ever** learned a Romance language was admitted to the lectures.

(50) Generic NP: ..MON,.TRIGGER
a. Dogs have four legs. −/→
Dogs that have been in accidents involving chain saws have four legs.
(Heim 1984:103)
b. Students who have **ever** read **anything** about phrenology attended the lecture.

3.1.2 NM Expressions

In this section I will discuss on NM non-determiners: the protasis of conditionals, the *if and only if* clause, *happy, glad* and *hope*. These, too, trigger NPIs in their NM scope, supporting the evidence of non-UE analysis. The fact that *glad* licenses NPI *any* has been viewed as problematic toward Ladusaw's DE account (Kadmon and Landman 1993), but anti-UE analysis solves it.

(51) *If*-clause: (Linebarger 1980)
a. If you **ever** come to Japan you will have fun. −/→
b. If you **ever** come to Japan and become sick, you will have fun.[13]

(52) *If and only if* – clause[14]:
a. The ER series will end if and only if John Carter is **ever** assassinated. ←/→
b. The ER series will end if and only if any of the staff is **ever** assassinated.

(53) *Glad*:
a. John is glad he will teach, but John is not glad he will teach on Tuesdays. He prefers Wednesdays.[15]
b. I'm glad **ANYBODY** likes me!
(Kadmon and Landman 1993:384)

(54) *Happy*: (Lee 1999)
a. I am happy that there is **any** food left.
b. I am happy he bought a car. ←/→
I am happy he bought a Honda.

(55) *Hope*:
a. These razor blades are going like hotcakes. I hope there's **any** left.
(Horn 2001:184)
b. Nicholas hopes to get a free trip on the Concorde. So Nicholas hopes to get a trip on the Concorde.
(Asher 1987:171)

As Asher explains, hoping to ride on the Concorde without paying for it does not necessarily mean that he would ride on it even if he goes bankrupt.

Now, to sum up NM operators:

(56) NM operators:
..MON.. .TRIGGER.: *only, exactly n, (precisely) n,* superlatives
..MON .TRIGGER : *the, the n,* ordinal numerals, Generic NPs, *nearly all, few*[2]
NM non-determiners: *if, if and only if, happy, glad, hope*

Having closer look at these items, the following questions arise: why do they license NPIs? What makes them trigger NPIs? Do they share some characteristics? In the next section we will the answers to these questions, investigating what makes these non-monotonic items affective.

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[12] I thank Kai von Fintel (personal communication) for drawing my attention to the non-monotonicity of *the*.

[13] Modified from the examples in Krifka (1995).

[14] I thank Yo Matsumoto (pc.) who directed my attention to the non-monotonicity of *if and only if*.

[15] This sentence is based on the reasoning in Heim (1992).

3.2 Exclusivity Condition

This section focuses on the *exclusiveness condition* that all NM NPI licensers accord with. We will consider the relation between exclusivity or uniqueness and NPI licensing, in order to capture the nature of affectivity. Non-monotonic operators which share the assertion, '*no other than x is g(y),*' pragmatically prefer strengthening by polarity items.

Non-monotonic determiners commonly share the following semantics:

(57) α is a non-monotonic licenser of type <et, <et,t>> iff
$[[\alpha]] = \lambda f . D_{<e,t>} . [\lambda g . D_{<e,t>} .$ for all x.D_e such that g(x)=1, f(x)=1]

For example, the semantics of *the* is as follows:

(58) $[[\text{the}]] = \lambda f . D_{<e,t>} . [\lambda g . D_{<e,t>} .$ for all x . D_e such that g(x)=1,f(x) = 1]

If *the student who speaks Mongolian came in,* no other Mongolian speaking student came in, apart from that student.

It is also the case with *the n.*

(58) [[the three]] $= \lambda f . D_{<e,t>} . [\lambda g . D_{<e,t>} .$ there are some x_1, x_2, and x_3, such that $f(x_1)= 1$, $f(x_2)=1$, $f(x_3)=1$, $g(x_1)= 1$, $g(x_2)=1$, and $g(x_3)=1$, and for all y such that $f(y) = 1$, $y \neq x_1$, $y \neq x_2$, and $y \neq x_3$, $g(y) = 0$]

(59) The three men walk. ←/→
The three men walk slowly.

The interpretation of *the three men walk* is:

(61) [[The three men walk]] = 1 iff
[[the three]] ([[men]])([[walk]]) = 1 iff
if there are x_1, x_2,and x_3, such that each of them is a man, x_1, x_2, x_3, such that each of them is a man walk, and for all y such that each y is a man and $y \neq x_1$, $y \neq x_2$, and $y \neq x_3$, y's such that each y is a man do not walk.

It is the exclusivity that shuns downward entailment. It is not always the case that all men who walk should walk slowly:

(62) $\neg$ .x (x:man) [walk (x) → walk slowly(x)]

The set of walkers is not identical with the set of slow walkers.

Regarding *only,* such assertion has been pointed out since Horn (1969).

(63) Only Muriel voted for Hubert. --/-->
No one other than Muriel voted for Hubert.

(Horn 1969:98-99)

I point out that it is also the case with other NM determiners:

(64) The person who has any doubts would come. --/-->
No one other than the person who has any doubts would come.

(65) Exactly five children were injured. --/-->
No other children than the exactly five were injured.

(66) Joan is the most beautiful woman I have ever met. --/-->
No one other than Joan is the most beautiful woman.

(67) Franklin was the second man who came in. --/-->
No one other than Franklin was the second man who came in.

(68) Few students came in. --/-->
No one other than few students came in.

Obviously, *no other than x is g(y)* is the common assertion they share.

Same principle applies to non-determiners which are non-monotonic:

(68) I will go if and only if it does not rain. --/-->
I will not go if it rains.

(69) I hope to get a new car. --/-->
I do not hope to get anything else, like an old car.

Thus, exclusivity and non-UEness seem to be the key notion to NPI licensing.

(70) Non-monotonic contexts which meet exclusivity condition can license weak NPIs.

3.3 Pragmatic Strengthening

Lastly, let us briefly consider the motivating force behind NPI licensing in non-monotonic contexts. Historically, minimizers such as *a bit* were added to strengthen negatives, according to Jespersen (1917).

(71) 'An accomplice hid among them, I suppose.' 'Not a *jot*.'[16]

Is there strengthening effect by wideners in non-monotonic contexts?

(72)a. Taro is the only Japanese who has **ever** been to Shostka.
b. Taro is the only Japanese who has been to Shostka.

(73)a. Men with **any** sense avoid installment plans.
b. Men with sense avoid installment plans.

The (a) sentences are more strengthened than (b) sentences, respectively, for wideners *any* and *ever* create stronger statements, excluding any possibilities (Kadmon and Landman 1993).

4 Conclusion

I have shown that none of the preceding analyses - which are DE theory, NI analysis, nonveridicality or Strawson DE-ness - have presented sufficient description of NPI licensers. I proposed the new notion, anti-UEness (that is, DE plus NM) and exclusivity condition, which rightly predict the wider range of affective contexts, such as *exactly n, the, glad, happy,* and *hope,* which was not fully explained previously. Exclusivity characterizes NM licensers, functioning as generalized quantifiers which define the exact number of the NPs which are members of the intersection of the two arguments. Their uniqueness gives rise to the usage of NPIs for emphatic effect in NM contexts.

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