Negation-resistant polarity items

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1. Introduction

The interaction between polarity-sensitive indefinites (henceforth PSIs) and negation can tell us a lot about the underlying semantics of these indefinites. We generally see a two-way split in the distribution of such indefinites. On one hand, we have items such as *ever* and *in weeks* that can only survive if embedded in a negative environment, as in (1), while on the other, we have indefinites such as *some girl* and *someone* that resist the scope of negation, as in (2).

(1) a. I don't think Mary *ever* visited me at school.
 b. She hasn't seen that guy around the department *in weeks*.

(2) a. *John didn't talk to *some girl*.
 b. *I didn't eat *something* today.

In this paper we focus on the second type of PSIs, which can, more generally, be labeled as negation-resistant indefinites. The main property of these items is that they appear to be in complementary distribution with negative polarity items (henceforth NPIs) of the type in (1); unlike NPIs which can only receive the interpretation of a narrow scope indefinite with respect to negation, *some girl* and *someone* cannot be interpreted with narrow scope. Despite this parallel, these items have been offered diverging analyses in the literature based on the fact that they behave differently in non-negative environments. Items such as *some girl* have been argued to be existential free choice items, or epistemic indefinites (see e.g. Kratzer and Shimoyama 2002, Alonso-Ovalle and Menéndez-Benito 2010, Fălăuş 2010, Chierchia 2011) that give rise to an ignorance inference, while those of the *someone* type are labeled positive polarity items, henceforth PPIs (Szabolcsi 2004, Homer 2011b). However, as of yet there has been no attempt to offer an analysis of these two types of items framed within one and the same system, a system that would be able to account for the distribution of all types of PSIs, including NPIs. In other words, those analyses that tackle the distribution of epistemic indefinites illustrate how NPIs ought to be couched within the respective frameworks without discussing PPIs, while those dealing with PPIs integrate NPIs but ignore the epistemic indefinites. The problem we are faced with at this stage in the development of a complete understanding of the polarity system at large is that these two sets of analyses do not converge on an account of NPIs, thus making the search

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for a uniform account of PSIs untenable. In this paper I plan to show that such unification is possible and ultimately desirable. In particular, I will argue that an exhaustification-based system, already shown to account for the distribution of epistemic indefinites and NPIs, can be extended to account for the distribution of PPIs as well.

This paper is organized as follows. In §2 I offer an overview of the distribution of the *someone*-type PPIs and sketch two previous attempts at accounting for their distribution. Space limitations will prevent me from offering the details of these analyses but I hope to persuade readers that despite their success at accounting for PPIs and NPIs, these accounts are limited in their ability to carry over to epistemic indefinites. In §3 I introduce the exhaustification-based framework within which recent accounts of NPIs and epistemic indefinites have been couched. Finally, §4 provides a new analysis of PPIs couched within this framework, ultimately showing that unification of these polarity indefinites is possible. Cross-linguistic data that signals the existence of typological differences within PPIs is also brought in, and I will show how this analysis can account for, and in fact predict such differences without any additional stipulations. The last section concludes and discusses some open issues.

2. *Someone* indefinites – the distribution

PPIs in the scope of clausemate negation can only receive a wide scope reading, as seen in (3). When these indefinites appear in the immediate scope of clausemate negation, the surface scope interpretation is unavailable unless explicitly used in a denial context, as illustrated in (4).

(3) I didn't see something.
  a. ✓There is a thing such that I didn't see it. ✓$\exists > \neg$
  b. *There is nothing that I saw. *$\neg > \exists$

(4) A: I heard John talked to someone at the party yesterday.
  B: No, actually. John DIDN'T talk to someone.

However, not all negative environments disallow PPIs from their immediate scope at logical form, as shown in (5).

(5)
  a. John didn't call someone. *not>PPI
  b. No one called someone. *no one>PPI
  c. John came to the party without someone. *without>PPI
  d. I rarely get help from someone. ✓rarely>PPI
  e. At most five boys called someone. ✓at most>PPI
  f. Few boys read something. ✓few>PPI
  g. Only Jonathan ate something. ✓only>PPI

Descriptively, the environments that *someone* is resistant to are those that qualify as 'strongly' negative: clausal negation, negative quantifiers and *without*. Observe that the sentences which allow the indefinite to have narrow scope, (5d-f), have the same truth conditions upon replacing *someone* with *anyone*. In addition to these cases, PPIs can also be interpreted in the scope of negation whenever the negative element is not in the same clause as the PPI, as shown in (6).

(6)
  a. I don't think that John called someone. ✓not>$[_{CP}$ PPI
  b. Nobody thinks that he called someone. ✓nobody>$[_{CP}$ PPI

To summarize, these indefinites can only be interpreted as taking wide scope with respect to a strongly negative element such as clausal negation, negative quantifiers and *without*, unless the negative element is extra-clausal.

Returning to the case of clausemate negation, observe that PPIs can scope below a local negation as long as the indefinite is not in the immediate scope of the negative operator. In (7), the universal quantifiers *every* and *always* intervene at logical form between the negative operator and the indefinite.

(7) a. Not every student said something. ✓not>every>PPI
b. John didn't say something at every party. ✓not>every>PPI
c. John doesn't always call someone. ✓not>always>PPI

Lastly, observe that an otherwise infelicitous structure (*neg>PPI) can be rescued if it is embedded in a negative environment. The strength of the higher negative operator is irrelevant in terms of its ability to rescue the structure. In other words, we see in (8b-d) that *doubt*, *surprise* and *only* act as rescuers despite the fact that these elements would not qualify as strong enough to disallow PPIs from taking narrow scope.

(8) a. I don't think that John didn't call someone. ✓not>not>PPI
b. I doubt that John didn't call someone. ✓doubt>not>PPI
c. I'm surprised that John didn't call someone. ✓surprise>not>PPI
d. Only John didn't call someone. ✓only>not>PPI

2.1. Previous accounts of PPIs

Szabolcsi (2004) observes that in some instances PPIs and NPIs appear to have complementary distributions, suggesting that they are sensitive to the same properties. At the same time, PPIs, but not NPIs, are sensitive to locality restrictions and require the presence of a second negation. She analyses PPIs as being endowed with two NPI features which are dormant unless activated by a DE operator. In the presence of a DE operator, that is, an NPI licensor, both features become active, but only one of them is licensed. Since only one of the NPI features gets licensed, then for the same reason that NPIs cannot survive in positive contexts, [Neg ... PPI] will not either, hence the need for further embedding in a DE environment; this is what Szabolcsi refers to as 'double licensing.' For more details on how this analysis is implemented, I refer the reader to Szabolcsi 2004. While this analysis is relatively successful at accounting for the data presented above, and can, by virtue of its setup, account for the majority of the distributional restrictions exhibited by NPIs, it is fundamentally flawed in that it lacks the ingredients necessary to explain why epistemic indefinites such as *some linguistics professor* give rise to modal inferences of the sort presented below:

(9) Jo married some linguistics professor.
There is a professor that Jo married and the speaker doesn't care who this professor is.

An analysis that relies solely on the interaction between the indefinite and the presence of NPI-like features will fall short when it comes to deriving this ignorance/indifference inference. Note that *some NP* and *someone* differ with respect to whether this inference is present, with the latter lacking it, hence the difference in classification: *some NP* elements have been labeled epistemic indefinites while *someone* elements PPIs. The focus of this paper will be on *someone* PPIs.

Another analysis for PPIs that is designed to simultaneously account for the distribution of PPIs and NPIs is developed in detail in Homer 2011b. The driving force behind this proposal is that these indefinites are sensitive to the monotonicity of their environments. Homer proposes that (i) licensing is computed on syntactic environments, and (ii) the monotonicity of the constituents with respect to the position of the PSI is what matters rather than some structural relationship. He proposes the following licensing conditions for NPIs and PPIs, and more generally for PSIs:

(10) Homer's (2011b) licensing conditions on PSIs:

a. *Licensing Condition of NPIs*:
An NPI α is licensed in sentence *S* only if there is an eligible constituent *A* of *S* containing α such that *A* is DE with respect to the position of α.

b. *Licensing Condition of PPIs*:
A PPI is licensed in sentence *S* only if it is contained in at least one eligible constituent *A* of *S* which is not DE with respect to its position.

c. *Licensing Condition of Polarity Items*:
A PSI π is licensed in sentence *S* only if it is contained in at least one eligible constituent *A* of *S* which has the monotonicity properties required by π with respect to the position of π and all other PSIs in *A* are licensed within *A*.

This account too is compelling enough in its descriptive power; however, similarly to the account in Szabolcsi 2004, it relies on licensing generalizations that are merely descriptive and lack in explanatory value. Furthermore, it makes no reference to the existence of other PSIs and thus leaves no room in its design to expand it so as to account for the distribution of these items.

In the following section, I introduce a new framework that has paved the way for a family of analyses that aim to account for the distribution of polarity items. Unlike the accounts just mentioned, these were designed specifically to handle NPIs and free choice items (FCIs), including epistemic indefinites, yet leaving out PPIs. The goal of this paper is to show that this framework is superior to previous ones in that it can allow for a straightforward integration of PPIs. I will begin by offering an overview of this system, and then move on to §4, where I propose an analysis of PPIs within this framework.

3. An exhaustification-based approach to the polarity system

For the remainder of this paper, I adopt an analysis of polarity-sensitive items that takes their restricted distribution to be a product of the interaction between the lexical semantics of these items and the contexts in which they occur, following in large part the work in Chierchia (2006), Fălăuş (2010) and Gajewski (2011). Before delving into the realm of polarity-sensitive items, however, let's first consider the case of scalar implicatures, a phenomenon closely related to the matter at hand.

3.1. Scalar implicatures and silent exhaustification

The main insight that I will adopt for this analysis is that scalar implicatures (henceforth SIs), should be viewed as a form of exhaustification of the assertion, an approach rigorously defended in Chierchia, Fox, and Spector (to appear). The authors argue that SIs come about as a result of active alternatives and the way the grammar chooses to use up these alternatives, via covert alternative-sensitive operators that must apply at some point in the derivation in order to 'exhaust' the active alternatives. Two such operators are assumed to be at work when calculating implicatures: **O** (covert counterpart of *only*) and **E** (covert counterpart of *even*).[1]

(11) a. $\mathbf{O}(\mathrm{p}) = \mathrm{p} \wedge \forall \mathrm{q}{\in}\mathscr{A}lt(\mathrm{p})\ [\mathrm{p}\not\subseteq\mathrm{q} \rightarrow \neg\mathrm{q}]$
(the assertion p is true and any alternative q not entailed by p is false)

b. $\mathbf{E}(\mathrm{p}) = \mathrm{p} \wedge \forall \mathrm{q}{\in}\mathscr{A}lt(\mathrm{p})\ [\mathrm{p}\lhd_c\mathrm{q}]$
(*p is less likely than q iff p entails q and q does not entail p*)

Consider the examples below, where the relevant alternatives are brought about by association with focus (Rooth 1992):

(12) John talked to [a few]$_{\mathrm{F}}$ of the students.

a. Alternatives: {John talked to a few of the students, John talked to many of the students, John talked to most of the students, John talked to all of the students}

b. **O**(John talked to [a few]$_{\mathrm{F}}$ of the students) = John talked to a few of the students and he didn't talk to many/most/all of the students.

(13) A: Was the party well-attended? B: Yes, people were dancing [in the hallway]$_{\mathrm{F}}$!

a. Alternatives: {People were dancing in the hallway, People were dancing in the dining room, People were dancing in the living room}

b. **E**(People were dancing [in the hallway]$_{\mathrm{F}}$) = (People were dancing in the hallway and that people were dancing in the hallway is less likely than that people were dancing in the dining/living room)

In (12), exhaustification proceeds via **O** and in doing so all non-entailed alternatives are eliminated. That is, it negates all statements which, upon replacing the focused element with its alternatives, entail the assertion. Exhaustifying with **E** is more emphatic than exhaustification with **O**, and we can see this in (13) where exhaustifying via **E** strengthens the speaker's assertion by adding the implicature that people dancing in the hallway is less likely than people dancing in any other place.

Focus is not a prerequisite for active alternatives, however. Scalar items, which are lexically endowed with alternatives, are also prone to this type of semantic enrichment. Relevant examples include the elements of a Horn-scale: *<one, two, ...>*, *<or, and>*, *<some, many, all>*, *<few, no>*, *<sometimes, often, always>*. If the context is such that the alternatives are relevant, then they will be activate and thus will have to be factored into the meaning via an exhaustification operator. Take for example (14) where we see that the scalar elements *one* and *or* have the potential to give rise to enriched meanings. These scalar implicatures ($\rightsquigarrow$ will henceforth be used to indicate an implicature) come about by exhaustification of their respective alternatives, *two, three, ...* and *and*, which we assume are relevant in the context of these utterances.

(14) a. I talked to two boys yesterday.
$\rightsquigarrow$ I didn't talk to three or more boys.

b. I talked to Mary or John yesterday.
$\rightsquigarrow$ I didn't talk to both of them.

[1] The only difference between *only* and **O** is that **O** asserts rather than presupposes that its prejacent is true. For the purposes of this exposition I will ignore this difference.

Beyond scalar alternatives, scalar items are also optionally endowed with sub-domain alternatives. Fox (2007) convincingly argues for their presence based on the free choice effects observed with disjunction in the scope of possibility modals. That is, aside from the scalar alternative of the disjunction, the conjunction, we also have to take into account its sub-domain alternatives, that is, the individual disjuncts. Deriving the implicature in (15) would not be possible without also having access to the sub-domain alternatives. I refer the reader to Fox 2007 for the details of how these alternatives are exhaustified so as to derive this implicature.

(15) You can eat ice cream or cake. $\rightsquigarrow$ You can eat ice cream and you can eat cake.

a. $\Diamond$[eat ice cream $\vee$ eat cake] $\rightsquigarrow$ $\Diamond$eat ice cream $\wedge$ $\Diamond$eat cake

b. Scalar-alt: $\Diamond$[eat ice cream $\wedge$ eat cake]

c. Sub-Domain-alt: $\Diamond$eat ice cream, $\Diamond$eat cake

What we saw in this section is that we can derive SIs in a purely compositional way by looking at the interaction between alternatives and the method by which they get factored into meaning. We saw above two sources of alternative activation: focus, on the one hand, and the lexical semantics of the scalar item, on the other. In the above cases, the alternatives, whatever their source, are only optionally available, which is supported by the fact that these SIs are cancelable. This optionality is precisely the dimension along which NPIs, and PSIs more generally, differ from their regular indefinite counterparts – NPIs must obligatorily activate alternatives. This analysis of NPIs, pursued by Krifka (1995) and further advanced by Chierchia (2006) and Chierchia (2011), takes their distribution to be a product of the alternatives they activate and the way the grammar takes these alternatives into account.

3.2. NPIs from an exhaustification-based perspective

Krifka (1995) and Chierchia (2011), among others, assume that NPIs are minimally different from regular indefinites in that they obligatorily activate alternatives, which, like all instances of active alternatives, need to be factored into the meaning of the utterance. NPIs are commonly split into two main classes, the *any* type and minimizers like *sleep a wink*. The differences among them can be classified based on the type of alternatives they activate and the method in which these alternatives get factored into meaning. The remainder of this section deals with each type of NPI in turn.

Consider the following dialogue, and in particular B's response which contains the NPI *any*.

(16) A: Did Mary read books during her summer vacation?
B: No, Mary didn't read any books.

In using an NPI in her response, B conveys the meaning that Mary didn't read any of the books in the domain of discourse. In a sense, this response brings into discussion the existence of all types of books (books about cats, logic, cooking, etc.) and asserts that none of them are such that Mary read them. These 'types' of books are precisely the sub-domain alternatives claimed to always be active when an NPI like *any* is used.[2] I take NPIs to be existential indefinites that obligatorily activate smaller domain alternatives. Schematically, the alternatives can be represented as in (17), with D containing three books, and its six sub-domains containing one or two books each.[3]

[2]NPIs also have a scalar alternative, the conjunction of the disjuncts. However, in the scope of negation this alternative will always be weaker, and thus its role in the derivation negligible.

[3]I use *a, b, c* as shorthand for the sub-domain alternatives, that is, the books in D.

(17) a. any book = $\exists x \in D$. x is a book.

b. ALTs: $\{\exists x \in D'.\ D' \subset D$ and x is a book$\}$

$$\begin{array}{ccc} & \{a, b, c\} & \\ \{a, b\} & \{b, c\} & \{a, c\} \\ \{a\} & \{b\} & \{c\} \end{array}$$

c.

Recall the discussion on SIs where it was argued that activating alternatives means having to incorporate them into the meaning. NPIs like *any* do so via the covert operator **O**. Syntactically, one can think of NPIs as involving a form of agreement with this operator: NPIs bear the feature [+D] which must be checked by an operator carrying the same feature, an exhaustifying operator is. Doing so allows us to encode the need to exhaustify alternatives in the syntax. Semantically, NPIs must occur in a DE environment in order to satisfy the requirements of the exhaustification operator. This operator targets the alternatives and eliminates them just as long as they are stronger than (entail) the assertion; otherwise exhaustification by **O** is vacuous and simply returns the original assertion. Observe that in the scope of sentential negation the alternatives are all entailed by the assertion, since not reading any book whatsoever entails not reading a specific kind of book. Thus (18) turns out to be interpreted as a plain negative existential statement.

(18) Mary didn't read any book.

a. Assertion: $\neg\exists x \in D[\text{book}(x) \wedge \text{read}(\text{Mary},x)]$

b. Alternatives: $\{\neg\exists x \in D'[\text{book}(x) \wedge \text{read}(\text{Mary},x)]: D' \subset D\}$

c. **O**(Mary didn't read any book) = Mary didn't read any book

In fact, all environments that license inferences from sets to subsets will allow NPIs to appear in their scope since the alternatives (the subsets) are entailed by the assertion (superset), hence the general description of NPI licensors as DE operators.

In UE contexts, the alternatives are stronger than the assertion; entailments hold from subsets to supersets since reading a book about cats entails reading any book whatsoever. Since the alternatives entail the assertion, exhaustification by **O** requires them to be negated. Negating these stronger alternatives amounts to saying that for any possible book, Mary didn't read it, which is in clear contradiction with the assertion which says that Mary read a book. So while the syntactic requirement of NPIs is met, that is, the [+D] feature is checked by **O**, the semantic requirement is not, rendering NPIs in UE contexts ungrammatical.

Another class of NPIs, discussed largely by Lahiri (1998), consists of those of the 'emphatic' variety, exemplified by Hindi *ek bhii* 'even one' and English minimizers *give a damn*, *sleep a wink*, etc. What distinguishes these NPIs from the *any*-type is the fact that they activate not sub-domain alternatives, but rather degree alternatives (e.g. degree of care, of sleep). They also differ in terms of what method of exhaustification they appeal to, namely **E**, which requires the assertion to be the least likely among its alternatives. As with **O**, exhaustification with **E** is contradictory in UE contexts. In these environments, the alternatives entail the assertion since for any $d' > d$, if something is true of d', then it must be true of d, given the monotonic structure of degree semantics. Since the alternatives entail the assertion, the requirements of **E** are not met. This is so because for something to be less likely than something else, it cannot be entailed by it. In DE environments, on the other hand, the entailment relations are reversed and the result of exhaustification is semantically coherent since all the alternatives are weaker, and hence more likely than the assertion. An example of a minimizer in a DE environment is provided in (19).

(19) Mary didn't sleep a wink.

a. Assertion: $\neg$sleep(Mary, d_{min})

b. Alternatives: {$\neg$ sleep(Mary, d')]: $d' > d_{min}$}

c. **E**(Mary didn't sleep a wink) =
$\neg$ sleep(Mary, d_{min}) $\wedge$ $\forall d' > d_{min}$ [$\neg$ sleep(Mary, d_{min})] $\lhd_c$[$\neg$ sleep(Mary, d$'$)]

One can see then how these distributional restrictions can be explained straightforwardly as soon as a compositional semantics of NPIs is adopted. Essentially, what such an alternative-based account says is that NPIs are low elements on a scale and, unlike regular indefinites, obligatorily activate alternatives. Their need to be in negative contexts falls out automatically once we look at the interaction between the types of alternatives being activated and the way they are factored into meaning. For the purposes of this overview I assumed that the different types of PSIs are specified for which exhaustifier is invoked, that is, they carry either a [+D_E] or a [+D_O] feature, which dictates which exhaustifying operator they can enter into a checking relation with.[4] While this choice can be thought of as a form of agreement, the hope is to have a more principled analysis in the end.[5]

Yet another dimension along which NPIs vary is determined by the strength of the operator. Take the NPIs *ever* and *in weeks* and observe that *in weeks* is acceptable in a subset of the environments that can support *ever*.

(20) a. Nobody has *ever* been to New York.

b. Nobody has been to New York *in weeks*.

(21) a. Few people have *ever* been to New York.

b. *Few people have been to New York *in weeks*.

Gajewski (2011), following Chierchia 2004, accounts for this variation in terms of whether or not the non-truth conditional meaning (presupposition or implicature) of the negative element is taken into account in the exhaustification of the NPI. The basic idea is simple and I encourage the interested reader to refer to these works for the details of the implementation. What distinguishes *in weeks* from *ever* is that exhaustifying the former requires us to take into account the non-truth conditional aspects of meaning as well, that is, to include any implicatures and presuppositions that the assertion gives rise to. Once we consider the enriched meaning of the assertion, *in weeks* will no longer be in a downward entailing context in (21b) since *few* gives rise to the implicature *but some*, and the exhaustification of the NPI will no longer be able to proceed consistently since the alternatives are stronger and yet not excludable without arriving at a contradiction.

(22) Few people have been to New York *in weeks*. $\rightsquigarrow$ Few people have been to New York *in weeks* but some people have been to New York *in weeks*.

On the other hand, the enriched meaning of (20) is equivalent to the assertion since *nobody*, unlike *few*, occupies the strong endpoint of its scale and therefore does not introduce an implicature. To reiterate, the difference between *ever* and *in weeks* is that the latter, but not former, is exhaustified with respect to the enriched meaning of the assertion. In the case of sentential nega-

[4] I would like to thank to Hedde Zeijlstra (p.c.) for this suggestion.

[5] Chierchia (2011) proposes an 'optimal fit' principle that would take **O** as the default exhaustifier unless the alternatives being acted upon are linearly ordered with respect to entailment, as is the case with minimizers. As we will see later, however, we still need to maintain that some indefinites, and in particular PPIs, can only appeal to exhaustification via **E**, regardless of the shape of their alternatives.

tion, negative quantifiers and *without*, the enriched meaning will be equivalent to the assertion since no implicatures are available, thus both types of NPIs will be acceptable in their scope. In the scope of *few* and other implicature/presupposition-carrying elements, however, only weak NPIs like *ever* can survive since their exhaustification proceeds only with respect to the truth conditional meaning; strong NPIs like *in weeks* are sensitive to the presence of implicatures and presuppositions and cannot survive in such environments.

3.3. Epistemic indefinites from an exhaustification-based perspective

Much advancement has been made in our understanding of free choice items and epistemic indefinites. Since the focus of this paper is on PPIs and showing how they can be integrated within the larger domain of polarity sensitivity, I will not discuss the details of the analyses proposed for these items. I direct the interested readers to Kratzer and Shimoyama 2002, Alonso-Ovalle and Menéndez-Benito 2010, Fălăuş 2010, Liao 2011 and Chierchia 2011, among others, for complete analyses. Below I merely hint at the general line of attack taken in these accounts to convince the reader that an exhaustification-based approach is equipped with the necessary tools to derive and explain the distribution of these items. Most relevant for this paper is that neither Szabolcsi's, nor Homer's approach can be extended to derive their distribution.

Under the present framework, the distribution of epistemic indefinites can be seen as the result of the interaction between the types of alternatives activated by the lexical item, and the method in which these alternatives get used up by the grammar. What distinguishes epistemic indefinites from both NPIs and PPIs is the presence of a modal which, in combination with the active alternatives and the way they are exhaustified, gives rise to the ignorance effect. That is, exhaustification occurs with respect to the modalized alternatives, similarly to the approach taken in Fox (2007) to derive the free choice effects with disjunction. This modal can be overt as in (23a), but this is not a requirement since we encounter, cross-linguistically, many cases where we observe the same epistemic effect without the presence of an overt modal. Spanish *algún*, for example, can surface even in the absence of an overt modal, as shown in (23b).

(23) a. Mary is allowed to skip some problem on this homework.
b. María se casó con algún estudiante del departamento de lingüística.
'María married some student from the department of linguistics.'

4. Integrating PPIs within the polarity system

In this section I turn to PPIs and argue for an exhaustification-based account of their meaning, similar in nature to that presented for NPIs above. I begin by offering an analysis of PPIs as dependent indefinites and follow by demonstrating how this analysis can straightforwardly explain the distributional restrictions I noted in §2, repeated in the table in (24). To facilitate the presentation, this section will be organized according to the six PPI distributional restrictions listed in (24). The behavior of NPIs in these environments is also included in order to make the connection among these two types of PSIs more transparent.

(24) a.

Environment	PPI	NPI
$[_{CP} \ldots$ PSI]	✓	*
$[_{CP}$ neg … PSI]	*	✓
$[_{CP}$ neg … Q … PSI]	✓	*

b.

Environment	PPI	NPI
neg $[_{CP} \ldots$ PSI]	✓	✓
$[_{CP}$ few … PSI]	✓	✓
neg … neg … PSI	✓	✓

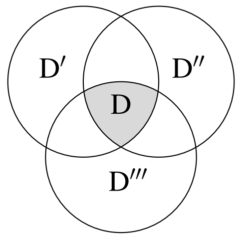
4.1. PPIs within an exhaustification–based framework

The goal of this paper is to argue that PPIs are just another type of PSI and thus should be offered an account that can be couched in a uniform approach to polarity-sensitivity. I have claimed that the exhaustification-based framework provides us with the necessary tools. As reviewed above, the variation among different dependent indefinites can be reduced to two ingredients: the types of alternatives activated and the way they are factored into meaning.

The main claim I want to advance in this paper is that PPIs, like NPIs, have active alternatives that require exhaustification. Unlike NPIs, however, they must activate a different set of alternatives from NPIs, since appealing to sub-domains will not give us the attested distributional patterns. Given the existence of sub-domain alternatives, it is not inconceivable that some PSIs activate super-domain alternatives instead.[6] This is precisely the direction I will pursue here. Essentially, we want PPIs to behave like minimal scalar items in the scope of negation. As far as their alternatives are concerned, what this means is that they form a sequence of larger domains such that, when negated, each of them entails the assertion. One way to visualize this is as in the figure below in (25) where the smaller the domain, the fewer individuals it contains.

(25) a. DE: entailment holds from sets to subsets
$\forall D' \supset D\ (\neg\exists x{\in}D'[P(x)]) \rightarrow (\neg\exists x{\in}D[P(x)])$
all alternatives entail the assertion

b. UE: entailment from subsets to supersets
$\forall D' \supset D\ (\exists x{\in}D[P(x)]) \rightarrow (\exists x{\in}D'[P(x)])$
all alternatives are entailed by the assertion



Turning to the second component of this analysis, I argue that PPIs appeal to the same method of alternative-exhaustification as minimizers do, that is, via the **E** operator. As discussed in the previous section, there are two different types of exhaustification operators: *any*-NPIs are exhaustified by **O** while minimizers are exhaustified by **E**. Assuming that the choice of operator is encoded in the feature carried by the PSI, I submit that PPIs carry the feature [+D_E] which can only be checked by a c-commanding operator carrying the same feature, that is, **E**. With these ingredients in place, we can now move on to the account of the distributional restrictions presented in §2.

4.2. Positive environments

We saw before that PPIs are acceptable in any type of positive context, including plain episodic sentences. Whenever a PSI is present in a structure we need to check that both the syntactic requirement – checking the feature on the indefinite – and the semantic requirements – those imposed by the exhaustifying operator – are satisfied. Consider the example in (26).

(26) John saw someone$_{[+\text{D}_\text{E}]}$.

a. Assertion: $\exists x{\in}D[\text{saw}(\text{John},x)]$

b. Alternatives: $\{\exists x{\in}D'[\text{saw}(\text{John},x)]\text{: } D \subset D'\}$

[6]It remains to be determined if this can be argued for elsewhere in the polarity system, but one place we could begin with is the observation that free-choice items that are otherwise restricted to non-negative modal environments can, if stressed, be embedded in the scope of negation (Fălăuş (p.c.)).

Since PPIs are endowed with the [+$_{\rm D_E}$] feature, an operator carrying the corresponding feature must be inserted in order to check the PPI's feature, namely **E**. In order for (26) to be semantically coherent, we need to check that the requirements of the **E** operator are satisfied. Recall that exhaustification by **E** yields the assertion that all propositions containing an alternative of the PPI are more likely than the original proposition, with likelihood being defined in terms of entailment, repeated below in (27).

(27) $p \lhd_c q$ if $p \rightarrow q$ and $q \not\rightarrow p$ (*p is less likely than q iff p entails q and q does not entail p*)

Given that the alternatives activated by PPI are super-domains and the entailments in (25b) say that in UE contexts, if something holds true of a domain, it will hold true of any super-domain (e.g. *I saw a or b* entails *I saw a or b or c*), it follows that the assertion will entail all the alternatives and thus be less likely than any of them, satisfying the requirement of the **E** operator. This can be formalized as in (28):

(28) $\mathbf{E}_{[\text{D}_\text{E}]}$ John saw someone$_{[+\text{D}_\text{E}]}$ =
$\exists x \in D[saw(John,x)] \wedge \forall D' \supset D\, [(\exists x \in D\, [saw(John,x)]) \lhd_c (\exists x \in D'\, [saw(John,x)])]$

4.3. Clausemate negation

Let's turn next to the problematic cases involving PPIs in the scope of a clausemate negation. Consider the deviant sentence in (29). As before, we need to verify that both the syntactic and semantic requirements are met. Syntactically, the **E** operator must adjoin in order to check the feature on the indefinite. While this satisfies the syntactic requirement, it gives rise to an inconsistency in the semantics. Consider below what happens when we try to exhaustify.

(29) *John didn't see someone$_{[+\text{D}_\text{E}]}$.
a. Assertion: $\neg\exists x \in D[saw(John,x)]$
b. Alternatives: $\{\neg\exists x \in D'[saw(John,x)]: D \subset D'\}$
c. $\mathbf{E}_{[\text{D}_\text{E}]}$ John didn't see someone$_{[+\text{D}_\text{E}]}$ =
$\neg\exists x \in D[saw(J,x)] \wedge \forall D' \supset D\, [(\neg\exists x \in D\, [saw(J,x)]) \lhd_c (\neg\exists x \in D'\, [saw(J,x)])]$

Unlike in the positive case, the alternatives acted upon by the **E** operator are now negated, as shown in (29b). Their exhaustification will result in a contradiction in virtue of the fact that the assertion in (29a) is entailed by the alternatives (e.g. *I didn't see a or b or c* entails *I didn't see a or b*). To reiterate, this is so because it runs contrary to the requirement of **E**, which calls for the alternatives to be entailed by the assertion, that is, be more likely than the assertion.

Exhaustification operators are assumed to be propositional and therefore adjoin at the IP level, above the locus of negation. While this is a necessary assumption in order to derive the deviance of structures akin to that in (29), it has predictive power beyond this particular construction. Consider, for example, the case of metalinguistic negation, illustrated below in (30).

(30) John DIDN'T see someone.

In these instances, the PPI can be interpreted with narrow scope as long as the negation is focused. Under the present analysis the negation would have to undergo movement to a focus position residing higher in the clause than the IP, an account widely attributed to these constructions outside of this domain. Having the negation move higher in the clause allows for the exhaustification of the PPI to occur below negation, where it proceeds coherently.

4.4. Intervention effects

Observe the contrast in (31), where we see that a universal quantifier intervening between the PPI and the negation at LF can rescue the otherwise deviant configuration [neg. . . PPI].

(31) a. *John didn't give Mary something. *not>PPI
b. ✓John didn't give everyone something. ✓not>∀>PPI

The only cases of intervention that have been dealt with in the framework of alternative-based semantics for PSIs are those involving an implicature-inducing element intervening between the DE operator and an NPI. Relevant examples are provided below in (32).[7]

(32) a. ✓Anna didn't tell Mary to eat anything. ✓not>NPI
b. *Anna didn't tell everyone to eat anything. *not>∀>NPI

The proposal, as advanced by Chierchia (2006) and Gajewski (2011), says that in the sentences above, universal quantifiers such as *everyone* disrupt the DE-ness required by the NPI to survive. Being themselves scalar items with the potential of having active alternatives, these quantifiers find themselves in a structural position, the scope of an exhaustifying operator, where they must obligatorily activate their scalar alternatives.[8] Once these alternatives are taken into account, the previously DE environment created by the negation is no longer DE due to the implicature brought about by the intervening quantifier, as shown below with *always*.

(33) John didn't always read any novels.
⇝ John sometimes read any novels.

In effect, what happens in this case is that the alternatives of the NPI end up being exhaustified in an UE environment, which results in semantic deviance.

Returning to the cases involving PPIs and intervention, I will now show how this analysis carries over. Unlike with NPIs, an intervening universal rescues the otherwise illicit configuration, allowing the PPI to scope under a local negation. As before, the idea is that the universal quantifier, being in a DE context, gives rise to an implicature that reverses the entailment inferences, from DE to UE, shown below in (34).

(34) John didn't always call someone.
⇝ John sometimes called someone.

We see that once the SIs of the quantifier are taken into account, the PPI finds itself in a UE context, a context that allows for the consistent exhaustification of the PPI's alternatives.

The fact that PPIs and NPIs are both sensitive to the presence of an intervener falls out immediately since, in this framework, PSIs belong to the same class of elements as scalar items and are thus expected to crucially interact when local to each other. This framework is furthermore superior in that it predicts that only end-of-scale elements (*always* but not *sometimes*) should disrupt/rescue the licensing of the PSI since only such items give rise to SIs that can reverse the monotonicity of the environment. For more details, see Chierchia (2006) and Gajewski (2011).

[7] Intervention by presuppositional elements such as *too* is also attested. Possible approaches to the integration of presuppositional elements within the domain of interveners are discussed in Homer 2011b and Chierchia 2011.

[8] I assume this obligatory activation of alternatives is due to a syntactic checking condition which states that whenever an alternative-bearing element (e.g. scalar items) finds itself in the scope of an exhaustifying operator, its alternatives need to be taken into account in the calculation of implicatures.

4.5. Extra-clausal negation

A crucial characteristic that distinguishes PPIs and NPIs is the fact that PPIs, and not NPIs, exhibit what appears to be a locality restriction. The relevant data is repeated in (35), where we see that the locality of negation with respect to the PPI is crucial to the availability of a narrow scope reading.

(35) a. John didn't hear someone. *not>PPI
b. I don't think that John heard someone. ✓not>[$_{CP}$ PPI

This locality restriction can be shown to fall out immediately under the present approach, which takes the distribution of PPIs to be the result of their semantic and syntactic requirements. The reason why the PPI can be interpreted as a narrow scope indefinite in (35b) but not (35a) rests on the fact that the exhaustification operator can adjoin below the negation in (35b) but not in (35a), allowing the PPI to be interpreted as a regular indefinite in the former but not the latter. Given that **E** is an IP-level operator, in the case of an extra-clausal negation there exists an intermediate position above the PPI and below the negation where **E** can adjoin, a position not available with clausemate negation. In other words, we have the following LF scope relations for these cases:

(36) a. scope relations at LF for (35a): **E** > not > PPI $\longrightarrow$ semantic deviance
b. scope relations at LF for (35b): not > **E** > PPI $\longrightarrow$ narrow scope reading

Let's consider in more detail what happens in (35b). The PPI *someone* carries the [+DE] feature, which needs to be checked by an operator carrying the same feature, namely **E**. Syntactically, this operator could enter the derivation at any IP-level position above the PPI. Semantically, however, it needs to be lower than negation, otherwise the requirements of the **E** operator would not be satisfied since the alternatives of the PPI, if negated, would all be stronger and thus less likely than the assertion. In the case of (35b), **E** can adjoin at the IP-level of the embedded clause, above the PPI and yet under the negation. Once exhaustified, the PPI's assertive component will be equivalent to that of an indefinite, and (35b) will end up being interpreted as having an indefinite in the scope of negation. In (35a), on the other hand, the first IP-level where **E** can adjoin ends up being above the negation, and as discussed in detail in the previous section, this '**E** > not > PPI' configuration leads to a semantic crash. The reason why the NPIs I have considered so far do not exhibit similar locality restrictions is because in their case, the semantic requirement is satisfied as long as the exhaustification operator can adjoin higher than the negation, a condition which will never be incompatible with the syntactic requirement.

4.6. Other DE environments

Given the analysis I presented up to this point, one would be in a position to draw the following descriptive generalization regarding the distribution of PPIs: any clausemate entailment-reversal operator, that is, a DE operator, precludes PPIs from taking narrow scope. However, looking at the data below, one can see that this generalization falls apart since another environment where NPIs like *anyone* and PPIs overlap in their distribution is in the presence of DE operators such as *few* and *at most five*.

(37) a. Few/at most five students talked to anyone yesterday. ✓few>NPI
b. Few/at most five students talked to someone yesterday. ✓few>PPI

In §4.3, I showed that in the presence of clause mate negation, a DE operator, PPIs cannot have a narrow scope reading. Since *few* is a DE operator and reverses the entailment relations, we would expect PPIs to exhibit similar behavior in the scope of this operator as well, contrary to the data in (37). Recall, however, the contrast between *ever* and *in weeks*, repeated in (38).

(38) a. Few people have *ever* been to New York.
b. *Few people have been to New York *in weeks*.

In the discussion of NPIs, we saw that there is variation among these indefinites with respect to their ability to survive in the scope of DE operators that do not occupy the endpoint of their scale, a category which the determiners *few* and *at most five* belong to. I want to argue that the same variation is present in the domain of PPIs, with the *someone*-type PPIs behaving on par with the *in weeks*-type NPIs in that both are sensitive to the presence of non-truth conditional aspects of meaning, such as implicatures. To reiterate, the idea is that when we exhaustify *someone*, we need to do so with respect to the enriched meaning, which in the case of *few* is *few but some*, which no longer creates a DE environment. So, to the extent that we can attribute the unacceptability of (38b) to the fact that the non-truth conditional aspects of meanings interfere with and impede the licensing of strong NPIs, we can also maintain that the acceptability of (37b) is the result of exhaustification with respect to the enriched meaning.[9]

We find support for adopting this approach from Dutch where we see that PPIs exhibit the same type of variation we saw with English NPIs. The PPI *allerminst* 'not in the least' is unacceptable even in the scope of non-end of scale DE determiners such as *few*, suggesting that it is not sensitive to non-truth-conditional aspect of meaning. Contrast this with the PPI *een beetje* 'a bit' which is similar in distribution to the English *someone*. The data below is taken from van der Wouden (1997).

(39) a. *De monnik is niet allerminst gelukkig.
The monk isn't happy in the least.
b. *Niemand is allerminst gelukkig.
Nobody is happy in the least.
c. *Weinig monniken zijn allerminst gelukkig.
Few monks are happy in the least.

(40) a. *De monnik is niet een beetje gelukkig.
The monk isn't a bit happy.
b. *Niemand is een beetje gelukkig.
Nobody is a bit happy.
c. Weinig monniken zijn een beetje gelukkig.
Few monks are a bit happy.

[9]There is another way to consider when accounting for these facts. If we look back at the account I provided for extra-clausal negation, we can see why this generalization breaks down. The reason has to do with the fact that DE operators such as *few* on one hand, and *not* on the other, occupy different positions in the clause. More specifically, while sentential negation occurs somewhere between the IP and VP level, that is, lower than the target of adjunction of **E**, operators such as *few* and *at most five* are generated in the subject position, meaning that the nominal constituent which contains them must undergo EPP-driven movement to a position higher in the clause, above the adjunction target of **E**. We see, then, that the difference between these two classes of operators could be governed not by a semantic divide (DE versus anti-additive operators), but rather based on their syntactic position. *Few* and the like are interpreted high enough in the clause that the exhaustifying operator could adjoin and check for semantic consistency below them, in an UE context where no deviance arises. Negative quantifiers, however, pose a problem for this account since they too are in subject position and yet disallow PPIs from taking narrow scope.

What this data shows us is that PPIs, similarly to NPIs, can be sensitive to non-truth conditional aspects of meaning, offering further support for an integration of PPIs within the larger domain of polarity items. Before concluding, it is worth pointing out that presuppositional elements belong to the same class of licensers as *few* in that they too may or may not allow PPIs to survive in their scope depending on whether or not the PPI is sensitive to the non-truth-conditional components.[10] One such example is provided by *only*, given in (41).

(41) Only John ate something. ✓only>PPI

Note that *only* is similar to *few* in that it licenses weak NPIs (e.g. *any/ever*) but not strong NPIs (e.g. *in weeks*). What distinguishes *only* from *few*, however, is that *only* carries a presupposition, its prejacent, rather than an implicature. In our discussion above we concluded that English PPIs like *something* are sensitive to the non-truth-conditional aspects of meaning, so an element like *only* is correctly expected to allow PPIs of this kind to survive in its scope given that it generates a presupposition that disrupts the entailment relations. The current analysis predicts that the Dutch PPI *allerminst* 'not in the least', which was shown to be insensitive to implicatures based on the ungrammaticality of (39c), should also be insensitive to presuppositions and thus disallowed from the scope of *only*. This prediction is indeed borne out as shown in the examples below where a clear contrast is observed between it and *een beetje* 'a bit', a PPI sensitive to the non-truth-conditional aspects of meaning, be they implicatures, shown in (40c), or presuppositions, shown in (42).

(42) a. *Alleen Jan is allerminst gelukkig.
Only John is in the least happy.
b. Alleen Jan is een beetje gelukkig.
Only John is a bit happy. (Mark de Vries p.c.)

4.7. Rescuing by negation

In this section I discuss the rescuing-by-negation facts. The observation is that if we further embed a sentence such as (43) in a DE context as in (44), the result becomes consistent. Specifically, we can conclude that being embedded under two DE operators is equivalent to being in a positive environment for the purposes of exhaustification. Given that the alternatives are superdomains, the requirements of **E** are satisfied as every alternative is weaker and thus more likely than the assertion. The derivation is provided below in (44).

(43) *John didn't see someone$_{[+\mathrm{D_E}]}$. *not>PPI

(44) Few people thought that John didn't see someone$_{[+\mathrm{D_E}]}$. ✓few>not>PPI

a. Assertion: $\neg(\neg\exists x{\in}D[\text{saw}(\text{John},x)])$
b. Alternatives: $\{\neg(\neg\exists x{\in}D'[\text{saw}(\text{John},x)]) : D{\subset}D'\}$
c. $\mathbf{E}_D$ [Few people thought that John didn't see someone$_{[+\mathrm{D_E}]}$] =
$\neg(\neg\exists x{\in}D[\text{saw}(\text{John},x)]) \wedge \forall D'{\supset}D\ [(\neg(\neg\exists x{\in}D\ [\text{saw}(\text{John},x)])) \lhd_c (\neg(\neg\exists x{\in}D'\ [\text{saw}(\text{John},x)]))]$ =
$\exists x{\in}D[\text{saw}(\text{John},x)] \wedge \forall D'{\supset}D\ [(\exists x{\in}D[\text{saw}(\text{John},x)]) \lhd_c (\exists x{\in}D'\ [\text{saw}(\text{John},x)])]$

[10] I would like to thank an anonymous reviewer for suggesting I include presuppositional items in this discussion.

It's worth noting that the second layer of negation does not have to be a sentential negation as long as it can support entailment-reversal inferences. So while *few* and *only* are ruled out as 'anti-licensers' for some PPIs (*someone* and *een beetje*), as discussed in the previous subsection, they should qualify as good rescuers for any type of PPI since they have the capacity of reversing the entailment inferences. Regardless of whether the PPI looks only at the assertive component or at all components of meaning, a second DE operator should have the same effect nonetheless in that the environment will no longer support DE inferences, consistent with the requirements of exhaustification of the PPI's alternatives via **E**. This prediction is borne out in the case of the Dutch *een beetje* which behaves similarly to the English *someone* in that it can be rescued by any DE operator, as shown in (45b-c); contrast this with the unacceptable (45a).

(45) a. *Niemand is een beetje gelukkig.
Nobody is a bit happy.
b. Weinig mensen denken dat niemand een beetje gelukkig is.
Few people think that nobody is a bit happy. (Mark de Vries p.c.)

Contrary to the prediction made by this analysis, however, *allerminst* is not rescuable, since the addition of a DE operator to (46a) does not improve the acceptability of the PPI, as in (46b).[11]

(46) a. *Niemand is allerminst gelukkig.
Nobody is happy in the least.
b. *Weinig mensen denken dat niemand allerminst gelukkig is.
Few people think that nobody is happy in the least.

The lack of rescuing effects can only be accounted for under the present analysis if we stipulate that this PPI, and others like it, need to enter into a local checking relation with the exhaustifying operator checking its feature. While for PPIs like *someone* and *een betje* the exhaustifier **E** can adjoin as high as the matrix clause, above the second DE operator as in (44c), whereby satisfying both the syntactic and semantic requirements, the feature on *allerminst* imposes an additional syntactic requirement that it must be checked locally. That is, the highest level **E** can adjoin is above the embedded DE operator, as in (47b). The problem with this configuration, however, is that while it satisfies the syntactic requirement, it does not satisfy the semantic one. This additional syntactic stipulation accounts for the data point in (46b) by guaranteeing that there will never be a configuration involving *allerminst* and a clausemate DE operator where both the syntactic and semantic requirements are satisfied.

(47) a. $\mathbf{E}_{\text{D}}$ [Weinig mensen denken dat [niemand allerminst$_{[+\text{DE}]}$ gelukkig is] ✓sem *syn
b. [Weinig mensen denken dat $\mathbf{E}_{\text{D}}$ [niemand allerminst$_{[+\text{DE}]}$ gelukkig is] *sem ✓syn

Lastly, it appears that DE operators are not the only ones capable of salvaging an otherwise illicit configuration. Homer (2011a) presents the data in (48) as evidence against an analysis à la Szabolcsi's 'double licensing', which takes PPIs to be rescued by two stacked NPI-licensers.

(48) a. I hope he didn't steal something. ✓hope>not>PPI
b. Make sure that he didn't steal something! ✓make sure>not>PPI
c. I'm glad you didn't buy me something. ✓glad>not>PPI

[11] This is independently observed by Iatridou and Zeijlstra (2011) where it's shown that this also holds true of other PPIs that otherwise have the same distribution as *allerminst*. The authors do not offer an analysis for these facts.

Prima facie it appears to be the case that *hope*, *make sure* and *glad* are not DE and thus cannot license NPIs, an observation which would also render the analysis presented here inappropriate. Crnič (2011), however, provides examples where overt instances of *even* associating with the lowest element of a scale (e.g. *one*) are attested in the scope of non-negative desire statements and imperatives, as shown in (49a-b). As for *glad*, Crnič shows that this operator can license stressed *any*, as in (49c).

(49) a. I hope to someday make even one video of that quality.
b. Show me even one party that cares for the people!
c. I am glad that ANYONE likes me.

Note that in order for *even* to associate with low elements on a scale, it cannot occur in upward-entailing contexts, which we also know to be the case for *any*. Crnič takes stressed *any*[12] and overt instances of *even* associating with a low scalar element to behave on par with minimizers, that is, to activate alternatives that require exhaustification via **E**. The details of his analysis are beyond the scope of this paper, but the crux of his argument rests on providing a semantics for desire predicates and imperatives such that the interaction between them and the activated alternatives will yield consistent inferences, wherein the prejacent will be less likely than its alternatives. In a nutshell, we can conclude from his analysis that given the appropriate semantics for desire predicates and imperatives, elements requiring exhaustification by **E** can be shown to survive in their scope. What this means for the present analysis is that inserting **E** above these operators will allow for consistent exhaustification of the PPI in structures such as in (48) since, in effect, this analysis predicts that the 'not > PPI' configuration behaves like an NPI in need of exhaustification by **E**. Given that in the current analysis the acceptability of PPIs rests on their ability to be consistently exhaustified via **E**, the data in (48) are not only consistent with this exhaustification-based account, but in fact offer independent support for the choice of exhaustifier (**E** over **O**).

5. Conclusion

In this paper, I have argued that PPIs can and should be integrated into the more general polarity system. I claimed that this can be accomplished by adopting a framework that analyzes the dependency of these items as an interaction between their lexical semantics, activation of super-domain alternatives, and the method in which they compose with the other elements of the structure, by exhaustification via a covert operator **E**. Adopting this analysis allows us to account for the distributional differences noted in §2, namely a PPI's behavior with respect to negation, the syntactic position of an entailment-reversing operator, intervention, and rescuing facts. This proposal enables us to see what PPIs have in common with, and how they differ from other polarity sensitive items by maintaining a uniform analysis for all such items. Future research needs to probe further into the distribution of positive polarity items cross-linguistically to determine what other variation is observed across these items and whether this analysis is able to account for it.

[12] Stressed *any* had already been analyzed as being exhaustified via **E**, unlike its unfocused counterpart which calls for exhaustification via **O**, by Krifka (1995).

References

Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2010. Modal indefinites. *Natural Language Semantics* 18.1–31.

Chierchia, Gennaro. 2004. Scalar implicatures, polarity phenomena, and the syntax/pragmatics interface. *Structures and beyond*, ed. by Adriana Belletti, vol. 3, 39–103. Oxford: Oxford University Press.

Chierchia, Gennaro. 2006. Broaden your views. implicatures of domain widening and the 'logicality' of language. *Linguistic Inquiry* 37.535–590.

Chierchia, Gennaro. 2011. Meaning as inference: The polarity system. Ms., Harvard.

Chierchia, Gennaro, Danny Fox, and Benjamin Spector. to appear. The grammatical view of scalar implicatures and the relationship between semantics and pragmatics. Ms., Harvard and MIT.

Crnič, Luka. 2011. How to get *even* with desires. *Proceedings of SALT 21*.

Fălăuş, Anamaria. 2010. Alternatives as sources of semantic dependency. *Proceedings of SALT 20*, 406–427.

Fox, Danny. 2007. Free Choice Disjunction and the Theory of Scalar Implicatures. *Presupposition and implicature in compositional semantics*, ed. by Uli Sauerland and Penka Stateva, 71–120. New York: Palgrave Macmillan.

Gajewski, Jon. 2011. Licensing Strong NPIs. *Natural Language Semantics* 19.109–148.

Homer, Vincent. 2011a. On the dependent character of PI licensing. Handout, *SALT 2011*.

Homer, Vincent. 2011b. *Polarity and modality*. UCLA dissertation.

Iatridou, Sabine, and Hedde H. Zeijlstra. 2011. Negation, polarity and deontic modals. Ms., MIT/University of Amsterdam. Online: `lingBuzz$/$001431`.

Kratzer, Angelika, and Junko Shimoyama. 2002. Indeterminate pronouns: The view from Japanese. *Proceedings of the Third Tokyo Conference on Psycholinguistics*, ed. by Yukio Otso, 1–25.

Krifka, Manfred. 1995. The semantics and pragmatics of polarity items. *Linguistic Analysis* 25.209–257.

Lahiri, Utpal. 1998. Focus and negative polarity in Hindi. *Natural Language Semantics* 6.57–123.

Liao, Hsiu-Chen. 2011. *Alternatives and exhaustification: Non-interrogative uses of Chinese* Wh-*words*. Harvard University dissertation.

Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1.75–116.

Szabolcsi, Anna. 2004. Positive polarity – negative polarity. *Natural Language and Linguistic Theory* 22.409–452.

van der Wouden, Ton. 1997. *Negative contexts: Collocation, polarity and multiple negation*. London: Routledge.