

Domains of Polarity Items

Abstract

This article offers a unified theory of the licensing of Negative and Positive Polarity Items (PIs), and focuses on the acceptability conditions of PPIs of the *some*-type, and NPIs of the *any*-type. It argues that licensing has both a syntactic and a semantic component. On the syntactic side, the acceptability of PIs is environment-based, i.e. it is checked on constituents; in fact, for any given PI, only some constituents, referred to as ‘domains’, are eligible for the evaluation of that PI. The semantic dimension of licensing consists in the sensitivity of PIs to the monotonicity properties of the syntactic environments they find themselves in. Three pieces of evidence support the environment-based approach: (i.) PIs are subject to flip-flop, (ii.) their acceptability depends on the acceptability of other PIs in the same syntactic environment (this is the property, unnoticed so far, of ‘entanglement’), and (iii.) certain inferences affect their acceptability by modifying the monotonicity of their environment. The second property is exploited to determine what semantic property *some* is sensitive to: it turns out that, contrary to the consensus among researchers, *some* is acceptable in the complement of the set of environments in which *any* is acceptable, and *vice versa*.

1 Introduction

This article deals mainly with the polarity items *some* and *any*: its main goal is to offer a unified account of their acceptability conditions. These expressions have two things in common: they are existential quantifiers,¹ and their occurrence is restricted to certain configurations. They differ though in that their distribution obeys different requirements, as can be best appreciated when they are placed in the scope of a clausemate negation: while *some* cannot be interpreted in the semantic scope of a clausemate negation, but can appear in a positive unembedded sentence, *any* shows the opposite properties:

- (1) a. John didn’t understand something.² *NEG»SOME
b. John understood something.
c. John didn’t understand anything.
d. *John understood anything.

This paradigm seems to call for a simple unifying explanation, whereby *some* and *any* have opposite requirements vis-à-vis *negation*—or other functions sharing a key property with it—and are therefore in complementary distribution. Such an idea was put forward in the early days of the study of polarity items by Klima (1964). Unification is, I think, a desideratum of any theory of polarity. But the complementary distribution hypothesis is plagued by so many apparent counterexamples that many if not all researchers have long discarded it. (2), where negation is in a superordinate clause with respect to the polarity items, is one of those counterexamples:

¹There is a debate about the quantificational force of the Negative Polarity Item *any*: some, e.g. Quine (1960), argue that it is a wide-scope universal quantifier, but I consider that Fauconnier’s (1978) arguments for analyzing it as a narrow-scope existential quantifier are compelling. For example, (i) can be used truthfully in a situation in which there are four men among the ten under discussion about whom the speaker has no uncertainty (because he knows Susan didn’t marry them):

(i) I wonder if Susan married any of those ten men. [modified from Fauconnier 1978, ex. 34]

²The sentence lacks a reading where *some* is interpreted in the semantic scope of negation; the sentence is grammatical with *some* interpreted above negation.

- (2) a. It's not the case that John understood something. ✓NEG≫SOME
b. It's not the case that John understood anything.

In fact, this article aims to show that despite numerous and compelling appearances to the contrary, *some* and *any* are indeed in complementary distribution, in the specific sense that they cannot be licensed³ in the same constituent. The theory developed herein holds that licensing has a syntactic component: *constituency* is a key term, as constituents are checked for the acceptability of the Polarity Items (PIs) they contain; the contrast between (1a) and (2a) can only be understood if constituency is taken into account. It is furthermore necessary to take into account an unnoticed property of PIs, namely that their acceptability can only be assessed in some of the constituents in which they appear. This article is thus an investigation of 'domains' of PIs, i.e. of those constituents that are eligible for the evaluation of the PIs they contain.

I claim that licensing also has a semantic component: I will follow and substantiate the view that polarity items are sensitive to some semantic property. It is standardly assumed, at least for NPIs, that this property is a generalized notion of negativity, namely downward-entailingness, the capacity to reverse the direction of entailments.⁴ The claim that PIs are sensitive to the monotonicity of the constituents they find themselves in might seem trivial, as it follows naturally from the widespread assumption that negativity and generalized notions thereof are operative in the acceptability of PIs; but many researchers prefer to view licensing in terms of a structural relation between a PI and an operator equipped with certain features (negativity and downward-entailingness are seen, in this strand of theories, as features). In that sense, the actual logical-semantic properties of syntactic environments are deemed immaterial by those researchers.

This article, on the contrary, aims at doing full justice to the time-honored idea that monotonicity is a controlling factor of the licensing of PIs; to fulfill this goal, it offers a theory of the syntactic underpinnings of licensing.

The structure of the article is the following. Section 2 shows that the monotonicity of environments, i.e. of constituents, is the property that PIs are sensitive to. The evidence comes from cases of so-called flip-flop, i.e. cases where the addition of a downward-entailing expression makes acceptable a PI which would be unacceptable without it, and *vice versa*: this fact is established for NPIs and PPIs alike. In section 3, I bring to light novel data about the relations between PIs and show that a PI can only be licensed in a given constituent if the other PIs contained in that constituent are licensed within it: this is what I call 'entanglement'. Section 4 further substantiates the claim that monotonicity is operative in the licensing of NPIs and PPIs alike: it deals with the monotonicity disruption caused by inferences, among which scalar implicatures. Section 5 establishes that PPIs of the *some*-type are acceptable in the complement of the set of environments where NPIs of the *any*-type are acceptable, and conversely. The way is paved for a unification of the PPI and the NPI phenomena: I propose that the latter reduces to the former, i.e. that NPIs are just PPIs licensed by modification in hostile environments. Section 6 explores the properties of the evaluation procedure; in particular, it uses the various loci of interpretation of the PPI *must* as an indicator that the acceptability of a PPI can be checked on various constituents; PI licensing is thus a probe into the workings of the interpretative processes that unfold at LF. Lastly, section 7 discards potential alternative accounts of the novel data presented here, and section 8 deals with some problems that the article leaves open.

³In this article, I use the term *license* for NPIs and PPIs alike, and in so doing, I depart somewhat from standard usages which reserve the term *license* for NPIs. In my usage, *license* means 'mark as grammatical'; to be licensed, a PI must be acceptable in some constituent (further conditions apply, which are analyzed in this article); once a PI is licensed, it can no longer be unlicensed.

⁴I do not discuss alternative proposals which don't rely on downward-entailingness, such as Linebarger (1980) and Giannakidou (2002).

2 Reviving Flip-flop

In this section I lay the groundwork for the rest of the article. To clarify the discussion, I am going to distinguish two kinds of approaches, the operator-based one and the environment-based one.

1. Hypothesis 1 (H1): The operator-based approach: the acceptability of a given PI π depends on a structural relationship between π and an operator, e.g. negation, i.e. the bearer of a negative feature. This hypothesis is disqualified in section 2.2.1.
2. Hypothesis 2 (H2): This is the environment-based approach, which takes the controlling factor of the acceptability of PIs to be the monotonicity (upward vs. downward-monotonicity) of their syntactic environment w.r.t. them.

The evidence against H1 and in favor of H2 comes from (i.) flip-flop with all kinds of PIs (by which I understand not just NPis—weak and strong—but also PPIs); (ii.) semantic intervention effects and (iii.) entanglement. I discuss the first source of evidence in this section.

2.1 Operators or Environments?

Any can occur in the scope of negation and of a number of other expressions. A prominent idea since the mid-seventies (i.e. since work by Fauconnier (1975, 1978) and Ladusaw (1979, 1980)) is that so-called NPI licensing expressions share the property of denoting functions which reverse the direction of entailment in their argument. To cover arguments that are not of type $\langle t \rangle$, a generalized notion of entailment is useful (and we will use it from now on):

- (3) **Cross-Categorial Entailment** (\Rightarrow)
 - a. For p, q of type $\langle t \rangle$: $p \Rightarrow q$ iff $p = 0$ or $q = 1$.
 - b. For f, g of type $\langle \sigma, t \rangle$: $f \Rightarrow g$ iff for all x of type σ : $f(x) \Rightarrow g(x)$.

We can then define downward-entailingness as follows:

- (4) A function f of type $\langle \sigma, t \rangle$ is downward-entailing (DE) iff for all x, y of type σ such that $x \Rightarrow y$: $f(y) \Rightarrow f(x)$.⁵

Negation denotes a DE function; so does *at most five* (as we verify for its nuclear scope):

- (5)
 - a. $\llbracket \text{red car} \rrbracket \Rightarrow \llbracket \text{car} \rrbracket$
 - b. At most five people own a car \Rightarrow At most five people own a red car.

There are two main ways to understand the link between the logical property of DEness and the licensing of NPis: either in terms of operators or in terms of environments. Under the standard DEness-based account originating in Ladusaw (1979) (henceforth the operator-based approach), *any* is only acceptable in a given sentence S if it is in the syntactic scope of a DE operator in S (this condition holds at LF):

- (6) **Ladusaw's Licensing Condition:** An NPI is only grammatical if it is in the scope of an α such that $\llbracket \alpha \rrbracket$ is DE.

The condition correctly predicts that *any* can be licensed in the nuclear scope of *at most five*:

- (7) At most five people own anything.

⁵Similarly, we define upward-entailingness:

- (i) A function f of type $\langle \sigma, t \rangle$ is upward-entailing (UE) iff for all x, y of type σ such that $x \Rightarrow y$: $f(x) \Rightarrow f(y)$.

The operator-based account of licensing is widely accepted (von Stechow 1999, Guerzoni 2006, Szabolcsi 2004, Gajewski 2009 a.o.). On this view, downward-entailingness is a characteristic property of a class of expressions in the scope of which weak NPIs are acceptable; this doesn't mean—the distinction is important but is not always made explicitly—that downward-entailingness itself is operative in licensing. In other words, operator-based licensing is not tied up with entailment reversal in the position of the NPI: it only commits itself to a structural relationship, *viz.* c-command, between an item and an operator (a natural way to think about this is in terms of agreement; Guerzoni (2006) fully endorses this perspective, and claims that weak NPIs check an NPI feature with a licenser); the semantic contribution of intervening elements is not expected to affect licensing:

- (8) **Licensing as a Structural Relation:** A ... LICENSER ... B ... π^- ... C

One might find it unsatisfactory that DEness takes a back seat to some structural relation: the Fauconnier-Ladusaw generalization is about a logical property, yet that property is only indirectly involved in licensing, according to the standard account. Gajewski (2005), building on Zwarts (1996), proposes an alternative DEness-based account, whereby DEness really is what licenses NPIs; this proposal has a syntactic component, as syntactic constituents themselves can be DE:

- (9) A constituent A is DE with respect to the position of α ($[\alpha] \in D_\sigma$) iff the function $\lambda x. [A[\alpha/v_\sigma]]^{g[v_\sigma \rightarrow x]}$ is DE.⁶

Gajewski replaces the operator-related requirement with the requirement that *any* appear at LF in an environment that supports downward entailments, in other words sets-to-subsets substitutions. I will henceforth refer to the accounts which require DEness of syntactic environments as environment-based accounts.

- (10) **Environment-based Licensing Condition (after Gajewski 2005):** An NPI α is licensed in sentence *S* only if there is a constituent A of *S* containing α such that A is DE w.r.t. the position of α .

In (7), the maximal constituent is DE w.r.t. the position of *anything*, and the condition is thus met. Conceiving of constituents as having monotonicity properties makes room for NPIs licensed by a combination of expressions which, without denoting DE functions themselves, create a DE environment (as argued for e.g. in Heim (2003) about NPIs in *than*-clauses); it also takes into account the potential disruptive effect of expressions whose presence in the same constituents as the NPI might affect its licensing by interfering with the downward-monotonicity of the constituents in question.⁷

The reader might have noticed that the licensing condition (10) encompasses an existential quantification: this is because checking the acceptability of *any* globally (i.e. in the maximal constituent containing the NPI) makes incorrect predictions, e.g. with regard to the following sentence:

- (11) It is not possible that John didn't understand anything. ✓NEG≫NEG≫ANY

The whole sentence (11) is upward-entailing w.r.t. the position of the NPI *anything* (the two negations cancel each other out), i.e. it is substitutions from subsets to sets which are allowed *salva veritate* in the position of *anything*. Yet the NPI is licensed. So a globalist version of the environment-based approach, characterized by hypothesis H2', is bound to be inadequate:

Hypothesis 2' (H2'): Global acceptability: In order for a PI π to be acceptable (and licensed) in sentence *S*, *S* must have the appropriate monotonicity w.r.t. the position of π .

⁶We straightforwardly define upward-entailingness for constituents:

- (i) A constituent A is UE with respect to the position of α ($[\alpha] \in D_\sigma$) iff the function $\lambda x. [A[\alpha/v_\sigma]]^{g[v_\sigma \rightarrow x]}$ is UE.

⁷The disruptors I have in mind are scalar implicatures, see Chierchia (2004) and section 4 of this article, as well as presuppositions, see Author (2008, 2010c).

Notice that this hypothesis is not only challenged by (11) but also by (2) (since a PPI and an NPI are equally acceptable in the same position in the latter); I will complete the case against H2' in the next sections.

At this point, I would like to explain the distinction that I will be making between *licensing* and *acceptability*: under the environment-based approach, a given PI π may be placed in a number of constituents of S which have the appropriate monotonicity w.r.t. its position. This means that it is *acceptable* in a number of constituents. But acceptability is but a necessary condition for licensing: the licensing of π is the outcome of a checking procedure which first evaluates its acceptability in various constituents, and then marks it as grammatical. Strictly speaking, licensing takes place in one of the constituents in which π is acceptable.

If the environment-based approach is to be empirically adequate at all, the licensing condition cannot require that *any* be acceptable in the maximal constituent that contains it. It must require that *any* be acceptable in *some* constituent that contains it, in other words that there be some constituent which is DE w.r.t. its position (e.g. the embedded clause in (11)).

The observation of sentences such as (11) has prompted the near consensus that the presence of two DE expressions can never give rise to NPI anti-licensing. We know that NPIs can be licensed when they are outscoped by one or an odd number of DE expressions, but it doesn't seem that they are anti-licensed when they are outscoped by an even number of DE expressions. Put differently, it is generally assumed that oddness doesn't matter to the licensing of NPIs. If it did, then we would observe what is sometimes referred to as 'flip-flop' (Chierchia 2004), the fact that a sentence containing an NPI can be made unacceptable by adding to it a DE expression, and acceptable again by adding yet another one, and so forth.

The claim that I defend in this article runs counter to this consensus: I argue that flip-flop does exist. Flip-flop emerges in cases in which some constraint imposes that the acceptability of an NPI be assessed in some constituent which fails to be DE w.r.t. the NPI (due to the presence of an even number of DE expressions). Because they require very specific conditions, such cases have generally gone unnoticed.

The existence of flip-flop lends decisive support to the environment-based approach. From an operator-based perspective, flip-flop is a rather obscure notion. Grammar normally doesn't count, i.e. there are no known instances where grammaticality is determined by a number, e.g. the number of occurrences of a given item. It is thus unnatural to expect, if NPIs are licensed by *operators*, that the number of operators should matter. The environment-based approach is best suited to account for flip-flop, as it naturally takes into account the *semantic* contribution of all the expressions in the syntactic context of a polarity item. It also derives in a straightforward way the disruption effects caused by certain expressions which co-occur with the NPI.

In the next subsections, I present instances of the first of the two phenomena, namely flip-flop (the second phenomenon, disruption, is dealt with in section 4), using weak and strong NPIs in French and English. More importantly, given the overarching goal of this article, *viz.* bringing to light the essential homogeneity of polarity sensitivity, flip-flop is straightforwardly observable with NPIs *and* PPIs (2.4).

2.2 Flip-flop with Weak NPIs

2.2.1 French Weak NPIs

In this article, with the exception of section 2.3, the NPIs that I deal with are mainly weak. I use the term *weak*, as everybody else in the literature, to refer to polarity items that appear in a relatively large number of contexts. *Strong* NPIs (i.e. (i.) strict NPIs e.g. *in years*, *yet*, *either* and (ii.) minimizers e.g. *a red cent*) are licensed in a proper subset of the contexts where weak NPIs are licensed: for example, they are not licensed in the scope of strictly DE expressions such as *at most five people*. In this article I want to keep the terms *weak* and *strong* as theory-neutral as possible (as it is not clear at this stage what underlies this weak-strong distinction) and use them in a relative sense.

I will first discuss French, because the data show no relevant dialectal variation (unlike in English). No French NPIs appear in more contexts than [*wh*-phrase] *que ce soit*, *quelque NP que ce soit* or

quiconque.⁸ therefore they jointly form the category of French weak NPIs, per the convention I'm following. The functions that create licensing contexts for *quoi que ce soit* are the same as for English weak NPIs *any* and *ever*: they are DE-function denoting expressions (*au plus cinq N* 'at most five N', *aucun N* 'no N', *si* 'if', *sans* 'without', *rarement* 'rarely'...). In particular, downward-entailingness can be provided by a superordinate DE expression, e.g. negation:

- (12) *Il n' est pas possible que Jean ait critiqué quoi que ce soit.*
 it NEG is NEG possible that Jean have.SUBJ criticized what that this be.SUBJ
 'It is not possible that Jean criticized anything.'

A DE expression, e.g. *impossible* 'impossible', can be separated from a licensee by more than one layer of embedding:

- (13) *Il est impossible que Marie pense que Jean ait critiqué quoi que ce soit.*
 it is impossible that Marie thinks that Jean have.SUBJ criticized what that this be.SUBJ
 'It is impossible that Marie thinks that Jean criticized anything.'

By itself, the latter fact might suggest that locality plays no role in licensing. However, a closer inspection reveals that the opposite is true. To show this, we have to place an NPI in the scope of two DE expressions instead of one.

The globalist version of the environment-based approach H2' on p. 4 makes a prediction: it holds that the maximal constituent containing an NPI must be DE w.r.t. its position, therefore the co-occurrence of an even number of DE expressions above the NPI creates an upward-entailing environment in its position, leading to anti-licensing. The prediction is not borne out in English ((11) on p. 4), therefore the globalist version is too strong when applied to that language. In French however, one can easily find certain configurations with two DE expressions which have exactly this anti-licensing effect:

- (14) **Il n' est pas impossible que Jean ait fait quoi que ce soit pour aider la Mafia.*
 it NEG is NEG impossible that Jean have.SUBJ done what that this be.SUBJ to help the Mafia.
 Mafia
 Intended: 'It is not impossible that Jean did anything to help the Mafia.'

Restricting attention to this fact might suggest that the globalist version of the environment-based approach is correct about French. But anti-licensing only obtains when two DE expressions are, in a sense to be determined, too 'close' to each other. It is the intuition that emerges from the comparison between the unacceptable (14) and the acceptable (15) (notice that in the former but not in the latter, the two DE expressions are clausemates):

- (15) *Il est impossible que Jean n' ait pas fait quoi que ce soit pour aider...*
 it is impossible that Jean NEG have.SUBJ NEG done what that this be.SUBJ to help
 'It is impossible that Jean didn't do anything to help the Mafia.'

Therefore the global licensing hypothesis, which appears to be inadequate for English, cannot be maintained for French either; but a local version of the environment-based approach is supported. A natural interpretation of the above contrast between (14) and (15) is that acceptability is indeed checked on constituents: in accordance with the environment-based approach, an NPI only needs to be in one constituent that is DE w.r.t. its position. But it seems that not all constituents are *eligible*; eligible constituents are what I call 'domains':

- (16) **Domain of a Polarity Item:** A constituent *C* which contains the Polarity Item π is a domain of π if and only if the acceptability of π can be evaluated in *C*. I will say that π has at least one

⁸These three items or templates of items have some obvious morphological family resemblance. I touch upon it in section 5.2.

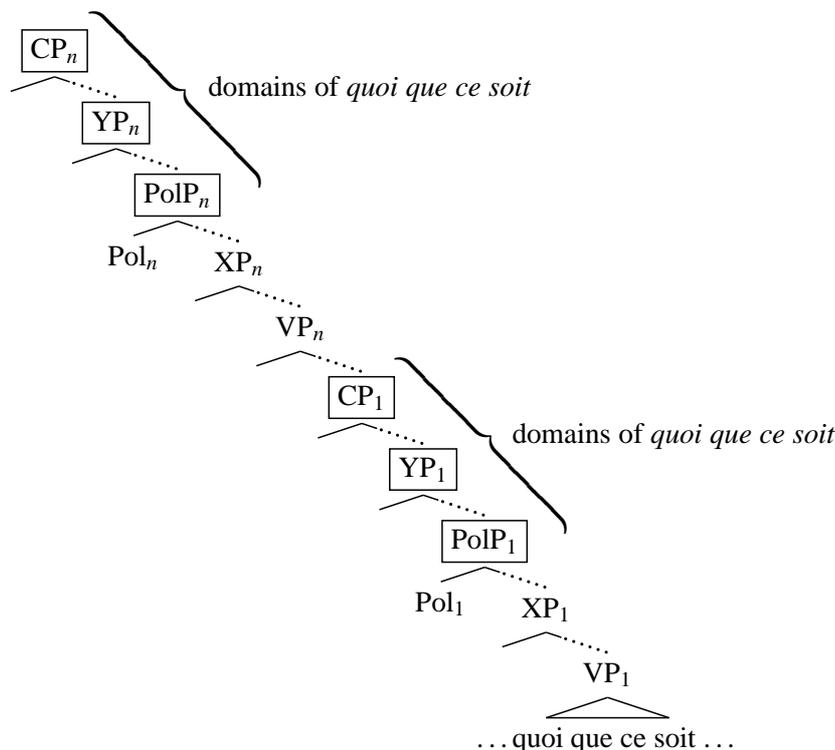
DE (or UE) domain in sentence S to mean that there is at least one domain of π in S which is DE (UE resp.) w.r.t. the position of π .

In (14), where flip-flop occurs, it is necessary to assess the acceptability of *quoi que ce soit* on constituents that contain both DE expressions, and are therefore quite large. If eligibility is contingent upon size, then the fact that *quoi que ce soit* is unacceptable in (14) means that the constituents that contain the NPI and *impossible* to the exclusion of *pas* are not large enough to be domains of the NPI. The constraint is probably enforced in (15) as well, but is innocuous: due to the greater distance between *pas* and *impossible*, eligible constituents can be found which contain one but not the other.

In the embedded clause of (14), *quoi que ce soit* has no DE domain. There is however one constituent of the sentence which could provide the desired context, namely the main VP headed by *impossible*. Given the observed anti-licensing, we can hypothesize that this VP is not a domain—i.e. not an eligible constituent for the purposes of the checking of acceptability—of *quoi que ce soit*. It appears—this is simply a fact, that nothing yet allows us to derive—that acceptability has to be checked on constituents which include the projection hosting negation, viz. the Polarity head (Pol), for negation is necessarily taken into account if *impossible* is too in (14). I submit that this is true of each clause that contains *quoi que ce soit*:

(17) **Conjecture:** Let S be a sentence; for each CP γ of S that contains the NPI *quoi que ce soit*, only constituents of γ that contain the Pol head of γ are domains of *quoi que ce soit*.

The following tree fleshes out the conjecture for a given sentence S , which comprises n nested CPs: in this example, the NPI *quoi que ce soit* is contained in the most embedded VP. At every level of embedding, the same pattern recurs: all and only constituents within the span of braces are domains of *quoi que ce soit*:



Notice that I use PolP instead of the more common NegP: I assume that positive sentences contain a PolP too, and that the operator that sits in the specifier of this phrase determines the polarity of the clause, positive vs. negative.⁹

⁹Except for the terminological change (Pol for Sigma), positing a polarity head is in line with Laka's (1990) analysis.

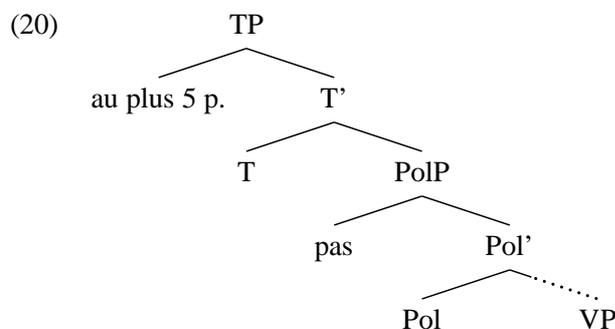
In addition to (15), many examples of licit co-occurrence of two DEness inducers can easily be found, which conform with (17):

- (18) a. S'il est impossible que Jean ait fait quoi que ce soit pour aider la Mafia, je lui présenterai mes excuses.
'If it is impossible that Jean did anything to help the Mafia, I will apologize to him.'
 b. Est-il impossible que Jean ait fait quoi que ce soit pour aider la Mafia ?
'Is it impossible that Jean did anything to help the Mafia?'
 c. Non pas qu'il soit impossible que Jean ait fait quoi que ce soit pour aider la Mafia.
'Not that it is impossible that Jean did anything to help the Mafia.'

In each of the above, it is impossible to find two DEness inducers located in all the same PolPs. Although PolP (understood as a kind of constituents, in the spirit of (17)) is a domain of *quoi que ce soit*, we don't know yet whether the *smallest* possible domain of *quoi que ce soit* is not in fact larger than PolP. We can find clues by observing (19):

- (19) *Au plus cinq personnes n' ont pas fait quoi que ce soit pour aider la Mafia.*
 at most five people NEG have NEG done what that this be.SUBJ to help the Mafia
'At most five people didn't do anything to help the Mafia.'

If we trust that (i.) the environment-based approach is correct, (ii.) speakers are able to compute the monotonicity of contexts with more than one DE function in them and (iii.) the subject *au plus cinq personnes* 'at most five people' sits in Spec,TP in (19), then we must say that the smallest possible domain of *quoi que ce soit* is smaller than TP: if it were not, then the DE quantifier *au plus cinq personnes* would necessarily co-occur with negation in the smallest possible domain of the NPI, leading to anti-licensing. The fact that the NPI has a DE domain in (19) yields (i.) that PolP is a subconstituent of TP¹⁰ and (ii.) that it can be the smallest possible domain of *quoi que ce soit*. I will from now on assume that it is, although further tests should be run to determine whether the smallest possible domain is not intermediate between PolP and TP.



This is a highly simplified representation of clausal architecture, but it seems to be essentially correct.

There is no decisive evidence that negation is a head that attaches to the spine of the sentence rather than a phrase sitting in the specifier of a Pol head.

I assume that there is only one negation per clause, and that it cannot move; I further assume that the morphemes *not* and *n't* are not necessarily the spell-outs of negation itself, but instead markers which agree with the actual (possibly silent) negation, therefore their surface position may not be an indication of where negation is interpreted.

¹⁰Needless to say, if the subject quantifier were in fact higher than TP, then it might be the case that Pol is itself higher than T. In which case tree (20) would be incorrect. But nothing in my proposal hinges on the ordering of T and Pol; what is crucial though is that subject quantifiers other than negative quantifiers can be interpreted higher than Pol, a point which is certain, given e.g. (i) and its English equivalent.

- (i) *Au plus cinq personnes ne sont pas venues.* AT_MOST_5 >>> NEG
 at most five people NEG are NEG come
'At most five people didn't come.'

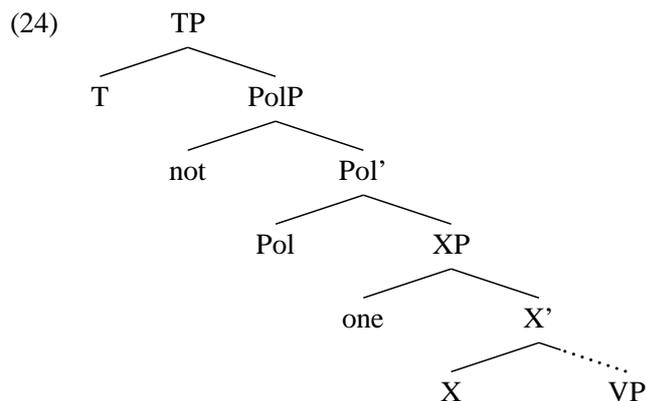
It is important to note that not all subject quantifiers are alike, however. Against the backdrop of the assumptions defended here, *negative* quantifiers, e.g. *personne* ‘no one’, appear to have a very specific syntactic behavior. Observe first that the embedding verb *douter* ‘doubt’ creates a DE domain for *quoi que ce soit* in (21).

- (21) *Marie doute que Jean ait fait quoi que ce soit pour aider la Mafia.*
 Marie doubts that Jean have.SUBJ done what that this be.SUBJ to help the Mafia
 ‘Marie doubts that Jean did anything to help the Mafia.’

Whether we add a negation or a negative quantifier clausemate to *douter*, the NPIs gets anti-licensed:

- (22) **Marie ne doute pas particulièrement que Jean ait fait quoi que ce soit...*¹¹
 Marie NEG doubts NEG particularly that Jean have.SUBJ done what that this be.SUBJ
- (23) **Personne ne doute particulièrement que Jean ait fait quoi que ce soit...*
 no one NEG doubts particularly that Jean have.SUBJ done what that this be.SUBJ

The unacceptability of (23) suggests that negative quantifiers are interpreted within PolP. This assumption is in line with the conclusion (Jacobs 1980, Ladusaw 1992, Geurts 1996, de Swart 2000, Zeijlstra and Penka 2005, Penka 2007, Iatridou and Sichel 2008), inspired by cases of so-called Neg-split reading in Dutch, German and English,¹² that ‘negative quantifiers’ spell out negation and an existential quantifier in its scope. In other words, the negative element in a negative quantifier is no other than negation (what is often referred to as sentential negation), as illustrated here for subject *no one*:



Now that we have a clearer understanding of domains, we can refine the environment-based licensing condition (10) slightly:

- (25) **Environment-based Licensing Condition (modified):** An NPI α is licensed in sentence S only if α has a DE domain in S .

¹¹The judgments in (22) and (23) would be unaffected without the adverb *particulièrement*. I choose to use it however because I want to control for the interference of a semantic strengthening phenomenon, whereby [not doubt that S] is reanalyzed as [be certain that S]. The adverb blocks that strengthening.

¹²With a modal verb (a quantifier over possible worlds) negative quantifiers give rise to so-called Neg-split whereby the negative component is interpreted above the modal, while the restriction is interpreted below it:

- (i) a. *Ze mogen geen eenhoorn zoeken.*
 they are allowed no unicorn seek (Dutch; Rullmann 1995, cited in Iatridou and Sichel 2008)
- b. There is no unicorn x such that they are allowed to seek x . (wide scope)
- c. What they are allowed to do is seek no unicorn. (narrow scope)
- d. They are not allowed to seek a unicorn. (split scope)
- (ii) No doctor has to be present.
- a. There is no doctor x such that x has to be present. (wide scope)
- b. It is not required that a doctor be present. (split scope)

Let us sum up the observations about (14), (15) and (18a) in the LFs below: they indicate for each NPI the monotonicity of the constituents that contain it w.r.t. its position. A word about notation: the label $\boxed{\text{XP}} \blacktriangleright_n$ used in the representation of logical forms indicates that XP is UE w.r.t. the position of the bearer of index n ; $\boxed{\text{XP}} \blacktriangleleft_n$ indicates that XP is DE w.r.t. the position of the bearer of index n . If there is more than one copy due to the existence of traces, the position that is targeted is that of the copy written in full.

- (26) a. (14): $*[\text{TP } T [\boxed{\text{PolP}} \blacktriangleright_1 \text{ pas impossible } [\text{CP } \text{que Jean } T [\boxed{\text{PolP}} \blacktriangleright_1 [\text{quoi que ce soit}]_1 \text{ faire } t_1]]]]]$
 b. (15): $[\text{TP } T [\boxed{\text{PolP}} \blacktriangleright_1 \text{ impossible } [\text{CP } \text{que Jean } T [\boxed{\text{PolP}} \blacktriangleleft_1 \text{ pas } [\text{quoi que ce soit}]_1 \text{ faire } t_1]]]]]$
 c. (18a): $[\boxed{\text{TP}} \blacktriangleright_1 [\boxed{\text{CP}} \blacktriangleright_1 \text{ Si } T [\boxed{\text{PolP}} \blacktriangleleft_1 \text{ impossible } [\text{CP } \text{que Jean } T [\boxed{\text{PolP}} \blacktriangleright_1 [\text{quoi que ce soit}]_1 \text{ faire } t_1]]]]] T]$

These abstract representations should make the difference clear between the unacceptable (14) on the one hand and the acceptable (15) and (18a) on the other: only in the latter two does the NPI have a DE domain.

Let us now consider a case with three DE expressions. Our hypothesis rightly predicts that *quoi que ce soit* is acceptable (and can be licensed) in (27), because both the larger and the smaller PolP provide a DE context for *quoi que ce soit* (each contains an odd number of DE expressions above the NPI):

- (27) Il n'est pas impossible que Jean n'ait pas fait quoi que ce soit pour aider la Mafia.
'It is not impossible that Jean didn't do anything to help the Mafia.'
- (28) $[\boxed{\text{TP}} \blacktriangleleft_1 T [\boxed{\text{PolP}} \blacktriangleleft_1 \text{ pas impossible } [\text{CP } \text{que } [\text{TP } \text{Jean } T [\boxed{\text{PolP}} \blacktriangleleft_1 \text{ pas } [\text{quoi que ce soit}]_1 \text{ faire } t_1]]]]]]$

Lastly, our hypothesis predicts that *quoi que ce soit* is acceptable in (29) because it is in a DE environment in the matrix PolP and TP (due to an odd number of DE expressions in those constituents). The sentence is fairly hard to judge, therefore it is imprudent to build much on it. It seems clear however that it is better than (14), in which all domains that contain the NPI are UE w.r.t. its position.

- (29) *Non pas qu' il ne soit pas impossible que Jean ait fait quoi que ce soit*
 NEG NEG that it NEG be.SUBJ NEG impossible that Jean have.SUBJ done what that this be.SUBJ
pour aider la Mafia.
 to help the Mafia
- (30) $[\boxed{\text{TP}} \blacktriangleleft_1 [\boxed{\text{PolP}} \blacktriangleleft_1 \text{ pas } [\boxed{\text{CP}} \blacktriangleright_1 [\text{TP } T [\boxed{\text{PolP}} \blacktriangleright_1 \text{ pas impossible } [\text{CP } \text{que } [\boxed{\text{TP}} \blacktriangleright_1 \text{ Jean } T$

To conclude this section on French weak NPIs, there is evidence that certain weak NPIs are sensitive to the monotonicity of their syntactic environments; the evidence comes from configurations where two DE expressions co-occur in PolP, giving rise to flip-flop. The data support the hypothesis that an NPI is licensed only if it is acceptable in some eligible constituent; thus far, I have no explanation for the existence of what I have described as a smallest possible domain of an NPI, and will assume that it is lexically determined. We can now discard the operator-based approach (H1 on p. 3), as it is not suited to account for flip-flop. The globalist version of the environment-based approach (H2' on p. 4) is also disqualified.

2.2.2 English Weak NPis

The French facts are—to some extent only—replicated in English. There are clear cases where for some speakers, *any* is anti-licensed due to flip-flop, e.g. (31b).¹³

- (31) a. It is impossible that John did anything to help the Mafia.
b. %It is not impossible that John did anything to help the Mafia.
c. Not that it is impossible that John did anything to help the Mafia.

(31b) and (31c) form a pair which confirms the prediction of the environment-based approach relativized to domains (25). Both sentences contain two DE expressions outscoping the NPI, but they differ in the position of the negation: while *not* and *impossible* are contained in all the same PolPs in (31b), there is a PolP in (31c) which contains one and not the other. Similarly with the verb *doubt*:

- (32) a. I doubt that John did anything to help the Mafia.
b. %I don't (particularly) doubt that John did anything to help the Mafia.
c. %No one (particularly) doubts that John did anything to help the Mafia.
d. Not that I doubt that John did anything to help the Mafia.

The evidence is mixed for the existence of domains of weak NPis in English, since there seem to be two dialects, one that accepts (31b), (32b), (32c) and the like (dialect A), and one (dialect B) which rejects them. But it is natural to assume that the unacceptability of (31b) (and (32b)-(32c)) is incompatible with the operator-based approach (H1). In order to explain the variation about (31b), (32b) and (32c), I propose that in dialect A (which accepts those sentences), the smallest possible domain of *any* is smaller than the smallest possible domain of *any* in dialect B (which rejects them), and also smaller than the smallest possible domain of *quoi que ce soit*. In the former dialect, this domain can be VP, but it can actually be arbitrarily small. Suppose indeed that any constituent qualifies as a domain for *any*: then there is at least one eligible constituent which is DE w.r.t. the position of *anything* in (31b), (32b) and (32c), namely matrix VP.

Summing up, flip-flop does occur with English weak NPis. The lack of flip-flop in one dialect doesn't invalidate the environment-based approach, because it is possible that in that dialect the smallest possible domain of *any* is smaller than in other dialects (or even arbitrarily small). This hypothesis will actually be confirmed in section 3.2.1.

2.3 Flip-flop with Strong NPis

The claim made in this article that flip-flop exists in English is not unprecedented, but it was made using strong NPis. As far as I know, Schmerling (1971) was first to provide evidence for it (*a thing* is an NPI of the minimizer kind):

- (33) a. *There was someone at the scene of the accident who did a thing to help.
b. There wasn't anyone at the scene of the accident who did a thing to help.
c. There was someone at the scene of the accident who didn't do a thing to help.
d. *There wasn't anyone at the scene of the accident who didn't do a thing to help.¹⁴

[Schmerling 1971, ex. 14]

¹³Similar facts are noted in passing by Schueler (2005): the dialect he describes is obviously the one I label dialect B below.

¹⁴In light of Schmerling's paradigms (and of the rescuing facts with PPIs), Krifka (1992) builds a theory of PI-licensing whereby an NPI and a DE operator above it form a PPI, and a PPI forms with a DE expression above it an NPI: it is a theory where non-lexical PIs are created recursively. There is a further condition which requires that the result of this recursive PI-formation process is not an NPI: in other words, every sentence that contains a PI must not be a (non-lexical) NPI. This approach can be seen as an implementation of the globalist environment-based approach H2'. Alas, the usual fatal objections carry over: it is not true that a PPI cannot find itself in a global DE environment (witness (ia)) and it is equally false that an NPI cannot find itself in the scope of two DE expressions (witness (ib)).

Oddly enough, it has not been noticed, to the best of my knowledge, that the NPIs that Schmerling used in her examples, e.g. *a thing*, *utter a peep*, etc., are strong NPIs, specifically minimizers. This fact is important, as the smallest possible domain of a PI seems to be lexically determined, and we expect to witness different smallest possible domains with different PIs or classes of PIs.

As a matter of fact, the intuitions of the speakers I have polled are not very robust about those sentences which all involve an existential *there*-construction. But they are very clear when it comes to more commonplace embeddings (the speakers of the two dialects I distinguished in section 2.2.2 on p. 10 agree):

- (34) a. It's impossible that John did a single thing to help the Mafia.
 b. *It's not impossible that John did a single thing to help the Mafia.
- (35) a. I doubt that John did a single thing to help the Mafia.
 b. *I don't doubt that John did a single thing to help the Mafia.

When the higher DE expression doesn't sit in the same PolP as the embedding verb, the minimizers are acceptable:

- (36) a. Not that it is impossible that John did a single thing to help the Mafia.
 b. Not that I doubt that John did a single thing to help the Mafia.

Other strong NPIs exhibit the same behavior, for example *yet*:

- (37) a. It's impossible that John can understand this yet.
 b. *It's not impossible that John can understand this yet.
 c. Not that it's impossible that John can understand this yet.

These facts suggest that the acceptability of strong NPIs is not computed on the entire sentence, but rather on smaller constituents (not smaller than PolP). It is natural to extend the proposal defended in this article to those items and claim that their acceptability is computed on syntactic environments too, and that not all constituents are eligible for this computation. By the size of their smallest possible domain, they differ from weak NPIs of dialect A (p. 11).¹⁵

2.4 Flip-flop with PPIs

Positive Polarity Items are another category of items for which there is evidence—although this claim has never commanded a firm consensus—that syntactic environments play a role in the computation of their acceptability. A fact that suggests that the indefinite *some* is a PPI is that it cannot be interpreted in the scope of a clausemate negation.¹⁶ Note that it is also anti-licensed in the scope of a clausemate negative quantifier e.g. *no one*, *never* (the second generalization follows from the first, under the assumption that negative quantifiers are made up of negation and an existential quantifier):

- (38) a. When Fred speaks French, Jean-Paul doesn't understand something. *NEG>>SOME
 b. When Fred speaks French, no one understands something. *NEG>>SOME
-
- (i) a. It's impossible that John understands something.
 b. It's impossible that John doesn't understand anything.

¹⁵Note that they also differ from weak NPIs of all dialects by the logical property that they are sensitive to: if standard accounts are correct, they are sensitive to anti-additivity (but see Gajewski (2011) for an interesting attempt at dispensing with anti-additivity as a licensing factor). I define anti-additivity on p. 25. Further research is needed to determine whether there is a connection between the strength of a polarity item and the size of its smallest possible domain.

¹⁶It bears saying that anti-licensing by a clausemate negation is considered by other researchers as a necessary condition for PPIhood; this article aims at showing that the empirical situation is more complex than that. Anti-licensing depends on the domain upon which acceptability is checked. It is possible that certain PPIs have a relatively small minimal domain (i.e. smaller than PolP), and can thus be interpreted under a clausemate negation. I submit that this is true of French *devoir_{deon}*, see (146), p. 36.

2.4.2 Rescuing as Flip-flop

Also consonant with the hypothesis defended here are the cases where the narrow scope of *some* is licit under a clausemate negation if another DE expression outscopes *some*. This is what Szabolcsi (2004) calls ‘rescuing’; I submit that rescuing is genuine flip-flop, as the presence of another DE expression makes available a constituent that is UE w.r.t. the position of the PPI (the facts were already described in Jespersen (1909–1949), Jackendoff (1969)):

- (43) a. I’m not sure that, when Fred speaks French, Jean-Paul doesn’t understand something. ✓NEG≫SOME
 b. If Jean-Paul doesn’t understand something, he has no notion of French at all. ✓NEG≫SOME
 c. Everyone who doesn’t understand something has no notion of French at all. ✓NEG≫SOME
 d. When Fred speaks French, at most 5 people don’t understand something.¹⁷ ✓NEG≫SOME
- (44) a. (43a): [_{TP} I T [_{PolP} not sure [_{CP} that Jean-Paul T [_{PolP} not some₁ understand t₁]]]]]
 b. (43b): [_{TP} I T [_{CP} if Jean-Paul T [_{PolP} not some₁ understand t₁]] he T...]
 c. (43c): [_{TP} I T [_{DP} everyone [_{CP} who [_{PolP} not some₁ understand t₁]]] T...]
 d. (43d): [_{TP} I T [_{PolP} at most 5 people T [_{PolP} not some₁ understand t₁]]

These data allow us to hypothesize that PolP is not the only kind of constituent that is eligible for the computation of the acceptability of *some*: larger constituents are eligible too. In other words, for any clause *C*, all and only superconstituents of the PolP of *C* (i.e. constituents which contain Pol) are domains of *some*. This is not visible in (43a), since it contains at least two constituents which are UE w.r.t. the position of *some*, one of which is a PolP. But (43b), (43c) and (43d) are telling. In (43b) and (43c) *some* is rescued because it is contained in the restrictor of *if* and *every* respectively, and these are DE environments. However neither *if* nor *every* is located in a PolP. In (43d), *at most 5 people* doesn’t sit in PolP but in Spec,TP: therefore some constituent, at least as large as TP, provides the environment upon which the acceptability of *some* is computed successfully.

We correctly predict that *some* is not rescued in (45b), where there are two DE expressions in the superordinate PolP (instead of one, as in (43a)).

- (45) a. It is impossible that John doesn’t understand something. ✓ narrowest scope of SOME
 b. It is not impossible that John doesn’t understand something.¹⁸ *n.s. of SOME
 c. Not that it is impossible that John doesn’t understand something. ✓ n.s. of SOME
- (46) (45b): *_{TP} T [_{PolP} not impossible [_{CP} that John T [_{PolP} not something₁ understand t₁]]]]]

¹⁷By the same token, we also predict that if two DE expressions co-occur in the minimal domain of *some*, the PPI should be acceptable. This turns out to be the case, as shown in (ia), where the DE adverb *rarely* takes scope under sentential negation:

- (i) a. John doesn’t rarely understand something. ✓NEG≫RARELY≫SOME
 b. (ia): *_{TP} T [_{PolP} not rarely something₁ understand t₁]]

It is not clear how the rescuing metaphor should apply here. Is *rarely* the rescuer? I postpone the discussion of the semantic property that *some* is vulnerable to section 5.1. There, I argue that is DEness: *rarely* is thus predicted to be a potential anti-licenser of *some* (and *not* is thus the rescuer in (ia)).

It bears saying that, given that *rarely* can precede or follow sentential negation (iia)-(iib), the acceptability of the narrow scope of *some* in (iic) cannot count as evidence that *rarely* is not an anti-licenser: in the absence of a negation to mark the boundary of PolP, it is impossible to decide whether or not *rarely* is in the minimal domain of *some* in (iic):

- (ii) a. John rarely doesn’t understand lecture.
 b. John doesn’t rarely understand lecture.
 c. John rarely understands something. ✓ n.s. of SOME

Summary

Let us recapitulate the main configurations that illustrate flip-flop (E_{DE} stands for ‘DE expression’):

- With NPIs (in French and in English_B):

$$*[_{CP} \dots [_{PolP} E_{DE} E_{DE} [_{CP} \dots \pi^- \dots]]] \quad (14)$$

- With PPIs:

$$a. [_{CP} \dots E_{DE} \dots [_{PolP} E_{DE} \pi^+ \dots]] \quad (43)$$

$$b. *[_{CP} \dots [_{PolP} E_{DE} E_{DE} [_{CP} \dots [_{PolP} E_{DE} \pi^+ \dots]]]] \quad (45b)$$

I propose that rescuing is nothing but flip-flop applied to PPIs. We reach two conclusions: (i.) acceptability is computed on syntactic environments (i.e. constituents), and (ii.) the monotonicity of the constituents w.r.t. the position of PIs is what matters rather than some structural relationship (precisely because flip-flop exists). Interestingly, the environment-based approach is corroborated by the investigation of *both* kinds of PIs, which suggests that there exist deep commonalities between them. The acceptability conditions of *any* and *some* are very similar: it suffices that they are acceptable in some eligible constituent to be acceptable.

Both the operator-based approach (H1) and the globalist environment-based approach (H2’) are disconfirmed by the flip-flop data. In the next section, I continue the exploration of the licensing of PIs, and provide further evidence for an environment-based approach. I bring to light an unnoticed property of *some* and *any*: their acceptability in a given environment C is dependent on the licensing of other PIs *within* C . This is what I call the property of *entanglement*.

3 Entanglement

Given the facts reported about English dialect A in section 2.2.2, it is not clear that the acceptability of *any* is computed on environments in that dialect. This section establishes that it is: I show that PIs are *entangled* (including *any* in dialect A), and I use this property of entanglement to argue that the acceptability of *any* is checked upon constituents in all dialects.

3.1 Multiple PPIs

Let S be a sentence and let S' be a sentence embedded in S . Both S and S' contain a negation and no other DE expression. To simplify matters, let us first consider cases where there is only one occurrence of *some* in the structure. We know that *some* is licit in the embedded PolP, i.e. under the negation of S' (47) (it is rescued).

¹⁸This example is important because other theories, in particular Szabolcsi’s (2004), make an opposite prediction: her theory is operator-based, and as such it predicts that constituency doesn’t affect licensing. Szabolcsi reports the following judgment (i) (her ex. 70) about a sentence with two DE expressions outscoping a PPI in need of rescuing;

- (i) I don’t regret that John didn’t come up with something. ✓ n.s. of SOME

The speakers I polled either disagreed with it or agreed with it but also accepted the benchmark sentence (ii) (for a reason that might have to do with the presence of the particle *up*):

- (ii) a. John didn’t come up with something. %n.s. of SOME
 b. I regret that John didn’t come up with something. ✓ n.s. of SOME
 c. I don’t regret that John didn’t come up with something. %n.s. of SOME

It bears also saying that narrow scope of *some* in (45b) is rejected by all speakers, even the speakers of dialect A who accept (iii). The discrepancy suggests that the idea that a PPI under a clausemate negation forms a non-lexical weak NPI with negation (as Krifka (1992) and Szabolcsi (2004) have it) is empirically unwarranted.

- (iii) It is not impossible that John understands anything.

(47) [S ... **not** ... [S' ... [**not** ...]]]

Some can be interpreted lower than the negation of *S'*, i.e. in a rescuing configuration, whether it is an *in situ* object as in (43a) or a subject reconstructed under negation. The latter possibility is evidenced by the consistence of the discourse in (48):

- (48) a. —A: Someone is hiding.
 b. —B: That's exactly true, it's impossible that someone isn't hiding. IMPOS.≫NEG≫SOME

The acceptability of *some* in (48b), where *some* reconstructs under negation, is checked upon a constituent at least as large as the matrix PolP:

(49) (48b): [_{TP} T [_{PolP} ↗1 **impossible** [_{CP} [_{TP} ↘1 t₁ T [_{PolP} ↘1 **not** someone₁ hide]]]]]

Notice that the reconstruction of subject *some* under negation is not possible if the landing position is one in which it is not rescued:

- (50) a. Someone isn't hiding. *NEG≫SOME
 b. [(50a)] ≠ ¬∃x[hide'(x)]

Going back to (47), we predict that *some* is also licit when interpreted higher than the negation of *S'*, since there is at least one constituent which is UE w.r.t. this position, namely *S'*:

(51) ✓[S ... **not** ... [S' some ... **not** ...]]

The prediction is borne out. *Some* can be interpreted higher than negation in *S'* (if there is no other clausemate occurrence of *some* lower than negation): this is demonstrated by the consistence of the discourse in (52):

- (52) a. —A: Everyone is hiding.
 b. —B: That's exactly true, it's impossible that someone isn't hiding. IMPOS.≫SOME≫NEG

In other words, the acceptability of *some* in B's reply is checked upon some constituent larger than the embedded PolP but smaller than the matrix PolP, e.g. the embedded TP:

(53) (52b): [_{TP} T [_{PolP} ↘1 **impossible** [_{CP} [_{TP} ↗1 someone₁ T [_{PolP} **not** t₁ hiding]]]]]

3.1.1 Two PPIs with Two Negations

First, observe that the narrow scope of *somewhere* under negation is excluded for polarity reasons in (54a) (the wide scope is possible but pragmatically odd because it is extremely uninformative): there is no constituent where *somewhere* is both acceptable and pragmatically felicitous.

- (54) a. #Someone isn't hiding somewhere. *NEG ≫ SOMEWHERE
 b. (54a): *[[_{TP} ↘1 ↗2 someone₂ T [_{PolP} ↘1 **not** somewhere₁ t₂ hide]]]

Let us now move to a more complex case, in which there is more than one occurrence of *some*. We embed (54a): the result, (55b), is *prima facie* an instance of the rescuing configuration, and as such, one might expect it to be perfect. It is not, though. And it forms a minimal pair with (52b):

- (55) a. —A: Everyone is hiding.
 b. —B: #That's exactly true, it's impossible that someone isn't hiding somewhere.¹⁹
 *IMPOS.≫SOMEONE≫NEG≫SOMEWHERE

¹⁹Baker (1970) gives the following example (ii) with two PPIs (*someone* and *still*) on either side of the embedded negation. He doesn't notice that the only reading of this sentence is one in which subject *someone* reconstructs under negation. The

Abstractly, the illicit configuration is:

(56) * $[_S \dots \text{not} \dots [_{S'} \text{some}_2 \dots [\text{not} \dots \text{some}_1 \dots]]]$

The only difference between (52b) and (55b) is that in the latter *somewhere* appears under the lower negation, and needs to be interpreted there (for pragmatic reasons). The discourse is infelicitous: the only possible meaning of B's reply is paraphrasable as '*there has to be someone hiding somewhere*', which is pragmatically deviant in the context since it is weaker than A's assertion. Therefore B's declared claim of total agreement is out of place. This indicates that the co-occurrence of two *some* in the embedded clause, one being interpreted in the embedded PolP and the other higher than negation, is precluded (it is exactly as degraded as the baseline (54a)); this unavailable configuration would yield the felicitous reading '*it is necessary that everyone is hiding somewhere*'.

(57) (55b): * $[_{TP} [[_{PolP} \blacktriangleright_1 \blacktriangleright_2] \text{impossible} [_{CP} [[_{TP} \blacktriangleright_1 \blacktriangleright_2] \text{someone}_2 \text{ T } [[_{PolP} \blacktriangleright_1] \text{not somewhere}_1 \text{ t}_2 \text{ hide}]]]]]]$

I wish to propose that the system whose role it is to license the two PPIs is subject to irreconcilable demands in the case at hand: the only constituents where *somewhere* is licensable (i.e. superconstituents of matrix PolP) are constituents in which *someone* is unacceptable, and *vice versa*.

(58b) on the other hand is perfectly felicitous: it contains two occurrences of *some*, both interpreted under the embedded negation. The subject *some* is reconstructed under negation; in fact, reconstruction is the only viable option for subject *some* when there is a clausemate *some* under negation. The reading that obtains, '*there has to be someone hiding somewhere*', is adequate in the conversation:

- (58) a. —A: Someone is hiding.
 b. —B: That's exactly true, it's impossible that someone isn't hiding somewhere.
 ✓IMPOS. >> NEG >> SOME >> SOME

Superconstituents of the matrix PolP are constituents in which both PPIs are acceptable (in any smaller constituent they are unacceptable) and thus licensable:

(59) (58b): $[_{TP} \text{ T } [[_{PolP} \blacktriangleright_1 \blacktriangleright_2] \text{impossible} [_{CP} [[_{TP} \blacktriangleright_1 \blacktriangleright_2] \text{ t}_2 \text{ T } [[_{PolP} \blacktriangleright_1 \blacktriangleright_2] \text{not someone}_2 \text{ somewhere}_1 \text{ t}_2 \text{ hide}]]]]]]$

Summarizing, of these two configurations, only the second one is well-formed:

- (60) a. * $[_S \dots \text{not} \dots [_{S'} \dots \text{some}_2 \dots [\text{not} \dots \text{some}_1 \dots]]]$
 b. $[_S \dots \text{not} \dots [_{S'} \text{ t}_2 \dots [\text{not} \dots \text{some}_2 \dots \text{some}_1 \dots]]]$

This fact suggests that the licensing of a given occurrence of *some* in a given constituent *C* is contingent on the licensing of other occurrences of *some* within *C*. Any occurrence of *some* is *entangled* with the other occurrences of this PPI.

_____ sentence is formally parallel to my (55b), and the explanation that I provide holds for both sentences.

- (i) a. John is still holed up in the cave.
 b. #John isn't still holed up in the cave.
 (ii) You can't convince me that someone isn't still holed up in this cave. [Baker 1970, ex. 20]
Paraphrasable as: I'm sure that someone is still holed up in the cave.
Not paraphrasable as: I'm sure that everyone is still holed up in the cave.

McCawley (1998), p. 594, notes, about (iii), that *some* must be interpreted in the scope of the lower negation and concludes that negation 'acts as if it is not within the subordinate S except for appearing on the tensed auxiliary verb of that S'.

- (iii) You can't convince me that someone hasn't already solved this problem.

3.1.2 Adding a Level of Embedding: Cyclicity

So far, we have considered cases where one of the occurrences of *some* is in need of rescuing. What happens if this is not the case, e.g. if we add a layer of embedding as schematized below?

(61) [_{S'} ... some₂ ... [**not** ... [_{S''} ... some₁ ...]]]

For concreteness, consider the acceptable (62a):

(62) a. Someone isn't trying to hide somewhere. ✓NEG≫SOMEWHERE
 b. (62a): [_{TP} ↘1 ↗2 someone₂ T [_{PolP} ↘1 **not** try [_{CP} [_{TP} T [_{PolP} ↗1 someone₁ hide]]]]]

Somewhere is not in the scope of a clausemate negation since the control predicate *try* creates a biclausal structure. *Somewhere* is acceptable in at least one constituent, e.g. the most deeply embedded PolP. But there is no constituent where *someone* and *somewhere* are simultaneously acceptable, and there is no a priori reason to think that this state of affairs should not be problematic, given that entanglement exists.

Our hypothesis about the licensing of multiple entangled PIs ought to take such facts into account. We do not want to require that, in sentence *S*, there be an eligible constituent *A* of *S* such that *A* has the appropriate monotonicity w.r.t. the positions of *all* PIs in *S*. For this proposal would predict that (62a) is ill-formed, contrary to fact.

Instead, we are led to assume that the licensing of PIs proceeds in a cyclic fashion. True, all the constituents of (62a) in which *someone* is acceptable are DE w.r.t. *somewhere*; but I propose that the evaluation of the acceptability of *someone* takes place once *somewhere* has been licensed (e.g. in the lower PolP), and has thus become invisible to the licensing system.

(63) **Cyclic Evaluation of PIs:** A PI π is only acceptable in a given constituent *C* if all other PIs present in *C* that π is entangled with are licensed *within C*.

The condition in (63) rightly accounts for the ill-formedness of the configuration that we studied earlier (56): it is a configuration in which neither PPI is acceptable in a constituent within which the other can be licensed. Hence the unacceptability of (57) on p. 17.²⁰

By the same token, we correctly predict that this configuration is perfect:

(64) [_S ... **not** ... [_{S'} ... some₂ ... [**not** ... [_{S''} ... some₁ ...]]]]]

If we embed sentence (62a) under *impossible*, *someone* can take scope over its clausemate negation, while this is precluded in (55b). The result (65b) can be used felicitously in the following discourse:

(65) a. —A: Everyone is trying to hide.
 b. —B: That's exactly true, it's impossible that someone isn't trying to hide somewhere. IMPOS.≫SOMEONE≫NEG≫SOMEWHERE

(66) (65b): [_{TP3} T [_{PolP3} ↗1 ↘2 **impossible** [_{CP} [_{TP2} ↘1 ↗2 someone₂ T [_{PolP2} ↗1 **not** try [_{TP1} PRO₂ T [_{PolP1} ↗1 someone₁ hide]]]]]]]]]

Again, the system proceeds cyclically: the lower PPI in (65b) is licensed in PolP1 first, then the higher *some* is licensed in TP2 (in accordance with (63), since *somewhere* is licensed *within* TP2).

²⁰The minimally different (ib) is grammatical and felicitous: this is explained in section 3.2.3 p. 21.

(i) a. —A: Everyone is hiding.
 b. —B: That's exactly true, it's impossible that anyone isn't hiding somewhere.

Summary

We have created ungrammatical configurations with two PPIs which all other known accounts predict to be separately acceptable (one is in the scope of a clausemate negation but is rescued, the other is not in the scope of a clausemate negation). I propose that the following condition be adopted:

- (67) **Licensing Condition of Polarity Items (*final*):** A PI π is licensed in sentence S only if there is an eligible constituent A of S which has the monotonicity properties required by π w.r.t. the position of π , and all other PIs in A that π is entangled with are licensed within A .

The data indicate that the acceptability of PPIs is computed upon constituents in a cyclic fashion. The entanglement of *some* with *any* demonstrated in the next section confirms the cyclic nature of licensing.

3.2 Co-occurrence of NPIs and PPIs

I present a new argument in favor of the environment-based approach to the acceptability conditions of both NPIs and PPIs. It uses polarity clashes between two PIs of opposite polarity.

Remember that the evidence for domains of NPIs in English is mixed. There clearly exists a dialect of English in which (32b) repeated as (68) below is acceptable:

- (68) I don't (particularly) doubt that John did anything to help the Mafia.

Such facts have prompted general caution, if not skepticism, towards environment-based approaches in the past. My own conclusion in section 2.2.2 p. 11 was that a localist environment-based approach was not necessarily threatened by this example: one could indeed hypothesize that *any*, like French *quoi que ce soit*, has a minimal domain, but this domain is smaller than the one of its French counterpart, and might even be minimally small.

3.2.1 A PPI above an NPI, with One Negation

There is one prediction that follows from the 'cyclic' hypothesis (63)—the version of the environment-based approach which has so far passed muster. If there exists some procedure for checking the acceptability of polarity items on the basis of constituents, one expects to find constituents in which the opposite requirements of positive and negative polarity items create a tension that the system is unable to solve in any satisfying way. Let me map out in an abstract and simplified way the kind of situations that I have in mind. Assume that PPI π^+ is entangled with NPI π^- , and that in DE environments π^+ is unacceptable while π^- is acceptable. Suppose that the evaluation applies to some constituent YP and that there is no other constituent in the structure where acceptability can be checked. Suppose further that YP is UE w.r.t. the positions of both π^+ and π^- .

- (69) * $[\text{YP} \blacktriangleright_1 \blacktriangleright_2 \dots \pi_1^+ \dots \pi_2^- \dots]$

In this constituent YP, the NPI π^- is unacceptable and bound to be anti-licensed: this, by virtue of the general licensing condition (67) p. 18, suffices to rule out the outcome, although the PPI π^+ is acceptable (by hypothesis π^- cannot be licensed in a separate cycle). A symmetric situation arises if YP is DE w.r.t. the positions of both polarity items: this time the requirement of the PPI is left unsatisfied, leading to unacceptability, while the NPI is acceptable.

- (70) * $[\text{YP} \blacktriangleleft_1 \blacktriangleleft_2 \dots \pi_1^+ \dots \pi_2^- \dots]$

Notice that in this situation the NPI can have an arbitrarily small minimal domain: it needs to find at least one constituent in which its position is DE. Finding such a constituent won't suffice if this constituent happens to also contain the PPI (per the licensing condition (67)).

If English *any*, as I claim, is checked for acceptability and licensed in a syntactic domain, we should be able to witness the clashes that the theory predicts (70). We actually do, both in dialect B and in dialect A. Observe what happens in a sentence e.g. (71b) which contains only one DE expression (namely *impossible*) outscoping the PPI *some* and the NPI *any* in that order (in paradigm (71) the a., c., and d. sentences are controls). The output is unacceptable, as predicted: the constituents in which *anything* is possibly acceptable contain an unacceptable *someone*; conversely, the constituents in which *someone* is potentially acceptable contain an unacceptable *anything*. Neither PI can be licensed in a separate cycle (this is an instantiation of the abstract (70)).

- (71) a. It is impossible that John stole anything.
 b. It is impossible that someone stole anything. *IMPOS.>>SOME
 c. It is impossible that someone stole something.
 d. It is impossible that anyone stole anything.

(72) (71b): * $[_{TP} T [_{PolP2} \blacktriangleright 1 \blacktriangleright 2] \text{impossible} [_{CP} \text{that} [_{TP} \blacktriangleright 1 \blacktriangleright 2] \text{someone}_2 T [_{PolP1} \blacktriangleright 1] \text{anything}_1 t_2 \text{steal } t_1]]]]$

It appears that *some* and *any* are entangled, and that the acceptability of *any* is checked on the basis of constituents, even in dialect A.

Adding a level of embedding doesn't salvage the sentence, because the sources of the unacceptability of (71b) carry over to (73b) (in paradigm (73) the a., c., and d. sentences are controls):

- (73) a. It is impossible that Fred thinks that John stole anything.
 b. It is impossible that someone thinks that John stole anything. *IMPOS.>>SOME
 c. It is impossible that someone thinks that John stole something.
 d. It is impossible that anyone thinks that John stole anything.

(74) (73b): $[_{TP} T [_{PolP2} \blacktriangleright 1 \blacktriangleright 2] \text{impossible} [_{CP} \text{that} [_{TP} \blacktriangleright 1 \blacktriangleright 2] \text{someone}_2 T t_2 \text{think} [_{CP} [_{TP} \text{John } T [_{PolP1} \blacktriangleright 1] \text{anything}_1 \text{steal } t_1]]]]]]$

In brief, entanglement leads to ungrammaticality when all the domains of NPI π_k^- which are DE w.r.t. π_k^- contain PPI π_i^+ and all the domains of PPI π_i^+ which are UE w.r.t. π_i^+ contain NPI π_k^- .

When the negation is interpreted between the PPI and the NPI (in that order), the result is acceptable from the point of view of PI licensing. This again must be an effect of cyclicity (*anything* and *someone* in (75) are licensed in separate cycles):

- (75) Someone isn't eating anything.
 (76) (75): $[_{TP} \blacktriangleright 1 \blacktriangleright 2] \text{someone}_2 T [_{PolP} \blacktriangleright 1] \text{not anything}_1 t_2 \text{eat } t_1]]$

3.2.2 A PPI above an NPI, with Two Negations

We are now going to add a negation; this will provide other cases where entanglement restricts the possible readings that obtain with an NPI and a PPI. Just like the sentence '*it's impossible that someone isn't hiding*' is ambiguous (according as the subject reconstructs under negation or not), so is '*it's impossible that someone isn't eating*'. Strikingly, adding the object NPI *anything* disambiguates the sentence:

- (77) It's impossible that someone isn't eating anything.
 (78) a. (i) —A: Someone is eating.
 (ii) —B: #That's exactly true, it's impossible that someone isn't eating anything.
 (iii) —A: Everyone is eating.
 (iv) —B: That's exactly true, it's impossible that someone isn't eating anything.²¹

The reconstruction of the subject *someone* is impossible, for polarity reasons: when the NPI and the PPI co-occur in PolP (as is the case when the subject PPI reconstructs), their conflicting demands lead to a polarity clash (being in PolP, the PPI is in its smallest possible domain and thus cannot be licensed in a separate cycle).²²

(79) * $[_{CP} E_{DE} \dots [_{CP} \dots [_{PolP} E_{DE} \dots \pi^+ \dots \pi^- \dots]]]$

- (80) a. (78a_{ii}): * $[_{TP} T [_{PolP} \blacktriangleright_1 \blacktriangleright_2] \text{impossible} [_{CP} [_{TP} t_2 T [_{PolP} \blacktriangleright_1 \blacktriangleright_2] \text{not someone}_2 \text{anything}_1 t_2 \text{eat } t_1]]]]$
- b. (78a_{iv}): $[_{TP} T [_{PolP} \blacktriangleright_1 \blacktriangleright_2] \text{impossible} [_{CP} [_{TP} \blacktriangleright_1 \blacktriangleright_2] \text{someone}_2 T [_{PolP} \blacktriangleright_1] \text{not anything}_1 t_2 \text{eat } t_1]]]]$

These data are enlightening because they confirm the existence of domains of *some* as well as *any* even for dialect A, in which flip-flop could not be evidenced directly.²³

3.2.3 An NPI above a PPI

Some important verification is in order: we need to consider what happens when the NPI and the PPI are flipped.

(81) $[_{YP} \dots \pi^- \dots \pi^+]$

The facts bring decisive support to the view that licensing occurs cyclically. (82b), where the PIs are clausemates, is far better than (71b) (it is perfect for some speakers, for others it is marked but acceptable). (83b) is universally accepted without reservations (compare with (73b)).

- (82) a. It is impossible that anyone stole a camera.
 b. It is impossible that anyone stole something. ✓IMPOS.≫SOME
- (83) a. It is impossible that anyone thinks that John stole a camera.
 b. It is impossible that anyone thinks that John stole something. ✓IMPOS.≫SOME

The narrowest scope of *some* is grammatical in sentences (82b) and (83b) provided that the PPI is licensed in its local PolP, before the acceptability of the NPI is checked. This option is what differentiates the grammaticality of the narrowest scope of *some* in (82b) and (83b) on the one hand from its ungrammaticality in (71b) and (73b) on the other.

²¹The opposite situation obtains when the PI under negation is a PPI instead of an NPI (see (55b) and (58b)).

²²Notice that a PPI and an NPI can co-occur in the same clause (see (75)), therefore the clash that I'm describing cannot be due to some general incompatibility between NPIs and PPIs within the same clause.

²³After Baker (1970), Ladusaw (1979) considered cases of so-called 'double negatives', i.e. rescued PPIs.

- (i) a. You can't convince me that someone hasn't already finished the exam.
*NEG≫SOME≫NEG; NEG≫NEG≫SOME
 b. You can't convince me that someone hasn't finished his exam yet.
NEG≫SOME≫NEG; *NEG≫NEG≫SOME
[Ladusaw 1979, ex. 24, p. 181]

He noticed that the only available interpretation of (ia) is one in which, in modern terms, the subject is reconstructed under negation. He also noticed that replacing the PPI with an NPI, as in (ib), has the opposite effect: this time the subject cannot reconstruct under negation. To account for these facts, Ladusaw resorts to a special form of negation, not₂, only used in what he calls denials, of which the negation found in double negatives is a mere instantiation:

'Not₂ carries a conventional implicature that someone has believed until recently that the proposition in its scope was true' (e.g. in (ia) '*someone has already finished*').

Ladusaw stipulates that this special morpheme has the property of taking maximal scope within its clause. Positing a special form of negation with maximal scope over the embedded clause predicts that subject NPIs take narrow scope under it (but they do not, as shown in this section). See also Appendix B.

- (84) a. (82b): [_{TP} T [_{PolP} ↗1 ↗2 **impossible** [_{CP} [_{TP} anyone₂ T [_{PolP} ↗1 something₁ t₂ steal t₁]]]]]
 b. (83b): [_{TP} T [_{PolP} ↗1 ↗2 **impossible** [_{CP} [_{TP} anyone₂ T think [_{CP} John T [_{PolP} ↗1 something₁ t₂ steal t₁]]]]]]]

We correctly predict that replacing *some* with *any* in (55b) on p. 16 produces a grammatical and felicitous sentence: there is at least one constituent in which the NPI is acceptable, namely the matrix PolP and the same is true of the PPI (acceptable in the same constituent).

- (85) a. —A: Everyone is hiding.
 b. —B: That’s exactly true, it’s impossible that anyone isn’t hiding somewhere.
- (86) (85b): [_{PolP} ↗1 ↗2 **impossible** [_{CP} [_{TP} ↗1 ↗2 anyone₂ T [_{PolP} ↗1 **not** somewhere₁ t₂ hide]]]]]

3.3 Multiple NPIs

We have established that the licensing of *any* is environment-based and that it is entangled with *some*. Multiple occurrences of *some* are entangled with each other: by parity of reasoning, we expect multiple occurrences of *any* to be entangled with each other too.

- (87) [... **not** ... π_1^- ... [... **not** ... π_2^- ...]]

However the only cases where the ensuing ungrammaticality could in principle be observable, e.g. (88), are perfect:

- (88) Mary didn’t tell anyone that John didn’t do anything to help the Mafia.
- (89) (88): [_{TP} Mary T [_{PolP2} ↗1 ↗2 **not** anyone₂ tell t₂ [_{CP} that John T [_{PolP1} ↗1 **not** [anything]₁ do t₁]]]]]

Although *anything* is acceptable in the embedded PolP (PolP1), it is not in superconstituents of the matrix PolP (PolP2). The NPI *anyone* on the other hand is only acceptable in superconstituents of the matrix PolP (PolP2). We can sustain the hypothesis that these occurrences of *any* are entangled if we invoke the cyclicity of licensing (63): *anyone* is acceptable in constituents *within* which *anything* is licensed.

Summary

This section has established that the acceptability of PIs is *dependent* on the licensing of other PIs within the same domain. I have also provided evidence for the existence of a cyclic checking mechanism. The evidence in favor of entanglement and cyclicity can be summarized using the following abstract templates:

- a. $*[_{CP} E_{DE} \dots [_{CP} \pi_k^+ \dots [_{PolP} E_{DE} \dots \pi_l^+ \dots]]]$ (55b)
 b. $*[_{CP} E_{DE} \dots [_{CP} \dots \pi^+ \dots \pi^- \dots]]$ (71b)
 c. $*[_{CP} E_{DE} \dots [_{CP} \dots [_{PolP} E_{DE} \dots \pi^+ \dots \pi^- \dots]]]$ (78aii)
 d. $[_{CP} E_{DE} \dots [_{CP} \pi^+ \dots E_{DE} \dots \pi^- \dots]]$ (78aiv)
 e. $[_{CP} E_{DE} \dots [_{CP} \dots \pi^- \dots [_{PolP} \dots \pi^+ \dots]]]$ (82b)

In the next section, I provide further evidence in favor of environment-based licensing, using monotonicity-breaking inferences (and their (anti)-licensing effects on NPIs and PPIs).

4 Further Evidence for Environment-based Licensing

4.1 Monotonicity Disruption by Scalar Implicatures

In this section, I resume the systematic inspection of the very strict symmetry between the licensing conditions of NPIs of the *any*-type and PPIs of the *some*-type: we saw in 2 that flip-flop applies equally to the two categories, we will now see that they are sensitive to the same monotonicity-disruption effects. The data presented here will lend further support to the environment-based approach.

4.1.1 Anti-licensing NPIs

Prior to this article, some have argued that the licensing of weak NPIs is sensitive to the meaning of constituents. This is the case of Chierchia (2004) in particular, who provides a semantic/pragmatic explanation of so-called intervention effects on weak NPIs. It has been known since Linebarger (1980, 1987) that the presence of certain quantifiers (e.g. *every*, *always*), of numerals, of *because*-clauses and of conjunction between an NPI and the closest DE expression above it causes the anti-licensing of the NPI.

- (90)
- a. *When Fred speaks French, John doesn't always understand anything.
 - b. *When Fred speaks French, not everyone understands anything.
 - c. *When Fred speaks French, it's not the case that everyone understands anything.
 - d. *John didn't understand anything because it was easy but because he is smart.
 - e. *John didn't drink wine and any coffee.

Compare with:

- (91)
- a. When Fred speaks French, it's not the case that anyone understands anything.
 - b. John didn't drink wine or any coffee.

Chierchia observes that the interveners form a natural class: they are strong scalar terms. For example, *and* belongs to the scale <or, and>, and *every*, to the scale <some, every>. In light of this generalization, he proposes that these items trigger scalar implicatures (SIs) in DE environments, and that these inferences, when computed in conjunction with the literal meaning, are monotonicity-breakers, hence the observed anti-licensing of NPIs. What is important about this analysis is that it explicitly uses the meaning of constituents (a strengthened meaning which corresponds to the truth-conditional meaning augmented with scalar implicatures) for the computation of the licensing of weak NPIs, in line with this article's proposal.

Here is how the disruption effect arises, according to Chierchia's analysis. First of all, scalar implicatures are computed on constituents, recursively and in a bottom up fashion. For any expression E, $\llbracket E \rrbracket^{\text{ALT}}$ is the set of alternatives to E. If E doesn't contain any scalar terms, then $\llbracket E \rrbracket^{\text{ALT}} = \llbracket E \rrbracket$; in principle, E can contain more than one scalar term, but scalar implicatures, Chierchia claims, are computed locally as soon as their trigger appears; once a given scalar item enters the recursion, the alternatives it induces are computed; as the recursion proceeds, if another scalar term appears, the alternatives it induces do not compose with the alternatives of any previously introduced items.²⁴ Therefore for all E, $\llbracket E \rrbracket^{\text{ALT}}$ only yields the alternatives induced by the topmost scalar item in it. Let A be a set of alternatives and β a member of that set: Chierchia notes $S_{\beta}(A)$ the weakest member of the set A which asymmetrically entails β .

²⁴Chierchia provides an example:

- (i)
- a. some student smokes or drinks
 - b. LF: [some student_i [t_i smokes or t_i drinks]]
 - c. $\llbracket [t_i \text{ smokes or } t_i \text{ drinks}] \rrbracket^{\text{ALT}} = \{ [\text{smoke}'(x_i) \vee \text{drink}'(x_i)], [\text{smoke}'(x_i) \wedge \text{drink}'(x_i)] \}$
 - d. $\llbracket [\text{some student}_i [t_i \text{ smokes or } t_i \text{ drinks}]] \rrbracket^{\text{ALT}} = \{ \text{some}'(\text{student}')(\text{smoke}' \vee \text{drink}'), \text{every}'(\text{student}')(\text{smoke}' \vee \text{drink}') \}$

Second, alongside the plain meaning of a given constituent γ , written $\llbracket \gamma \rrbracket$, grammar provides a strengthened meaning, written $\llbracket \gamma \rrbracket^s$, which is the conjunction of the truth-conditional meaning and of scalar implicatures:

$$(92) \quad \llbracket \gamma \rrbracket^s = \llbracket \gamma \rrbracket \wedge \neg S_{\llbracket \gamma \rrbracket} \llbracket \gamma \rrbracket^{ALT}$$

If it is the strengthened meaning that is relevant for the computation of NPI licensing, we can derive the disruption effects. Strong scalar terms in downward-entailing contexts trigger *indirect* scalar implicatures (elsewhere, they don't trigger scalar implicatures).²⁵

(93) Not everyone understands.

- a. $\llbracket (93) \rrbracket = \neg \forall x [\text{person}'(x) \rightarrow \text{understand}'(x)]$
- b. Scale: <some, every>
- c. $\llbracket (93) \rrbracket^{ALT} = \{[\neg \forall x [\text{person}'(x) \rightarrow \text{understand}'(x)]], [\neg \exists x [\text{person}'(x) \wedge \text{understand}'(x)]] \}$
- d. Implicature: $\neg S_{\llbracket (93) \rrbracket} \llbracket (93) \rrbracket^{ALT} = \neg \neg \exists x [\text{person}'(x) \wedge \text{understand}'(x)]$ ('Someone understands.')
- e. $\llbracket (93) \rrbracket^s = \neg \forall x [\text{person}'(x) \rightarrow \text{understand}'(x)] \wedge \exists x [\text{person}'(x) \wedge \text{understand}'(x)]$ ('Not everyone but someone understands.')

Sentence (94a) is DE w.r.t. the position of α if the plain meaning is taken into account:

(94) Not everyone understands α .

- a. $\llbracket [\text{Not everyone}] \alpha_1 \text{ understands } t_1 \rrbracket$
- b. $\llbracket \text{simple things} \rrbracket \Rightarrow \llbracket \text{things} \rrbracket$
- c. Not everyone understands things.
- d. Not everyone understands simple things.
- e. Not everyone understands things \Rightarrow Not everyone understands simple things.

But it is non-monotonic, hence not DE, w.r.t. α if the strengthened meaning is taken into account, hence the disruption:

- (95) a. $\llbracket (94c) \rrbracket^s = \neg \forall x [\text{person}'(x) \rightarrow \text{understand}'(x, \text{things}')] \wedge \exists y [\text{person}'(y) \wedge \text{understand}'(y, \text{things}')]]$
- b. $\llbracket (94d) \rrbracket^s = \neg \forall x [\text{person}'(x) \rightarrow \text{understand}'(x, \text{simple-things}')] \wedge \exists y [\text{person}'(y) \wedge \text{understand}'(y, \text{simple-things}')]]$
- c. $\llbracket (94c) \rrbracket^s \not\Rightarrow \llbracket (94d) \rrbracket^s; \llbracket (94d) \rrbracket^s \not\Rightarrow \llbracket (94c) \rrbracket^s$

The following LF shows that *any* has no DE domain in (90b) if, as Chierchia claims, indirect scalar implicatures are obligatorily factored into the computation (a remark about notation: the label $\llbracket XP \rrbracket_{\approx n}$ indicates that XP is non-monotonic w.r.t. the position of the bearer of index n that is written in full):²⁶

$$(96) \quad (90b): *[\llbracket TP \rrbracket_{\approx 1} T [\llbracket \text{PolP} \rrbracket_{\approx 1} \text{not everyone anything}_1 \text{ understand } t_1]]$$

²⁵Chierchia derives the distribution of NPIs from a semantic property and from a pragmatic principle which rules the use of the items that have this semantic property: he builds on Kadmon and Landman's (1993) idea that the domain of quantification of *any* is a widened one and argues that *any* is acceptable in a given constituent γ only if the strengthened meaning of γ is logically stronger than the strengthened meaning of the constituent in which the plain indefinite *some* replaces *any*. This happens in exactly those cases in which *any* is in a DE context. For the sake of simplicity, my presentation doesn't contain a comparison of the strengthened meanings of the alternatives with *any* and the ones with *some*.

²⁶I assume that *not every* doesn't form a constituent: it is the spell-out of sentential negation and of *every* in its scope (which means that the quantifier is contained in PolP). Split-scope, which is used as evidence in favor of a similar analysis for *no one*, is also possible with *not every* (although *must_{deon}* and *supposed_{deon}* do not allow this kind of split-scope, see section 6.2, for a reason that I do not understand).

- (i) (Context: Words of wisdom found on a management consultant's blog.)
Although each member is entitled to be on the board, not everybody can be on the board. NEG \gg CAN \gg EVERY

4.1.2 Shielding PPIs

Just like *any*, *some* is sensitive to the effect of so-called interveners. *Some* is licit under a clausemate negation if a certain kind of elements intervene (when this happens, *some* is ‘shielded’ in Szabolcsi’s (2004) terminology): these happen to be the very elements which create so-called intervention effects on NPIs, i.e. (certain) quantifiers (e.g. *every*, *always*), numerals, *because*-clauses, and conjunction (crucially, not disjunction). I claim that this is not an accident.

- (97) a. When Fred speaks French, Jean-Paul doesn’t always understand something. ✓ n.s. of SOME
 b. When Fred speaks French, not everyone understands something.²⁷ ✓ n.s. of SOME
 c. John didn’t understand something because it was easy but because he is smart. ✓ n.s. of SOME
 d. John didn’t drink wine and some coffee. ✓ n.s. of SOME
 e. John didn’t drink wine or some coffee. *n.s. of SOME

Insofar as the disruption effects created by strong scalar terms on NPIs bear witness to the role of environments, the PPI facts (which are in this respect the perfect mirror image of the NPI facts, compare (90) repeated as (98) below and (97)) suggest that the anti-licensing of PPIs is environment-based too, and that the monotonicity of the environment is what matters to licensing.

- (98) a. *When Fred speaks French, John doesn’t always understand anything.
 b. *When Fred speaks French, not everyone understands anything.
 c. *John didn’t understand anything because it was easy but because he is smart.
 d. *John didn’t drink wine and any coffee.

To interpret these data, we need to proceed stepwise, though. Even if we grant that the monotonicity of the environment of *some* in (97) is affected in a way that makes it acceptable, there are still two options to consider, at least as far as (97a) and (97b) are concerned: the environment is favorable either because it is not anti-additive or because it is not DE

In the examples we have considered so far, the expressions that anti-license *some*, i.e. negation and negative quantifiers, denote downward-entailing functions which also have the property of being anti-additive (Zwarts 1998):

- (99) **Anti-additivity:** A function f is anti-additive (AA) iff $f(A \vee B) \iff f(A) \wedge f(B)$

The equivalence is intuitively verified by negation and by negative quantifiers e.g. *no one*:

- (100) a. John doesn’t smoke or drink \iff John doesn’t smoke and John doesn’t drink
 b. No one smokes or drinks \iff No one smokes and no one drinks

All AA functions are also DE functions; but the reverse is not true. The presence of a universal quantifier under negation creates a DE, non anti-additive environment:

- (101) a. Not everyone has a car \implies not everyone has a red car. (DE)
 b. Not everyone smokes and not everyone drinks $\not\iff$ not everyone smokes or drinks. (not AA)

So it is conceivable that *some* is only illicit in AA environments. But it is equally conceivable that *some* is illicit in all DE environments (AA environments are DE): under this hypothesis, the Chierchia ‘interveners’ ruin the monotonicity of the environment of *some*, and its acceptability conditions are

²⁷If we replace *everyone* with the existential (and NPI) *a single person*, narrow scope of *some* is impossible.

- (i) When Fred speaks French, not a single person understands something. *n.s. of SOME

Not is sitting in the specifier of the minimal domain of *some*, PolP, just as it is presumably in (97b). An existential quantifier doesn’t modify the monotonicity of the context in this configuration, and this suffices to explain the lack of shielding; it is also possible that the PPI *some* and the NPI *a single* are entangled, in which case both PIs are anti-licensed.

therefore met in the presence of an intervener (provided the strengthened meaning is taken into account).

- (102) a. [[Not everyone] α_1 understands t_1]
 b. $\llbracket(102a)\rrbracket^s = \neg\forall x [\text{person}'(x) \rightarrow \text{understand}'(x,\alpha')] \wedge \exists y [\text{person}'(y) \wedge \text{understand}'(y,\alpha')]$

(102a), when evaluated with the function $\llbracket\cdot\rrbracket^s$, is non-monotonic w.r.t. the position of α (see (95)).

At this point in the discussion, adjudicating between the two options (intolerance to AA environments vs. intolerance to merely DE environments) is impossible (section 5.1 will show that mere DEness is the culprit, therefore that indirect scalar implicatures are factored in that ruin the monotonicity of the environment in (97)).

4.2 Monotonicity Disruption by Other Inferences

The hypothesis presented in 4.1.2 that certain inferences, *viz.* scalar implicatures, can affect the licensing of polarity items, gains plausibility from unnoticed cases of rescuing, which are not caused by downward-entailing expressions, as illustrated in (103) (to be compared with (104)):

- (103) a. Make sure John didn't steal something. ✓ n.s. of SOME
 b. We need to make sure that John didn't steal something. ✓ n.s. of SOME
 c. I hope John didn't steal something. ✓ n.s. of SOME
 d. Suppose John hadn't stolen something. ✓ n.s. of SOME
- (104) He didn't steal/hadn't stolen something. *n.s. of SOME

In all four cases (the list is probably not exhaustive), the PPI and its clausemate negation are placed in an embedded clause; but notice that embedding is not sufficient *per se*:

- (105) a. I think John didn't steal/hadn't stolen something. *n.s. of SOME
 b. I suppose John didn't steal something. *n.s. of SOME

What is remarkable about those cases of rescuing is that none of the embedding expressions involved is downward-entailing. This is obvious for *make sure* and *hope*: they are in fact UE. It looks like rescuing by *suppose* requires the imperative mood, a fact which renders the examination of entailment relations problematic; we can however take the unavailability of weak NPIs in the scope of imperative *suppose* as an indication that it does not denote a DE function (the same diagnostic applies of course to the other two rescuers):

- (106) a. $\llbracket \text{red car} \rrbracket \Rightarrow \llbracket \text{car} \rrbracket$
 b. I hope John has a car $\not\Rightarrow$ I hope John has a red car. (not DE)
 c. I hope John has a red car \Rightarrow I hope John has a car. (UE)
- (107) a. *Suppose John (had) understood anything.
 b. *Make sure/I hope John understood anything.

If the rescuers denoted DE functions, there would be a UE environment for the PPI *some*, by composition of two DE functions; since they do not denote DE functions, we need to turn to the other option left open in the framework that I am advocating here: if it is not a UE environment that licenses *some*, it has to be a non-monotonic one. How could that be? I would like to propose that an inference is added to the literal meaning of the sentences containing the aforementioned rescuers:

- (108) I hope John didn't steal something.
 \rightsquigarrow I think that it is possible that John did steal something.
- (109) Make sure John didn't steal something.
 \rightsquigarrow I think that it is possible that John did steal something.

- (110) Suppose John hadn't stolen something.
 \rightsquigarrow I think that John stole something.

I will remain absolutely agnostic both about the nature and the source of these inferences. To be sure, this makes the task of demonstrating that they are indeed triggered especially difficult; but I leave for future research the solution to these problems. I am confident that the inference that I claim to be attached to (110) is indeed present: it is the same counterfactuality inference that occurs in subjunctive conditionals, and that comes with the expected property of rescuing PPIs:

- (111) a. If there were no oil in the tank, the furnace wouldn't already be running. \checkmark n.s. of ALREADY
 [Ippolito and Su 2009, ex. 4]
 \rightsquigarrow The furnace is already running.
 b. If John hadn't taken the class two years before, he wouldn't have understood something.
 \checkmark n.s. of SOME
 \rightsquigarrow John understood something.

It is also clear that no such counterfactuality inference obtains when the verb *suppose* is not in the imperative ((112a) is thus to be compared with (110)), and that the lack of inference correlates with anti-licensing of the PPI in (105b):

- (112) a. I suppose John didn't steal money.
 $\not\rightsquigarrow$ I think that John stole money.
 b. I suppose John didn't steal something. \ast n.s. of SOME (105b)

I explained earlier, following Chierchia (2004), that the meaning that is relevant for NPI licensing includes indirect scalar implicatures (4.1.1); it is also possible that it is relevant for the acceptability of *some* (4.1.2); I now propose that this enriched meaning also consists of the inferences that are exemplified above. Pending a more articulated theory, I give them the bland name of ' τ inferences', and I write τ_γ the τ inference associated with constituent γ .

$$(113) \llbracket \gamma \rrbracket^s = \llbracket \gamma \rrbracket \wedge \neg S_{\llbracket \gamma \rrbracket} \llbracket \gamma \rrbracket^{ALT} \wedge \tau_\gamma$$

The reader can verify that this incorporation makes the matrix sentence non-monotonic w.r.t. the position of the object PPI *some*:

$$(114) (103c): \llbracket \boxed{TP} \llbracket \boxed{\times} \rrbracket I T \text{ hope } \llbracket_{CP} \llbracket_{TP} \text{ John T } \llbracket \boxed{PolP} \llbracket \boxed{\times} \rrbracket \text{ not something}_1 \text{ steal } t_1 \rrbracket \rrbracket \rrbracket$$

Whether τ inferences are obligatorily incorporated in the strengthened meaning is also an open question at this stage; to answer it, one could examine their effect on NPIs. But that might be an impossible task. An expression that triggers a τ inference does not have the power to license an NPI, therefore the test requires a potential NPI licenser. If it is below the τ trigger, licensing can take place in a constituent that does not contain the trigger (such as the embedded PolP in (115)); if it is above the trigger, then it is dubious that the inference is actually triggered (116a).

- (115) I hope John didn't steal anything.
 (116) a. I don't hope that John stole anything.
 b. I don't hope that John stole money.
 $\rightsquigarrow^{??}$ I think that it is possible that John stole money.

Summary

We have shown that inferences affect the licensing of *any* and *some*. They do so in a strictly symmetric way. The next section completes the case for a unified theory of the licensing of *some* and *any*, by

showing that the logical properties that one is sensitive to form the complement set of the properties that the other is sensitive to.

5 The Symmetric Acceptability Conditions of *some* and *any*

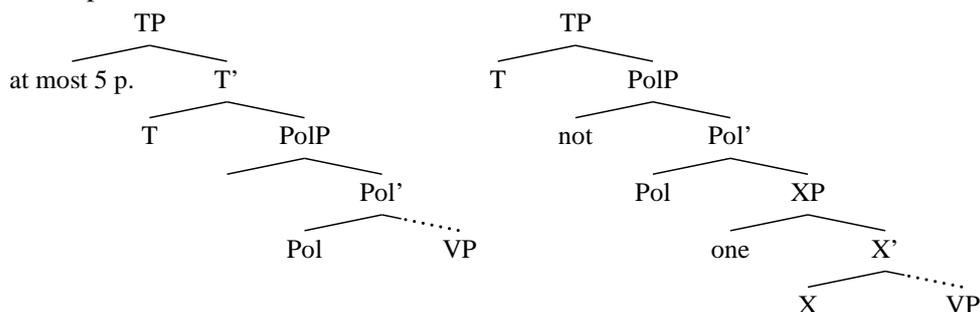
5.1 *Some* is Vulnerable to Downward-entailingness

With the new polarity clash test introduced in 3.2 in hand, we can turn to the question of the logical property that anti-licenses *some*.

I have been assuming that DEness anti-licenses *some*. But this view is usually rejected, since strictly DE expressions such as *at most five people* do not seem to be disruptive, whereas AA expressions such as *no one* clearly are:

- (117) a. When Fred speaks French, at most five people understand something. ✓ AT_MOST_FIVE»SOME
 b. When Fred speaks French, no one understands something. *NEG»SOME

It bears saying at this point that there is a confound: the two sentences above do not form a minimal pair. They differ both by the negative strength of the subject quantifier *and* by its syntactic position. One difference that standard descriptions indeed omit is that the syntactic position of subject DE quantifiers (117a) is not the same as the position of negation, and consequently of negative quantifiers (117b), as argued on p. 9:



A subject DE quantifier can clearly be interpreted outside of PolP:²⁸

- (118) At most five people didn't show up. AT_MOST_5»NEG

The pair shown in (117) is thus inconclusive: it is impossible to tell whether narrow scope of *some* in (117a) is grammatical because strict DEness is innocuous, or because the subject quantifier, although it is a potential offender, is far enough to leave the PPI unaffected in its smallest domain. In order to ascertain whether strict DE expressions anti-license *some*, I propose that we set up a configuration with *some* and *any*, such that we enforce the following alternative: either checking occurs on a constituent where *any* is not in a DE environment (and therefore yields an error), or *any* and *some* are both in a strictly DE (non AA) environment.

Only the latter option stands a chance of yielding a grammatical result, because only it makes room for the licensing of the NPI. All that matters now is the fate of the PPI *some*. The prediction is the following: if *some* is impervious to DEness, the sentence is grammatical, whereas if *some* is vulnerable to DEness, the sentence is out. (119a) realizes the envisaged configuration, and the data lend support to the hypothesis that *some* is anti-licensed by DEness, contrary to the consensus:

²⁸In the absence of a negation that marks the limit of PolP, it is impossible to determine where exactly the subject is interpreted in (i):

- (i) At most five people understand lecture.

One cannot exclude the possibility that it can be interpreted in a reconstructed position, inside PolP.

- (119) a. At most five people sold someone anything. *AT_MOST_FIVE»SOME
 b. (119a): * $[_{TP} \text{ } \blacktriangleright_1 \text{ } \blacktriangleright_2]$ **at most 5 people** T $[_{PolP} \text{ } \blacktriangleright_1 \text{ } \blacktriangleright_2]$ someone₂ anything₁ sell t₂ t₁]]

In (119a), the strictly DE expression *at most five people* outscopes both *someone* and *anything*; neither can be independently licensed. The result is clearly deviant.²⁹

Similarly, we can create a strictly DE environment by composing an AA expression, e.g. negation, with a universal quantifier, e.g. the intensional operator *sure*. Although negation creates AA environments, the presence of a quantifier in its scope alters the logical properties of the environment below: from AA it becomes strictly DE (see (101) on p. 25). Notice that *sure*, unlike *every*, doesn't create a disruption effect of NPI licensing (120a): therefore it seems that no indirect scalar implicature is incorporated and the environment is strictly DE; one would expect that (120b) should be perfect with narrow scope of *someone* under negation if *someone* were vulnerable to AA environments only, contrary to fact:

- (120) a. I'm not sure that John understood anything.
 b. I'm not sure that someone understood anything. *NEG»SOME
 c. (120b): * $[_{TP} \text{ } T \text{ } [_{PolP} \text{ } \blacktriangleright_1 \text{ } \blacktriangleright_2] \text{ } \text{not sure} \text{ } [_{CP} \text{ } [_{PolP} \text{ } \blacktriangleright_1 \text{ } \blacktriangleright_2] \text{ } \text{someone}_2 \text{ } \text{anything}_1 \text{ } \text{sell } t_2 \text{ } t_1 \text{ }]]]]$

The important lesson that we can draw from this is that the PPI *some* is vulnerable to DEness, rather than anti-additivity. This conclusion could only be reached thanks to the entanglement property.

Is *some* also vulnerable to non-monotonicity? We have seen in section 4.2 that it seemed to be rescued in non-monotonic environments. We can confirm that non-monotonicity does not have a disruptive effect on it.

Some is licit in environments created by negation in conjunction with quantificational interveners (121); these should be DE environments, but we've just established that *some* is vulnerable to DEess.

- (121) Not everyone understands something. ✓ n.s. of SOME

There is no paradox if the SI triggered by *every* is factored into the meaning of the constituent (following Chierchia 2004): the environment of the PPI is non-monotonic. Consequently, *some* is not vulnerable to non-monotonicity. We have now answered the question that we asked in relation to (102a): indirect scalar implicatures are indeed incorporated in the meaning that is relevant for the acceptability of *some*; its environment in (102a) is therefore not DE, but rather, non-monotonic. Scalar implicatures can ruin the monotonicity of a constituent: they lead to the anti-licensing of NPIs; symmetrically, they salvage PPIs in the scope of a clausemate anti-licenser. There is no need to treat the NPI and the PPI phenomena differently: shielding and intervention are one and the same thing, seen from two different angles.

This claim that non-monotonicity doesn't anti-license *some* is directly corroborated by (122), where *some* is in the scope of a non-monotonic quantifier in its smallest possible domain:

- (122) No salesclerk sold exactly 2153 people *anything/something.³⁰ ✓ n.s. of SOME

PolP is non-monotonic w.r.t. its position because the composition of a DE function and of a non-monotonic function is non-monotonic;³¹ the theories which make use of the notion of immediate scope

²⁹The test uses a double object construction, because the relative scope of the quantifiers at LF remains what it is on the surface (due to scope freezing, see Bruening (2001)); furthermore, I assume that the NPI doesn't raise out of PolP.

³⁰For some speakers, non-monotonic quantifiers can license weak NPIs in their nuclear scope (Rothschild 2006). But high numbers in the restrictor do not allow this licensing. The potential confounding factor is controlled for in (122):

- (i) a. Exactly three students read anything.
 b. *Exactly 2153 students read anything.

³¹To see this in an intuitive way, consider the following sentences. In a situation in which exactly ten people brought a cake and exactly three people brought a chocolate cake, the entailment from (ia) to (ib) doesn't hold; in a situation in which exactly three people brought a cake and no one brought a chocolate cake, the reversed entailment doesn't hold:

- (i) a. It's not the case that exactly three people brought a cake.

(such as Szabolcsi 2004)³² will also conclude from (122) that non-monotonic functions are not PPI anti-licensors since *some* can be interpreted in the immediate scope of a non-monotonic function. I exploit this symmetry further in section 5.2.

5.2 A Hypothesis about *any* as a PPI in Disguise

One moral of the present investigation of polarity is that *some* and *any* are in complementary distribution, in the specific sense that they cannot be acceptable (hence licensed) in the exact same environment: the former is only acceptable in non-DE environments, and the latter is only acceptable in DE environments. This is evident in minimally small structures, i.e. when the polarity items occur in a PolP and there is exactly one DE expression in that constituent:

- (123) a. John didn't understand something. *NEG>>SOME
 b. John didn't understand anything.

Because of the way the licensing condition (67) can be met, one is easily misled into thinking that they cannot be in complementary distribution. Suppose constituent A is evaluated for acceptability, and A contains a position that is to be filled either by *some* or by *any*: only one of the two is licit in A, but the other can be licensed nonetheless if it is acceptable in some subconstituent or superconstituent of A. This relative freedom is what gives rise to the deceptive air of optionality that emerges e.g. from the two pairs below:

- (124) a. It is impossible that John understood something. ✓IMPOS.>>SOME
 b. It is impossible that John understood anything.
 (125) a. It is impossible that John didn't understand something. ✓NEG>>SOME
 b. It is impossible that John didn't understand anything.

From the point of view of the theory developed herein, in each of the above pairs, the licensing of the PPI doesn't occur in the same constituent as the licensing of the NPI. This is why they can appear in the same surface position.

Given that the two polarity items are in complementary distribution in any given constituent, the old idea (Klima 1964) that they are only superficially different and are either identical or very intimately related at some deeper level regains some plausibility. Specifically, I wish to propose that *any* is derived from a PPI (perhaps *some* itself), and I think French offers some interesting evidence in favor of this derivational link between PPIs and NPIs.

In French, singular *quelque* is a PPI: just like *some* in English, it is illicit in the scope of a clausemate negation but can be rescued or shielded.

- (126) a. *Jean n' a pas compris quelque chose.* *n.s. QUELQUE
 Jean NEG has NEG understood some thing
 'Jean didn't understand something.'

 b. It's not the case that exactly three people brought a chocolate cake.
 c. (ia) $\not\Rightarrow$ (ib); (ib) $\not\Rightarrow$ (ia)

³²Caveat: the notion of immediate scope is inherited from Linebarger (1980): it has survived in various guises to this day. In its original form, it claims that any scope-bearing element disrupts licensing when sandwiched between a licenser and an NPI. This claim is no longer upheld as such, for a number of scope-bearing elements don't create an interference, namely *any*, bare plurals, non-numerical indefinites, embedding predicates, e.g. modal verbs. For example, *have to* is not a disruptor (I use a falsity test to check that the narrow scope reading of *any*, which entails the wide scope reading, does exist):

- (i) —A: John doesn't have to read anything.
 —B: False, it is required that he reads.

Immediate scope is therefore no longer an empirically adequate notion but some authors (Szabolcsi 2004 a.o.) continue to use it nonetheless, whether or not they have an explanation to offer for the disruption facts that it was designed to account for.

- b. *Il est impossible que Jean ait compris quelque chose.* ✓ n.s. QUELQUE
 it is impossible that Jean have.SUBJ understood some thing
- c. *Il est impossible que Jean n' ait pas compris quelque chose.* ✓ n.s. QUELQUE
 it is impossible that Jean NEG have.SUBJ NEG understood some thing
- d. *Jean ne comprend pas toujours quelque chose.* ✓ n.s. QUELQUE
 Jean NEG understands NEG always some thing

When its restrictor is modified by the relative clause *que ce soit*, *quelque* is grammatical under a clause-mate negation:

- (127) *Jean n' a pas compris quelque chose que ce soit.* *w.s. QUELQUE; ✓ n.s. QUELQUE
 Jean NEG has NEG understood some thing that this be.SUBJ
 'Jean didn't understand anything.'

Strikingly, the phrase that results from the addition of the modifier is only licit in a DE environment. That is, it is a (weak) NPI:

- (128) a. **Jean a compris quelque chose que ce soit.*
 Jean has understood some thing that this be.SUBJ
- b. **Quelque chose que ce soit a eu lieu.*
 some thing that this be.SUBJ has taken place
- c. *??Exactement trois personnes ont compris quelque chose que ce soit.*
 exactly three people have understood some thing that this be.SUBJ
- d. *Tout le monde n' a pas compris quelque chose que ce soit.*³³ *NEG>>TOUT
 all the people NEG have NEG understood some thing that this be.SUBJ
- e. *Moins de trois personnes ont compris quelque chose que ce soit.*
 less of three people have understood some thing that this be.SUBJ

Furthermore, there is a strong intuition that the effect of the subjunctive relative is a widening of the domain that *quelque* quantifies over.

Summing up, French has a productive way of forming NPIs, which exhibit the widening property described as characteristic of weak NPIs in Kadmon and Landman's (1993) classic study and in much subsequent work. But all we see really is a PPI being salvaged by the addition of an appropriate modifier. The addition is only licit when the acceptability of the PPI is checked on a constituent which is DE w.r.t. its position: when there is no DE-environment that the modified PPI is placed in, it is excluded.

This suggests that the following principle is at work:

- (129) **Principle of Laziness:** For any constituent A containing the PPI π^+ , don't add a preserving modification to π^+ if π^+ is not anti-licensed in A.

The principle is too strong as it stands: there are other preserving modifiers that do not have the effect of turning *quelque* into an NPI. They can be observed in English (these facts are not described in the literature, as far as I know). In (130b), (131b), and (132b) and their French equivalents, adding an overt restriction to the restrictor of the quantifier in the form of a relative clause or a reduced relative clause (of which a postnominal adjective is an instantiation) significantly improves the acceptability of *some* (prenominal modification doesn't have the same effect):

- (130) a. John didn't hire someone. *NEG>>SOME
 b. John didn't hire someone that he didn't like. NEG>>SOME
- (131) a. I didn't buy something. *NEG>>SOME
 b. I didn't buy something from Eastern Europe. NEG>>SOME

³³Notice that sentence (128d) is out under the prominent reading in which the universal quantifier is interpreted below negation: it is a general fact about French that subject *tout* has a very strong tendency to reconstruct under negation.

- c. I didn't buy some Eastern European thing. *NEG>>SOME
- (132) a. John never invited someone. *NEG>>SOME
 b. John never invited someone honest. NEG>>SOME
 c. John never invited some honest person. *NEG>>SOME

This phenomenon bears resemblance to subtrigging (LeGrand 1975), whereby *any* is acceptable—in a context which is neither negative nor modal or generic—thanks to the presence of a postnominal modification of the restrictor of the quantifier (see Dayal 2004):

- (133) a. *Any student signed the petition.
 b. Any student who went to the meeting signed the petition.
 c. Any student at the meeting signed the petition.
 d. Any student there signed the petition. [Dayal 2004, ex. 3]

I won't attempt to offer an explanation of the subtrigging phenomenon (i.e. licensing by modification), but will content myself with proposing that the cases of improvement of *some* that we are considering should be subsumed under it.³⁴

Since these modifications, unlike *que ce soit*, are not restricted to DE environments, it would be necessary to add some restriction to the principle (129). But I leave for future research a characterization of the modifications that salvage PPIs and can only be used to do so.

In sum, French has an overt modifier *que ce soit* whose effect is to turn a PPI into an NPI, and this transformation comes with a hallmark of weak NPIs, domain widening. Likewise, I propose that we explore the hypothesis that *any* is nothing but a PPI (either *a* or *some*) salvaged by an analogue of *que ce soit*.³⁵ If this is so, *some* and *any* are in complementary distribution because the latter is nothing but a PPI with a modification that is only licit wherever *some* is not.³⁶ Needless to say, much more work is needed to verify this hypothesis: as a starting point, we need to establish that *a*, the natural candidate for

³⁴There is an obvious counterproposal. In all of the above pairs, the second sentence is associated with an inference, e.g.:

- (i) John never invited someone honest.
 ↗ John sometimes invited someone.

It is possible that this inference is a scalar implicature that derives, through the standard Gricean procedure, from the Maxim of Quantity. Consider (130), (131) and (132); in each of them, the grammatical counterpart of the a. sentence is logically stronger than the b. sentence. For concreteness:

- (ii) $\neg\exists x [\text{person}'(x) \wedge \text{invite}'(j,x)] \Rightarrow \neg\exists x [\text{person-honest}'(x) \wedge \text{invite}'(j,x)]$

If the (grammatical counterpart of the) a. sentence is an alternative to the b. sentence, it gives rise to an implicature. Factoring in this scalar implicature (i.e. calculating the strengthened meaning, as in Chierchia (2004)) yields a non-monotonic context, and this has the effect of shielding the PPI, e.g. in (132b), because all eligible constituents are non-monotonic w.r.t. its position.

- (iii) $\llbracket (132b) \rrbracket^s = \neg\exists x [\text{person-honest}'(x) \wedge \text{invite}'(j,x)] \wedge \exists x [\text{person}'(x) \wedge \text{invite}'(j,x)]$

The situation is more complex than it looks however: the fact that prenominal modification doesn't salvage PPIs—although it feeds the SI mechanism—suggests that SIs are not in fact at work in the grammatical sentences. Yet, some data seem to support the implicature line. It is possible to salvage *some* without directly modifying its restrictor, as shown in (iv) (Tim Stowell, p.c.), where context and the adverbial *for a change* contribute to making the PPI acceptable. It is plausible that *for a change* triggers the implicature that Mary said something on other occasions.

- (iv) *Context*: Mary can't help raising her hand to express her views in class. Guess what. . .
 For a change, she didn't say something.
 ↗ Mary sometimes said something.

³⁵*A* is a priori a more natural candidate than *some*, as *any* can be analyzed into a-n-y, where the morpheme -y is a preserving and domain-widening modifier (and the intervocalic [n] is euphonic).

³⁶The PPI phenomenon is extremely robust across languages: to my knowledge, the unacceptability of indefinites—otherwise acceptable in simple positive sentences—under a clausemate negation is universal. But not all languages have weak NPIs such as English *any* (for example, Italian has n-words, which do not pattern exactly like NPIs).

the derivation of *any*, is anti-licensed in DE environments; furthermore, if *any* were to derive from *some* (in some morphologically opaque way), we would have to explain why the smallest possible domain of *some* (PolP) is not the same as the smallest possible domain of *any* for the speakers of dialect A (it is smaller than PolP). This is an obvious problem. But I want to point out that within English too, a derivational link between PPIs and NPIs seems plausible (although the resulting NPI is strong):³⁷

- (134) a. John didn't understand a thing.³⁸ *NEG>>A
 b. John didn't understand a THING. NEG>>A

The indefinite is ungrammatical unless *thing* bears a pitch accent. Interestingly, this accent is ungrammatical outside of AA environments.

- (135) a. ??John understood a THING.
 b. ??Fewer than three people understood a THING.
 c. ??Exactly three people understood a THING.

Since Lahiri (1998), there is a tradition that views strong NPIs (the ones that require AA environments) as being accompanied with a hidden *even*: the accent on *thing* in (134b) might be a phonological marker of the presence of the silent focus particle. We could hypothesize that the presence of *even* is a way to salvage a plain indefinite PPI (*a thing*), and that this salvaging mechanism cannot be used outside of certain environments. A particular reading of the adjective *single* (presumably tied to the presence of a silent *even*) also requires AA environments:

- (136) John didn't understand a single thing.

The prominent reading of (136) is that John didn't understand anything. This meaning is not the expected one: one expects to get the negation of '*John understood a single thing*', which is true e.g. in a situation in which John understood two things. Outside of AA environments, *a single thing* only has its literal—exhaustified—meaning, not the non-literal one.

(134b) and (136) can be viewed as exemplifications of those PPI-preserving modifications which obey (129). One glitch is that the derivational link that I proposed between *any* and *some* made sense insofar as they are in complementary distribution: but *a thing* and *a single thing* are only vulnerable to AA environments, therefore if they derive from a PPI, this PPI has to be anti-licensed in AA environments only. And we haven't established yet that *a* (the natural candidate, also natural for the derivation of *any*) is anti-licensed in AA environments only.

The benefit of the conjecture proposed in this section is that it does away with a long-standing puzzle, namely the licensing of *any*. According to that conjecture, *any* is the form that a PPI takes when salvaged in DE environments under a certain modification. We are thus left with one question: why are PPIs of the *some*-type anti-licensed in DE environments? The answer to the question of the licensing of *any* will ensue from the answer to this more fundamental problem. This problem, in turn, will have to await future research. In the next section, I explore licensing *per se*, and focus in particular on the insights it offers into the workings of LF.

6 The Mechanics of Licensing

6.1 Three Properties

The three main properties of the licensing procedure are:

³⁷NPIs formed out of PPIs also seem to be attested in Hungarian (A. Szabolcsi p.c.): this is the case of e.g. *vala-mi is*, which results from the addition of the particle *is* 'even', 'also', to the PPI *vala-* 'some'.

³⁸I notice, without explaining the fact, that *a* is sometimes good in a similar environment, without special pitch accent:

- (i) I don't have a car. ✓NEG>>A

1. Licensing is environment-based: constituents are evaluated for the acceptability of the polarity items they contain. The evidence comes (i.) from flip-flop (instantiated by PPIs under the more common label of ‘rescuing’; also instantiated by strong and weak NPIs), (ii.) semantic intervention effects (known as ‘shielding’ in the literature on PPIs), and (iii.) entanglement: some polarity items are entangled with others, e.g. a given occurrence of *some* is entangled with other occurrences of *some*, with *still*, *already*, *any*...

2. Licensing is cyclic: it is manifest that certain polarity items are licensed before others in a given sentence, e.g. *some* is licensed before *any* in (82b), the lower *some* is licensed before the higher one in (65b).

3. Licensing is liberal: suppose PI π has n domains in sentence S ; it is acceptable in each of them. Licensing takes place in one of these n constituents, not necessarily the largest one; it is also usually not possible to pinpoint the very domain that is picked for licensing. For concreteness, the licensing of *some* may take place in the embedded PolP in (2a) (it cannot take place in the matrix PolP), while the licensing of *any* may take place in the matrix PolP in (2b) (it cannot take place in the embedded PolP).

This description leaves open certain important questions. How does evaluation proceed? Does it run parallel to the syntactic derivation, or does it operate at LF? Is it top-down or bottom-up? I will not be able to provide a complete answer to these questions. Still, I can offer some useful insights, drawn from the examination of a particularly interesting PPI, namely deontic *must*. This PPI bears on its sleeves the derivational history that led to its licensing.

6.2 Scope of Mobile PPIs

The deontic modal *must* is a mobile PPI (Israel 1996, Iatridou and Zeijlstra 2009): this fact is established in Author (2010a,b). The property of *must* that bears directly on the present discussion is its ability to raise covertly past an offending negation (I propose to call this movement ‘escaping’, see Author (2010a)). It is base-generated under negation, as the head of a VP, but like a number of PPIs, it cannot remain in the scope of a clausemate negation, unless it is rescued or shielded (it can also be interpreted under a superordinate negation). Therefore the minimal domain of $must_{deon}$ appears to be PolP. The LF of (137a), which is precisely a case where $must_{deon}$ is neither rescued nor shielded, and thus has to raise, is as in (137b):

- (137) a. John $must_{deon}$ n’t leave. MUST>>NEG;*NEG>>MUST
 b. [John₁ $must_{deon2}$ not t₂ [t₁ leave]]

Evidence for the movement of $must_{deon}$ comes from occurrences of a quantified subject scopally sandwiched between raised $must_{deon}$ and a clausemate negation (Author (2010a) shows that the particular scopal configuration instantiated in (138) cannot obtain through a purely semantic route, *viz.* neg-raising).

- (138) *Context:* The rules of this bowling game state that exactly one pin must remain standing, no matter which one...
 Exactly one pin $must_{deon}$ n’t be knocked down. ✓MUST>>EXACTLY_ONE>>NEG

Remarkably, when $must_{deon}$ is shielded, it cannot raise:³⁹

- (139) Not everyone $must_{deon}$ leave. *MUST>>NEG; NEG>>MUST

Note that the mere presence of an intermediate quantifier (for example the existential *a single person*) doesn’t shield the PPI, i.e. it doesn’t block its movement:

- (140) Not a single person $must_{deon}$ leave.⁴⁰ MUST>>NEG; *NEG>>MUST

³⁹When it is not shielded, it can raise: there is no indication that it has to raise. Failure to raise leads to ungrammaticality in a number of cases, but there is no evidence that some principle forces the modal to raise whenever this is possible.

The hypothesis that inferences can be monotonicity disruptors explains the contrast between (137a) and (139): the smallest possible domain of *must* in (139) doesn't have the same logical properties as the one in (137a). In the latter, *must* is in an AA environment, whereas in the latter it is in a non-monotonic environment if the indirect SI is factored in (and in a DE one if it isn't). Given that indirect scalar implicatures appear to be obligatorily factored into the computation of the acceptability of weak NPIs and *some*, it seems natural to assume that they also are in the computation of the acceptability of *must*_{deon}.

In the light of (139), a principle very similar to (129) seems to be at play. I thus propose a generalized principle:

- (141) **Principle of Laziness (generalized):** For any constituent A that contains a PPI π^+ , don't modify π^+ for polarity purposes (by movement or by adjunction) if the monotonicity of A w.r.t. the position of π^+ does not make π^+ unacceptable in A.

The interesting fact is observed when *must* is in the scope of two DE expressions, the lower one being a clausemate negation: two readings obtain. The reason is that two options arise: *must* takes intermediate scope between the two DE expressions as in (142a), or it takes narrowest scope under the two (there is flip-flop, i.e. it is 'rescued' in the Szabolcsi sense of the word, as in (142b)):

- (142) a. John is the most competent accountant I know, but this is a free country: so he does nothing that *must*_{deon} n't be done over again.⁴¹ NEG»MUST»NEG
 b. John is so unbelievably incompetent! He does nothing that *must*_{deon} n't be done over again. NEG»NEG»MUST

The existence of these two readings might look intriguing to some, in the light of the Principle of Laziness (141) (the prohibition against raising when *must* is rescued). One could expect the intermediate scope of *must* to be impossible: being rescued, *must* need not raise past the clausemate negation, and therefore should not be allowed to do so. But it can in fact optionally raise, as shown by (142a). The

⁴⁰The deontic modal *supposed* exhibits the same cluster of properties, and is therefore a mobile PPI too:

- (i) a. John is not *supposed*_{deon} to leave. SUPPOSED»NEG; *NEG»SUPPOSED
 b. *Context:* The rules of this bowling game state that exactly one pin must remain standing, no matter which one... Exactly one pin is not *supposed*_{deon} to be knocked down. ✓ SUPPOSED»EXACTLY_ONE»NEG
 c. Not everyone is *supposed*_{deon} to leave. *SUPPOSED»NEG; NEG»SUPPOSED
 d. Not a single person is *supposed*_{deon} to leave. SUPPOSED»NEG; *NEG»SUPPOSED

This fact is crucial because *supposed* doesn't undergo overt head-movement (V-to-T). I suppose that the syntactic mechanism whereby *must*_{deon} and *supposed*_{deon} end up higher than negation is the same: therefore (overt) V-to-T has no role to play in it. I assume that overt V-to-T does not affect scopal relations (I thus side with Chomsky (2000), against Lechner (2006)) and that at LF, *must* starts out in its base position. It sometimes needs to raise out of this position for polarity reasons: these movements are covert. That the semantic scope of modals is independent of overt head movement is further confirmed by the fact that there exist modals which undergo V-to-T but never take semantic scope over clausemate negation, e.g. *can* and *could*, see fn. 41.

⁴¹The contracted form *mustn't* is on its way out in certain dialects of English, for example American English. But it is important to use it in our test, because the contraction indicates that the negation is a clausemate of *must*. The evidence that contraction is not possible with subordinate negation comes from modals which can only take semantic scope over negation in non-contracted forms (just like deontic *must* and other root modals, abilitative *could* is generated under negation; unlike deontic *must*, it need not raise past it (hence it cannot) because it is not a PPI):

- (i) a. John could_{abil} not swim. COULD»NEG; NEG»COULD
 b. John could_{abil} n't swim. *COULD»NEG; NEG»COULD

Root modals are main verbs, which embed an infinitive: the negation in (ia) is in the subordinate clause (and in the main clause in (ib)). Non contracted forms of negation with *must* are either clausemate or subordinate negations (with no semantic difference between the two options):

- (ii) John must not swim.

facts become intelligible once seen from the cyclic perspective that we are advocating here. Consider the following simplified LF (the label $\boxed{\text{XP AA } n}$ indicates that XP is AA w.r.t. the position of the bearer of index n that is written in full):

- (143) a. (142a): $[_{\text{TP}} \text{ T } [_{\text{PolP2 AA 1}} \text{ not thing } [_{\text{CP}} \text{ that } [_{\text{TP}} \text{ } \text{ } \text{ must}_1 [_{\text{PolP1}} \text{ not } t_1 \dots]]]]]]$
 b. (142b): $[_{\text{TP}} \text{ T } [_{\text{PolP2}} \text{ } \text{ } \text{ not thing } [_{\text{CP}} \text{ that } [_{\text{TP}} [_{\text{PolP1 AA 1}} \text{ not } \text{ must}_1 \dots]]]]]]$

To derive the above facts, we need only consider the following initial LF, and three scenarios, assuming that evaluation proceeds from bottom to top:

- (144) $[_{\text{PolP2}} \text{ } \text{ } \text{ not thing } [_{\text{CP}} [_{\text{YP AA 1}} [_{\text{PolP1 AA 1}} \text{ not } \text{ must}_1 \dots]]]]]]$

1. When acceptability is checked on PolP1 in (144), *must* is anti-licensed, and there is no room for it to move anywhere above the offending negation: the sentence doesn't converge if the checking procedure stops at this stage.

2. There is however at least one constituent which (i.) is in the embedded clause (this is important because the movement of the modal is clause-bounded), (ii.) is an eligible constituent for licensing purposes, (iii.) is larger than PolP1 and (iv.) offers a landing site for the modal to raise to (it is labeled YP in the above LF (144)): in YP, *must* is unacceptable prior to movement, but it is acceptable after movement (i.e. in the LF shown in (145)). This is how the intermediate reading illustrated in (142a) obtains.

- (145) $[_{\text{PolP2}} \text{ } \text{ } \text{ not thing } [_{\text{CP}} [_{\text{YP}} \text{ } \text{ } \text{ must}_1 [_{\text{PolP1}} \text{ not } t_1 \text{ [be done } \dots]}]]]]]$

3. Lastly, when acceptability is checked on PolP2 and movement hasn't taken place (144), the modal finds itself in a UE environment (it is rescued), therefore it doesn't have to raise. If (141) applies, then the movement is blocked. Even if the movement could occur, it would place the modal in an anti-licensing position (PolP2 is AA w.r.t. the landing position). In either case then, reading (142b) obtains.

To sum up, there are two converging situations, and they give rise to the two observed readings: licensing can take place in some embedded YP of LF (145) that contains PolP1 (the reading is instantiated in (142a)), or in a superconstituent of PolP2 of LF (144) (reading (142b)). The semantic scope of deontic *must* w.r.t. negation unambiguously indicates its syntactic position w.r.t. negation, because (i.) it has the ability to move past an offending clausemate negation, and (ii.) it only moves when it has to; its scope is therefore an indication of the monotonicity of its local context (the scope of *some* on the other hand is known to be particularly flexible, since it can always outscope negation, perhaps because its semantic scope is the reflexion of a choice function construal rather than of QR, see Reinhart (1997)).

It is worth noting that French deontic *devoir* and *falloir* are mobile PPIs too (Author 2010a). They differ from *must_{deon}* in that they can but need not be interpreted above a clausemate negation:

- (146) *Jean ne doit_{deon} pas faire de jogging.*⁴² DEVOIR \gg NEG; NEG \gg DEVOIR
 Jean NEG must NEG do of jogging
 'John must not jog/John is not required to jog.'

I propose that *devoir_{deon}* and *falloir_{deon}* can take narrow scope under a clausemate negation although they are PPIs because their smallest possible domain is smaller than PolP (e.g. VP). It is only when their acceptability is checked on superconstituents of PolP that they have to raise (unless the Principle of

⁴²The wide scope of *devoir* is blocked when it is shielded by a strong scalar term e.g. *souvent* 'often'. To control for the position of the adverb (i.e. make sure that it is in the matrix) I replace the complement of the modal with a pronoun (right-dislocation):

- (i) *Jean ne le doit_{deon} pas souvent, faire du jogging.* *DEVOIR \gg NEG; NEG \gg DEVOIR
 Jean NEG it must NEG often do of-the jogging
 'Jean is not often required to jog.' (only reading)

Laziness makes this movement impossible, due to shielding). French *devoir_{deon}* and *falloir_{deon}* provide us with examples of PPIs that can be interpreted under a clausemate negation: the existence of such polarity items is predicted by the domain theory.

In closing, I would like to bring together the covert movement of mobile PPIs and the domain widening modification brought about by *que ce soit* (127): they are both improper out of DE environments. Suppose the two operations, raising and domain-widening modification, form a class: let's call them ρ operations. What could be the property that unifies them? An answer suggests itself (it is in keeping with previous research on NPIs (Kadmon and Landman 1993)): in DE environments (and only there) the ρ operations have the effect of yielding an outcome which is logically stronger than their input. Their execution might be governed by the following principle (a generalization of Kadmon and Landman's 1993 principle⁴³), which applies locally:

(147) **Strengthening Principle:** Apply a ρ operation only if it leads to strengthening.⁴⁴

6.3 Ordering

We know that licensing of PIs can take place in stages; I repeat some of the crucial pieces of evidence below:

- (148) a. Mary didn't tell anyone that John didn't do anything to help the Mafia. (88)
 b. It's impossible that someone isn't trying to hide somewhere. \checkmark IMPOS. \gg SOMEONE (66)
 c. It's impossible that anyone stole something. \checkmark IMPOS. \gg SOMEONE (82b)

In those examples, the licensing procedure operates from bottom to top (de facto). We lack evidence to tell whether evaluation has to proceed from bottom to top or even in a predetermined order.

We can however address easier issues regarding the timing of licensing. First of all, if we are to assume that evaluation proceeds from bottom to top, the decision to license can obviously be delayed until an appropriate constituent is found. Consider a sentence S with four levels of embedding; S contains the NPI π_k^- in the most deeply embedded clause; only the largest PolP in S is DE w.r.t. π_k^- . The NPI can be licensed, despite the great number of inappropriate constituents that will have to be examined before reaching an appropriate one.

⁴³Here is how they define strengthening:

- (i) **STRENGTHENING:** Any is licensed only if the widening that it induces creates a stronger statement, i.e. only if the statement on the wide interpretation \Rightarrow the statement on the narrow interpretation.
 [Kadmon and Landman 1993, p. 369]

⁴⁴First consider *must*, analyzed as a universal quantifier over possible worlds; I assume that the pragmatically enriched reading $[[\cdot]]^s$ is the one that is relevant. Consider for concreteness the situation in (i): the meaning of XP after raising of the modal past negation is logically stronger than its meaning prior to movement; cases where raising of *must* is blocked (e.g. (139)) are cases where the output is not stronger than the input (ii):

- (i) a. John *must_{deon}* n't leave. (137a) (ii) a. Not everyone *must_{deon}* leave. (139)
 b. $[_{XP}$ **not** *must* $[_{YP}$]]
 c. $[_{XP}$ *must*₁ **not** t_1 $[_{YP}$]]
 d. $[[(ic)]]^s \Rightarrow [[(ib)]]^s$ b. $[_{XP}$ **not** every *must* $[_{YP}$]]
 c. $[_{XP}$ *must*₁ **not** every t_1 $[_{YP}$]]
 d. $[[(iic)]]^s \not\Rightarrow [[(iib)]]^s$; $[[(iib)]]^s \not\Rightarrow [[(iic)]]^s$

Similarly, the addition of *que ce soit*, if it is indeed a domain widener, leads to strengthening only in DE environments, i.e. in those environments where it is licit:

- (iii) a. Jean n'a pas compris quelque chose que ce soit. (iv) a. *Jean a compris quelque chose que ce soit.
 b. $\neg \exists x \in D$ (understand'(j,x)) b. $\exists x \in D$ (understand'(j,x))
 c. $\neg \exists x \in D'$ (understand'(j,x)) with $D \subseteq D'$ c. $\exists x \in D'$ (understand'(j,x)) with $D \subseteq D'$
 d. (iiic) \Rightarrow (iiib) d. (ivc) $\not\Rightarrow$ (ivb)

We can say more. Recall that *must_{deon}* can take either narrow or intermediate scope when it is generated below two negations, one of which is a clausemate ((142a)-(142b)). What the inspection of *must_{deon}* reveals then is that licensing can be delayed even when a constituent is found which is acceptable w.r.t. all the PIs it contains. In (142b), where the modal is interpreted with narrowest scope, it is licensed in a superconstituent of matrix PolP: if licensing were forced to occur in the smallest domain of *must* where *must* is acceptable, only the intermediate scope reading (142a) would ever obtain. The latter reading occurs when the licensing of the PPI takes place in the embedded clause. In sum, (142a) and (142b) exhibit two distinct derivational histories.

While the licensing procedure can be internally ordered, it also looks like it can be ordered w.r.t. other operations that take place at LF. For clarity, we need to distinguish evaluation and licensing. It is obvious that not all covert movements take place *prior to* evaluation. For we observed that a certain covert movement, *viz.* raising of modals, is partially determined by PI acceptability. It is only possible when a PI is not acceptable in a given constituent: escaping seems to be blocked when made unnecessary (=when the PPI is rescued).⁴⁵ Licensing of *must* (142a) can take place after this movement. It is the culmination of the sequence:

(149) 1. evaluation – 2. movement – 3. evaluation – 4. licensing

We are also in a position to say that certain movements cannot occur after licensing has taken place:

(150) *Tout le monde n' a pas compris quoi que ce soit.* *NEG>>TOUT
 all the people NEG have NEG understood what that this be.SUBJ

Subject *tout* reconstructs preferentially under negation in French. But it cannot do so in (150). The quantifier cannot reconstruct before evaluation of the NPI, because this would lead to anti-licensing. But one could imagine that the NPI is licensed first, then the quantifier reconstructs: this scenario appears to be impossible, though. Now if it is not the case that covert movements need to take place before evaluation of PIs (on account of the movement of modals), then we can conjecture that a constituent where licensing has taken place (e.g. PolP in (150)) becomes impenetrable for subsequent movements (e.g. reconstruction into it).

It is also true that when a given PI has been licensed, it can no longer move. Subject *some* can reconstruct under negation, provided that it does not land in a position where it is anti-licensed (48b). But if licensing could take place prior to movement, then reconstruction under a negation should be possible in (50a) repeated below, contrary to fact:

(151) Someone isn't hiding. *NEG>>SOME (50a)

Some is licensed in its surface position, and this is where it is necessarily interpreted. Therefore the following generalization seems to hold:

(152) **Generalization:** A Polarity Item is interpreted in the position in which it was licensed.

To sum up, a certain picture of intra-LF operations emerges from these observations, which is admittedly incomplete. It is compatible with the view that evaluation and licensing apply to fully derived sentences;⁴⁶ they do not seem to occur at the very first stage of the transformations that occur at LF;

⁴⁵Note that even when unnecessary, this movement would have a semantic effect if it took place, and would hence be allowed according to standard assumptions about movement, in particular Fox's Scope Economy Principle (Fox 2000). If the covert movement of mobile PPIs is an instance of QR, then I don't know of any other instance of such a condition on QR. I should also point out that I am not able to decide between two options, which seem to be equally problematic at this stage: (i.) the covert raising is covert head movement or (ii.) it is QR. Head movement does not affect scopal relations, therefore it would be strange to assume that it does have semantic effects when it is covert; *must* on the other hand is clearly a head, as it can undergo V-to-T and T-to-C, therefore it seems odd to say that it can undergo QR which is otherwise known to target phrases.

⁴⁶Alternatively, one can imagine that there is no LF component separate from core syntax, and that the interpretation processes are contemporaneous with the syntactic derivation by phase. Perhaps PolP and the other domains of PIs are nothing but the phases that syntactic theory postulates. The movements that are motivated by licensing purposes do not, under this view,

constituents where licensing has taken place are inaccessible to subsequent movements; once licensed in a given position, a PI is unable to move out of that position. We know that licensing sometimes needs to be ordered (to avoid anti-licensing of certain PIs), but we do not know whether evaluation needs to proceed in a predetermined order (in particular, we do not know if it has to go from bottom to top).

7 *Some* is not an Intervener

There is a possibility that we haven't excluded yet, in relation to the co-occurrence of multiple PIs: so far, all the ungrammatical cases that we've considered involve the PPI *some* in one of the three configurations (assume that the sentences that correspond to these templates contain no other occurrences of PPI, NPI and negation, than the ones explicitly mentioned):

- (153) A: *_[S] **not** ... _[S'] *some* ... *any*]]
 B: *_[S] **not** ... _[S'] ... **not** ... *some* ... *any*]]
 C: *_[S] **not** ... _[S'] *some* ... **not** ... π^+]]

A simple-minded generalization comes to mind, which targets *some* as the culprit: the quantifier *some* cannot intervene either between an NPI and the closest 'licenser', or between a negation that anti-licenses a PPI and the closest rescuer of that PPI. Put more simply: *some* cannot intervene between a PI in need of licensing and its potential licenser. I see two ways to make sense of this generalization.

The first one is easily dismissed: one might be tempted to extend Chierchia's (2004) proposal, originally designed to account for so-called intervention effects of *every*, *and*, numerals, *because*-clauses etc., to *some*. But notice that it is impossible that the disruption effects be due to a scalar implicature: although *some* is a scalar term, it is a weak one (therefore it only triggers a SI in a non-DE environment), and in the cases that we are concerned with, the only constituents where *any* (in A and B) and π^- (in C) have a chance of being licensed are DE w.r.t. the position of *some*.

The second way goes as follows: *some* creates an intervention, and this intervention has nothing to do with its PPIhood (therefore what I described as polarity clashes are but spurious effects). If this challenge cannot be responded to, the new data that I produced bring little support to the environment-based hypothesis: in effect, operator-based hypotheses have been developed that deal with the disruption effects created by *every* and *and* (Beck 2006), and treating *some* as a member of the class of interveners wouldn't be too big a stretch for those theories. Suppose for example that we hypothesize that (i.) an NPI needs to be in the scope of at least one DE operator in order to be licensed (there must be a syntactic dependency between the NPI and the DE operator, i.e. c-command); (ii.) *some* creates an intervention whose result is to break the syntactic dependency that the licensing condition requires. Such a theory cannot explain all the facts that I put forward in favor of the environment-based theory (e.g. the flip-flop data), but it can explain why the presence of *some* between a DE operator and an NPI leads to the anti-licensing of the NPI (in the configurations A and B). Turning to PPIs, suppose that we hypothesize that a negation and a clausemate PPI in its scope turn into an NPI, which requires being in the scope of at least one DE expression to be licensed (see Szabolcsi 2004 for such a theory). If *some* disrupts the licensing of NPIs, configuration C in (153) boils down to a case of anti-licensing of an NPI.

I see at least four reasons to maintain that polarity clashes exist and that they lend support to the environment-based approach.

1. First of all, we can construct configurations where ungrammaticality ensues from the co-occurrence of an NPI and a PPI in that order. These are cases where the PPI could not act as an intervener because it is lower than the NPI. If we are right in assuming that *some* has PolP as its smallest possible domain, the configurations of interest are such that an NPI is in this domain; no DE expression can appear in

occur after the sentence has been spelled out but during the derivation itself. Attractive though this alternative hypothesis may be, it raises an issue. When phases are spelled out at their edge, they cannot be frozen, i.e. the PIs they contain cannot become inaccessible for licensing. Otherwise, an NPI separated from a potential 'licenser' by a phase boundary could not be licensed, contrary to fact. Notice however that not all theories of phases assume that they are impenetrable (Fox and Pesetsky 2005), therefore this idea is in principle viable.

this domain, because we want to exclude direct anti-licensing of the PPI as a cause of ungrammaticality. One way to achieve the result is to use a double object construction where the expression denoting the Goal is an NPI and the expression denoting the Theme is a PPI (this is a very simple modification of (119a)). Assuming that the relative scope of the quantifiers is surface scope (because of scope freezing, see Bruening (2001)) and that the NPI doesn't raise out of PolP, we expect the result to be bad because all eligible constituents have the same polarity w.r.t. both PIs as the LF shows. This prediction is borne out:

- (154) a. At most five people sold anyone something. *AT_MOST_FIVE>>SOME
 b. (154a): * $[\text{TP } \blacktriangleright_1 \blacktriangleright_2 \text{ at most 5 people T } [\text{PolP } \blacktriangleright_1 \blacktriangleright_2 \text{ anyone}_2 \text{ something}_1 \text{ sell } t_2 t_1]]$

With the verb *tell*, we replicate the effect with two PIs of opposite polarity in the same PolP (with both surface orders exemplified in (155a) and (155b)).

- (155) a. At most five people told anyone something. *AT_MOST_FIVE>>SOME
 b. At most five people told someone anything. *AT_MOST_FIVE>>SOME

Since *tell* can be constructed with a propositional complement, it offers an interesting testing ground for our hypothesis. The PPI in the embedded clause can be licensed before the NPI in the matrix is evaluated (and (156a) is correctly predicted to be grammatical); however an NPI in the embedded clause cannot be licensed without anti-licensing the PPI in the matrix and *vice versa* (and (156b) is correctly predicted to be ungrammatical):

- (156) a. At most five people told anyone that someone had come.
 b. *At most five people told someone that anyone had come.

2. Second, other PPIs besides *some*, e.g. *would rather*, create polarity clashes with *any*, witness (157d).⁴⁷

- (157) a. He would rather be in Montpelier.
 b. *He wouldn't rather be in Montpelier.
 c. There isn't anyone here who wouldn't rather do something downtown.
 d. *There isn't anyone here who wouldn't rather do anything downtown. [Baker 1970, ex. 46a]

The NPI *anything* cannot be licensed in the embedded PolP due to the presence of the unacceptable *would rather*; the next constituents where *would rather* could be acceptable (matrix PolP and its superconstituents) are constituents in which *anything* is unacceptable. Changing the complement of *do* from the NPI *anything* into the PPI *something* (157c) rescues the sentence (all three PIs are licensed in matrix PolP).

- (158) a. (157c): $[\text{TP } T [\text{PolP } \blacktriangleright_1 \blacktriangleright_2 \blacktriangleright_3 \text{ not anyone}_3 [\text{CP } [\text{TP } T [\text{PolP } \blacktriangleright_1 \blacktriangleright_2 \text{ not [would rather]}_2 \text{ something}_1 \text{ do } t_1]]]]]]$
 b. (157d): * $[\text{TP } T [\text{PolP } \blacktriangleright_1 \blacktriangleright_2 \blacktriangleright_3 \text{ not anyone}_3 [\text{CP } [\text{TP } T [\text{PolP } \blacktriangleright_1 \blacktriangleright_2 \text{ not [would rather]}_2 \text{ anything}_1 \text{ do } t_1]]]]]]$

⁴⁷I was not able to find speakers of the dialect in which *would rather* is a PPI. The data are taken from Baker (1970), p. 178: Baker shares the intuition that underlies the present article and proposes a rule of polarity reversal which takes into account all clausemate PIs: 'one polarity-sensitive item in a subordinate clause can have its polarity reversed only if all such elements do.'

Van der Wouden (1997) comments on (157d) (p. 170): he shares the intuition developed in this article, since he suggests that 'an NPI and a PPI must be checked at the same time or under the same construction.' He proposes to view the rescuing facts as a cancellation of negation and explains that the DE operator, being unavailable, cannot license an NPI in its scope (and conversely, without cancellation, the PPI is not available). However he immediately discards what he calls a 'simple story in terms of negation cancellation' in view of the cases where a combination of two DE operators doesn't anti-license an NPI (i.e. lack of flip-flop). The facts that sentences such as (157d) exemplify are, as a result, left unexplained.

3. Third, if we adopt the perspective of theories that hold that *every, always, and...* act as interveners (i.e. as elements that disrupt the syntactic dependency between an NPI and its licenser) and want to include *some* in the class of interveners, we expect *some* to pattern with the foregoing elements. But it doesn't, and the circumstances in which it fails to cause a disruption have a better chance of falling out from the environment-based approach than from the intervention approach. Let us see why. We've seen that the co-occurrence of *some* and *any* is ungrammatical in the scope of a superordinate negation or negative quantifier, and also in the scope of strictly DE quantifiers. But speakers judge that there is a very significant contrast between those cases (reproduced below as (159)) and (160c), where the PIs co-occur in the restrictor of *if* ((160a) and (160b) are controls). Importantly, (160c) is also significantly better than (161), where *every* replaces *some*. By itself, the latter contrast indicates that the effects induced by *some* and *every* are of a different brand.

- (159) a. *I'm not sure that someone stole anything.
 b. *No one claims that someone stole anything.
 c. *At most five people sold someone anything.
- (160) a. If someone stole a camera, we're in trouble.
 b. If John stole anything, we're in trouble.
 c. ?If someone stole anything, we're in trouble.
- (161) *If everyone stole anything, we're in trouble.⁴⁸

The case of *if* is particularly interesting, because it is standardly analyzed as being non-monotonic in its restrictor (Lewis 1973, Heim 1984). It is a well-known fact that natural language conditionals do not exhibit the monotonicity properties of material implication. For example, the 'Strengthening of the Antecedent' property doesn't hold of natural language conditionals:⁴⁹

- (162) Strengthening of the Antecedent: If ϕ , ψ then $\phi \wedge \phi'$, ψ .
- (163) If this match were struck, it would light, but if this match had been soaked in water overnight and it were struck, it wouldn't light. [modified from Stalnaker 1968].

The claim that antecedents of conditionals are non-monotonic faces an empirical challenge: weak NPIs are licensed in them, see (160b). If DEness is a necessary condition for NPI licensing, this fact is left unexplained on the non-monotonic line. Heim (1984) noted however that not all antecedents of conditionals license *any*, and she observed that licensing only obtains in the presence of some background assumptions.

⁴⁸The difference between (160c) and (161) suggests that *everyone* is not a PPI, or at any rate, not when it is in subject position. There is one quantifier, though, which appears to be positively polarized in that position: French *chaque* 'each' can only reconstruct under a clausemate negation if in doing so it lands in a UE environment (to show that *chaque* takes narrowest scope in (ii), I use a falsity test):

- (i) Chaque administrateur n'est pas présent. *NEG>>CHAQUE
 'Each director isn't present.'
- (ii) —A: Si chaque administrateur n'était pas présent, ce conseil serait illégal. ✓SI>>NEG>>CHAQUE
 'If each director were not present, this meeting would be illegal.'
- (ii) —B: Faux, le conseil est légal avec un administrateur manquant.
 'False, the meeting is legal with one director missing.'

When in object position, it can be interpreted under a clausemate negation, a fact which is compatible with it not being a PPI in that position:

- (iii) Le docteur n'a pas examiné chaque élève. ✓NEG>>CHAQUE
 'The doctor didn't examine each student.'

⁴⁹Alternative theories have been developed, e.g. von Stechow (1999), which maintain that conditionals are structures of universal quantification wherein the *if*-clause provides the restrictor: on this view, *if*-clauses are monotonic, more specifically downward-entailing, and appearances to the contrary, see (163), ought to be blamed on changing domain restrictions.

next section to the examination of some open problems.

8 Open Problems

8.1 Computations that Involve Non-monotonic Quantifiers

We have seen that a PPI anti-licensed by a clausemate negation gets rescued by a DE expression. The explanation that I offered is that the context of the PPI in constituents which include both DE expressions (the anti-licensing one and the rescuing one) is upward-entailing. The environment-based approach was discarded by previous researchers (Bhatt and Schwarz (2003), Szabolcsi (2004)) in favor of an operator-based approach on the grounds that *some* is not rescued by UE expressions: according to them, *some* is anti-licensed by AA expressions; and the combination of a UE and a AA expressions yields a strictly DE context.

- (170) a. $\llbracket \text{Eastern-European languages} \rrbracket \Rightarrow \llbracket \text{European languages} \rrbracket$
 b. More than two people don't understand European languages \Rightarrow More than two people don't understand Eastern-European languages. (DE)
 c. More than two people don't smoke and more than two people don't drink $\not\Rightarrow$ More than two people don't smoke or drink. (not AA)

If the acceptability of *some* was checked in its syntactic environment, the objection goes, a UE function should rescue it by creating a DE environment when composed with negation.⁵¹ For example in (171a), PolP is AA, while TP is strictly DE, w.r.t. the position of *something*.

- (171) a. *When Fred speaks French, more than two people don't understand something.
 b. (171a): * $\llbracket \text{TP} \triangleright 1 \rrbracket$ [more than two people] T $\llbracket \text{PolP} \text{ AA } 1 \rrbracket$ **not** something₁ t₂ understand t₁]]

This objection has no force since we have established that *some* is in fact vulnerable to DEness instead of anti-additivity (5.1).

Oponents to environment-based licensing have also pointed out the lack of rescuing by non-monotonic expressions, and unlike the previous objection, this is indeed a vexing issue. We have established that *some* is not vulnerable to non-monotonicity, and the theory defended here does predict that *someone* should not be anti-licensed in (172a), since there is an eligible constituent which is non-monotonic w.r.t. its position, namely TP.

- (172) a. *When Fred speaks French, exactly forty-two people don't understand something.
 b. (172a): $\llbracket \text{TP} \approx 1 \rrbracket$ [exactly forty-two people]₂ T $\llbracket \text{PolP} \triangleright 1 \rrbracket$ **not** something₁ t₂ understand t₁]]

There are reasons however to take the counterargument with a grain of salt. It relies on the universally accepted assumption that speakers make no mistakes in the computation of monotonicity. This assumption might not be fully warranted, though.

One can construct a complex expression comprising a negative quantifier such that the context created in its scope is not DE. *Not exactly no one* is an example of such a complex non-DE expression; it is a constituent, therefore it counts as an operator and an operator-based approach must take it into account;⁵² under the environment-based approach defended here, its monotonicity should be readily

⁵¹According to Szabolcsi (2004), rescuers can only be DE expressions, i.e. NPI licensers, because a PPI in the 'immediate' scope of a clausemate negation forms a non-lexical NPI with this negation, see Appendix A below.

⁵²I assume that *not exactly no one* is a constituent with the structure [[[not exactly] no] one]; it is fully contained in PolP. The two alternative constituencies that come to mind are unsatisfactory. First, suppose that *not exactly* is a modifier at the clausal level: [[not exactly] $\llbracket \text{TP} \text{ no one} \dots \rrbracket$]. This makes the wrong prediction that the following sentence is felicitous in the envisaged context:

- (i) *Context:* A new legislation is about to be adopted which bans the consumption of alcohol. But there are a few legislative steps remaining. So one can say that at this stage...

observable through its effects on *some* and *any*, because it is entirely contained in PolP:

- (173) a. $\llbracket \text{red car} \rrbracket \Rightarrow \llbracket \text{car} \rrbracket$
b. Not exactly no one has a car.
c. Not exactly no one has a red car.
d. (173b) $\not\Rightarrow$ (173c)

Although it creates a non-DE context (in another parlance, it is a non-DE operator), *not exactly no one* anti-licenses PPIs and licenses NPIs:

- (174) —A: Can you name a time when no one in the family behaved responsibly?
—B: Not exactly no one did *something/✓ anything when Mary was in trouble, but she received very little support from her relatives.

(175) provides further evidence that the truth-conditional meaning of *not exactly no one* clearly isn't DE; if it were, (175a) could, just like (175b), be uttered truthfully in a context in which students who answer all questions correctly pass the exam, contrary to fact:

- (175) If you want to pass the exam. . .
a. . . you have to make not exactly no mistakes. [modified from Nouwen 2006]
b. . . you have to make at most five mistakes.

It thus appears that this complex quantifier has a paradoxical behavior: it is not in fact DE, but its effects on PIs are the ones of a DE quantifier. Its meaning is the composition of two functions $f \circ g$, the second of which, denoted by *no one*, is undeniably DE (it is AA, in fact). It seems that the contribution of *not exactly* is that of a non-monotonic function. There is indeed a solid intuition that *not exactly no one* is, in addition to being non-DE, non-UE too, i.e. that (173c) doesn't entail (173b): the reason is that *not exactly no one has a car* seems to mean that a proportion close (but non equal) to 0% owns a car (I propose that we refer to this component of the meaning of *not exactly* as the proximal component, using a term that is traditionally used in the discussion of the meaning of *almost*, see Penka (2005), Nouwen (2006)), and one can imagine a situation in which a very small proportion of people in the domain own a red car, and a large proportion own a car.

Now, if *not exactly* denotes a non-monotonic function (i.e. it is neither DE nor UE, truth-conditionally), we are entitled to think that speakers mistakenly treat the composition $f \circ g$ of a non-monotonic function f and a DE function g (the expression that denotes f precedes the expression that denotes g) as being DE. And we thus expect, by parity of reasoning, that they will also treat as DE the context created by *exactly three people* and negation in (172a).

Alternatively, one could think that the proximal component is not truth-conditional, but rather is a scalar implicature (which I will not try to derive), and that *not exactly* is truth-conditionally DE. If that is so, then we have found an instance in which speakers are unable to compute the composition of two DE expressions (the result is in fact UE).

In either case, we have evidence that speakers can err in their monotonicity computations, and (172a) might have the properties that lead to sub-optimal computing.⁵³ Chemla et al. (2011) have established experimentally that the notion relevant for NPI licensing is *perceived* rather than *actual* downward-tailingness: in other words, the licensing condition of NPIs is rightly phrased in terms of DEness (this

#Not exactly no one can drink alcohol.

Second, the constituency [not [[exactly no one] [_{VP}]]] runs into the problem that [[exactly no one] [_{VP}]] is not well-formed.

- (ii) #Exactly no one can drink alcohol.

⁵³Linear order seems to be of the essence, as we have seen that speakers can compute that the combination of negation and a non-monotonic quantifier creates a non-monotonic context, when negation precedes the non-monotonic-function-denoting expression, see (122).

notion is indeed operative), but speakers base their judgments on their perception of monotonicity, which is not necessarily accurate. Further experiments are needed to determine whether speakers perceive the context created under *exactly three* and negation as DE, and similarly for the context created by *not exactly no one*. Pending the results of these investigations, it is imprudent to conclude from (172a) that environment-based approaches are on the wrong track. Operator-based accounts (in particular Szabolcsi (2004)) don't fare any better than my theory with regard to (174): if *not exactly no one* is indeed a constituent, it counts as an operator and the licensing pattern is not expected given the non-DEness (therefore the non-anti-additivity) of that operator.

There is another case where the theory defended here incorrectly predicts that a PPI should be rescued: I have in mind sentences where a weak scalar term should rescue a PPI in its scope by triggering a direct SI (this is not a case that opponents to environments have envisaged):

- (176) a. When Fred speaks French, someone doesn't understand something. *n.s. SOMETHING
 b. $\llbracket (176a) \rrbracket^s = \exists x [\text{person}'(x) \wedge \neg \exists y [\text{understand}'(x,y)]] \wedge \neg \forall x [\text{person}'(x) \rightarrow \neg \exists y [\text{understand}'(x,y)]]$

If the direct scalar implicature is incorporated into the meaning that is relevant for licensing (just like indirect scalar implicatures are, see section 4), sentence (176a) is non-monotonic w.r.t. the PPI, and given our previous conclusions, the PPI should be acceptable in TP. This fact is reminiscent of the lack of anti-licensing by direct scalar implicatures, already noted and addressed in Chierchia (2004):

- (177) a. At most five people understand anything.
 b. *Direct scalar implicature*: Some people understand something.

Chierchia's solution to this puzzle is, in essence, that direct scalar implicatures are calculated after acceptability is checked (in subsequent work, Chierchia derives the facts using two different operators, one for the calculation of scalar implicatures, one for the checking of acceptability, see Chierchia (2006)). Maybe (176a) shows that direct implicatures simply don't enter the computation of the acceptability of PIs.⁵⁴ It might also be that anti-licensing of *some* in (176a) is yet another effect of the failure to perceive as non-monotonic an environment which really is (when the source of non-monotonicity precedes a DE function).

8.2 Deontic *must*

In this article, I have used the scopal properties of deontic *must* to make an argument in favor of the computation of PI licensing in syntactic environments. The syntactic scope of *must* w.r.t. negation derives from its being a PPI. We expect to witness a polarity clash with NPIs, of the kind that we observed between *any* on the one hand and *some*, *still*, and *would rather* on the other. The case in point is (178) with narrow scope *any*, where all domains in which *any* is acceptable are constituents that contain a PPI in an anti-additive environment.⁵⁵

- (178) I don't think that John $_{deon}$ must read anything. NEG»MUST»ANY

There might be a categorial ingredient to polarity clashes (the NPIs and PPIs we have considered were all phrasal). The lack of clash between *any* and *must* can actually be likened to a symmetric lack of clash between *some* and the NPI modal *need* even when *some* takes wide scope over *need*.

- (179) In such a case, all someone need do is go to the police. ALL»SOME»NEED

⁵⁴This line of reasoning is potentially weakened by some facts which suggest that an implicature might play a role in the rescuing of *some*, discussed in fn. 34 on p. 31.

⁵⁵A clarification is in order here: the verb *think* is a neg-raiser (Gajewski 2005), i.e. it is optionally and preferentially interpreted as having semantic scope over negation. Under this interpretation, strong NPIs are licensed under *think* as they find themselves in an anti-additive environment (they are not licensed under the non-neg-raised interpretation: in that case the complement of the modal is a DE context, which results from the combination of an anti-additive operator and an upward-entailing universal quantifier over possible worlds.)

9 Conclusion

The acceptability of polarity items, positive and negative, depends on monotonicity, rather than on some structural relation with an operator. But to vindicate the semantic nature of acceptability, one needs to understand the syntactic component of the evaluation procedure. This article tries to do both: show that acceptability is essentially semantic, and provide a theory of the syntactic operations that its assessment requires. PIs are sensitive to the monotonicity of their environments, as evidenced by flip-flop, by entanglement (polarity clashes), by the effects of certain inferences (scalar implicatures a.o.), and by the scope of mobile PPIs (e.g. deontic *must*). Armed with this knowledge, we have established that *some* is vulnerable to downward-entailingness, and is therefore never licensed in the same constituents as *any*. This paves the way for a unification of the NPI and the PPI phenomena: in light of some direct evidence from French, I proposed that NPIs are the spell-outs of modified PPIs. If this is correct, the fundamental puzzle is not about NPIs, but instead about PPIs. An adequate theory of polarity is essentially, I submit, a theory that can solve the problem of positive polarity.

A Szabolcsi (2004)

Szabolcsi proposes that the commonalities that one observes between PPIs and certain NPIs are not an accident: in her analysis, *some* behaves like a weak NPI when it falls in the immediate scope of an anti-additive operator, i.e. it needs to be licensed. Rescuing, whereby an occurrence of *some* in the so-called immediate scope of a clausemate negation ends up being acceptable only if *some* and the clausemate negation are outscoped by a DE expression, is thus a simple instance of licensing of a weak NPI: rescuing is, in other words, nothing but ‘double licensing’. Anti-additivity is the logical property that *some*-type PPIs are vulnerable to, i.e. the property that induces the NPI-like behavior; strict DEness leaves *some*-type PPIs unaffected. This rule is supported, in Szabolcsi’s view, by the following contrast:

- (180) a. No one called someone. *n.s. of SOME
b. At most five people called someone ✓ n.s. of SOME

The explanandum is thus the effect of clausemate anti-additive operators on *some*. Szabolcsi proposes that *some* has two NEG or NPI ‘features’, and that these NEG features act just like negations: *some* is one possible spell-out of an item which has the semantics of a doubly negated existential $\lambda P\lambda Q\neg\neg\exists[P(x) \wedge Q(x)]$. The higher negative feature can interact with an operator to form a binary resumptive quantifier: but only clausemate anti-additive operators qualify (it is a ‘strong-NPI’ feature); the lower negative feature can also form a resumptive quantifier with an operator, which only needs to be DE (it is a ‘weak-NPI’ feature). The PPI phenomenon is thus reduced to the NPI phenomenon (analyzed as the formation of a resumptive quantifier with an external DE operator). This is one original and appealing feature of the proposal; another one is that there is strictly speaking no licensing or anti-licensing. In this system, *some* and *any* are the mere morphological reflexes of semantic processes whereby negative features combine with operators to form resumptive quantifiers.

The invulnerability to non-local anti-additive operators is not derived on principled grounds: Szabolcsi proposes that it follows from the fact that the higher NEG feature in the underlying form of *some* is a strong-NPI feature, and certain strong NPIs require a local licenser (it is a correlation rather than an explanation which is offered). This is indeed true of the strong NPI *in years*, but not of the strong NPIs *yet* or *until* (they all require anti-additive licensers):

- (181) a. *It’s impossible that John has exercised in years.
b. It’s impossible that John can understand this yet.
c. It’s impossible that John left until the day after.

An explanation is missing, and the offered correlation is not even perfect, therefore the theory cannot account for this very salient property of PPIs.

se: they claim to establish the existence of a separate negation without resorting to polarity violations but to surface ordering only; still, they hold that their analysis can carry over to the so-called rescuing of PPIs. I want to make two points: I will argue (i.) that these authors miscategorize the objects that they study and do in fact, although unwittingly, describe cases of PPI rescuing, and (ii.) that their analysis is inadequate due to this category error and furthermore could not be extended to well-known cases of PPI rescuing. In sum, I wish to propose that German has only one negation, which amounts to doing away with light negation.

Schwarz and Bhatt assume that standard negation in German occupies a fixed position; its locus is at the periphery of vP. They investigate the surface position of standard *nicht* w.r.t. definite (184a), indefinite (184b) and disjoined direct objects (184c) and state—without an explicit account—that standard *nicht* cannot surface before these constituents.⁵⁶

- (184) a. *Fritz hat (*nicht) Frage 3 beantwortet.*
 Fritz has (NEG) question 3 answered
 ‘Fritz has answered question 3.’
- b. *Fritz kann (*nicht) eine Fremdsprache.*
 Fritz knows (NEG) a foreign.language
 ‘Fritz knows a foreign language.’
- c. *Fritz hat (*nicht) Frage 3 oder Frage 4 beantwortet.*
 Fritz has (NEG) question 3 or question 4 answered
 ‘Fritz has answered question 3 or question 4.’ [Schwarz and Bhatt 2006, ex. 9 and 10]

Nicht can be linearized after these constituents; when that happens, it takes narrow scope w.r.t. indefinites objects and disjunction. This is expected, since in the clausal *Mittelfeld*, scope-bearing elements take surface scope (*nicht* presumably takes narrow scope w.r.t. definite objects as well, but this is hard to establish, and notoriously so: regardless of their position, definite descriptions take wide scope over negation, perhaps because of a homogeneity inference, see Breheny (2005)).

- (185) a. *Fritz hat Frage 3 nicht beantwortet.*
 Fritz has question 3 NEG answered
 ‘Fritz did not answer question 3.’
- b. *Fritz kann eine Fremdsprache nicht.*
 Fritz knows a foreign.language NEG
 ‘There is a foreign language that Fritz doesn’t know.’ EIN»NEG
- c. *Fritz hat Frage 3 oder Frage 4 nicht beantwortet.*
 Fritz has question 3 or question 4 NEG answered
 ‘Fritz did not answer either question 3 or question 4.’ ODER»NEG

The crucial pieces of evidence in favor of a distinct, higher negative morpheme *nicht* are found in two classes of syntactic environments. (i.) In an NPI-licensing environment:

- (186) a. *Wir haben keinen angenommen, der nicht Frage 3 beantwortet hat.*
 we have no one admitted who NEG question 3 answered has
 ‘We admitted no one who did not answer question 3.’
- b. *Wir haben keinen angenommen, der nicht eine Fremdsprache kann.*
 we have no one admitted who NEG a foreign.language knows
 ‘We admitted no one who doesn’t know a foreign language.’

⁵⁶Although they do not provide an explanation for the observed pattern, it seems very plausible that these constituents are generated within VP and subsequently move past *nicht*. The nature and the driving force of this movement are not immediately obvious, but I will propose my own account, see below. An important property was already noted by Brugger and Poletto (1995): the movement does not have the characteristic properties of scrambling (*pace* Webelhuth (1989)), as it is not optional, and the objects obligatorily moved past *nicht* can be focused (while scrambled constituents are normally defocused).

- c. *Wir haben keinen angenommen, der nicht Frage 3 oder Frage 4 beantwortet hat.*
 we have no one admitted who NEG question 3 or question 4 answered has
 ‘We admitted no one who did not answer question 3 or question 4.’

[Schwarz and Bhatt 2006, ex. 14]

And (ii.) in the consequent of a subjunctive conditional (the authors claim that it is counterfactuality that licenses light negation; note that well-known PPIs are also available under a negation in the same environment, as discussed before, e.g. (111) on p. 26):

- (187) a. *Wenn Fritz dumm wäre, hätte er nicht Frage 3 beantwortet.*
 if Fritz stupid be.SUBJ have.SUBJ he NEG question 3 answered
 ‘If Fritz were stupid, he wouldn’t have answered question 3.’
 b. *Wenn Fritz dumm wäre, könnte er nicht eine Fremdsprache.*
 if Fritz stupid be.SUBJ know.SUBJ he NEG a foreign.language
 ‘If Fritz were stupid, he wouldn’t know a foreign language.’
 c. *Wenn Fritz dumm wäre, hätte er nicht Frage 3 oder Frage 4 beantwortet.*
 if Fritz stupid be.SUBJ have.SUBJ he NEG question 3 or question 4 answered
 ‘If Fritz were stupid, he wouldn’t have answered question 3 or question 4.’

[Schwarz and Bhatt 2006, ex. 18]

Since, in the foregoing sentences, *nicht* can precede the very same objects that negation otherwise follows, the authors conclude that it has to be a distinct negation, with a restricted distribution. There are two obvious shortcomings to this approach: homophony is little appealing (if only from the perspective of language acquisition), and even more so when it should be so general cross-linguistically; and the occurrences of so-called light negation do not form a natural class (the authors can at best offer a disjunctive condition, *viz.* negative polarity or counterfactuality).

In light of the theory developed herein, I want to propose that definite and indefinite DOs are positively polarized in German (possibly weak PPIs, only sensitive to the specific monotonicity properties of negation, see Zwarts (1998) and van der Wouden (1997)), and need to scope out when they fall under a negation in their minimal domain; they can be rescued by DE expressions (186) or by certain inferences (187) (see section 4.2). Given the facts about *some*, the claim about indefinites is not particularly audacious, despite the fact that *ein* has not, so far, been alleged to be a PPI; but the claim about definites certainly is more daring, so I will say more about it. Unusual though it may be, I think it is a promising one.⁵⁷ To see why, it is useful to go back to Schwarz and Bhatt’s initial presentation of the data.

First, it contains an odd asymmetry between disjunctions and conjunctions of DOs, which cannot fail to make the authors’ description dubious. Observe that while *nicht* cannot, outside of the special environments shown above, precede a *disjunction* of definite direct objects (e.g. (184c) repeated as (188a)), it can precede a *conjunction* of definite DOs:

- (188) a. *Fritz hat nicht Frage 3 oder Frage 4 beantwortet. *NEG>>ODER
 b. Fritz hat nicht Frage 3 und Frage 4 beantwortet. ✓NEG>>UND
 ‘Fritz didn’t answer both question 3 and question 4.’

Schwarz and Bhatt do not tackle the problem and do not provide examples of conjunctions. But under their assumptions, given that so-called standard negation is a fixed point which serves to detect movements in the *Mittelfeld*, disjunctions and conjunctions of object DPs should be assigned distinct *derived* positions in the structure; I do not know of any independent supporting evidence for such a hypothesis. And in fact, it can be readily discarded: disjunction *per se* does not mandate movement past negation, as can be shown using adverbial disjuncts (compare (189a) and (189b)):

⁵⁷Pending additional research on the topic, I will steer clear of the question of what exactly is polarized in definite and indefinite objects (e.g. whether determiners, overt or silent, are).

- (189) a. *Fritz hat nicht schnell oder intelligent geantwortet.* NEG»ODER
 Fritz has NEG quickly or intelligently answered.
 ‘Fritz answered neither quickly nor intelligently.’
- b. *Fritz hat schnell oder intelligent nicht geantwortet.* ODER»NEG
 Fritz has quickly or intelligently NEG answered.
 ‘Fritz’s failure to answer was either quick or intelligent.’

This means that disjoined definite DOs have to precede negation via overt movement (when they are not already rescued) because they are definite, not because they are disjoined. And the contrast between (188a) and (188b) falls out from the assumption that definite objects are PPIs: we indeed know that conjunction, unlike disjunction, can shield PPIs (see e.g. (97d)-(97e), section 4.1.2). Observe that the PPIhood of *ein* gets confirmed by the same test that we used to probe the PPIhood of definite descriptions: conjunction also shields *ein-NPs*:

- (190) *English pre-discourse*: Fritz only speaks German, therefore. . .
- a. *Fritz kann nicht eine Fremdsprache. *NEG»EIN
- b. Fritz kann nicht eine afrikanische Sprache und eine germanische Sprache. ✓NEG»EIN
 ‘Fritz doesn’t speak both an African and a Germanic language.’

The hypothesis that definite and indefinite objects are polarized positively affords a straightforward explanation to the exceptions reported above: they can only follow negation, i.e. be rescued, if they occur under an NPI-licenser (in which case they have a UE environment), or if their environment is made non-monotonic due to the incorporation of an inference (e.g. counterfactuality) to the global meaning. This is exactly what Schwarz and Bhatt observe in (186) and (187).

But their theoretical options make the conditions of appearance of so-called light negation hard to capture in any simple and homogeneous way. Schwarz and Bhatt have to say that this morpheme needs some kind of *licensing*; DENess is one well-known licensing factor and could be invoked justifiably in light of such examples as (186), but light negation cannot be said to be an NPI due to its availability in the consequent of subjunctive conditionals.⁵⁸ Therefore all the cases of light negation under a DE expression are bound to lack an explanation. On the other hand, the remaining cases (187) appear to be of a totally different nature if they are due to counterfactuality, hence the lack of homogeneity.⁵⁹

Second, the following paradigm leads Schwarz and Bhatt to make an unpalatable stipulation about light negation: not only does it not anti-license PPIs (such as *einige* ‘some’), but it also anti-licenses NPIs, e.g. *jemals* ‘ever’ in its scope.

- (191) a. **Hat er uns nicht das Bild jemals gezeigt?*
 has he us.DAT NEG the picture ever shown
- b. **Ich kenne keinen, der uns nicht das Bild jemals gezeigt hat.*
 I know no one who us.DAT NEG the picture ever shown has
- c. **Ich bin überrascht, dass er uns nicht das Bild jemals gezeigt hat.*
 I am surprised that he us.DAT NEG the picture ever shown has
 [Schwarz and Bhatt 2006, ex. 43]

The authors’ intuition is that in each of the above, there is a potential licenser for *jemals* (e.g. *überrascht*) but the NPI is screened off from it by light negation. As a matter of fact, no such stipulation is in fact needed if, as I argued above, definite objects are PPIs, and if they are ‘entangled’ with NPIs of the *jemals*-type. In other words, the above three sentences are further instantiations of the ill-formed configuration

⁵⁸For that same reason, I argued earlier (Appendix A) that Szabolcsi (2004) cannot appeal to double licensing.

⁵⁹Besides, if the proposal is to cover cases of PPI rescuing, it is probably too narrow in the first place: we know that inferences of counterfactuality are not the only ones that can rescue PPIs, in English at least:

- (i) Make sure John didn’t steal something. ✓n.s. of SOME
 ↪ I think that it is possible that John stole something. (109)

(192) already discussed in connection with *some* and *any*, e.g. (78aii):

(192)* $[_{CP} E_{DE} \dots [_{CP} \dots [_{PoIP} E_{DE} \dots \pi^+ \dots \pi^- \dots]]]$ (79)

In closing, I would like to add that categorizing German definite object DPs as PPIs receives support from a similar and independent proposal made by Spector (2004) about subject indefinites. There are, needless to say, outstanding issues: in particular, it is not clear why definite DPs can be the object of the negative preposition *ohne* (as in *ohne das Buch* ‘without the book’).

References

- Author. 2008. Presuppositions can be disruptors too: A case against Strawson-entailment. In *Proceedings of WCCFL 27*, ed. Natasha Abner and Jason Bishop, 220–228. Somerville, MA: Cascadilla Proceedings Project.
- Author. 2010a. Epistemic modals: High ma non troppo. In *Proceedings of NELS 40*.
- Author. 2010b. Neg-raising and positive polarity: The view from modals. Ms., UCLA.
- Author. 2010c. Presuppositions and NPI licensing. Ms., UCLA.
- Baker, Carl Leroy. 1970. Double negatives. *Linguistic Inquiry* 1:169–186.
- Beck, Sigrid. 2006. Intervention effects follow from focus interpretation. *Natural Language Semantics* 14:1–56.
- Bhatt, Rajesh, and Bernhard Schwarz. 2003. Notes on Szabolcsi’s ‘Positive polarity-negative polarity’. Ms.
- Breheny, Richard. 2005. Exhaustivity, homogeneity and definiteness. In *Proceedings of the 15th Amsterdam Colloquium*.
- Bruening, Benjamin. 2001. QR obeys superiority: Frozen scope and ACD. *Linguistic Inquiry* 32:233–273.
- Brugger, Gerhard, and Cecilia Poletto. 1995. On negation in German and Bavarian. *Rivista di Grammatica Generativa* 20:111–159.
- Chemla, Emmanuel, Author, and Daniel Rothschild. 2011. Modularity and intuitions in formal semantics: The case of polarity items. *Linguistics and Philosophy* forthcoming.
- Chierchia, Gennaro. 2004. Scalar implicatures, polarity phenomena, and the syntax/pragmatics interface. In *Structures and beyond*, ed. A. Belletti, 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.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on minimalist Syntax in honor of Howard Lasnik*, ed. Roger Martin, David Michaels, and Juan Uriagereka, 89–155. Cambridge, Mass: MIT Press.
- Dayal, Veneeta. 2004. Licensing by modification. Ms., Rutgers University.
- Fauconnier, Gilles. 1975. Pragmatic scales and logical structure. *Linguistic Inquiry* 6:353–375.
- Fauconnier, Gilles. 1978. Implication reversal in a natural language. *Formal Semantics and Pragmatics for Natural Languages* 289–301.

- von Fintel, Kai. 1999. NPI licensing, Strawson entailment, and context dependency. *Journal of Semantics* 16:97–148.
- Fox, Danny. 2000. *Economy and semantic interpretation*. The MIT Press.
- Fox, Danny, and David Pesetsky. 2005. Cyclic linearization of syntactic structure. *Theoretical Linguistics* 31:1–45.
- Gajewski, Jon. 2005. Neg-raising: Polarity and presupposition. Doctoral Dissertation, MIT, Cambridge, Mass.
- Gajewski, Jon. 2009. A note on licensing strong NPIs. Ms., University of Connecticut.
- Gajewski, Jon. 2011. Licensing strong NPIs. *Natural Language and Semantics* 19:109–148.
- Geurts, Bart. 1996. On *No*. *Journal of Semantics* 13:67–86.
- Giannakidou, Anastasia. 2002. Licensing and sensitivity in polarity items: from downward entailment to (non)veridicality. In *Proceedings of CLS 39*.
- Guerzoni, Elena. 2006. Intervention effects on NPIs and feature movement: Towards a unified account of intervention. *Natural Language and Semantics* 14:359–398.
- Heim, Irene. 1984. A note on negative polarity and downward entailingness. In *Proceedings of NELS 14*, 98–107.
- Heim, Irene. 2003. On quantifiers and NPIs in comparative clauses. Ms., MIT.
- Iatridou, Sabine, and Ivy Sichel. 2008. Negative DPs and scope diminishment: Some basic patterns. In *Proceedings of NELS 38*.
- Iatridou, Sabine, and Hedde Zeijlstra. 2009. On the scopal interaction of negation and deontic modals. In *Proceedings of the 17th Amsterdam Colloquium*, ed. M. Aloni et al., 315–324.
- Ippolito, Michela, and Julia Su. 2009. Counterfactuals, negation and polarity. Talk presented at NELS 40, MIT.
- Israel, Michael. 1996. Polarity sensitivity as lexical semantics. *Linguistics and Philosophy* 19:619–666.
- Jackendoff, Ray S. 1969. An interpretive theory of negation. *Foundations of Language* 5:218–241.
- Jacobs, Joachim. 1980. Lexical decomposition in Montague grammar. *Theoretical Linguistics* 7:121–136.
- Jespersen, Otto. 1909–1949. *A modern English grammar on historical principles*. London: George, Allen, and Unwin Ltd.
- Kadmon, Nirit, and Fred Landman. 1993. Any. *Linguistics and Philosophy* 15:353–422.
- Klima, Edward S. 1964. Negation in English. In *The structure of language*, ed. J. A. Fodor and J. Katz, 246–323. Englewood Cliffs, NJ: Prentice Hall.
- Krifka, Manfred. 1992. Some remarks on polarity items. In *Semantic universals and universal semantics*, ed. Zaefferer, 150–189. Berlin: Foris.
- Ladusaw, William A. 1979. Polarity sensitivity as inherent scope relations. Doctoral Dissertation, University of Texas, Austin.
- Ladusaw, William A. 1980. On the notion affective in the analysis of negative polarity items. *Journal of Linguistic Research* 1:1–16.

- Ladusaw, William A. 1992. Expressing negation. In *Proceedings of SALT 2*, ed. Chris Barker and David Dowty, 237–259. Columbus: Ohio State University.
- Lahiri, Utpal. 1998. Focus and negative polarity in Hindi. *Natural Language Semantics* 6:57–123.
- Laka, Itziar. 1990. Negation in syntax: On the nature of functional categories and projections. Doctoral Dissertation, MIT, Cambridge, Mass.
- Lechner, Winfried. 2006. An interpretive effect of head movement. In *Phases of interpretation*, ed. Mara Frascarelli, volume 91 of *Studies in Generative Grammar*, 45–69. Mouton de Gruyter.
- LeGrand, Jean. 1975. *Or and Any: The semantics and syntax of two logical operators*. Doctoral Dissertation, University of Chicago.
- Lewis, David. 1973. *Counterfactuals*. Oxford: Blackwell.
- Linebarger, Marcia C. 1980. The grammar of negative polarity. Doctoral Dissertation, MIT.
- Linebarger, Marcia C. 1987. Negative polarity and grammatical representation. *Linguistics and Philosophy* 10:325–387.
- McCawley, James D. 1998. *The syntactic phenomena of English*. University of Chicago Press.
- Nouwen, Rick. 2006. Remarks on the polar orientation of *almost*. In *Linguistics in the Netherlands*, ed. J. van de Weijer and B. Los. Benjamins.
- Penka, Doris. 2005. *Almost there: The meaning of almost*. Ms., Universität Tübingen.
- Penka, Doris. 2007. *Negative indefinites*. Doctoral Dissertation, Universität Tübingen, Tübingen, Germany.
- Quine, Willard V.O. 1960. *Word and object*. The MIT Press.
- Reinhart, Tanya. 1997. Quantifier scope: How labor is divided between QR and choice functions. *Linguistics and Philosophy* 20:335–397.
- Rothschild, Daniel. 2006. Non-monotonic NPI-licensing, definite descriptions, and grammaticalized implicatures. In *Proceedings of SALT 16*.
- Rullmann, Hotze. 1995. Geen eenheid. *Tabu* 25:194–197.
- Schmerling, Susan F. 1971. A note on negative polarity. In *Papers in Linguistics*, volume 4.1, 200–206. Champaign, Ill.: Linguistic Research Inc.
- Schueler, David. 2005. *Attitude predicates, locality, and NPI licensing*. Ms., UCLA.
- Schwarz, Bernhard, and Rajesh Bhatt. 2006. Light negation and polarity. In *Crosslinguistic research in syntax and semantics: Negation, tense, and clausal architecture*, ed. R. Zanuttini, H. Campos, E. Herburger, and P. Portner. Washington: Georgetown University Press.
- Spector, Benjamin. 2004. Indefinites in subject position are positive polarity items. *Snippets* 9.
- Stalnaker, Robert. 1968. A theory of conditionals. *Studies in Logical Theory* 2:98–112.
- de Swart, Henriëtte. 2000. Scope ambiguities with negative quantifiers. In *Reference and anaphoric relations*, ed. Klaus von Stechow and Urs Egli, 109–132. Dordrecht: Kluwer.
- Szabolcsi, Anna. 2004. Positive polarity-negative polarity. *Natural Language and Linguistic Theory* 22:409–452.

- Webelhuth, Gert. 1989. Syntactic saturation phenomena and the modern Germanic languages. Doctoral Dissertation, University of Massachusetts at Amherst.
- van der Wouden, Tom. 1997. *Negative contexts. Collocation, polarity and multiple negation*. London: Routledge.
- Zeijlstra, Hedde, and Doris Penka. 2005. Negative indefinites in Dutch and German. Ms., Universität Tübingen, Tübingen, Germany.
- Zwarts, Frans. 1996. Facets of negation. In *Quantifiers, logic, and language*, ed. J. van der Does and J. van Eijck, 385–421. Stanford: CSLI Publications.
- Zwarts, Frans. 1998. Three types of polarity. *Plurality and Quantification* 69:177–238.