Presuppositions and NPI Licensing

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Contents

1 Introduction

The view that Negative Polarity Items are sensitive to downward-monotonicity (Fauconnier 1975, 1978, Ladusaw 1979 a.o.) is widely accepted. But certain recalcitrant facts seem to suggest that downward-monotonicity is too strong a requirement, as NPIs are sometimes licensed in environments that are not downward-entailing. This is notoriously true of the environments created by *only, sorry* and *surprise:* they license NPIs, but do not support downward inferences, due to the presuppositions these items trigger. The alternative is the following: either we weaken the downward-monotonicity requirement (this is the position that is generally accepted, explicitly or not: the near consensus is that presuppositions cannot disrupt the licensing of NPIs), or we maintain it and look for cases where presuppositions break downward-monotonicity and, as a result, disrupt the licensing of NPIs. Unlike most previous researchers, I explore the second route and show that NPI licensing in the scope of *only, sorry* and *surprise* is the exception, not the rule. Not that non-disruptive presuppositions are rarer than disruptive presuppositions (if anything, it seems that the opposite is true). But the fact that we can produce examples where NPIs are anti-licensed in the presence of a presupposition confirms that downward-monotonicity is the right notion for NPI licensing and suggests that the explanandum are the cases of *apparent* innocuousness of presuppositions.

In section 2, I present the problem, i.e. the availability of certain NPIs in the scope of presupposition triggers. In section 3, I explore the full realm of presuppositions and show that some of them, e.g. the presuppositions of cognitive factives and 'too/also' in French and certain dialects of English, disrupt the licensing of weak NPIs (i.e. NPIs of the *any*-type); nearly all presuppositions disrupt the licensing of so-called strict NPIs (i.e. NPIs of the *in years*-type). I conclude that presuppositions are potential disruptors of NPI licensing, in the same way as another kind of inferences, namely scalar implicatures. Section 4 refutes a proposal which consists in defining a kind of entailment that preserves downward-monotonicity—and ensures NPI licensing—in the presence of presuppositions: this weakening strategy is defended in von Fintel 1999 and in much

subsequent work (with certain important amendments). A new pictures emerges, which I outline in 5: it seems that there exist implicational hierarchies, i.e. if a given presupposition disrupts the licensing of weak NPIs, it also disrupts the licensing of strict NPIs. To account for the patterns I bring to light and for this generalization, I hypothesize that presuppositions are detachable parts of meaning that are incorporated in stages into the global meaning of the sentences in which they are triggered: the lack of disruption with certain triggers is due to the fact, I submit, that their presuppositions are not yet incorporated into the global meaning at the moment when licensing is checked. Section 6 reviews Gajewski 2009, a theory which adopts von Fintel's weakening strategy but claims that strict NPIs are vulnerable to presuppositions (this is a theory which is based on a subset of the data explored here).

2 The Apparent Innocuousness of Presuppositions

The distribution of Negative Polarity Items is known to be restricted to certain configurations, a paradigmatic example of which is the scope of negation. The observation that NPIs can appear in a variety of configurations where negation doesn't seem to be involved, such as the antecedent of a conditional or the restrictor of *every*, has inspired the hypothesis that what NPIs are sensitive to is a logical property, namely Downward-entailingness, i.e. the capacity to reverse the direction of entailments (Fauconnier 1975, 1978, Ladusaw 1979). To define it, we need a generalized notion of entailment (the entire discussion in this article is set in a trivalent framework):

(1) **Cross-categorial Entailment ($\Rightarrow$) in a trivalent framework:**
   a. For p, q of type <t>: p $\Rightarrow$ q iff whenever p = 1, q = 1.
   b. For *f*, *g* of type $<\sigma$, t>: $f \Rightarrow g$ iff for all x of type σ: f(x) $\Rightarrow$ g(x).

Using cross-categorial entailment, we define Downward-entailingness:

(2) **Downward-entailingness:** A function *F* whose type ends in *t* is Downward-entailing (DE) iff for all A, B in the domain of *F* such that A $\Rightarrow$ B, *F*(B) $\Rightarrow$ *F*(A), where '$\Rightarrow$' stands for cross-categorial entailment as defined in (1).

Let's assume for the time being that NPIs are subject to the following licensing condition:

(3) **The Fauconnier-Ladusaw Licensing Condition:** An NPI is only grammatical if it is in the scope of an α such that $[\![\alpha]\!]$ is DE.

This condition appears to be too restrictive, because it fails to predict that NPIs are available in the scope of operators which are not DE, e.g. the functions denoted by the presupposition triggers *sorry, surprise* and *only.*

(4) *Context:* John was informed that Mary just bought a car.[1]

[1] In this example and in the rest of the article, I supply contexts in order to avoid unacceptability due to a presupposition failure. I also spell out presuppositions; for ungrammatical sentences, I provide a grammatical

a. John is sorry that Mary bought any car.
b. *Presupposition of (4a):* John believes that Mary bought a car.

(5) *Context:* John is complaining to Meredith that there is not enough light in his hotel room.
a. Meredith is surprised that John has any complaints about the hotel.
b. *Presupposition of (5a):* Meredith believes that John has complaints about the hotel.

(6) *Context:* John has friends in Chicago.
a. Only John has any friends in Chicago.
b. *Presupposition of (6a):* John has friends in Chicago.

These facts are surprising. Consider for example (4a): DE functions allow inferences from sets to subsets, but the inference from (7a) to (7b) doesn't go through.

(7) $[\![\text{Honda}]\!] \Rightarrow [\![\text{car}]\!]$
a. John is sorry that Mary bought a car.
Presupposition: John believes that Mary bought a car.
b. John is sorry that Mary bought a Honda.
Presupposition: John believes that Mary bought a Honda.
c. (7a) $\not\Rightarrow$ (7b)
d. (7b) $\not\Rightarrow$ (7a)

Although the set of Hondas is a subset of the set of cars, one can easily imagine scenarios in which John is sorry that Mary bought a car, and the only car she bought is a Mazda (in which case (7b) is undefined and there is no entailment, as per (1)). The same pattern recurs with *surprise* and *only:* DEness doesn't obtain but weak NPIs are licensed. The heart of the problem is the presence of presuppositions. Looking at English weak NPIs (*any, ever, care to, bother with*), it is tempting to think that presuppositions are *never* a source of disruption for their licensing, which means, given our hypotheses, that they don't interfere with the DEness of licensers. What's more, triggers like *only* and the emotive factive predicates *sorry* and *surprise* are so far from being disruptors that they even appear to license weak NPIs. We are going to subject the following generalization, which is generally believed to hold, to a critical examination:

(8) **Standard Generalization:** Presuppositions never disrupt the licensing of English NPIs.

The next section shows that the generalization is incorrect: there is clear evidence that certain presuppositions disrupt the licensing of NPIs.

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paraphrase and its presupposition.

3 Disruption by Presuppositions

In this section, I focus on French and on certain dialects of English, and I do two things: (i.) I show that weak NPIs are vulnerable to certain presuppositions and (ii.) I show that a proper superset of those presuppositions disrupt the licensing of strict NPIs.

Most of the data presented in this section are new, because unlike previous researchers I do not restrict my attention to the case of expressions that are both presupposition triggers and NPI licensers (e.g. *only*): I also examine the disruptive power of presuppositions triggered by items that intervene between an NPI and a potential licenser. This choice is justified in the first subsection.

3.1 In Defense of Environment-based Licensing

Although many researchers adopt the Fauconnier-Ladusaw view that the licensing condition should be phrased in terms of Downward-entailingness, there is no real consensus as to what it is that must be downward-entailing, or in other words, what it is that licenses NPIs. Once DEness is accepted, licensing can be viewed in two different ways: either as a relationship between a DE operator and an NPI in its scope (I propose to dub this view, which is essentially syntactic, the operator-based approach), or as the match between the demands of the NPI and the properties of the constituents it finds itself in (henceforth the environment-based approach).

For the operator-based approach (Szabolcsi 2004, Guerzoni 2006, Guerzoni and Sharvit 2007 a.o.), the contribution to meaning of expressions other than licensers is not important. This is not the case for the environment-based approach, which takes into account the meaning of the constituent(s) a given NPI appears in: therefore the presuppositions triggered by licensers as well as the presuppositions triggered by other expressions in the syntactic environment of the NPI matter.

In Homer 2010, I show that operator-based approaches are inadequate and that the environment-based approach is correct: what matters to the licensing of polarity items is the monotonicity of their syntactic environment. The licensing condition that I will substantiate is the following:

(9) **Licensing Condition (modified after Gajewski 2005):** An NPI α is licensed in a sentence S only if there is an eligible constituent β of S containing α such that β is DE w.r.t. the position of α.[2]

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

The data that we turn to lend direct support to the environment-based approach and against the operator-based approach. In effect, the presupposition of cognitive factive verbs and of the additive particle *too* are monotonicity-breakers and as such disrupt the licensing of weak NPIs (in French and some dialects of English).

[2]This condition mentions 'eligible constituents' because it incorporates the lesson drawn from Homer 2010 that the verification of licensing is not possible on just any constituent, e.g. the licensing of a strict NPI cannot be verified on a constituent that doesn't contain Pol (the Polarity head, which hosts in its specifier a negative operator, when the sentence is negative, or nothing otherwise).

3.2 French Weak NPIs

I provide data that directly challenge both the operator-based approach and the standard generalization (8). They bring to light the disruptive effect of two presuppositions in particular, i.e. the presupposition triggered by French cognitive factives (3.3) and by the additive particle *aussi* 'too/also' (3.4). I need to say a word in preamble about the data that I am about to present: these are French rather than English data. The English speakers I surveyed have strong and robust judgments, but there is a considerable amount of dialectal variation: for a first category of speakers (dialect A), cognitive factive predicates are not disruptive but *too/also* is; for a second category (dialect B), neither are disruptive. In French, I found no variation on the key sentences that make up the paradigm. The only benefit of looking at French data is that in that language both categories of triggers are disruptive.[3]

Like English *any, quoi que ce soit* is licensed in the scope of negation, negative quantifiers (over individuals and times), DE determiners, antecedents of conditionals, yes-no questions, etc.:

(11) a. *Jean n' a jamais critiqué quoi que ce soit.*
Jean NEG has ever criticized what that this be.SUBJ

b. *Personne n' a critiqué quoi que ce soit.*
nobody NEG has criticized what that this be.SUBJ

c. *Au plus cinq personnes ont critiqué quoi que ce soit.*
at most five people have criticized what that this be.SUBJ

d. *Jean critique rarement quoi que ce soit.*
Jean criticizes rarely what that this be.SUBJ

e. *Si tu critiques quoi que ce soit, tu seras renvoyé.*
if you criticize what that this be.SUBJ you be.FUT fired

f. *A-t- il critiqué quoi que ce soit ?*
has he criticized what that this be.SUBJ

It is also licensed in the scope of the licensers/triggers equivalent of *only DP* and in the complement clause of the equivalent of *surprise* and *sorry* (although it is degraded in the latter case):

(12) a. *Seul Jean a compris quoi que ce soit.*
only Jean has understood what that this be.SUBJ

b. *Je suis surpris que Jean ait compris quoi que ce soit.*
I am surprised that Jean have.SUBJ understood what that this be.SUBJ

c. ?*Je regrette que Jean ait critiqué quoi que ce soit.*
I regret that Jean have.SUBJ criticized what that this be.SUBJ

[3] One potential disadvantage is that it is in principle possible—but not very probable—that the workings of cognitive factive predicates and additive particles in the two languages are different, maybe too dissimilar to permit a fruitful comparison.

3.3 Presupposition of Cognitive Factives

However, *quoi que ce soit* (and all other NPIs) in the complement clause of a French cognitive factive predicate like *savoir* 'know', *réaliser* 'realize', *se rendre compte* 'become aware', *découvrir* 'find out', etc. cannot be licensed by a superordinate licenser[4] (this is also true in another dialect of English, let us call it dialect C, which is partially described in Fitzpatrick 2005 and to which I had no direct access):

(13) *Context:* Marie read a novel.

a. **Jean ne sait pas que Marie a lu quoi que ce soit.*
Jean NEG knows NEG that Marie have.IND read what that this be.SUBJ
Intended: *'Jean doesn't know that Marie read anything.'*

b. Jean ne sait pas que Marie a lu quelque chose ('*something*').

c. *Presupposition of (13b):* Marie read something.

If the polarity of the factive presupposition triggered by the embedding verb is negative (it is positive in the above example), no disruption occurs, therefore the polarity of the presupposition rather than the mere existence of a presupposition is the source of the unavailability of NPIs. Putting a negation in the complement of the factive predicate changes the polarity of the presupposition:

(14) *Context:* Marie didn't read anything.

a. *Jean sait que Marie n' a pas lu quoi que ce soit.*
Jean knows that Marie NEG has NEG read what that this be.SUBJ
'Jean knows that Marie didn't read anything.'

b. *Presupposition:* Marie didn't read anything.

[4] I hasten to say that this generalization doesn't hold of conditionals (e.g. *'Si Jean découvre que…'* 'if Jean finds out that…'); but these are a special case, as they notoriously allow for a non-presuppositional usage of *découvrir* 'find out'. NPIs are perfectly licit only if the presupposition of *découvrir* is not triggered.

A caveat: outside of conditionals, *savoir* and *know* have a non factive usage, which requires a first person subject (ia). In French a non factive usage of *savoir* 'know' with a first person subject is only possible with subjunctive morphology on *savoir* (this fact is all the more intriguing because matrix subjunctive is normally impossible) and on the embedded verb (ib). NPIs are licensed in the complement of *sache* (ii):

(i) a. I don't know that Mary knows this person.
b. *Je ne *sais/sache pas que Marie connaisse cette personne. (French)*
I NEG know.IND/SUBJ NEG that Marie know.SUBJ this person

(ii) *Je ne sache pas que Marie ait quelque chance que ce soit de gagner.*
I NEG know.SUBJ NEG that Marie have.SUBJ some chance that this be.SUBJ to win

The cases of NPI licensing that interest us in dialects A and B of English are observed without restriction to the verb *know* with a first person subject: they appear in uncontroversially factive environments, such as (iiia):

(iii) *Context:* Mary is the best player in the tournament.
a. John doesn't know/realize that Mary has any chance to win.
b. *Presupposition of (iiia):* Mary has some chance to win.

When the verb *penser* ‘think’, which is not a presupposition trigger, is substituted for the verb *savoir* ‘know’, no disruption occurs:[5]

(15) a. *Jean ne pense pas que Marie a/ait lu quoi que ce soit.*
Jean NEG thinks NEG that Marie have.IND/SUBJ read what that this be.SUBJ
‘Jean doesn’t think that Marie read anything.’
b. *Presupposition:* None.

In the same connection, the cognitive factive verb *se souvenir* ‘remember’ allows the indicative/subjunctive alternation when negated. The indicative yields the presupposition that the complement clause is true, and acts as a disruptor—provided there is no negation in the embedded clause—while the subjunctive doesn’t yield this presupposition and is not a disruptor:

(16) *Context:* Marie warned Jean against drinking alcohol.
a. **Jean ne se souvient pas que Marie lui a dit quoi que ce soit.*
Jean NEG REFL remembers NEG that Marie to-him have.IND said what that this be.SUBJ
‘Jean doesn’t remember that Marie told him anything.’
b. Jean ne se souvient pas que Marie lui a dit quelque chose (‘*something’*).
c. *Presupposition of (16b):* Marie said something to Jean.

(17) a. *Jean ne se souvient pas que Marie lui ait dit quoi que ce soit.*
Jean NEG REFL remembers NEG that Marie to-him have.SUBJ said what that this be.SUBJ
‘Jean doesn’t remember that Marie told him anything.’
b. *Presupposition:* None.

To sum up, French cognitive factives act as disruptors between an NPI and a potential licenser. The source of the disruption appears to be the factive presupposition they trigger: the polarity of the presupposition itself is of the essence, which suggests that the presupposition is factored into the meaning that is relevant for NPI licensing. Let us verify that (13a) is ungrammatical because it doesn’t contain any constituent that is DE w.r.t. the position of the NPI: the only constituents that contain a DE expression (i.e. a potential licenser) are superconstituents of the matrix NegP. We can thus restrict our attention to these constituents (and for ease of exposition, I propose that we examine the entire sentence).

(18) *Jean ne sait pas que Marie a lu quoi que ce soit.
a. $[\![\text{novel}]\!] \Rightarrow [\![\text{book}]\!]$
b. Jean ne sait pas que Marie a lu un livre.

[5] In French (unlike in Italian), the indicative can be used in the complement clause of a negated epistemic predicate without triggering a factive presupposition, see Homer 2007 and section 3.5.1 on p. 15.

(Jean NEG know NEG that Marie has read a book)
Assertion: Jean doesn't have the belief that Marie read a book.[6]
Presupposition: Marie read a book.

c. Jean ne sait pas que Marie a lu un roman.
(Jean NEG know NEG that Marie has read a novel)
Assertion: Jean doesn't have the belief that Marie read a novel.
Presupposition: Marie read a novel.

d. (18b) $\not\Rightarrow$ (18c) *(not DE)*

To ascertain whether (18) is DE in the position of the NPI, we must verify that (18b) entails (18c) (in this pair of sentences, the position of the NPI is occupied by DPs whose denotations stand in a set-to-subset relation), i.e. that whenever (18b) is true, (18c) is true too. Presuppositions project under negation: the presupposition of *savoir* contributes a positive proposition to the meaning that is relevant for licensing. The situations in which (18b) is true are situations in which it is defined (that is, in which the presupposition triggered by *savoir* is satisfied). But it is not the case that all the situations in which (i.) Jean doesn't know that Marie read a book and (ii.) Marie read a book are situations in which Marie read a novel. In other words, there are situations in which (18b) is true but (18c) is undefined (has value #). By virtue of (1), (18b) doesn't entail (18c), and we make the correct prediction that *any* is not available in (18) because its environment is not DE.

Remarkably, we can infer downward in the position of the NPI if only the assertive component of the meaning is taken into account to the exclusion of the factive presupposition (the assertive component of (18b) entails the assertive component of (18c)): the presupposition is therefore the cause of the anti-licensing of the NPI. By themselves, the cognitive factive verbs *savoir, se souvenir, se rendre compte*, etc. are not potential NPI licensers (they do not invert the direction of entailments in their complement); and they do not create an intervention, in the sense that their mere presence doesn't break a syntactic dependency (witness the minimal pair (16a)-(17a)). But the presupposition they trigger when they occur between an NPI and a potential licenser (negation in the case at hand) has a disruptive potential. We have thus found an instance where the presence of a presupposition ruins the monotonicity of the context of an NPI, leading to anti-licensing.

These facts are at variance both with the operator-based approach (the contribution of expressions other than licensers matters to licensing) and with the standard generalization (8) (some presuppositions are disruptive).

The next section reaches the same conclusions using a different presupposition trigger, namely *aussi* 'too/also'.

[6]For reasons of simplicity, I assume that the assertive content of *know* is that of an epistemic predicate. In my paraphrase, I use the phrase *have the belief* instead of *think* or *believe,* which are neg-raising predicates and are therefore not appropriate, since *know* is not neg-raising, cf. Gajewski 2005.

3.4 Presupposition of *aussi*

3.4.1 Comparing *aussi* and *non plus*

Observe the pair formed by (19) and (20a): they differ in the choice of the indefinite (a plain one in the former, and an NPI in the latter). *Aussi* is an anaphoric presupposition trigger, and as such, its presupposition must be satisfied in the linguistic context.

(19) *Context:* Marie read a novel.
Marie a lu un roman, mais je ne pense pas que [Jean]$_F$ ait
Marie has read a novel but I NEG think NEG that Jean have.SUBJ
lu quelque chose lui aussi.
read something him too
'Marie read a novel, but I don't think that [Jean]$_F$ read something too.'

(20) *Context:* Marie read a novel.

a. **Marie a lu un roman, mais je ne pense pas que [Jean]$_F$*
Marie has read a novel but I NEG think NEG that Jean
ait lu quoi que ce soit lui aussi.
have.SUBJ read what that this be.SUBJ him too
Intended: *'Marie read a novel but I don't think that [Jean]$_F$ read anything too.'*

b. Marie a lu un roman mais je ne pense pas que Jean ait lu quelque chose ('something') lui aussi.
Presupposition of (20b): Somebody other than Jean read something.

Now compare the ungrammatical (20a) with the grammatical (21a) below:

(21) *Context:* Marie didn't read anything.

a. *Marie n' a rien lu, et je ne pense pas que [Jean]$_F$*
Marie NEG has nothing read, and I NEG think NEG that Jean
ait lu quoi que ce soit lui non plus.
have.SUBJ read what that this be.SUBJ him either
'Marie didn't read anything, and I don't think that [Jean]$_F$ read anything either.'

b. *Presupposition:* Somebody other than Jean didn't read anything.

What the above sentences show is that *aussi* 'too' is a disruptor while *non plus* 'either' is not. Crucially, the ungrammaticality of (20a) is not due to some incompatibility between *aussi* and the superordinate negation, as shown by the acceptability of (19).

This discrepancy is all the more significant because *aussi* and *non plus* are minimally different: both are focus particles,[7] and as such they associate with a constituent and evoke a set of alternatives. One pertinent difference between the two triggers con-

[7] Focus itself cannot be at fault, because a focused element that is not associated with a focus particle is innocuous:

(i) Marie a lu un roman mais je ne pense pas que [Jean]$_F$ ait lu quoi que ce soit.

cerns the polarity of their presuppositions (compare the presupposition of (20b), which is the closest grammatical paraphrase of (20a), and the presupposition of (21a)). Let us now show that this difference is indeed relevant (and operative in the contrast) only if the conservative licensing condition defended here (9) is in effect (i.e. the constituent on which the licensing is checked has to be DE w.r.t. the position of the NPI). The verification relies on the following inference schema.

(22) *Je ne pense pas que [Jean]$_F$ ait lu quoi que ce soit lui aussi.

a. $[\![$ novel $]\!] \Rightarrow [\![$ book $]\!]$

b. Je ne pense pas que [Jean]$_F$ ait lu un livre lui aussi.
(I NEG think NEG that Jean have.SUBJ read a book him too)
Assertion: I don't think that Jean read a book.
Presupposition: Somebody other than Jean read a book.

c. Je ne pense pas que [Jean]$_F$ ait lu un roman lui aussi.
(I NEG think NEG that Jean has read a novel him too)
Assertion: I don't think that Jean read a novel.
Presupposition: Somebody other than Jean read a novel.

d. (22b) $\not\Rightarrow$ (22c) *(not DE)*

Given that *aussi* triggers a presupposition, the situations in which (22b) is true are situations in which it is defined (that is in which the presupposition triggered by *aussi* is satisfied). But it is not the case that all the situations in which (i.) I don't think that John read a book and (ii.) someone other than John read a book are situations in which somebody other than John read a novel. In other words, there are situations in which (22b) is true but (22c) is undefined (has value #). The entailment doesn't hold.

The same procedure for checking the monotonicity of the position of the NPI applies, mutatis mutandis, to (21a).

(23) Je ne pense pas que [Jean]$_F$ ait lu quoi que ce soit lui non plus.

a. $[\![$ novel $]\!] \Rightarrow [\![$ book $]\!]$

b. I don't think that [Jean]$_F$ read a book either.
Assertion: I don't think that Jean read a book.
Presupposition: Somebody other than Jean didn't read a book.

c. I don't think that [Jean]$_F$ read a novel either.
Assertion: I don't think that Jean read a novel.
Presupposition: Somebody other than Jean didn't read a novel.

d. (23b) $\Rightarrow$ (23c) *(DE)*

Whenever the premise (23b) is true, hence defined, the consequence (23c) is defined too (the presupposition of the former entails the presupposition of the latter). Furthermore, the assertive content of (23b) entails the assertive content of (23c). Therefore (23b) entails (23c) per (1): we have verified that the position of the NPI is one with respect to which the sentence is DE. This derives the availability of the NPI, as desired.

Given the difference between *aussi* and *non plus*, it is clear that the mere presence of a presupposition trigger in the licensing environment of the NPI is not sufficient to cause a disruption. The presupposition causes anti-licensing only if it ruins the mono-

tonicity of the context (this requires that the presupposition is formed using linguistic material which encompasses the position of the NPI, as is the case in (20b) and (21a)).

3.4.2 NPIs Licensed in the Focus of *aussi*

Other facts can be adduced that show that the source of the disruption is indeed the presupposition of *aussi.* There is at least one position in the sentence that the presupposition of *aussi* doesn't make non-monotonic, namely its own focus (in the syntactic sense of the word *focus*); and as expected, this is a position where a weak NPI is licensed. The presupposition of *aussi* makes a negative contribution to the meaning in relation with the focused element (this is important, since we know that a negative contribution of a presupposition is necessary for licensing, cf. the presupposition of *non plus* (21a)).

(24) a. [Mary]$_F$ invited a student too.
Presupposition: $\exists x[x \neq m \wedge \exists y[y \in [\![\text{student}]\!] \wedge \text{invite'}(x,y)]]$
b. Mary invited [a student]$_F$ too.
Presupposition: $\exists x[x \notin [\![\text{student}]\!] \wedge \text{invite'}(m,x)]$

For concreteness, consider this example, where an NPI is available in the scope of *aussi* (it differs from the ungrammatical (20a) in that the NPI is in the focus of the particle):

(25) *Context:* Marie invited Pierre, who is not taking any classes with anyone.
a. *Je ne crois pas que Marie ait aussi invité [qui que ce*
I NEG think NEG that Marie have.SUBJ also invited who that this
soit de la classe de Jean]$_F$.
be.SUBJ of the class of Jean
'I don't think that Marie invited [anyone in Jean's class]$_F$ too.'
b. *Presupposition:* Marie invited someone who is not in Jean's class.

(26) a. $[\![\text{French student}]\!] \Rightarrow [\![\text{student}]\!]$
b. I don't think that Marie invited [a student]$_F$ too.
Assertion: I don't think that Marie invited a student.
Presupposition: Marie invited someone other than a student.
c. I don't think that Marie invited [a French student]$_F$ too.
Assertion: I don't think that Marie invited a French student.
Presupposition: Marie invited someone other than a French student.
d. (26b) $\Rightarrow$ (26c) *(DE)*

The assertion of the premise entails the assertion of the consequence of the downward inference above. In contrast with the other case we considered earlier (22), the presupposition of the former entails the presupposition of the latter (if Marie invited someone who is not a student, she necessarily invited someone who is not a French student): therefore the entailment goes through (as per (1)). The complexity of the facts brought to light here makes a class of possible analyses untenable, namely an explanation in terms of intervention by focus.

3.4.3 Not an Intervention by Focus

The theories I have in mind are based on the fact that *aussi* is a focus particle. In other words (here I follow the influential tradition initiated by Jacobs (1983) and Rooth (1985)) *aussi* relates the value of the focused expression to a set of alternatives. The focus semantic value of a sentence is the set of propositions obtainable from the ordinary semantic value by making a substitution in the position corresponding to the focused phrase. For sentence (27a), these alternatives are of the form 'that x solved a problem' with x an individual (following standard practice, I write as $[\![\text{S}]\!]^o$ the ordinary semantic value of sentence S (the proposition expressed by the sentence) and as $[\![\text{S}]\!]^f$ its focus value).

(27) a. [Mary]$_F$ solved a problem too.
b. $[\![(27a)]\!]^o = \lambda$w. mary solved a problem in w
c. $[\![(27a)]\!]^f = \lambda$p$\exists$x[p = λw.x solved a problem in w]

Now, it is a priori conceivable (and this line is actually pursued in Kim 2002, Beck 2006), that there exists a ban on any configuration at LF in which a focus particle and its associate intervene between an NPI and its licenser (I write as O the licenser, as $\sim$ the focus-sensitive operator, e.g. *also* or *even*, as α the associate of the particle).

(28) *O[$\ldots \sim$C[$_\Phi \ldots \alpha_F \ldots$ NPI]]

But such a ban simply doesn't seem to hold. Notice first that the particle causes a disruption even when its associate does not c-command the NPI: in (29a), the associate of *aussi, la musique,* is in the complement of the noun *intérêt* 'interest', therefore it is c-commanded by the NPI (the actual position of *aussi* itself is a lot harder to determine, but the argument can be made even if it is not known precisely; I use the NPI *quelque NP que ce soit* which has the same distributional properties as *quoi que ce soit*).

(29) *Context:* Edith is a movie lover.
a. **Je ne pense pas qu' elle ait quelque intérêt que ce soit*
I NEG think NEG that she have.SUBJ some interest that this be.SUBJ
pour [la musique]$_F$ aussi.
for the music too
Intended: *'I don't think that she has any interest in [music]$_F$ too.'*
b. *Je ne pense pas qu' elle ait de l' intérêt pour [la*
I NEG think NEG that she have.SUBJ of the interest for the
musique]$_F$ aussi.
music too
'I don't think that she has interest in [music]$_F$ too.'
c. *Presupposition of (29b):* Edith has some interest in something other than music.

The associate of *aussi* does not c-command the NPI at LF in (29a); it is not clear that *aussi* c-commands the NPI. Even if it does, it won't do to propose a stricter rule in replacement of (28) so as to prohibit c-command of the NPI by the focus particle (whether or not the associate c-commands the NPI):

(30) *O[$\ldots \sim$C[$_{\Phi}\ldots$ NPI]]

The reason is that we already know that this amended rule is bound to be too restrictive, because in (25a) repeated as (31) for convenience, the focus particle c-commands the NPI (assuming that association with *aussi* requires c-command), and the result is grammatical:

(31) *Context:* Marie invited Pierre, who is not taking any classes with anyone.
Je ne crois pas que Marie ait aussi invité [qui que ce
I NEG think NEG that Marie have.SUBJ also invited who that this
soit de la classe de Jean]$_F$.
be.SUBJ of the class of Jean

A more general and radical claim can be made: since NPIs are available in the scope of *aussi* under certain circumstances (i.e. when focused, cf. (31)), the ungrammaticality of (20a) is not due to an *intervention* effect. In other words, the mere presence of *aussi* between a licenser and the NPI is not a source of disruption. This rules out any syntactic accounts according to which NPIs are anti-licensed when their dependency w.r.t. their potential licenser(s) is interrupted by the presence of a certain operator. Guerzoni 2006 is one such account (although it doesn't predict that an NPI should always be anti-licensed in the presence of an intervener: there are two possible sources of licensing in this account, namely phrasal movement and feature movement: it suffices that one of the two routes is available for the NPI to be licensed).

Summarizing, the disruption effect of *aussi* (and of *too/also* in the dialects of English which exhibit the disruption effect) is correctly predicted if we take into account its presupposition in the computation of the monotonicity of the NPI's environment (see also Appendix II (8.2) where I show that we also predict the distribution pattern of subject NPIs). Alternatives based on focus or on syntactic intervention are inadequate. Therefore it is natural to conclude that there exists yet another genuine case of disruption by presupposition.[8]

[8] As I said earlier, in Homer 2010 I show that polarity items are licensed on an environment basis. One of the tests uses positive and negative polarity items in the same clause. Certain such configurations lead to ungrammaticality, because a PI π is licensed in sentence S only if there is a constituent γ of S in which π is acceptable and all other PIs in γ are licensed within γ: the opposite demands of a PPI (*some*) and of an NPI (*any*) can create a clash, e.g. in (i):

(i) *I don't think that someone stole anything.

In light of this fact, it is natural to wonder if *aussi* is not a PPI. This, one might propose, could be a source of disruption (perhaps the only one). It doesn't seem that *aussi* (similarly *too/also*) is a PPI, though (see Rullmann 2003 for an in-depth analysis of the question, which also concludes that *too* is not a PPI):

(ii) *J' ai invité Pierre, mais je ne vais pas aussi inviter [Marie]$_F$.*
I have invited Pierre but I NEG go NEG also invite Marie
'I invited Pierre but I will not also invite [Marie]$_F$.'

Furthermore, the pattern of disruption is not one that the PPI hypothesis would predict. In effect, disruption should occur whenever the NPI is in the scope of *aussi:* but we have seen that an NPI in the focus of *aussi* is not anti-licensed (31).

The position of the NPI in the sentence is crucial. This is directly predicted by the environment-based approach that I advocate. I repeat here for convenience my licensing condition, which is conservatively phrased in terms of Downward-entailingness (as opposed to some weaker notion of entailment, cf. section 4):

(32) **Licensing Condition (after Gajewski 2005):** An NPI α is licensed in a sentence S only if there is an eligible constituent β of S containing α such that β is DE w.r.t. the position of α.[9]

3.5 Further Evidence for Disruption with Weak and Strict NPIs

So far, the only presuppositions whose disruptive power has been evidenced are the presuppositions of *aussi* and French cognitive factives (certain English exhibit the same effects). In Appendix I (8.1), I show that there is reason to think that the presupposition associated with definite descriptions is disruptive too. But it is clear that not all presuppositions are disruptive (we already know that the presuppositions of *only* and emotive factives, cf. (4a), (5a) and (6a) are not, as far as weak NPIs are concerned), and this fact could lead one to think that a more careful investigation will reveal that the effects were wrongly blamed on presuppositions. One should not jump to this conclusion too hastily, though.

There are other cases of disruptive presuppositions with weak NPIs in French and Italian (3.5.1). And once we broaden our perspective, cases of disruption abound, in English as well as in French: nearly all presuppositions disrupt the licensing of *strict* NPIs (3.5.2).

3.5.1 Weak NPIs in French and Italian

In Italian, an epistemic predicate, when negated, tends to require the subjunctive mood in the embedded clause; the indicative is also possible though, but in this configura-

[9] We also predict that if the presupposition is not formed using a constituent where the NPI appears, no disruption can occur. Consider the following sentence (i), where a definite description takes intermediate scope between negation and *any*:

(i) *Context:* There is a unique contextually salient semantics professor.
I don't think the semantics professor read anything interesting.
Presupposition: There is a unique contextually salient semantics professor.

The availability of the NPI is expected, since the presupposition of the consequence is identical with the presupposition of the premise (it entails itself) in the following downward reasoning:

(ii) I don't think the semantics professor read anything interesting.
a. I don't think the semantics professor read a book.
b. I don't think the semantics professor read a novel.
c. (iia) $\Rightarrow$ (iib)
Presupposition of (iia) and (iib): There is a unique contextually salient semantics professor.

I assume that presuppositions are generally formed using linguistic material of the sentence their triggers appear in. The presupposition triggered by a definite description is not formed using the nuclear scope of the definite article. Therefore the presupposition of *the* cannot be a disruptor of the licensing of an NPI in its nuclear scope. Things are very different in the restrictor, cf. section 8.1.

tion, it triggers the presupposition that the speaker holds true the complement clause (see Homer 2007 for details). The following pair shows that the indicative, unlike the subjunctive, disrupts the licensing of the NPI *mai* 'ever':

(33) *Context:* Maria has visited Paris several times.

a. **Gianni non pensa che Maria è mai andata a Parigi.* *(Italian)*
Gianni NEG thinks that Maria be.IND ever gone to Paris
'Gianni doesn't think that Maria has ever been to Paris.'

b. Gianni non pensa che Maria è andata a Parigi.

c. *Presupposition of (33b):* The speaker believes that Maria has been to Paris.

(34) a. *Gianni non pensa che Maria sia mai andata a Parigi.*
Gianni NEG thinks that Maria be.SUBJ ever gone to Paris
'Gianni doesn't think that Maria has ever been to Paris.'

b. *Presupposition:* None.

It is the presupposition triggered by the indicative in (33a) that anti-licenses *mai.*

Both in French and in Italian, the disruptive effects of presuppositions are also felt with the counterparts of the triggers *why* and *how* (while NPIs are normally licensed in questions):

(35) *Context:* Marie wrote three letters to her mother.

a. **Pourquoi/ Comment Marie a-t- elle écrit quoi que ce soit à sa*
why/ how Marie has she written what that this be.SUBJ to her
mère ? *(French)*
mother
'Why/How has Marie written anything to her mother?'

b. Pourquoi/Comment Marie a-t-elle écrit quelque chose ('something') à sa mère ?

c. *Presupposition of (35b):* Marie wrote something to her mother.

Compare with English:

(36) *Context:* Marie wrote three letters to her mother.
Why/How did Mary write anything to her mother?
Presupposition: Marie wrote something to her mother.

Interestingly, *pourquoi* and *comment* do not always trigger a presupposition: they do when the clausemate verb is in the indicative mood (as in (35b)), but they don't when it is in the infinitive or in the conditional mood, as in (37a) below (the same holds in English too). The disruption effect correlates exactly with the presence of a presupposition in French:

(37) a. *Pourquoi/ Comment Marie écrirait- elle quoi que ce soit à*
why/ how Marie write.COND she what that this be.SUBJ to
sa mère ? *(French)*
her mother

'Why/How would Marie write anything to her mother?'

b. *Presupposition:* None.

On the other hand, other presuppositions do not disrupt the licensing of weak NPIs in French and Italian: this is true of the presupposition of the equivalent of *only, surprise, sorry* and also of the presupposition of *it*-clefts, of the equivalent of *again* (38) and of superlatives.

(38) *Context:* Pierre is mad at Marie because she asked him to help her with her homework.
Je doute que Marie demande à nouveau de l' aide à qui que ce soit.
I doubt that Marie ask.SUBJ again of the help to who that this be.SUBJ
'I doubt that Marie will again ask help from anyone.'
Presupposition: Marie asked someone for help in the past.

To summarize, the above facts are interesting in two respects: they lend support to the claim that presuppositions can disrupt the licensing of weak NPIs, and they also bring to light the selectivity of the phenomenon: even in French, the presuppositions of some but not all triggers have a disruptive effect on weak NPIs. Consonant with these two conclusions is the fact, established in the next section, that strict NPIs are vulnerable to a greater number of presuppositions.

3.5.2 Strict NPIs

Besides weak NPIs, e.g. *any* and *ever,* there exist strict NPIs, whose distribution is more constrained. This category includes such items as *in years*, punctual *until*, *yet*, *half bad*, *all that*, etc.[10] Strict NPIs are so called because their licensers (= the functions that create suitable environments for them) are a proper subset of the licensers of weak NPIs. While the functions denoted by *at most N* and *if* create an environment that licenses NPIs *any* and *ever,* they fail to license strict NPIs e.g. *in years:*

(39) a. At most five people saw anyone.
b. If you see anything, the blindfold is not covering your eyes properly.
c. No one saw anything.
d. Paul didn't see anything.

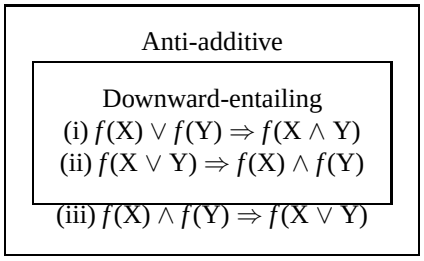
(40) a. *At most five people have seen John in years.
b. *If you have seen John in years, you know that he quit smoking.
c. No one has seen John in years.
d. Paul hasn't seen John in years.

An intuition shared by many researchers is that licensers vary in negative strength: informally, *at most N* is 'less' negative than *no* or *not.* Under this premise the weak/strict dichotomy can be viewed as a reflection of the particular requirements of the items:

[10] I do not discuss items associated with the lowest degree on a scale, e.g. *lift a finger, sleep a wink, give a rat's ass, have the faintest idea, budge an inch, bat an eyelash,* etc. These idioms are commonly referred to as 'minimizers'. It is not clear that these are NPIs sensu stricto: it is conceivable that the controlling factor of their distribution—which is more restricted than that of weak NPIs—is the presupposition of a hidden *even* that accompanies them (Heim 1984, Guerzoni 2004 a.o.).

a strict item requires a 'more' negative environment than a weak one. Zwarts (1998) provides an algebraic account of these differences based on De Morgan's Laws.

(41) **Negative Strength:**



(42) **Anti-additivity:** A function f is Anti-additive (AA) iff $(f(X) \wedge f(Y)) \iff f(X \vee Y)$. [Zwarts 1998]

It can be shown that all Anti-additive functions are DE, but not the reverse. According to Zwarts, strict NPIs must be licensed by an AA function: we verify that *no* is an AA function, while *at most N* is not, by way of examples:

(43) a. No student smokes or drink $\iff$ No student smokes and no student drinks. *(AA)*

b. At most five students smoke or drink $\Rightarrow$ At most five students smoke and at most five students drink.
At most five students smoke and at most five students drink $\not\Rightarrow$ At most five students smoke or drink. *(not AA)*

Since Zwarts's original licensing condition is phrased in terms of operators, we need to modify it so that it accommodates environments:

(44) **Licensing Condition for Strict NPIs:** A strict NPI α is licensed in a sentence S only if there is an eligible constituent β of S containing α such that β is AA w.r.t. the position of α.

(45) A constituent β is AA with respect to the position of α ($[\![\alpha]\!] \in D_\sigma$) iff the function $\lambda x.[\![\beta[\alpha/v_\sigma]]\!]^{g[v_\sigma \to x]}$ is AA.

Just like weak NPIs, strict NPIs are vulnerable to the presupposition of *too/also* (in all dialects of English and in French):

(46) *Context:* Mary left the next day.
*I don't think that [Kevin]$_F$ left until the next day too.

(47) *Context:* Edwin works out three days a week.
*I don't think that [Kevin]$_F$ has exercised in years too.

(48) *Controls:*

a. I don't think that Kevin left until the next day.

b. I don't think that Kevin has exercised in years.

While weak NPIs are licensed in the cleft-clause of negated *it*-clefts (cf. 4.3 for a detailed discussion of the presupposition of *it*-clefts), strict NPIs are not:

(49) *Context:* Mary left on Monday, she could have stayed longer and taken the train with us on Tuesday.

a. I don't think that it was John who did anything that ruined the reunion, it was Mary.
Presupposition: Someone did something that ruined the reunion and if it was John then no one else did.

b. *I don't think that it is John who left until Tuesday, it is Mary.

And unlike weak NPIs, strict NPIs in the scope of the trigger *again* are unlicensed:

(50) a. *Context:* Eve had Chinese food last night, and developed an intolerance to monosodium glutamate.
Eve won't eat any Chinese food again. ✓NEG > AGAIN > ANY
Presupposition: Eve ate Chinese food in the past.

b. *Context:* Last time Eve came over for dinner, she decided to sleep over but because of the poor transportation system in my area, she arrived late at work the next morning.
Eve won't leave until the next day again. *NEG > AGAIN > UNTIL

Furthermore, strict NPIs are also not available in the scope of those expressions which are licensers of weak NPIs and presupposition triggers at the same time, namely *only* and emotive factives (unlike the previous data, these facts have already been noticed, cf. Horn 1989, Atlas 1996, Nathan 1999, Rullmann 2003, Gajewski 2005, Giannakidou 2006; only the latter two analyze them as anti-licensing by presuppositions). Consider first *only:*

(51) a. Only John saw anything.
b. *Only John has exercised in years.
c. *Only John left until the next day.

As far as emotive factives are concerned, we need to exert some caution. Some strict NPIs seem to be sensitive to the locality of their licenser: in particular, *in years* fails to be licensed by superordinate negations (unless the embedding predicate is a neg-raiser, e.g. *think*):

(52) *Context:* John has become so fat...

a. I don't think that John has exercised in years.
b. *It is impossible that John has exercised in years.
c. It is impossible that John did any kind of exercise.

Our examples should thus be controlled carefully. We are interested in licensers which are at the same time presupposition triggers. It is safe to choose verbs which embed infinitive clauses (licensing appears to be easier in infinitives in general).[11] The NPI

[11]The examples used in the literature involve tensed clauses:

until is perfect under the non-trigger *refuse* but unacceptable under the triggers *sorry, regret* and *surprise.*

(53) a. John refuses to leave until the next day.
b. *John is sorry to have left until the next day.
c. *John regrets to have left until the next day.
d. *John is surprised to have arrived until the next day.

In all the above cases, the presence of a presupposition makes the context of the polarity item non DE. If the presupposition is not incorporated, i.e. if we only consider the assertion, all the NPIs are in a DE environment, which is also Anti-additive. With *it*-clefts, *too* and *again*, this is particularly easy to see: they have no semantics of their own, they are identity functions, and contribute a presupposition. With the trigger-licensers, things are more complex, as their assertive content is harder to single out. The following lexical entry for *only* is generally accepted (but see Giannakidou 2006 for a discussion):

(54) $[\![$ [only α] P $]\!] \neq$ # only if $\alpha \in$ P;
if not #, = 1 iff there is no x $\neq \alpha$ such that x $\in$ P.

If we adopt this lexical entry, the context of the NPI is AA (if the meaning does not include the presupposition), as can be verified intuitively:

(55) No one who is not John smokes or drinks $\Longleftrightarrow$ No one who is not John smokes and no one who is not John drinks. *(AA)*

Factoring in the presupposition ruins the strict Anti-additivity of the context (because it ruins its DEness, cf. (41)):

(56) a. Only John drinks or smokes.
Presupposition: John drinks or smokes.
b. Only John drinks and only John smokes.
Presupposition: John drinks and smokes.
c. (56a) $\not\Leftrightarrow$ (56b)

Regarding adversative predicates, I follow von Fintel (1999) who builds upon the conditional semantics proposed originally for *want* by Heim (1992) (I only go over *sorry,* but a similar analysis can be given for other adversatives, such as *surprise*). Intuitively, *sorry* expresses a negative preference against a certain proposition. It thus quantifies over possible worlds and establishes a ranking among sets thereof. We need first to define two parameters that will give us a modal base and an ordering on this base (in the case of *sorry,* the latter is the set of propositions that constitute the preferences of the subject of the verb):

(57) a. The 'modal base function' f is a function from pairs of an individual and a world to a set of worlds.

(i) *I didn't go to Spain. I regret that I went to [Portugal]$_F$ either. [Rullmann 2003, ex. 29j]

b. The 'ordering source function' g is a function from pairs of an individual and a world to a set of propositions.

Since we want to model a negative preference, we need to define a strict partial order on worlds:

(58) For any set of propositions P, $<_P$ is a strict partial order:
$\forall$w', $\forall$w": w'$<_P$w" iff $\forall$p$\in$P (w"$\in$p $\rightarrow$ (w'$\in$p $\wedge$ $\exists$p'$\in$P(w'$\in$p' and w"$\notin$p')))
In words: w' is better than w" according to P iff all propositions in P that hold in w" also hold in w' but some hold in w' that do not also hold in w".

(59) For a given strict partial order $<_P$ on worlds, the selection function $\max_P$ selects the set of $<_P$-best worlds from any set X:
$\forall X \subseteq W$: $\max_P(X) = \{w \in X: \neg\exists w' \in X: w' <_P w\}$
In words: $\max_P(X)$ is the set of worlds w in X such that no other world in X is better than w according to P.

With this in hand, we define the lexical entry of *sorry:*

(60) $[\![\text{ sorry }]\!]^{f,g}(p)(\alpha)(w) \neq \#$ only if (i) $DOX(\alpha, w) \subseteq p$;
(ii) $DOX(\alpha, w) \subseteq f(\alpha, w)$;
(iii) $f(\alpha, w) \cap p \neq \emptyset$;
(iv) $f(\alpha, w) - p \neq \emptyset$;
if not #, = 1 iff $\forall w' \in \max_{g(\alpha,w)} f(\alpha,w)$: $w' \notin p$
(where DOX (α, w) is the set of worlds compatible with α's beliefs in w)

The assertion of *sorry* is that the proposition p it embeds is true of none of the worlds that comprise the set of the best worlds according to the ordering source (the subject's preferences). *Sorry* presupposes that p is held true by the subject (this is the factive presupposition), that the modal base properly contains the set of doxastic alternatives, and that in the modal base there are p as well as non-p worlds. The assertive content of *sorry* creates an AA environment: in essence, *sorry* is a negative universal quantifier, and we have already shown that negative universal quantifiers have this property, by the example of *no* (43a).

Factoring in the presupposition ruins the strict Anti-additivity of the context (because it ruins its DEness):

(61) a. Mary is sorry that John drinks or smokes.
Presupposition: Mary believes that John drinks or smokes.
b. Mary is sorry that John drinks and Mary is sorry that John smokes.
Presupposition: Mary believes that John drinks and Mary believes that John smokes.
c. (61a) $\not\Leftrightarrow$ (61b)

It thus appears that it is the incorporation of the presupposition which, in all the above cases, is fatal to the NPIs.[12] It seems to me that the fact that presuppositions have a

[12]While weak NPIs are licensed in the complement of an English cognitive factive predicate under a superordinate negation (in certain dialects at any rate, cf. (iiia) in fn. 4 on page 7, and (ia) below), a strict

disruptive effect on strict NPIs lends additional plausibility to the claim defended here and usually rejected[13] that presuppositions can disrupt the licensing of weak NPIs.

Having said this, I must make clear that it would be too extreme to say that *all* presuppositions disrupt the licensing of strict NPIs in English. There is at least one notable exception, namely superlatives.

(62) a. John is the best student I have ever interviewed.
b. John is the best student I have interviewed in years.
c. The tallest girl John had seen until Friday walked in the room.
[Gajewski 2005, ex. 207]

(63) $[\![$the…-est$]\!](P)(Q)(\alpha) \neq \#$ only if $Q(\alpha)=1$;
if $\neq \#$ $= 1$ iff $\forall x \neq \alpha\ (Q(x)=1 \rightarrow \iota d P(x)(d) < \iota d' P(\alpha)(d'))$

The assertive content creates an AA environment in the restrictor (as can be shown using a paraphrase in terms of negative universal quantification), and this is not surprising, given the occurrence of strict NPIs. In other words, if the presupposition is not taken into account, the context of the NPI is AA, and licensing is expected.

(64) John is the best student I have interviewed in years.
No student who is not John is as good as John in this or that class $\Longleftrightarrow$ No student who is not John is as good as John in this class and no student who is not John is as good as John in that class. *(AA)*

Before closing, I still need to show what the data are in French. It proves to be difficult to find strict NPIs, the best I know is temporal *de tout* (literally 'of all'). The pattern is the same as in English (I illustrate with *aussi* (65a), *regretter* 'regret' (65b), *seul* 'only' (65c), *it*-clefts (65d) and superlatives (65e)):

NPI is unacceptable in this context:

(i) a. John doesn't realize that Mary has any chance to win.
b. *John doesn't realize that Mary left until the next day.

The unacceptability of strict NPIs in the complement of negated cognitive factives provides yet another argument in favor of an environment-based approach to their licensing. Under an operator-based approach, the fact remains mysterious: negation is the best licenser there is. It is therefore the presence of the predicate which causes a problem.

But under the Anti-additive hypothesis, it is hard to tell whether the presupposition attached to the embedding verb is the direct cause of the disruption, since there is no AA context for the NPI, even if the assertion alone is taken into consideration. Assuming that we can paraphrase this assertive content using the predicate *have the belief*, we can verify intuitively that the context is not AA because the right-to-left direction of the equivalence that defines Anti-additivity doesn't hold:

(ii) *John doesn't realize that Mary left until the next day.
John doesn't have the belief that Mary smokes and John doesn't have the belief that Mary drinks $\not\Rightarrow$ John doesn't have the belief that Mary smokes or drinks.

[13] Giannakidou (2006) is an exception but she claims that presuppositions are always disruptive, which we have shown to be incorrect.

(65) a. **Jean a parlé plusieurs fois hier, mais je ne crois pas que*
Jean has spoken several times yesterday but I NEG believe NEG that
[Pierre]$_F$ ait lui aussi parlé de toute la journée.
Pierre have.SUBJ him too spoken of all the day
'John spoke several times yesterday, but I don't think that John also spoke at some point during the day.'

b. **Je regrette d' avoir dormi de toute la nuit.*
I regret to have slept of all the night
'I regret sleeping at some point during the night.'

c. **Seul Jean s' est entraîné de toute la journée.*
only Jean SELF is trained of all the day
'Only John worked out at some point during the day.'

d. **Je doute que ce soit Jean qui se soit plaint de toute*
I doubt that it be.SUBJ Jean who SELF be.SUBJ complained of all
l' année.
the year
'I doubt that it is Jean who complained at some point during the year.'

e. *Jean est le seul étudiant à avoir parlé en classe de toute l' année.*
Jean is the only student to have spoken in class of all the year
'Jean is the only student who spoke in class at some point during the year.'

In Tables 1 and 2, I summarize the disruption data in English and in French. A star means that the presupposition is disruptive, a checkmark signals that it isn't; IE stands for 'insufficient evidence' (for example, for cognitive factives, it is impossible to tell if the unavailability of strict NPIs is due to the lack of Anti-additivity or to the presupposition they carry; the subscript A in e.g. $\checkmark_A$ signals that the datum is about dialect A). I also include definite articles (the argument that shows that their presupposition is disruptive is given in Appendix I (8.1)).

	Why/How	*Cognitive factives*	*Definite articles*	*Both*	*Too*	*Regret*
Weak NPIs:	✓	✓	*	*	$*_A/\checkmark_B$	✓
Strict NPIs:	IE	IE	*	*	*	*

	Surprise	*Only*	*It-cleft*	*Again*	*Superlatives*
Weak NPIs:	✓	✓	✓	✓	✓
Strict NPIs:	*	*	*	*	✓

Table 1: Licensing Disruption in English

	Why/How	*Cognitive factives*	*Definite articles*	*Both*	*Too*	*Regret*
Weak NPIs:	*	*	*	*	*	✓
Strict NPIs:	IE	IE	*	*	*	*

	Surprise	*Only*	*It-cleft*	*Again*	*Superlatives*
Weak NPIs:	✓	✓	✓	✓	✓
Strict NPIs:	*	*	*	*	✓

Table 2: Licensing Disruption in French

3.6 Disruptive Inferences

The claim that components of meaning other than the assertive content can have a disruptive effect on NPIs has a precedent. Chierchia (2004) made a parallel claim about scalar implicatures. 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.

(66) 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 soda.

Compare with:

(67) a. I doubt that anyone understood anything.
b. John didn't drink wine or any soda.

Chierchia observes that the so-called interveners have something in common: they are all strong scalar terms (i.e. items that sit at the strong end of a Horn scale). In DE contexts, these scalar terms trigger an indirect scalar implicature (indirect SI). This inference breaks the monotonicity of the *environment* of the NPI when added to the literal meaning.

(68) a. I doubt that Sue has any potatoes.
b. *I doubt that every housemate of Sue has any potatoes.

(69) I doubt that every housemate of Sue has potatoes.
Implicature: Some housemate of Sue has potatoes (=It's not the case that I doubt that some housemate of Sue has potatoes).

Let's assume that the meaning that is relevant for NPI licensing is what Chierchia calls the 'strong meaning' (the output of the function written $[\![\cdot]\!]^s$), i.e. the conjunction of the assertive content and of the scalar implicatures. We compute the strong meaning of the whole sentence (69), so as to encompass the verb *doubt* (i.e. the only DE expression available):

(70) $[\![(69)]\!]^s = \neg\forall x\exists y[\text{potatoes'}(y) \wedge \text{have'}(x, y)] \wedge$
$\exists x\exists y[\text{potatoes'}(y) \wedge \text{have'}(x, y)]$

And we verify that the NPI in (68b) doesn't occur in an environment which is DE w.r.t. its position (by checking the set-to-subset inference):

(71) $[\![$ blue potatoes $]\!] \Rightarrow [\![$ potatoes $]\!]$

a. I doubt that every housemate of Sue has blue potatoes.

b. $[\![(71a)]\!]^s = \neg\forall x\exists y[\text{blue\_potatoes'}(y) \wedge \text{have'}(x, y)] \wedge$
$\exists x\exists y[\text{blue\_potatoes'}(y) \wedge \text{have'}(x, y)]$

c. $[\![(69)]\!]^s \not\Rightarrow [\![(71a)]\!]^s$

This proposal (which I sketched very superficially) is obviously environment-based, like the one defended here: its is the meaning—a meaning that incorporates certain inferences—of the constituent where licensing is checked that matters.

The facts brought to light in the present article lend additional support to Chierchia's original claim and more generally to semantic-pragmatic analyses of so-called intervention effects on NPIs (and against purely syntactic proposals, e.g. Guerzoni 2006). They also show that a unification is possible between apparently disparate phenomena (the disruption caused e.g. by universal quantifiers on the one hand, and the disruption caused by *too/also* on the other): operator-based approaches such as von Fintel 1999 (cf. 4) and Gajewski 2009 (cf. 6) inevitably miss this generalization. Orthogonal unification attempts appear to be on the wrong track: Beck (2006) in particular wants to unify intervention effects in *wh*-questions (in Korean, Malayalam, German, etc.[14]) and the intervention effects on NPIs known since Linebarger 1980 by incriminating focus; the cases studied in the present article are not amenable to an analysis in terms of focus (this is evident for cognitive factives for example) even when focus particles are at play (the demonstration is given in 3.4.3 about *aussi* 'too/also'; a certain property of *too* seems to affect *wh*-phrases in situ; its presupposition is apparently not at fault, but I leave this question to future research), therefore this enterprise stands no chance of accounting for the novel data of this article, and cannot explain all the disruption

[14]Here are examples of intervention effects on *wh*-phrases in situ:

(i) a. **Minsu-man nuku-lûl po-ass-ni?* *(Korean)*
Minsu-only who-ACC see-PAST-Q
'Who did only Minsu see?'

b. **Lili-yum eete pustakam-aane waayikk-ate.* *(Malayalam)*
Lili-also which book-be read-NOM
'Which book did Lili, too, read?'

c. ??*koi nahiiN kyaa paRhaa.* *(Hindi)*
anyone not what read-PERF.M
'What did no one read?' [Beck 2006, ex. 1]

effects on NPIs: it seems to me that it is nipped in the bud.

Summary

This section has shown that, contrary to what is generally assumed (8), some presuppositions disrupt the licensing of weak NPIs. It has also shown that all presuppositions except that of superlatives disrupt the licensing of strict NPIs.

In the next section, I show that the lack of disruption with certain presuppositions (e.g. the presupposition of *only*) is due to the fact that the meaning that is taken into account for the purpose of licensing doesn't incorporate those presuppositions. I argue against von Fintel's (1999) alternative proposal which holds that the notion of entailment that is relevant for NPI licensing is such that presuppositions are never monotonicity-breakers. We already know, in view of the multiple cases of disruption by presupposition that we have put forth, that such a proposal, if empirically adequate, is necessarily limited in scope; a close inspection reveals that it is in fact not grounded at all (4.3).

4 Against Strawson-entailment

In this section, I show that the only promising explanation for the innocuousness of certain presuppositions with certain NPIs is that the meaning that is relevant for the licensing of those NPIs doesn't incorporate those presuppositions. This position is new. I defend it against von Fintel's (1999) influential proposal, which I present in (4.1). It is based on so-called Strawson-entailment which ensures that NPIs are licensed in the presence of presuppositions. The previous section has presented data that are genuine counterexamples to von Fintel's approach (as I show in 4.2): this approach cannot be generalized because disruption by presupposition does exist.

If we were to stop there, the conservative approach which I advocate and which rides on strict DEness, and von Fintel's approach which relies on Strawson Downward-entailingness, are in a tie, as neither has a full empirical coverage. The former predicts—unless it is modified along the lines of (5.2)—that all presuppositions disrupt the licensing of all NPIs;[15] the latter predicts that no presuppositions disrupt the licensing of any NPIs (the exceptions to one approach substantiate the other). The tie is only apparent: I show in the third part of the section (4.3) that Strawson-entailment has no linguistic reality at all.

4.1 The Notion of Strawson-entailment

The literature on NPIs and presuppositions has always focused on trigger-licensers such as *only* and emotive factives, e.g. *sorry.* Given this restricted set of data, the puzzle is: how can we maintain that weak NPIs need a DE function while they are licensed in the scope of functions that are not DE (they carry presuppositions which make them non-DE in a strict sense; they are not upward-entailing either, witness (7d) on p. 4: they are therefore non-monotonic, strictly speaking)? The natural hypothesis is that *sorry,*

[15] Except of course the presuppositions that are not monotonicity-breakers, e.g. that of *either.*

surprise and *only* denote DE functions in some sense, despite some appearances to the contrary.

Two main theoretical avenues have suggested themselves to explain the apparent innocuousness of presuppositions:

i. Presuppositions are ignored in the computation of licensing, i.e. they don't enter the computation. We'll refer to this strategy by means of the maxim: *Ignore presuppositions!* (my coinage);

ii. Presuppositions are neutralized in the computation of licensing, i.e. they do enter the computation but entailment is calculated in such a way that they do not break monotonicity. Here the maxim is: *Neutralize presuppositions!* (my coinage).

The first strategy is upheld in Ladusaw 1979. Von Fintel (1999) cites Ladusaw about the implicative *fail*, which licenses weak NPIs despite triggering a conventional implicature—following Karttunen and Peters (1979), I assume that conventional implicatures are nothing but presuppositions—and being as such non-monotonic:

(72) John failed to buy any shirt.
   a. $[\![$ red shirt $]\!] \Rightarrow [\![$ shirt $]\!]$
   b. John failed to buy a shirt.
      Presupposition: John attempted to buy a shirt.
   c. John failed to buy a red shirt.
      Presupposition: John attempted to buy a red shirt.
   d. (72b) $\not\Rightarrow$ (72c)

Ladusaw holds that presuppositions are detachable parts of meaning, and that only the assertive content is relevant to NPI licensing:

> 'Since entailment depends only upon truth-conditional meaning, it will be true that [(72b)] entails [(72c)], even though that intuition is confused by the fact that [(72c)] implicates something that is not implicated or entailed by [(72b)]. [(72b)] implicates that John tried or was expected to buy a shirt, but [(72c)] implicates that he tried to buy a red shirt. The implicature is irrelevant to the question of whether [(72b)] entails [(72c)].'
>
> [Ladusaw 1979, p. 160]

Assuming that *fail* makes in essence the same truth-conditional contribution as negation, it is easy to verify that it is in fact a DE operator, should attention be restricted to assertion alone for the purpose of licensing:

(73) John failed to buy a shirt.
   a. *Assertion:* John didn't buy a shirt.
   b. *Presupposition:* John attempted to buy a shirt.

The second strategy, which I christened *Neutralize presuppositions!*, is upheld in von Fintel 1999. Von Fintel refuses to examine the entailments of a sentence in a situation that makes it undefined. He therefore takes issue with Ladusaw's proposal to consider assertion alone in the assessment of entailment:

> 'It just isn't good methodology to base a semantic theory on judgments about the truth of a sentence in a situation where it would be misleading and inappropriate to assert the sentence.' [von Fintel 1999, p. 103]

Here is how neutralization works, intuitively. Going back to example (4a), repeated here for convenience, it would suffice for the inference to hold that the presupposition of the consequence (74d) is granted, i.e. that it is part of contextual knowledge that John believes that Mary bought a Honda. Under this assumption, the inference is truth-preserving: whenever (74c) is true, (74d) is also true, since its definedness is taken care of.

(74) a. John is sorry that Mary bought any car.
b. $[\![\text{Honda}]\!] \Rightarrow [\![\text{car}]\!]$
c. John is sorry that Mary bought a car.
Presupposition: John believes that Mary bought a car.
d. John is sorry that Mary bought a Honda.
Presupposition: John believes that Mary bought a Honda.
e. (74c) $\not\Rightarrow$ (74d) *(not DE)*
f. (74d) $\not\Rightarrow$ (74c)

This is exactly the move von Fintel (1999) makes to account for the above facts: granting the presuppositions of the consequence will secure Downward-entailingness.

(75) **Strawson Downward-entailingness:** A function f of type $<\sigma,t>$ is Strawson Downward-entailing (SDE) iff for all x, y of type σ such that $x \Rightarrow y$ and $f(x)$ is defined: $f(y) \Rightarrow f(x)$.

According to von Fintel, the licensing condition given in (3) is simply too strong to be empirically adequate. He thus advocates the following formulation (this amounts to taking as licensers a proper superset of DE operators):

(76) **Von Fintel's 1999 Licensing Condition:** An NPI is only grammatical if it is in the scope of an α such that $[\![\alpha]\!]$ is SDE.

It is immediately clear that this condition is more liberal—it predicts the availability of NPIs in more environments—than (3), since Strawson Downward-entailingness is weaker than Downward-entailingness. The reader can verify that (74c) Strawson-entails (74d) ((74c) $\overset{Strawson}{\Rightarrow}$ (74d)), leading to the grammaticality of the NPI *any* in (74a), as desired. Von Fintel 1999 is thus a *theory of possible licensers* and as such the condition it states is only a necessary one. Furthermore, it is only concerned with a specific category of NPIs, namely weak ones. Its two main tenets are:

1. NPIs are licensed by operators (as opposed to environments). This is what one might call the *syntactic* component of the theory. We have already shown that it is the monotonicity of the environment of NPIs that counts, rather than the properties of operators;
2. A necessary condition for being a suitable licenser is Strawson Downward-entailingness. This is the *semantic* component of the theory.

But as it stands, the theory is in fact too weak. In particular, it makes wrong predictions with regard to the singular definite article and *both*, two triggers which do not license weak NPIs in their restrictor (the conservative approach based on DEness makes the right predictions).

(77) *Context:* There is exactly one student who read some books on NPIs.
- a. *The student who read any books on NPIs is selling them.
- b. The student who read books on NPIs is selling them.
- c. *Presupposition of (77b):* There is exactly one student who read books on NPIs.

(78)
- a. $[\![\text{ novel }]\!] \Rightarrow [\![\text{ book }]\!]$
- b. The student who read a book is selling it.
  Presupposition: There is exactly one student who read a book.
- c. The student who read a novel is selling it.
  Presupposition: There is exactly one student who read a novel.
- d. (78b) $\not\Rightarrow$ (78c) *(not DE)*
- e. (78b) $\overset{Strawson}{\Rightarrow}$ (78c) *(SDE)*

(79) *Context:* Exactly two students read some linguistics books.
- a. *Both students who read any linguistics books have applied to the department.
- b. Both students who read linguistics books have applied to the department.
- c. *Presupposition of (79b):* There are exactly two students who read linguistics books.

(80)
- a. Both students who read books have applied to the department.
  Presupposition: There are exactly two students who read books.
- b. Both students who read novels have applied to the department.
  Presupposition: There are exactly two students who read novels.
- c. (80a) $\not\Rightarrow$ (80b) *(not DE)*
- d. (80a) $\overset{Strawson}{\Rightarrow}$ (80b) *(SDE)*

In (77b) and (79b), a uniqueness presupposition is triggered. As a result, for each inference ((78) and (80)), the individual (or pair of individuals) denoted by the subject DP is the same in the premise and in the consequence: for example, in any given situation the student who read a book and the student who read a novel, provided they exist and are both unique, have to be the same individual; but then whatever is predicated of one can also be predicated of the other, thus ensuring entailment in both directions, i.e. from sets to subsets and from subsets to sets.

Since singular *the* and *both* are not NPI licensers, this property of supporting downward as well as upward entailments has been the designated culprit of non licensing, e.g. in Guerzoni and Sharvit 2007 (this idea was first put forward in Lahiri 1998). Alongside Strawson Downward-entailingness, the notion of Strawson Upward-entailingness is called for:

(81) **Strawson Upward-entailingness:** A function f of type $<\sigma,t>$ is Strawson Upward-entailing (SUE) iff for all x, y of type σ such that $x \Rightarrow y$ and $f(y)$

is defined: $f(x) \Rightarrow f(y)$.

Let's verify that singular *the* and *both* are SDE, SUE in their restrictor.

(82) $[\![$ novel $]\!] \Rightarrow [\![$ book $]\!]$

a. The student who read books is selling them.
Presupposition: There is exactly one student who read books.

b. The student who read novels is selling them.
Presupposition: There is exactly one student who read novels.

c. (82a) $\not\Rightarrow$ (82b) *(not DE)*

d. (82a) $\overset{Strawson}{\Rightarrow}$ (82b) *(SDE)*

e. (82b) $\overset{Strawson}{\Rightarrow}$ (82a) *(SUE)*

So possible licensers cannot include SUE operators:[16]

(83) **Von Fintel/Lahiri's (vFL) Licensing Condition:** An NPI is only grammatical if it is in the scope of an α such that $[\![\alpha]\!]$ is SDE, non SUE.

This new condition correctly predicts that weak NPIs are grammatical in the scope of *only* and emotive factives:

(84) a. John is sorry that Mary bought any car.

b. $[\![$ Honda $]\!] \Rightarrow [\![$ car $]\!]$

c. John is sorry that Mary bought a car.
Assertion: John would prefer that Mary didn't buy a car.
Presupposition: John believes that Mary bought a car.[17]

d. John is sorry that Mary bought a Honda.
Assertion: John would prefer that Mary didn't buy a Honda.
Presupposition: John believes that Mary bought a Honda.

e. (84c) $\not\Rightarrow$ (84d) *(not DE)*

f. (84c) $\overset{Strawson}{\Rightarrow}$ (84d) *(SDE)*

g. (84d) $\overset{Strawson}{\not\Rightarrow}$ (84c) *(not SUE)*

(85) a. Only John has any friends in Chicago.

b. $[\![$ European friends $]\!] \Rightarrow [\![$ friends $]\!]$

c. Only John has friends in Chicago.
Assertion: No one who is not John has friends in Chicago.
Presupposition: John has friends in Chicago.

d. Only John has European friends in Chicago.
Assertion: No one who is not John has European friends in Chicago.
Presupposition: John has European friends in Chicago.

e. (85c) $\not\Rightarrow$ (85d) *(not DE)*

f. (85c) $\overset{Strawson}{\Rightarrow}$ (85d) *(SDE)*

g. (85d) $\overset{Strawson}{\not\Rightarrow}$ (85c) *(not SUE)*

[16] SDE, non SUE operators are a superset of DE operators.
[17] This is a simplification (cf. (60)) which does not affect the reasoning.

4.2 Genuine Counterexamples

I am now going to show that none of the data that we examined in section 3 are predicted by the vFL account, even if we amend it so that it takes the monotonicity of *environments* into account.

(86) **Von Fintel/Lahiri's (vFL) Environment-based Licensing Condition:** An NPI α is licensed in a sentence S only if there is an eligible constituent β of S containing α such that β is SDE, non SUE w.r.t. the position of α.

Let us first consider cases of disruption with weak NPIs. I restrict myself to cognitive factives and *aussi* (the verification of the other cases of disruption is straightforward).

(87) *Jean ne sait pas que Marie a lu quoi que ce soit. (13a)

a. Jean doesn't know that Marie read a book.
Assertion: Jean doesn't have the belief that Marie read a book.
Presupposition: Marie read a book.

b. Jean doesn't know that Marie read a novel.
Assertion: Jean doesn't have the belief that Marie read a novel.
Presupposition: Marie read a novel.

c. (87a) $\not\Rightarrow$ (87b) *(not DE)*

d. (87a) $\overset{Strawson}{\Rightarrow}$ (87b) *(SDE)*

e. (87b) $\overset{Strawson}{\not\Rightarrow}$ (87a) *(not SUE)*

Jean might very well think that Marie read some book, although not a novel, therefore the context of the NPI is not SUE; since it is SDE, the availability of the NPI is expected from the vFL perspective.

(88) *Je ne pense pas que [Jean]$_F$ ait lu quoi que ce soit lui aussi. (22)

a. I don't think that [Jean]$_F$ read a book too.
Assertion: I don't think that Jean read a book.
Presupposition: Somebody other than Jean read a book.

b. I don't think that [Jean]$_F$ read a novel too.
Assertion: I don't think that Jean read a novel.
Presupposition: Somebody other than Jean read a novel.

c. (88a) $\not\Rightarrow$ (88b) *(not DE)*

d. (88a) $\overset{Strawson}{\Rightarrow}$ (88b) *(SDE)*

e. (88b) $\overset{Strawson}{\not\Rightarrow}$ (88a) *(not SUE)*

Likewise, the context is SDE, non SUE (because I might think that Jean read a book, although not a novel); but contrary to vFL's prediction, a weak NPI is anti-licensed.

The number of wrong predictions of the vFL account increases drastically when we turn to strict NPIs. Let us first adapt the vFL proposal by defining Strawson Anti-additivity.

(89) **Strawson Anti-additivity:** A function f is Strawson Anti-additive (SAA) iff

$$f(\text{A} \vee \text{B}) \overset{Strawson}{\Longleftrightarrow} f(\text{A}) \wedge f(\text{B}).$$

We can assume that the licensing condition for strict NPIs is that these items are only licensed in an SAA, non SUE environment (strict NPIs are not dealt with in von Fintel's original theory). Armed with the notion of Strawson Anti-additivity, we can now verify that in (51c) and (53b), the NPIs are placed in SAA environments. I show this for NPIs in the scope of *only* (the verification with other presupposition triggers is unproblematic):

(90) a. Only John drinks or smokes.
Presupposition: John drinks or smokes.

b. Only John drinks and only John smokes.
Presupposition: John drinks and smokes.

c. Only John drinks or smokes $\overset{Strawson}{\Longleftrightarrow}$ Only John drinks and only John smokes.

Still, strict NPIs fail to be licensed in this environment (51b)-(51c). Therefore what they look for is obviously not Strawson Anti-additivity but rather (in agreement with Gajewski 2005) Anti-additivity *tout court.* It is the presence of the presuppositions in (51b)-(51c) which ruins the Anti-additivity of the context. Strawson Anti-additivity doesn't suffice to license strict NPIs; Strawson-entailment is thus of no use for strict NPIs because presuppositions disrupt their licensing (except for the presupposition of superlatives: these create an SAA, non SUE, environment, so vFL makes the right prediction about them[18]). This is a point that proponents of Strawson-entailment grant (cf. Gajewski 2005).

The main goal of this article is to show that neither the *Ignore presuppositions!* rule nor the *Neutralize presuppositions!* rule has a linguistic reality, because there are exceptions to the claim that presuppositions don't disrupt NPI licensing (the generalization (8) on p. 4 is false). These exceptions presented in section 3 undermine both strategies: it is not true that there is a mechanism which systematically weeds out presuppositions for the purposes of NPI licensing. This is not to say that the two strategies fare equally bad. In fact, the second strategy is worse than the first: it is faced with a fatal dilemma, and as a result Strawson-entailingness should be discarded altogether, as having no linguistic grounds (see section 4.3).

I make two claims. First, the meaning that is relevant for licensing is global, i.e. it includes presuppositions; it is the standard notion of downward-entailment (2) that applies. The second claim is that whenever presuppositions that ruin monotonicity are innocuous to NPI licensing, they are simply not incorporated into the global meaning. The crucial piece of evidence is provided by *it*-clefts.

[18] Provided that exhaustivity is turned into a presupposition along the lines of the proposal in section 4.3.2, vFL correctly predicts the unavailability of strict NPIs in the cleft-clause of *it*-clefts (since the environment is SUE). However this welcome result is counterbalanced by the wrong prediction about weak NPIs for which the theory was precisely and specifically tailored.

4.3 *It*-clefts: A Dilemma (Against Strawson UEness)

In this section, I show that the inclusion of Strawson-entailment in the licensing condition of NPIs is fatally flawed. (i.) On its own, it leads to overgeneration: it wrongly predicts that NPIs are licensed by singular definite articles (cf. the previous section) and by *it*-clefts; (ii.) the recourse to SUEness doesn't fix the problem, it actually makes it worse. This is the novel point that the section makes. The discussion focuses on the exhaustivity effect found in *it*-clefts.

4.3.1 The Recourse to Strawson Upward-entailingness

NPIs are not allowed in the cleft-clause of *it*-clefts (in positive, unembedded sentences).

(91) *Context:* All the Chinese statuettes have been stolen.
*It is Fred who stole anything.

This is problematic for von Fintel's original analysis if *it*-clefts carry a presupposition of existence and of uniqueness (as is commonly assumed): if the assertion and the presupposition of *it*-clefts are as stated below (I simplify matters by using an individual variable, but quantifiers can of course appear in the focus of an *it*-cleft), the context created is SDE.

(92) a. It is α that *P*.
b. *Assertion:* P(α).
c. *Presupposition:* $\exists$y[P(y) $\wedge$ $\forall$z[P(z) $\Rightarrow$ z=y]] *(this will be revised).*

However, the context is also SUE (Cable 2002), as shown in the downward inference below: since there is a single individual who stole a statuette and a single individual who stole a blue statuette in the context, the two have to be identical (the recourse to SUEness is the same solution that blocks NPI licensing by singular definite articles, (81) on p. 30).

(93) a. It is Igor who stole a statuette.
Assertion: Igor stole a statuette.
Presupposition: There is a unique person who stole a statuette.
b. It is Igor who stole a blue statuette.
Assertion: Igor stole a blue statuette.
Presupposition: There is a unique person who stole a blue statuette.
c. (93a) $\not\Rightarrow$ (93b) *(not DE)*
d. (93a) $\overset{Strawson}{\Rightarrow}$ (93b) *(SDE)*
e. (93b) $\overset{Strawson}{\Rightarrow}$ (93a) *(SUE)*

Therefore the vFL account (the original account supplemented with a ban against SUE contexts) makes the correct prediction about (91). However, this division of labor between assertion and presupposition is far from being universally accepted. Not that the existence presupposition is dubious, but the presuppositional nature of the exhaustivity effect is taken with a grain of salt. First, the existence presupposition: Percus

(1997) and Rooth (1999) a.o. provide strong evidence in its favor, of which I present two pieces. A negative quantifier cannot appear in the cleft constituent:

(94) a. —A: Who saw John?
b. —B: #It's nobody who saw John. [Percus 1997, p. 339]

Rooth (1999) offers a second test: if we schematize an *it*-cleft as *it is* α *that P*, when the speaker asserts that only the individual α can potentially be in the extension of the predicate P, she cannot use a negated cleft (whereby she negates that α has property P), on pain of a clash with the existence presupposition carried by the sentence, as shown in (95b):

(95) *Context:* In my department, a football pool is held every week, where people bet on the outcomes of games. It is set up so that at most one person can win; if nobody wins, the prize money is carried over to the next week.
a. —A: Did anyone win the football pool this week?
b. —B: #Probably not, because it's unlikely that it is Mary who won it, and she's the only person who ever wins. [Rooth 1999, p. 7]

The uniqueness presupposition on the other hand is problematic. First of all, *it*-clefts are not always singular: the phrase in the cleft constituent can denote a plural individual, witness the felicity of (96):

(96) *Context:* Somebody ate the pizza.
It was Kenneth and Fiona who ate the pizza.

It-clefts need not be used in contexts where the predicate in the cleft-clause (predicate P) only has singular individuals in its denotation. Therefore the notion of uniqueness is inadequate here. But it won't do to replace it with the requirement that there exist a *maximal* (potentially plural) individual that is in the denotation of the predicate P. For this constraint is trivially satisfied as soon as some individual verifies P: if something or someone is P, then there exists a maximal individual that is P. In other words, a maximality presupposition on potentially plural individuals amounts to nothing but an existence presupposition. Still, an exhaustivity effect exists undeniably in *it*-clefts: it can be evidenced by asserting in a continuation that some other individual than the one denoted by the cleft constituent verifies P (97), or by using one of the tests of exhaustive identification devised by Szabolcsi (1981) (98):

(97) #It was Kenneth who ate the pizza, and Fiona ate it too.

(98) a. Mary picked a hat and a coat for herself.
$\Rightarrow$ Mary picked a hat for herself.
b. It was a hat and a coat that Mary picked for herself.
$\not\Rightarrow$ It was a hat that Mary picked for herself. [É. Kiss 1998, p. 250]

As it is hard to determine where the exhaustivity effect comes from, we are faced with an alternative: either it is due to a presupposition, or it is not. This is an important question, because exhaustivity is considered to be a presupposition by proponents of the vFL account (and they explain the unavailability of NPIs in *it*-clefts as an effect

of the SUEness that follows from exhaustivity). I now set out to show that whether exhaustivity is presuppositional or not, SUEness is useless and doesn't save vFL from incorrect predictions.

4.3.2 Exhaustivity: Presuppositional or Not?

Let us examine the two options in turn, and evaluate how Strawson-based accounts fare in each of them. I will first explore the hypothesis that the exhaustivity effect is not presuppositional (first option): this leaves open several possibilities (the exhaustivity claim is part of the assertion, or it is an implicature of some sort) which we need not go into. What matters is that under this hypothesis *it*-clefts only carry an existence presupposition. Interestingly, exhaustivity can be stated explicitly, without any infelicity (99a) (there is no harm in doing this); and NPIs are still disallowed under this modification (99b):

(99) *Context:* Statuettes were stolen from the museum.

a. It was Igor and no one else who stole something.
b. *It was Igor and no one else who stole anything.

Having exhaustivity as a presupposition secures SUEness, which is, according to vFL, fatal to NPIs. What I am proposing is that we make exhaustivity part of the assertion in order to create an SDE, non SUE environment: this shows that what anti-licenses NPIs is therefore not SUEness. One might object to this scheme that incorporating exhaustivity into the assertion by adding a conjunct in the syntax doesn't affect the overall structure of the *it*-cleft, and that as a result NPI licensing should not vary. But this criticism is only valid if NPI licensing is operator-based (and if an *it*-cleft is indeed an operator of sorts); however we know that there is good evidence that licensing is environment-based.

Following the usual procedure, we set up a downward inference to verify the monotonicity of the context of the NPI in (99b). The only meaning components that are relevant to this computation are the assertion and the presupposition(s) of the sentences in the inference; since we are interested in the effects of exhaustivity on the licensing of NPIs, and we are supposing that exhaustivity is not part of the presupposition, we secure its presence by incorporating it into the assertive content:

(100) *It was Igor and no one else who stole anything.

a. $[\![$ blue statuette $]\!] \Rightarrow [\![$ statuette $]\!]$
b. It was Igor and no one else who stole a statuette.
Assertion: Igor and no one else stole a statuette.
Presupposition: Somebody stole a statuette.
c. It was Igor and no one else who stole a blue statuette.
Assertion: Igor and no one else stole a blue statuette.
Presupposition: Somebody stole a blue statuette.
d. (100b) $\not\Rightarrow$ (100c) *(not DE)*
e. (100b) $\overset{Strawson}{\Rightarrow}$ (100c) *(SDE)*
f. (100c) $\overset{Strawson}{\not\Rightarrow}$ (100b) *(not SUE)*

We are led back to the situation that SUEness was expressly designed to circumvent. The context is SDE and the NPI is wrongly predicted to be available: since exhaustivity is, by hypothesis, not presuppositional, the context cannot be SUE (it is not true that all situations in which Igor and no one else stole a blue statuette are situations in which Igor and no one else stole a statuette, for Eric might have stolen a red statuette). Therefore SUEness is of no avail here.

I am now going to show that the second option (exhaustivity is presuppositional) is also unavailable to vFL: the only plausible presuppositions are going to make the environment of the NPI in an *it*-cleft SUE, even in negated *it*-clefts, where NPIs are actually licensed.

Let us take a closer look at the kind of exhaustivity presupposition a sentence like (101) can have:

(101) It was Igor who stole a statuette.

Suppose the presupposition is categorical (as opposed to conditional): Igor and no one else stole a statuette. This is clearly not the inference that projects out of negation and other presupposition 'holes' in the sense of Karttunen 1973:

(102) a. It wasn't Igor who stole a statuette.
b. Was it Igor who stole a statuette?
c. If it was Igor who stole a statuette…
$\not\rightarrow$ Igor and no one else stole a statuette.

If there is an exhaustivity presupposition, it should thus be conditional. As a first stab, we can try: if someone stole a statuette, Igor and no one else did (this is the presupposition assumed in Percus 1997). Alas, this makes the incorrect prediction that (103), when defined, entails that no one stole a statuette:

(103) It wasn't Igor who stole a statuette.

The only plausible conditional presupposition for (101) would be: if Igor stole a statuette, no one else did. This is the line of thought developed in Büring 2010, which I will follow. This way we get, for a positive unembedded cleft, and without making any categorical claims about the (plural) individual denoted by the cleft constituent, that they exhaust the denotation of the predicate in the cleft-clause. Here's a formalization, inspired by Büring 2010:

(104) a. It is P that Q.
b. *Assertion:* $P \cap Q \neq \emptyset$
c. *Presupposition (of existence and exhaustivity):* $Q \neq \emptyset \wedge [P \cap Q \neq \emptyset] \rightarrow$ *max*$(Q) \in P$
d. For any set R, *max*(R) = x such that $x \in R$ and $\forall y \in R$ $y \leq x$ (where $\leq$ is the transitive, reflexive and antisymmetric part-of relation).

In *'It was Igor and Stella who stole a statuette'*, we treat *Igor and Stella* as a predicate of plural individuals (only true of the plural individuals identical with the mereological sum of Igor and Stella). And we say that the sentence presupposes that the maximal

plural individual in the extension of the predicate *steal a statuette* has the property of being identical with the mereological sum of Igor and Stella. This way, we derive the exhaustivity effect (in addition to the existence presupposition). Applied to (105a), we get the correct result:

(105) a. It was Igor and Stella who stole a statuette.
b. Q: *λx. steal_statuette(x)
c. P: *λx. x = Igor $\oplus$ Stella
Assertion: Igor and Stella stole a statuette ($P \cap Q \neq \emptyset$)
Presupposition: Someone stole a statuette and if the sum of Igor and Stella stole a statuette, then the maximal individual who stole a statuette is identical with the sum of Igor and Stella ($\exists x\ Q(x) \wedge [P \cap Q \neq \emptyset] \rightarrow$ *max*(Q) = Igor $\oplus$ Stella)

Now a new challenge awaits Strawson-based accounts: (weak) NPIs are licensed in the cleft-clause of clefts placed in the scope of a DE expression:[19]

(106) *Context:* Statuettes were stolen from the museum.
a. I doubt that it was Igor who stole anything, I think it was Peter.
b. It wasn't Igor who stole anything, it was Peter.

(107) a. $[\![$ blue statuette $]\!] \Rightarrow [\![$ statuette $]\!]$
b. It's not the case that it was Igor who stole a statuette.
Assertion: It's not the case that Igor stole a statuette.
Presupposition: Somebody stole a statuette and if Igor stole a statuette, no one else did.
c. It's not the case that it was Igor who stole a blue statuette.
Assertion: It's not the case that Igor stole a blue statuette.
Presupposition: Somebody stole a blue statuette and if Igor stole a blue statuette, no one else did.
d. (107b) $\not\Rightarrow$ (107c) *(not DE)*

[19] The English speakers I surveyed do not share the judgment of ungrammaticality reported in Percus 1997, reproduced below as (i):

(i) *It wasn't John who did anything to help. [Percus 1997, ex. 28a]

I should also say that NPIs in negated clefts and in clefts placed in antecedents of conditionals are well attested on the internet. Here is one of the 15 hits (excluding duplicates and irrelevant results) for the Yahoo search on the exact string 'it wasn't him who * anything' (the relative rareness of the results is not due to anti-licensing, as results for 'it wasn't him who * something' are rarer still):

(ii) Pete swore it wasn't him who said anything and I should have believed him, because now he's probably pissed off at me. I still don't know who said it. Probably Tony, or maybe Chantal, Pete's sister. `http://pulmonary-hypertension-diaries.www.phcentral.org/diaries/full_diaries_u143/asc/16/`

Similarly with negated *think:*

(iii) I don't think it was actually Lisa that said anything about Miley. I know Rian's girlfriend did. `http://www.oceanup.com/2009/10/19/all-time-low-talk-justin-bieber-and-miley-`

e. (107b) $\overset{Strawson}{\Rightarrow}$ (107c) *(SDE)*

f. (107c) $\overset{Strawson}{\Rightarrow}$ (107b) *(SUE)*

The SDEness of the context is fairly easy to see. But its SUEness is less straightforward, so a walk-through is in order. To ascertain whether (107c) Strawson-entails (107b), we restrict our attention to situations where the former is true (hence defined) (i.e. situations where Igor didn't steal a blue statuette but someone did), and where the presupposition of the latter is satisfied. Can (107b) fail to be true? Suppose it is false, i.e. suppose that Igor stole a statuette. Given that the presupposition is satisfied by hypothesis, someone stole a statuette but no one else but Igor did. This contradicts the assumption that someone who is not Igor stole a blue statuette. Therefore whenever (107c) is true, (107b) is true too. This means that the context is SUE, and inasmuch as it is also SDE, vFL wrongly predicts that an NPI should be ungrammatical in it.

To sum up, *it*-clefts pose a dilemma to vFL: either exhaustivity is not presuppositional and the account overgenerates (it wrongly predicts the grammaticality of NPIs in the cleft-clause of positive, unembedded *it*-clefts), or exhaustivity is presuppositional and the account undergenerates (it wrongly predicts the ungrammaticality of NPIs in the cleft-clause of *it*-clefts in the scope of a DE function). I believe that this problem is serious enough to cast doubt on the desirability of the use of Strawson-entailment.

Interestingly, the facts we have just discussed are going to reveal that innocuous presuppositions (e.g. of *it*-clefts in the case of weak NPIs) are simply not factored into the meaning that is relevant for the licensing of NPIs. Let us show this in detail.

4.3.3 The Presupposition of the Cleft is Not Factored In

Suppose that the presuppositions of *it*-clefts must be taken into account in the computation of the licensing of NPIs in the cleft-clause (just as the presupposition of *aussi*) and suppose that we use the standard notion of entailment (1) instead of Strawson-entailment; let us only consider the uncontroversial presupposition, the existence one (we can leave aside the exhaustivity effect: it cannot make DE a context whose DE-ness is ruined by the existence presupposition). The motononicity of the environment is broken in the cleft-clause of all clefts, be they embedded under a DE function or not; NPIs are wrongly predicted to be always unavailable in *it*-clefts (cf. the two downward inferences below): this is undesirable, because weak NPIs are in fact licensed in negated clefts.

(108) *It was Igor who stole anything.

a. It was Igor who stole a statuette.
Assertion: Igor stole a statuette.
Presupposition: Someone stole a statuette.

b. It was Igor who stole a blue statuette.
Assertion: Igor stole a blue statuette.
Presupposition: Someone stole a blue statuette.

c. (108a) $\not\Rightarrow$ (108b) *(not DE)*

(109) I doubt that it was Igor who stole anything.

a. I doubt that it was Igor who stole a statuette.
   Assertion: I doubt that Igor stole a statuette.
   Presupposition: Someone stole a statuette.
b. I doubt that it was Igor who stole a blue statuette.
   Assertion: I doubt that Igor stole a blue statuette.
   Presupposition: Someone stole a blue statuette.
c. (109a) $\not\Rightarrow$ (109b) *(not DE)*

We must conclude that the presuppositions of *it*-clefts are *not* taken into account for NPI licensing. To reiterate, they are not neutralized *à la* von Fintel (in view of the dilemma analyzed above). Instead, they are not incorporated into the meaning: the computation of NPI licensing only has access in this case to the strict assertive content. Consider again the downward inferences above but consider only the assertive content: in (108), the assertion of the a. sentence doesn't entail the assertion of the b. sentence; in (109), it does. Only in (109) is the context of the NPI DE. The NPI pattern is thus straightforwardly derived if the assertion alone is taken into consideration.

At this point, we come across an interesting theoretical problem: if we are right in assuming that presuppositions sometimes do not enter the calculation of licensing, why should this be so? We could imagine that the incorporation doesn't take place because in the presence of an NPI, the presupposition is not triggered (for some unknown reason). But this is bound to be incorrect, as it is clear that the presupposition projects, even in the presence of an NPI. We used Rooth's test to show that *it*-clefts carry an existence presupposition; we can apply the test again, but this time to a cleft that contains an NPI in its cleft-clause:

(110) *Context:* Same context as in (95).
a. —A: Did anyone win the football pool this week?
b. —B: #Probably not, because it's unlikely that it is Mary who won anything, and she's the only person who ever wins.
c. —B': Probably not, because it's unlikely that $[\text{Mary}]_F$ won anything, and she's the only person who ever wins.

Assuming that the existence presupposition carried by the cleft in (110b) clashes with the assertion that no one won (this is the result of denying that Mary won and of claiming that only she ever wins), the oddness of (110b) can be taken as evidence that in that sentence too an existence presupposition is triggered, despite the presence of an NPI in the cleft-clause.

This leaves only one option open. The presupposition of *it*-clefts is triggered even when NPIs are licensed, but the system that computes the licensing is blind to it, and only operates on the literal meaning. Of course, I hasten to say that this blindness cannot be general, given the disruption caused by the presupposition of French cognitive factives, *aussi/too* (3) and the definite article (8.1). Depending on the trigger, or rather depending on the presupposition, the system does or does not have access to presuppositions when it checks NPI licensing.

This may sound like a non sequitur: in all cases that we have looked at so far, presuppositions are in fact present in a certain way, since they are part of the meaning

(*sensu lato*) of sentences. In other words, they *project.* But the fact that they are present ultimately says nothing about their presence when licensing is computed. I propose that presuppositions are a detachable part of meaning (in agreement with Ladusaw 1979), and provide evidence for the hypothesis that the system that computes them is modular (in section 5), and for this reason presuppositions do not necessarily interfere with NPI licensing.

Summary

In all instances where a presupposition is innocuous to an NPI α, the vFL account is in a tie with the hypothesis that the presupposition is not incorporated in the monotonicity computation relative to α. We have found one decisive case, namely *it*-clefts, where the neutralization of a presupposition (i.e. the vFL strategy) has unwelcome consequences while the rival hypothesis (non incorporation) derives the facts adequately. Given that there exists at least one instance of innocuousness of a presupposition that can be explained by its absence from the meaning relevant for NPIs (although it is triggered and gets projected), and given that all other instances are amenable to the same explanation, it is safe to conclude, by application of Occam's razor, that the postulation of Strawson-entailment is unwarranted, and should be discarded as having no linguistic reality.

The next section shows that the pattern of NPI disruption provides an interesting view on the status of presuppositions in the computation of meaning.

5 A New Picture

5.1 Interesting Consequences

5.1.1 Local Accommodation and Non-projection

The present article offers the first touchstone that can differentiate local accommodation and non-projection on the one hand, and non-triggering on the other. Presuppositions are sometimes 'cancelled' through local accommodation (Heim 1983), i.e. fail to project because they are made part of the assertive content in the scope of negation.

(111) #The King of France is bald.
$\rightsquigarrow$ There exists a King of France.

(112) a. The King of France is not bald, because there is no King of France.
b. $\not\rightsquigarrow$ There exists a King of France.
c. Accommodation in (112a): It is not the case that (there is a King of France and that he is bald), because there is no King of France.

The disruption effect remains even when the presupposition is locally accommodated. To show this, I use a French cognitive factive (because the presupposition of *aussi* is notoriously hard to accommodate), as in (113):

(113) **Pierre ne s' aperçoit pas que Marie a quelque chance que ce*
Pierre NEG REFL perceives NEG that Marie has some chance that this
soit de gagner, car elle n' a aucune chance. (French)
be.SUBJ of win for she NEG has no chance
Intended: *'Pierre doesn't realize that Marie has any chance to win, for she has no chance.'*

Similarly, the effect remains if the presupposition is satisfied, as in (115) (the presupposition of the consequent is satisfied by the antecedent):

(114) If Moldavia is a monarchy, then the King of Moldavia is powerful.
$\not\rightsquigarrow$ There exists a King of Moldavia.

(115) **Je ne pense pas que si Marie a invité Pierre, [Jean]$_F$ ait*
I NEG think NEG that if Marie has invited Pierre Jean have.SUBJ
invité qui que ce soit lui aussi.
invited who that this be.SUBJ him too
Intended: *'I doubt that if Marie invited Pierre, [Jean]$_F$ also invited anyone.'*

Once triggered, presuppositions cause a disruption, as if the system responsible for NPI licensing processed them blindly.[20] Interestingly, not all presupposition triggers cause a disruption (far from it, cf. 3). But the typology that we observe doesn't match previously proposed typologies of presuppositions. Now that we have explored the realm of presupposition triggers, we can discard a potential explanation for the disruption effect: some (Abusch (2002) and Abbott (2005)) have proposed that some presupposition triggers are 'soft' (*know*) and others are 'hard' (*again*), according to whether their presuppositions are easily accommodated or not.

(116) a. John doesn't know that it's raining because it's not raining!
b. #I don't know if Jane ever rented *Manhattan* before, but perhaps she's renting it again. [Simons 2001, ex. 6]

There is some appeal to this theory: if a presupposition is easily neutralized, Abusch argues, this is because it is not semantically encoded. We could use this distinction to account for our disruption effects. Alas, the cartography of hard and soft triggers doesn't fit the data that we have gathered and presented. For example, *know* should count as *soft* (but it is disruptive in French), but *again* and aspectual verbs like *stop* and *start* will count as *hard* (but they don't disrupt weak NPIs).

5.1.2 Non-triggering

The cases we inspected in 5.1.1 required added material which cancelled the presupposition by tinkering with the context set. The cases we are turning to are of a different kind: certain presupposition triggers can be placed in a syntactic configuration in which

[20] Strikingly, the disruption effects of scalar implicatures studied by Chierchia (2004) (cf. 3.6 and 6) also persist when the inference (a scalar implicature) is defeated:

(i) **The students have no background whatsoever, so I doubt that every student has any background.*

they never yield a presupposition (e.g. a verbal trigger ceases to be presuppositional when it embeds a subjunctive clause). The disruption effect does not obtain when the presupposition is simply not triggered. This can be illustrated with the French cognitive factive predicate *s'apercevoir* 'realize', which doesn't yield a presupposition when it is placed in the antecedent of a subjunctive conditional and selects a subjunctive complement. (113) and (117a) form an interesting pair which offers a direct illustration of the difference between local accommodation and non-triggering:[21]

(117) a. *Si Pierre s' apercevait que Marie ait changé quoi que ce*
if Pierre REFL perceived that Marie have.SUBJ changed what that this
soit, il serait en colère.
be.SUBJ he would-be in wrath
'If Pierre found out that Marie changed anything, he would be mad.'
b. *Presupposition:* None.

Similarly, the verb *se souvenir* 'remember' doesn't trigger a presupposition when it selects the subjunctive (this requires that it be negated). (17a) is repeated for convenience:

(118) a. *Jean ne se souvient pas que Marie lui ait dit*
Jean NEG REFL remembers NEG that Marie to-him have.SUBJ said
quoi que ce soit.
what that this be.SUBJ
'Jean doesn't remember that Marie told him anything.'
b. *Presupposition:* None.

This comparison suggests that local accommodation, which is held by some as problematic and dubious (van Rooy 1999, von Fintel 2008), is not reducible to non-triggering. The examination of NPIs therefore provides some insights into the mechanisms of presupposition 'cancellation'.

5.2 A Hypothesis about the Detachability of Presuppositions

The lessons that we can draw from our exploration are the following (I refer the reader to Tables 1 and 2 on p. 23 for a panoptic view of the data):

1. Very superficially: some presuppositions disrupt the licensing of some weak NPIs in some languages. And some presuppositions disrupt the licensing of some strict NPIs in some languages.

2. Furthermore, it seems that in a given language, strict NPIs are vulnerable to a proper superset of the presuppositions that weak NPIs are vulnerable to. I propose the following generalization:

[21] A similar phenomenon occurs with implicatures. A numeral like 11 is not always high on its scale, and it can actually be the weakest element of a truncated scale (e.g. in a context where one groups numerals by multiples of 11): then no indirect scalar implicature is triggered, hence the grammaticality of (ia):

(i) a. (A soccer coach can say…) I never had eleven kids who won any championship.
b. *I didn't meet eleven people who read any of my poetry. [Chierchia 2004]

(119) **Generalization:** In a given language *L*, if the licensing of a weak NPI π_w^- is disrupted by a presupposition ρ, then the licensing of a strict NPI π_s^- is disrupted by ρ too.

3. Lastly, the presuppositions that weak French NPIs are vulnerable to form a proper superset of the presuppositions that English weak NPIs are vulnerable to.

We have thus implicational hierarchies—as stated in (119)—within each language, and cross-linguistic comparison suggests that there might be some stable general hierarchy across languages (per 3. above). Given that we know that presuppositions are sometimes not factored in (this is the lesson learned from *it*-clefts in 4.3), I want to propose that Tables 1 and 2 reveal a modular organization and show us a map of the connections between the system that computes licensing and the various modules where presuppositions are computed. The clearest way to think about these relations, I think, is in terms of timing. It is hard to make sense of the observed patterns unless we accept these two stipulations: (i.) there is a cross-linguistically fixed order of incorporation of presuppositions; and (ii.) the licensing of weak NPIs is always checked before the licensing of strict NPIs. We have thus two parallel sequences: licensing checking on the one hand and incorporation of presuppositions on the other. Variation comes from differences in timing within the two parallel sequences, not in their internal ordering. Figure 1 fleshes out this idea. It does justice to the observation that presuppositions that end up being part of the global meaning of a sentence (e.g. the presupposition of the *it*-cleft in (106)) fail to disrupt the licensing of a weak NPI π_w^- but disrupt that of a strict NPI π_s^-.

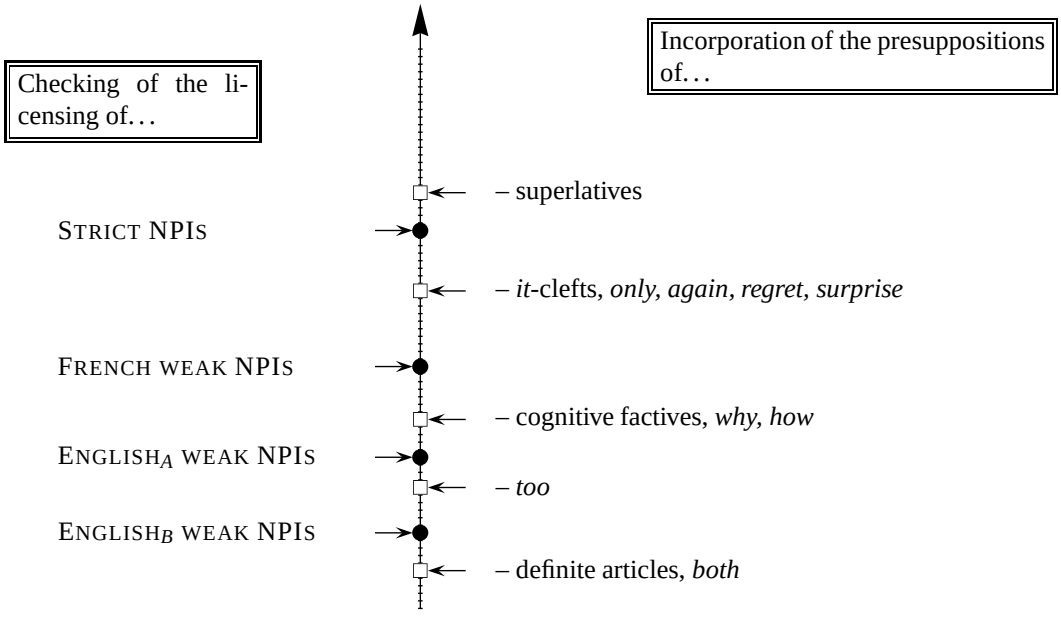


Figure 1: Timing of Presupposition Incorporation

Under this hypothesis, the incorporation of presuppositions can be seen in a *derivational* manner: one has to imagine that the presuppositions of a sentence *S* are detachable parts of the meaning of *S*—this is in essence Ladusaw's (1979) original claim—i.e. there exist certain representations of *S* that do not include them. Furthermore, presuppositions are not all incorporated at the same time during the course of the derivation: different representations of *S* include different presuppositions. The derivation process is cumulative: once a presupposition ρ has been incorporated into a representation of *S*, later representations of *S* include ρ as well. The licensing of NPIs also occurs in stages (the licensing of weak NPIs precedes that of strict NPIs). Let us describe the derivational process for an ungrammatical sentence with two presupposition triggers and two NPIs of different strengths (the five steps are given below the sentence):

(120) *The student who has any books on NPIs is sorry to have left until the next day.

(i) The meaning of (120) reduces to its assertive content;
(ii) The meaning of (120) incorporates the presupposition of the definite article (this makes the position of *any* in its restrictor non DE);
(iii) The licensing of weak NPIs is checked. *Any* is anti-licensed;
(iv) The meaning of (120) incorporates the presupposition of *sorry* (this makes the position of *until* in its complement non DE, hence non AA);
(v) The licensing of strict NPIs is checked. *Until* is anti-licensed.

NPIs are thus a probe into the workings of presupposition, and can be used to support the hypothesis that presuppositions are a detachable part of meaning, *pace* von Fintel. Now, one cannot hold that presuppositions can be 'ignored' (as claimed by Ladusaw) because in view of the numerous cases of disruption, this would amount to saying that *certain* presuppositions can be ignored for *certain* NPIs and not others. Such a perspective is not only highly stipulative—for each presupposition, one has to make an ad hoc hypothesis about whether it can be ignored in the licensing of weak NPIs and a similar hypothesis, equally ad hoc, with regard to strict NPIs—and blind to the patterns revealed in our Tables, it also rests on the problematic assumption that there exist exceptions to the licensing conditions ((9) on p. 5 and (44) on p. 18).

I think that we are not forced to adopt this implausible view. I propose instead that presuppositions are incorporated into the meaning of sentences in stages, and that *once they are incorporated*, they cannot fail to be part of the computation of monotonicity relevant to NPI licensing: for any presupposition ρ and NPI α in *S* such that the polarity of ρ is not negative w.r.t. the position of α, ρ doesn't disrupt the licensing of α only if ρ is not (yet) incorporated into the meaning of *S* when the licensing of α is checked. It is now necessary to explore other languages, to verify the hypothesis about the order of incorporation of presuppositions. Besides, if the hypothesis is confirmed, it should be possible to draw a much more fine-grained picture—hopefully an exhaustive ordering—once we determine, for a large enough sample of languages, which presuppositions disrupt the licensing of which NPIs. For example, it is possible that in some language *L*, weak NPIs are vulnerable to the presupposition of *regret* but

are impervious to the presupposition of *surprise*, in which case we would be led to add a dot on the arrow in Figure 1 on p. 43.

We can conclude that neither *Ignore Presuppositions!* (Ladusaw) nor *Neutralize Presuppositions!* (von Fintel/Lahiri) is linguistically grounded: once incorporated, a presupposition is part of the meaning of the sentence in which it is triggered, and is a potential monotonicity-breaker.

6 Gajewski 2009: Doing Away with Anti-additivity?

The current debate about weak and strict NPIs is divided between two strategies: the point of departure of the first strategy, upheld by the followers of Zwarts 1998, is the idea that different NPIs are sensitive to different logical properties (namely DEness for weak NPIs and so-called Anti-additivity for strict NPIs), while the other strategy recognizes only one such logical property, *viz* DEness, and locates the source of the variation in the vulnerability of items to the effects of scalar implicatures (weak scalar terms such as *at most N* give rise to SIs). The second option is pursued in Gajewski 2009. This proposal rests on the following two generalizations (we have already presented data that undermine each of the two claims, I will not repeat them here):

(121) a. The licensing of weak NPIs is not disrupted by any presuppositions.
b. The licensing of strict NPIs is disrupted by all presuppositions.[22]

[22] To salvage the second generalization in the face of the availability of strict NPIs in superlatives, Gajewski (2005) proposes that the presupposition of superlatives is not triggered by the morpheme *-est* but by some higher operator. In *'Emma is the tallest girl in the class'* the superlative morpheme contributes the meaning that Emma is taller than any girl in the class (i), and the operator contributes the presupposition that Emma is a girl in the class.

(i) $[\![\text{-est}]\!] = \lambda R.\lambda P.\lambda x.\exists d[R(d)(x)=1 \wedge \neg\exists[P(y) \wedge y \neq x \wedge R(d)(y)=1]]$

(ii) a. Emma is the tallest girl in the class.
b. [the Op [[-est tall(d)] [girl in the class]]]

As Gajewski notes, the predicate denoted by [[-est tall(d)] [girl in the class]] is true of entities x which have the property of being taller than any girl in the class ($\neq$ x): a boy or a SUV can be in the denotation of this predicate. It is hard to see how the presupposition triggered in (iia) that Emma is a girl in the class can be generated by a higher operator taking as input such a predicate. Gajewski suggests that the structure contains a silent copy of the NP *girl in the class:*

(iii) [the Op [$_{\text{AdjP}}$ [-est tall(d)] [girl in the class]] [$_{\text{NP}}$ ~~girl in the class~~]]

Alternatively, he proposes that superlative constructions have a semantics equivalent to that of exceptive constructions.

(iv) There is a degree d such that no girl in the class but Emma is d-tall.

He convincingly argues elsewhere (Gajewski 2008) that the difference between *only John* and *no one but John* (the former doesn't license strict NPIs while the latter does) can be explained if *no one but John* is discontinuous and the exceptive phrase is interpreted higher than the negative quantifier. Some silent exceptive should be postulated in superlatives for the analogy to work.

These two solutions are not outlandish, but they serve a purpose (namely show that all presuppositions disrupt the licensing of strict NPIs) that is only really appealing if the symmetric claim (no presuppositions

Gajewski 2009 holds that operators that license weak NPIs are SDE since presuppositions are assumed to be innocuous (this proposal is operator-based and as such ignores the contribution of triggers other than licensers); if one assumes that strict NPIs are sensitive to Anti-additivity, it appears that Strawson Anti-additivity is not sufficient to license them (cf. p. 32) and that presuppositions should not be neutralized by Strawson-entailment. Gajewski summarizes the empirical picture that he assumes to be correct in Table 3.

	Entailment	Strawson-entailment
DE	???	Weak NPIs
AA	Strict NPIs	???

Table 3: The Current Picture according to Gajewski 2009

A simplification seems desirable, he argues: he proposes that we can account for the facts with a single binary parameter (and dismiss the DE/AA parameter).

	Entailment	Strawson-entailment
DE	Strict NPIs	Weak NPIs

Table 4: Gajewski's 2009 Division of Labor

Under this view, strict NPIs require strictly DE operators while weak NPIs require SDE ones. The motivation for doing away with Anti-additivity is that the most notorious circumstance where weak NPIs are content while strict NPIs fail to be licensed (i.e. in the scope of *at most N*) is one where a scalar implicature is triggered (123):

(122) a. At most five students understood anything.
b. *At most five students have exercised in years.

(123) a. At most five students *X*-ed.
b. *Scalar Implicature:* Some student *X*-ed.

Recall that under the Anti-additivity hypothesis, the licensing failure in (122b) is imputed to the non Anti-additivity of the context created by the quantifier *at most N*; in Gajewski 2009, the meaning relevant for NPI licensing is strengthened to include SIs, and this inclusion has the disruptive effect first theorized in Chierchia 2004 (see also section 3.6 above and Homer 2010).

Chierchia's original claim dealt mainly with the implicatures triggered when a strong scalar term (i.e. an item that sits at the strong end of a Horn scale) is sandwiched between a DE function and an NPI, and makes the NPI unacceptable (cases such as (122a), where a direct SI makes the environment of the NPI non-monotonic

disrupt the licensing of weak NPIs) is warranted. But it clearly isn't.

without affecting licensing, were actually a challenge to the proposal). In Chierchia's system, this subcategory of SI is called indirect.

Now back to the unequal fates of weak and strict NPIs under *at most N:* Gajewski's theory, which is operator-based, is that *at most N* fails to license strict NPIs because its *strong* meaning is non-monotonic (hence not a strictly DE function), and strict NPIs require strictly DE functions. It licenses weak NPIs because these must be in the scope of an expression whose *plain* (=non-strengthened) meaning is Strawson-DE. This gives us two licensing conditions:

(124) a. A weak NPI α is licensed only if it occurs in the scope of β, where $[\![\beta]\!]$ is SDE;
b. A strict NPI α is licensed only if it occurs in the scope of β, where the implicature-enriched meaning of β is DE.[23]

There is an interesting twist here. Chierchia (2004) explains the disruption effects of SI triggers intervening between a licenser and a weak NPI but faces the challenge that the direct SI triggered by *at most N* is not a disruptor. This case is problematic if the strong meaning is to be taken into account for the licensing of weak NPIs, as one expects it to be in Chierchia's initial system: Chierchia is aware of this challenge and in his 2004 article[24] he argues that only indirect scalar implicatures interfere with licensing because their computation requires a specific form of functional application which is sensitive to the polarity of functions; direct scalar implicatures on the other hand are added *after* the plain meaning is computed, which leaves room for the checking of NPI licensing before the introduction of the SI. Gajewski takes the proposal upside down, so to speak: the SI triggered by quantifiers such *at most N* is not disruptive for weak NPIs as it is only taken into account in the licensing of strict NPIs. The very facts that Chierchia's theory were tailored to explain (intervention by SI triggers) can no longer be explained: the source of the disruption of the licensing of weak NPIs in e.g. (68b) cannot be scalar implicatures (unless one draws a distinction between direct and indirect scalar implicatures and claims that the meaning relevant for weak NPIs includes the latter but not the former; notice that this move would require turning Gajewski's 2009 into an environment-based theory). This, I think, is a problematic aspect of Gajewski's proposal.[25]

[23]Since the theory is operator-based, Gajewski needs to give a rule for the implicature-enriched meaning of generalized quantifiers:

(i) $[\![\text{EXH Q}]\!]^w(C) = \lambda P_{<e,t>}.[\![Q]\!]^w(P)=1 \wedge \forall Q' \in C[Q'(w)(P)=1 \rightarrow \forall w'[[\![Q]\!]^{w'}(P)=1 \rightarrow Q'(w')(P)=1]\ ]$

[24]Chierchia 2006 provides a different explanation based on syntactic dependencies between exhaustivity operators on the one hand and scalar items and NPIs on the other. Like Chierchia 2004, this solution both maintains the relevance of the strong meaning for weak NPIs and deals with the seemingly exceptional behavior of direct SIs.

[25]Notice that Gajewski's licensing conditions differ from each other in two respects: strong meaning and strict DEness for strict NPIs, plain meaning and Strawson DEness for weak NPIs. This is rather surprising, since Gajewski proposes to do away with Anti-additivity for reasons of economy. Keeping all other assumptions constant, another step in the direction of a truly parsimonious theory would be, I suggest, to make the plain meaning relevant for weak NPIs be the assertive content (to the exclusion of presuppositions) *à la* Ladusaw: this way the strong meaning incorporates SIs and presuppositions, and the plain meaning the

Lastly, and maybe more importantly, there are some facts that the Anti-additive hypothesis seems to be better suited to explain than Gajewski's proposal. In the complement clause of certain verbs under a superordinate negation, e.g. *claim*, strict NPIs are anti-licensed (125a). Again, this is evidence in favor of an environment-based approach; but even granting this, there is no scalar implicature or presupposition that can interfere here, therefore the cause of the licensing failure must be sought in the 'negative strength' of the environment, which turns out to be DE but not AA (the direction from the wide scope conjunction to narrow scope disjunction is not valid):

(125) a. *John doesn't claim that Eve left until the next day.
b. John doesn't claim that Eve owns a car ⇒ John doesn't claim that Eve owns a red car. *(DE)*
c. John doesn't claim that Eve laughed or cried ⇒ John doesn't claim that Eve laughed and John doesn't claim that Eve cried.
d. John doesn't claim that Eve laughed and John doesn't claim that Eve cried ⇏ John doesn't claim that Eve laughed or cried. *(not AA)*

In sum, Gajewski's proposal suffers from two shortcomings: it rests on incorrect generalizations about the interaction between NPIs and presuppositions, and it fails to account for certain facts that the Anti-additive hypothesis explains.

7 Conclusion

This article provides the first comprehensive description of the interaction between presuppositions and NPIs in French and English. It shows that, contrary to the consensus on the subject, certain presuppositions disrupt the licensing of weak NPIs, and nearly all presuppositions disrupt the licensing of strict NPIs. Grammar doesn't allow either of the following strategies: *Ignore Presuppositions!* (which checks NPI licensing on the assertive content alone) and *Neutralize Presuppositions!* (which checks NPI licensing on a meaning that includes presuppositions but circumvents their effects on monotonicity). In view of the disruption effects that I bring to light, the only viable hypothesis is, I submit, that Downward-entailingness is the logical property that NPIs are sensitive to, but the meaning that is relevant for NPI licensing does not always encompasses all presuppositions. I propose that NPIs reveal the modular organization of the system that computes presuppositions on the one hand, and of the system that checks NPI licensing on the other.

8 Appendix

8.1 Appendix I: Definite Descriptions

In this section, I show that the unavailability of NPIs in the restrictor of definite descriptions is due to their presupposition. Using Strawson Upward-entailingness proves

assertion alone. This modification achieves the same results as Gajewski's original claim (and shares all its shortcomings), and dispenses with Strawson entailingness to boot.

to be inadequate, therefore Strawson-entailment itself should not be used (we reach the same conclusion that we reached with regard to *it*-clefts).

The restrictors of definite descriptions and of *wh*-phrases are the two contexts, besides *it*-clefts, for which SUEness is invoked in the literature. Throughout, I only discuss definite descriptions (but the reasoning applies equally well to *wh*-phrases). I argue that NPIs are only allowed in these environments when the existence presupposition is trivialized (i.e. it is triggered but the individual that satisfies it is a null entity): therefore, I argue, grammar doesn't recognize the notion of SUEness. Throughout, I will assume the following meaning for definite descriptions (in doing so, I follow Link's (1983) intuition that definite descriptions, both singular and plural, denote the maximal element of a set):

(126) a. $[\![$ the NP $]\!] = max([\![$ NP $]\!])$
b. For any set R, max(R) = x such that $x \in R$ and $\forall y \in R\ y \leq x$ (where $\leq$ is the transitive, reflexive and antisymmetric part-of relation).
c. *Presupposition:* $[\![$ the NP $]\!]$ presupposes that $[\![$ NP $]\!]$ includes a maximal member.
d. Denotation of singular NPs: the denotation of a singular NP includes only atomic individuals.
e. Denotation of plural NPs: the denotation of a plural NP includes all the individuals whose atomic parts belong to the denotation of the corresponding NP.

First of all, observe the contrast exemplified in (127): while the NPI in anti-licensed in the restrictor of singular *the*, it is licensed in the restrictor of plural *the*. This contrast has been taken (e.g. in Guerzoni and Sharvit 2007) as a motivation for the use of SUEness, as plural *the*, contrary to singular *the*, is non SUE in its restrictor (both are SDE).

(127) a. *The student who has any books on NPIs is selling them.
b. The students who have any books on NPIs are selling them.
[Guerzoni and Sharvit 2007, ex. 29 p. 12]

However the situation is more complex than it seems at first. The speakers I surveyed either rejected (127b) or mentioned that it was only acceptable if the existence of students who have books on NPIs was not guaranteed (I will say more about this shortly). Furthermore, it is impossible to generalize that singular definite descriptions are always improper environments for NPIs while plural definite descriptions are always proper environments. Regarding the first conjunct of this possible generalization, consider the following pair:

(128) a. The student who has ever tried to grasp this theorem knows how hard it is.
b. The students who have ever tried to grasp this theorem know how hard it is. [Hoeksema 2008, p. 405]

Regarding the second conjunct, observe the following contrasts, from Homer 2008 (cf.

also Hoeksema 2008[26]).

(129) a. The drugs that have any hazardous side effects must go into a secure place.
b. *Context:* My backpack fell into the fountain; I carried two kinds of drugs in it: the vitamins are intact but...
*The drugs that have any hazardous side effects are soaked.

(130) a. The students who have ever been to Paris are happy about their trip.
b. *Context:* The students are enjoying themselves at the party, except for a few of them, who happen to have a characteristic in common: they recently came back from Paris. No other student has ever been there...
*The students who have ever been to Paris are already leaving!

The latter facts are strongly reminiscent of the contrasts studied in Heim 1984 in relation to conditionals.

(131) a. If you read any newspaper at all, you are well informed.
b. *If you read any newspaper at all, you remain quite ignorant.
[Heim 1984, ex. 16]

After Lewis (1973), Heim claims that antecedents of conditionals don't conform to the behavior that the material implication analysis predicts: making the antecedent stronger is not always truth-preserving, as in the following example:

(132) a. If you put a pinch of salt in this soup, I will throw it out.
b. $\not\rightarrow$ If you put a pinch of salt and another pound of leeks and some more water in this soup, I will throw it out. [Heim 1984, ex. 10]

In light of such facts, Heim contends that antecedents of conditionals are not monotonic. But NPIs can still appear in them under certain conditions that the comparison of (131a) and (131b) helps delineate. Notice that only the consequents of the conditionals differ. Furthermore, there is an intuitive link between informedness and newspaper reading; no such natural link can be established between ignorance and newspaper reading. It is a commonplace assumption that the more newspapers you read, the more informed you are; this assumption is undoubtably more commonsensical than the rule that reading one or more newspapers doesn't change your state of ignorance. Heim suggests that it is the presence of certain background assumptions that secures a re-

[26]Hoeksema (2008) claims that the only definite descriptions where NPIs are licit are the generic ones, which according to him do not trigger an existence presupposition; he uses this fact in an argument against Strawson-entailment. It seems to me that the generalization is incorrect, as NPIs can be found in plural definite descriptions that are not clearly generic (see my example of an episodic sentence (135)). Furthermore, proponents of Strawson-entailment can easily account for licensing in generic singular definite descriptions: those lack a uniqueness presupposition, therefore their restrictor is not SUE. And they could also accept the view that definite descriptions are only monotonic with the adjunction of background assumptions (cf. the discussion in the text below), and therefore predict the ungrammaticality of (i) for want of such assumptions:

(i) *John and Bill are the students who have ever tried to grasp this theorem.
[Hoeksema 2008, ex. 31]

stricted form of DEness in *if*-clauses. In effect, given the assumption that the more newspapers you read, the better informed you are, the sentence *'If you read (at least) n newspapers, you are well informed'* entails for any n'>n *'If you read (at least) n' newspapers, you are well informed'*. This line of thought is corroborated by the fact that the presence of NPIs in a notoriously non-monotonic environment (the restrictor of *most*) seems to be contingent on appropriate background assumptions too.

(133) a. *Most mountaineers with any experience (still) need a guide for this tour. [Heim 1984, ex. 35]

b. Most men with any brains eat rutabagas. [Safir 1982, ex. 79b, p. 280]

Definite descriptions appear to exemplify the same patterns as *if*-clauses and the restrictor of *most.* It is reasonable to think that this similarity is not accidental and that *if*-clauses should be analyzed as plural definite descriptions (cf. Lewis 1973, Schein 2001, Schlenker 2003): the restrictor of plural definite descriptions is not monotonic, but can accommodate NPIs under appropriate background assumptions that secure a limited form of DEness which I propose to call pseudo-DEness.

8.1.1 Strawson-entailment and the Singular-Plural Difference

Up to this point, and if no other factor determines the licensing of NPIs, the vFL account—modified with the admission of pseudo-DEness—makes the right predictions.[27] Consider plural definite descriptions first. Within the limited DEness afforded by the assumption that dangerous drugs must be stowed securely, and that very dangerous drugs must a fortiori be stowed securely, (134a) Strawson entails (134b), but the converse doesn't hold:

(134) Let P = ⟦drugs that have some hazardous side effects⟧ and Q = ⟦drugs that have many hazardous side effects⟧

a. The drugs that have some hazardous side effects must go into a secure place.

[27] It should be noted that von Fintel (1999) rejects the idea that antecedents of conditionals are non-monotonic on the grounds that strengthening of the antecedent seems to fail, and proposes that they are Strawson downward-entailing. First, he avails himself of the notion of an ever-widening 'modal horizon' modeled by a function from worlds to sets of worlds. The evolution of the modal horizon forms a 'Lewis-sphere' around the evaluation world. The conditional quantifies over a domain of possible worlds which is the intersection of its antecedent with the modal horizon.

(i) a. For any set of propositions P, we define a strict partial order $<_P$:
∀w', ∀w": w'$<_P$w" iff ∀p∈p (w"∈P → (w'∈p ∧ ∃p'∈P(w'∈p' and w"∉p')))
w' is better than w" according to P iff all propositions in P that hold in w" also hold in w' but some hold in w' that do not also hold in w".

b. Admissible Modal Horizons: A function D from worlds to sets of worlds is an admissible modal horizon w.r.t. the ordering source g iff for any world w, ∀w'∈D(w): ∀w"(w"$\leq_{g(w)}$w' → w"∈D(w))

c. ⟦ would ⟧^{D,g} (if p)(q)(w) is defined only if (i.) D is admissible w.r.t. g and (ii.) D(w) ∩ p ≠ ∅

d. If defined, ⟦ would ⟧^{D,g} (if p)(q)(w) = 1 iff ∀w'∈D(w) ∩ p: q(w) = 1

This monotonic semantics for conditionals fails however to predict the unavailability of NPIs in (129b), (130b) and the like.

Assertion: *max*(P) must go into a secure place.
Presupposition: *max*(P) exists.

b. The drugs that have many hazardous side effects must go into a secure place.
Assertion: *max*(Q) must go into a secure place.
Presupposition: *max*(Q) exists.

c. (134a) $\not\Rightarrow$ (134b) *(not DE)*

d. (134a) $\overset{Strawson}{\Rightarrow}$ (134b) *(SDE)*

e. (134a) $\overset{Strawson}{\not\Rightarrow}$ (134b) *(not SUE)*

The ungrammaticality of NPIs in (128b) and (129b) can be explained by the modified vFL account as the reflection of a lack of SDEness (for want of appropriate background assumptions).

Now consider singular definite descriptions. Two options present themselves. (i.) Either their restrictor is made monotonic in the presence of the appropriate background assumption: then they are SDE, but they are also SUE, and NPIs are thus excluded (which is a welcome result as far as (127a) and the like are concerned). (ii.) Or they are non-monotonic for want of the appropriate background assumption: then they are not SDE, and NPIs are excluded, as desired.

The availability of NPIs in (128a) is not accounted for yet. But suppose that for some reason the existence presupposition is not triggered or is somehow made innocuous: this seems plausible, as the sentence doesn't seem to be making any existential claim. No claim of uniqueness seems to be involved either. In that case, the restrictor of singular *the* is simply DE (therefore SDE) in the limited extent afforded by the appropriate background assumption (e.g. in (128a), the more often you try to grasp the theorem, the more you realize its difficulty).[28]

[28]Incidentally, if definite descriptions where NPIs are anti-licensed are SDE, SUE in their restrictor, we have yet another argument against operator-based approaches and in favor of environment-based approaches (actually the argument holds even if Strawson-entailment is not linguistically real). Suppose indeed that we add an SDE, non SUE operator above the article, e.g. forming the NEG $>$ THE$_{SG}$ $>$ NPI configuration (by THE$_{SG}$, I mean the singular definite article). The vFL account predicts that the NPI should be licensed, because its licensing condition, which states that the NPI should be in the scope of some SDE, non SUE operator, is obviously met (the condition is not an anti-licensing condition, only a licensing one). But in fact, this prediction turns out to be wrong:

(i) *Context:* Two men are flirting with Mary; one of the two keeps giving her presents, while the other never offered her anything.
*I don't think the man who gave Mary anything is very smart.

vFL couldn't respond by adding a negative rule (an anti-licensing condition) to the effect that the NPI should *not* be in the scope of an SDE, SUE operator. This rule would be immediately falsified by the following grammatical sentence, which illustrates the THE$_{SG}$ $>$ NEG $>$ NPI configuration:

(ii) *Context:* There is some student who knew nothing about linguistics.
a. The student who didn't know any linguistics passed all his syntax exams.
b. *Presupposition:* There is some student who knew nothing about linguistics.

So we reach the same conclusion as before regarding the syntactic component of the account: it cannot be correct.

8.1.2 Facts that Strawson-entailment Cannot Explain

The conservative approach I'm advocating will only be adequate if whenever NPIs are not allowed in the restrictor of a definite description, it is because the context is not strictly DE (for want of an appropriate background assumption, or because a monotonicity-breaking presupposition is factored into the computation of licensing). Despite the apparent success of the vFL account on definite descriptions, I would like to pursue the investigation further, because some intriguing facts point in the direction that I'm defending.

Even when a background assumption secures pseudo-DEness, it is not the case that an NPI can always be licensed in the restrictor of a plural definite description: referential usages of definite descriptions are incompatible with NPIs.

Observe first that episodic contexts are compatible with NPIs in this environment:

(135) The students who had any desire to leave the party did.

This is noteworthy because genericity is not the only way that a definite description can be compatible with an NPI. There is an intuitive relation between the desire that some students had to leave the party and the fact that they actually did (this supplies pseudo-DEness). However, using the description referentially (i.e. as a way to name individuals), as in (136b) and (136c), leads to ungrammaticality:

(136) *Context:* A number of students present at the party wanted to leave as soon as possible.

a. —A: What happened, why is the party deserted?
b. —B: *I forgot their names now, but the students who had any desire to leave the party left.
c. —B': *The students who had any desire to leave the party, namely Sarah, Byron and Michael, left.

I submit that these are cases where the existence presupposition cannot be withheld, whereas in all other cases where NPIs appear, it is either not triggered or trivialized (see below). Importantly, these cases of ungrammaticality are out of the reach of the vFL account because the NPI is ungrammatical but its context is not SUE.

I am going to explore the possibility that in cases where NPIs are licensed in a plural definite description (I will talk about singular definite descriptions later), the restrictor of the article is potentially satisfied by a *null entity* (trivialization).[29] This move allows me to preserve the idea that plural definite descriptions trigger an existence presupposition, while at the same time allowing for DEness in certain special conditions.

In a nutshell, trivialization is possible when the speaker is not sure that any actual, non-null, entity satisfies the restrictor; when, as is the case with referential usages, the speaker knows that the domain contains actual, non-null entities, and has a direct acquaintance with them, trivialization is blocked.

Operative in the envisaged mechanism is the introduction of the null entity ε: ε is an atomic individual that exists in the actual world and is part of the domain of individuals

[29] I thank Philippe Schlenker for pointing out trivialization as a possible analysis.

D_e but is of cardinality 0. I therefore distinguish the property of being existent from the property of counting as at least 1: ε exists—despite being of cardinality 0—and as such it can satisfy the existence presupposition.

(137) a. For any $P \in D_{et}$: $[\![$ Nothing is P $]\!] = 1$ iff $P = \emptyset$ or $P = \{ \varepsilon \}$
b. For any $P \in D_{et}$: $[\![$ Something is P $]\!] = 1$ iff $P \neq \emptyset \wedge P \neq \{ \varepsilon \}$
c. For any $x \in D_e$: $[\![$ x exists $]\!] = 1$ iff $\{ x \} \cap \{y: y \text{ exists}\} \neq \emptyset$
d. $\varepsilon \leq \varepsilon$
e. For any $x \in D_e$, $x \oplus \varepsilon = \varepsilon$
f. $|\varepsilon| = 0$
g. $max(\{ \varepsilon \}) = \varepsilon$

My goal is to do justice to the speakers' intuitions: faced with sentences like (127b), they feel strongly that the entities that satisfy the restrictor are, if they exist, very rare. I emphasize *'if they exist'*. I assume that the following pragmatic principle applies:

(138) **Principle of Trivialization:** Only count ε as an admissible member of the (contextually restricted) domain of quantification if this doesn't conflict with your knowledge of the world.

Let us look at an example.

(139) a. $[\![$ huge desire $]\!] \Rightarrow [\![$ desire $]\!]$
b. Let P = $[\![$ students with some desire to leave $]\!]$
c. Let Q = $[\![$ students with a huge desire to leave $]\!]$
d. The students who had some desire to leave the party did.
Assertion: max(P) left.
Presupposition: max(P) exists.
e. The students who had a huge desire to leave the party did.
Assertion: max(Q) left.
Presupposition: max(Q) exists.
f. (139e) $\not\Rightarrow$ (139d) *(not SUE)*

Suppose that the speaker is not sure either about the existence of students with some desire to leave or about the existence of students with a huge desire to leave. In that case, the admission of ε is sanctioned by (138). (139d) and (139e) are necessarily defined; the presupposition of existence is satisfied, albeit trivialized. For any sets R and S such that $R \Rightarrow S$, $max(R) \leq max(S)$; therefore entailment obtains from (139d) to (139e). The position of the NPI is therefore DE, leading to licensing.

If trivialization is blocked by (138), the entailment from (139d) to (139e) doesn't go through, because the presupposition of the consequent is no longer guaranteed for all subset-to-set replacements. This is the desired result, as NPIs are not licensed in that case, e.g. (136b) and (136c). Crucially, SUEness is of no avail in the computation of licensing, as the environment is SDE, non SUE. But then the recourse to SUEness loses its raison d'être: it was specifically tailored to explain the pattern of NPI licensing in definite descriptions. It should therefore be rejected; as a result, the usage of Strawson-entailment itself should be rejected, as it leads to severe overgeneration when SUEness is not taken into account. We reach the same conclusion as in 4.3 on p. 40.

We can go back to singular descriptions. The requirements of NPIs are strikingly harder to satisfy in their restrictor.

(140) *The student who had any desire to leave the party did.

In light of this fact, it seems to me that we should not allow ε in the denotation of singular NPs. This can be done by stipulating that only individuals of cardinality 1 can be in the donation of singular NPs. We would modify (126d) on p. 49 accordingly:[30]

(141) **Denotation of singular NPs:** The denotation of a singular NP includes only atomic individuals of cardinality 1.

This leaves us with the case of so-called 'generic' singular definite descriptions (128a), (142).

(142) The student who has any books on NPIs sells them (immediately).

Applying the new rule (141) is undesirable, as it bans NPIs from all singular definite descriptions. Unlike all other singular definite descriptions, the generic ones do not trigger a uniqueness presupposition. It seems to me that this is a key to the puzzle. I can only speculate that in generic contexts the singular feature is not interpreted (hence (141) doesn't apply). Singular NPs in generic contexts share with plural NPs the core property that individuals of cardinality other than 1 are admissible in their denotation (this includes of course individuals of cardinality 0).

8.2 Appendix II: *Aussi* and Subject NPIs

There is an important fact that needs to be taken into account when looking at the availability of subject NPIs in the presence of the focus particle *aussi:* is the subject position in the scope of the particle or not? In other words is it part of the constituent which serves to generate the presupposition of the particle? This is not always the case.[31] Let us first consider a case in which the subject is in the scope of *aussi.* In (143a), where the subject is an unmodified existential indefinite, *aussi* takes scopes over the quantifier and its restriction.

(143) *Context:* A meteorite landed in the Pacific Ocean.

a. *Une météorite a aussi atterri dans [l' Océan Atlantique]$_F$.*
a meteorite has too landed in the ocean Atlantic
'A meteorite also landed in [the Atlantic Ocean]$_F$.'

[30] Notice that if instead of adopting null entities, we pursue the idea that the presupposition of definite descriptions is sometimes not triggered, it is unclear why NPIs are so uncomfortable in singular definite descriptions (especially from the unified perspective initiated by Link (1983)): what has to be explained, if part-time triggering is pursued, is why the presupposition is necessarily triggered in one case but not in the other. It is by no means an implausible route, but I chose to explore the one that seems to me, given my current understanding, more promising.

[31] For expository purposes, when describing the presupposition of *aussi*, I speak in terms of scope of the particle, although the connection between the syntactic position of a presupposition trigger and the nature of its presupposition is poorly understood.

b. *Presupposition:* A meteorite landed in a place other than the Atlantic Ocean.

The set of alternatives comprises propositions of the form 'that some meteorite landed in x' (with x a place), i.e. they each talk about some meteorite, not necessarily the very individual that the original sentence talks about: the existential quantifier is part of the material that enters into the presupposition. In this particular instance, the choice of the predicate blocks a wide scope reading of the subject over *aussi:* it is impossible, for physical reasons, that a given meteorite lands in more than one ocean.

Next, let us consider a case in which the subject is not in the scope of the particle. This happens with modified indefinites with an explicit domain restriction (for a reason that is poorly understood, wide scope of the subject is forced). Interestingly, when this scope obtains, the presupposition of the particle projects universally, i.e. all the individuals that satisfy the restrictor of the quantifier also satisfy the presupposition, as argued in Charlow 2009, which the following example (144a) is translated from:

(144) *Context:* Just five of those 100 students smoke. Those five all smoke Newports.

a. *Deux de ces cinq étudiants fument aussi [des Marlboros]$_F$.*
two of those five students smoke too of-the Marlboros
'Two of those five students also smoke [Marlboros]$_F$.'

b. #Deux de ces 100 étudiants fument aussi [des Marlboros]$_F$.

c. *Presupposition of (144a):* Each of those 5 students smoke cigarettes other than Marlboros.

The oddness of (144b) stems from the fact that the presupposition of a sentence with a modified indefinite subject projects universally:[32] this yields a presupposition failure in the context that we are considering, since only five of the hundred students smoke and smoke something other than Marlboros in that context (the sentence is only felicitous in a context in which each of the 100 students smoke cigarettes other than Marlboros).

With the force of the presupposition, we have a criterion to determine where an indefinite subject scopes w.r.t. the particle *aussi.* This becomes relevant to the present

[32]There is a long-standing debate about the projection of presuppositions triggered *below* a quantifier (Heim 1983, Beaver 1994, 2001, Schlenker 2008). The central question is the following: do those presuppositions project existentially or universally? When the presupposition is triggered in the nuclear scope of a quantifier, the presupposition projects universally (existentially) if all (some of, resp.) the individuals that satisfy the restrictor of the quantifier satisfy the presupposition. The question of the projection out of the nuclear scope of generalized quantifiers has received empirical light from Chemla (2009). I use Chemla's notation (Q is for a generalized quantifier, R for its restrictor, and S for its nuclear scope; the subscript $_p$ in S_p signals that a presupposition is triggered in the nuclear scope).

(i) a. Quantified sentence: [Qx: Rx] S$_p$x
b. Universal presupposition: [$\forall$x: R(x)] p(x)
c. Existential presupposition: [$\exists$x: R(x)] p(x)

(ii) a. No student knows that he's lucky.
b. Universal presupposition: Every student is lucky.
c. Existential presupposition: At least one student is lucky.

discussion when the indefinite is an NPI. The position of interpretation is not necessarily DE.

Consider the grammatical (145a). The presupposition projects universally (145b), which indicates that the subject has wide scope, by our criterion. The subject contains an NPI, and we verify that it is in a DE position using the schema (146): the presupposition of the premise entails the presupposition of the conclusion, because the restrictor of a universal quantifier is a DE position:

(145) *Context:* Every neighbor gives piano lessons.

a. *Si quelque voisin que ce soit donne aussi des leçons de*
if some neighbor that this be.SUBJ gives also of-the lessons of
[peinture]$_F$, je pourrai satisfaire mes deux passions dans mon
painting I can.FUT satisfy my two passions in my
immeuble.
building
'If any neighbor gives [painting]$_F$ lessons too, I will be able to satisfy my two passions in my building.'

b. *Presupposition of (145a):* Every neighbor gives lessons of something other than painting.

(146) *Context:* Every neighbor gives piano lessons.

a. $[\![$ French neighbor $]\!] \Rightarrow [\![$ neighbor $]\!]$

b. If a neighbor also gives [painting]$_F$ lessons, I will be able to satisfy my two passions in my building.
Presupposition: Every neighbor gives lessons of something other than painting.

c. If a French neighbor also gives [painting]$_F$ lessons, I will be able to satisfy my two passions in my building.
Presupposition: Every French neighbor gives lesson of something other than painting.

d. (146b) $\Rightarrow$ (146c) *(DE)*

When the context satisfies an existential presupposition, as in (147a), only the narrow scope of the subject is possible (because only it gives rise to an existential presupposition):

(147) *Context:* Some neighbor gives private lessons: he teaches piano.

a. #*Si quelque voisin que ce soit donne aussi des leçons de [peinture]$_F$, ...

b. *Si un voisin donne aussi des leçons de [peinture]$_F$, ...*
if a neighbor gives also of-the lessons of painting
'If a neighbor also gives [painting]$_F$ lessons, ... '

c. *Presupposition of (147b):* Some neighbor gives lessons of something other than painting.
N.B.: In this context, a universal projection leads to a presupposition failure: only the existential projection, which corresponds to a narrow scope subject, is possible.

A subject NPI is unavailable, because contradictory demands bear on it. On the one hand, since the context only satisfies an existential presupposition, a wide scope interpretation causes a presupposition failure. On the other hand, interpreting the NPI in the scope of *aussi* leads to ungrammaticality, because the presupposition of a sentence with an indefinite taking narrow scope under *aussi* is a disruptor for NPI licensing, as shown in (148) (the presupposition of the premise doesn't entail the presupposition of the conclusion, because the restrictor of an existential quantifier is not a DE position):

(148) *Context:* Some neighbor gives private lessons: he teaches piano.

a. $[\![$ French neighbor $]\!] \Rightarrow [\![$ neighbor $]\!]$

b. If a neighbor also gives [painting]$_F$ lessons, I will ...
Presupposition: A neighbor gives lessons of something other than painting.

c. If a French neighbor also gives [painting]$_F$ lessons, I will ...
Presupposition: A French neighbor gives lessons of something other than painting.

d. (148b) $\not\Rightarrow$ (148c) *(not DE)*

In sum, a subject NPI is sometimes available with a clausemate *aussi.* But it is only available if it doesn't fall in the scope of the particle, i.e. if it isn't part of the material that forms the presupposition.

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