On the Natural History of Negative Polarity Items[*]

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1. Introduction: Strong and Weak NPIs

The classification of polarity items along semantic lines, in terms of their licensing environments, has been a topic of debate for the last 30 years or so. The first proposal along these lines was advanced by Frans Zwarts in 1981, in a paper in Dutch, called *Negatief Polaire Uitdrukkingen I*. In that paper he proposed a binary distinction between weak and strong items, the weak items being licit in all downward-entailing contexts, the strong ones in a proper subset thereof, the set of contexts determined by what he called anti-additive functions.

Zwarts' paper was inspired by the dissertation of Bill Ladusaw, which appeared a year before (Ladusaw 1979). Ladusaw had introduced the notion of downward entailment as the key to generalizing over all contexts in which polarity items like *any* and *ever* show up. However, Zwarts noted that some other polarity items, like the Dutch focus adverbial string *ook maar* 'so much as', did not seem to be possible in all of the contexts listed by Ladusaw. In particular, negated universals, like *not every*, and weakly negative quantifiers like *few* and *seldom*, did not appear to license *ook maar*. By combining the theory of generalized quantifiers, developed by Barwise and Cooper, and the observations regarding *ook maar*, Zwarts found a notion, anti-additivity, which sets apart the stricter negative elements like n-words, from their weaker relatives like *few* and negated universals. In later work the binary classification was extended, to a ternary division of weak, strong and superstrong items, in Van der Wouden (1994), and Zwarts (1998). If we add the notion of nonveridicality (proposed in Zwarts 1995, and Giannakidou 1997, 1998, 2011 and elsewhere) and the related one of superweak polarity items, we may even end up with a four-level classification, which I will call the extended Zwarts' hierarchy, although I don't want to suggest that anyone has proposed it in exactly this form. I like to consider it nonetheless for

a moment, in order to point out some of the attractive qualities of this classification. The model is depicted in Figure 1, and for obvious reasons I will call it a concentric model of polarity classification. Definitions of the relevant notions are given in (1):

(1)   F is downward entailing iff for all x,y such that $x \rightarrow y$, $f(y) \rightarrow f(x)$.   (Ladusaw 1979)
     F is anti-additive iff for all x, y: $F(x \lor y) = F(x) \land F(y)$. (Zwarts 1981)
     F is anti-multiplicative iff $F(x \land y) = F(x) \lor F(y)$. (Zwarts 1998)
     F is anti-morphic iff F is anti-additive and anti-multiplicative.
     F is nonveridical iff F(p) does not entail p. (Giannakidou 1997)

So what are the nice properties of the extended Zwarts hierarchy? Firstly, the classification is based on a single semantic notion, entailment, and does not invoke anything else. This is theoretically pleasing, even if it turns out to be empirically annoying. Second, the classification is based on cumulative requirements for each higher level of negativity. This means it will support an implicational hierarchy as in Table 1.
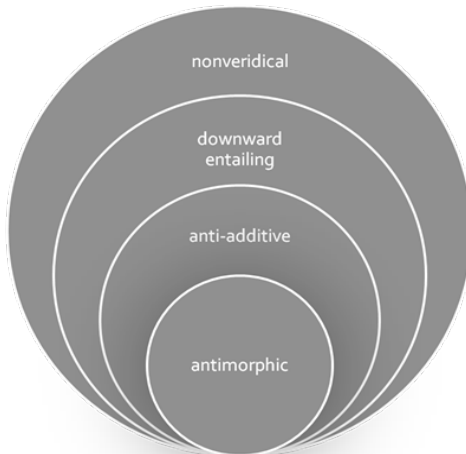
Figure 1: Extended Zwarts hiërarchy

Table 1: Implicational hierarchy based on the Zwarts hierarchy

	Anti-morphic	Anti-additive	Downward entailing	Non veridical
Superweak	+	+	+	+
Weak	+	+	+	-
Strong	+	+	-	-
Superstrong	+	-	-	-

This means that if you establish, for any item, that it may appear in some context, it will also appear in all contexts to its left in the hierarchy. This gives the theory already a great deal of predictive power, even though it does not yet have anything to say about what properties of individual expressions predict their status as weak or strong, or super-strong items.

The idea of having at least two types of polarity items, weak and strong, has also been used to make sense of other observations, such as the one credited to Borkin (1971) that strong items in questions give rise to rhetorical readings and weak ones may also appear with a neutral information question interpretation (Gutiérrez Rexach 1998). Another observation, due to Gajewski (2007) is that strong items act differently from weak items in Neg-Raising contexts. I will not discuss these matters in this article, but I want to mention them as providing some additional motivation for a taxonomy of polarity items.

Before continuing my discussion, I should briefly say something about two complicating factors. When we study any two polarity items and notice some difference in distribution, we may suppose that this difference is due to licensing properties, but it might also be the case that other factors explain the difference. For instance, *any* and *ever* are both polarity items, but only *ever* is a temporal adverb. Therefore, if we find differences in temporal contexts, like *before*-clauses, or *as soon as*-clauses, this might be due to different licensing properties of these contexts, or alternatively to the effects of the lexical semantics of *any* and *ever*, effects which are orthogonal to licensing. The second caveat concerns the fact that licensing is a syntagmatic relation between an item and its context. However, distribution may also be co-determined by paradigmatic relations. A well-known case of this is the so-called Bagel problem (Pereltsvaig 2006). Sometimes, a polarity item does not show up in the core area of polarity licensing, namely direct negation. Many Slavic languages

have this property, because in the case of direct negation negative concord patterns compete with polarity items and sometimes this leads to obligatory use of one over the other. In Dutch, *ook maar* is fine with direct negation, except when it is adjacent to the negation element *niet*. In that case, an alternative combination, *niet eens*, is preferred. I presume that the gap in the distribution of *ook maar* is not due to a licensing problem, but to competition. Note that gaps in distributional patterns mean that straightforward implicational hierarchies may not always be reconstructable, because the gaps are not predictable from information about the type of polarity item and the semantics of its context alone, but require knowledge of the lexicon as well.

I should at this point also note that many actual proposals in the literature are more complex than the nice Venn diagram in Figure 1 suggests. For example, in the dissertation of Ton van der Wouden (Van der Wouden 1994), it is proposed that some negative polarity items may simultaneously be positive polarity items as well. Since positive polarity status does not follow directly from negative polarity classifications, the model is less strongly predictive and does not support a full implicational hierarchy. In a recent squib, Spector (2012) has revived the idea and presented a French expression as evidence for the existence of bipolar items.

The same is true for the proposals that Anastasia Giannakidou has presented in her dissertation and a series of subsequent articles. Besides regular licensing by averidicality and nonveridicality, she also proposes *rescuing* by implicatures as a secondary licensing option (cf. Giannakidou 2006), and *anti-licensing* by episodicity, thus making her model, like that of Van der Wouden, essentially non-concentric. The idea of two types of licensing can also be found in the work of Linebarger (1980, 1987).

2. A New Proposal: Gajewski (2011)

Recently, Gajewski (2011) has proposed to replace the Zwarts weak/strong dichotomy by another dichotomy, based on work by Von Fintel (1999) and Chierchia (2004, 2006). The Chierchia part of the proposal has to do with scalar implicatures and intervention effects. I will have to ignore the precise implementation of those matters here for reasons of space. Von Fintel (1999) is a proposal

to extend Ladusaw's (1979) theory of polarity items by introducing a generalized notion of downward entailment, called Strawson Downward Entailment:

(2)   F is *Strawson downward entailing* iff for all x, y such that $x \rightarrow y$, and $f(x)$ and $f(y)$ are defined, $f(y) \rightarrow f(x)$.

Strawson entailment is basically entailment modulo presuppositions. To give an example:

(3)   Only Fred eats meat
        Fred eats steak
        ∴ Only Fred eats steak

For *only Fred* to be downward entailing, the first premise should entail the conclusion. However, this is only reasonable if we also assume the second premise, which is the presupposition of the conclusion. So *Only Fred eats meat* Strawson-entails *Only Fred eats steak*. The notion of Strawson entailment is needed if we are to extend Ladusaw's theory without too many modifications to contexts like the scope of *only*, the restriction of superlatives, and the complement of factive predicates like *be sorry*. Von Fintel does not propose a hierarchy of polarity items, but as Gajewski notes, not all items may appear felicitously in the Strawsonian contexts. Compare the examples in (4):

(4)   a. Only John noticed anything
        b. *Only John has seen him in weeks
        c. I am sorry I ever met you.
        d. *I am sorry I recognized you until it was too late.

It seems we need to distinguish the weaker items *any, ever* from *in weeks* and *until*. One might then be tempted to incorporate the Zwarts hierarchy into the Strawsonian framework, and define notions like Strawson anti-additivity along the same lines, but this is not the proposal that Gajewski endorses. He points out that some of the weakly negative quantifiers like *few* and *seldom*, which are not anti-additive, nonetheless show up with strong polarity items:

(5)   Few Americans have ever been to Spain. Few Canadians have either. (Rullmann 2003)

(6)   He invited few people until he knew she liked them. (De Swart 1996)

In my own work (Hoeksema 2010a), I have also noted that *few* and *not all* rarely pattern alike. Even some weak polarity items, like *any* and *ever*, tend to shy away from negated universals such as *not all*, but are fine in the scope of *few* and *little*.

The proposal Gajewski ends up endorsing is that for weak items, the Von Fintel account in terms of Strawson Downward Entailment is to be used, and for strong items regular downward entailment. This will correctly rule out the starred examples in (4), while predicting the acceptability of the examples in (5) and (6). Negated universals are still ruled out for strong NPIs, just like in the Zwarts account, but now for a different reason. The universal quantifier functions as an intervening element, giving rise to implicatures, according to the account in Chierchia (2004), which Gajewski adopts.

One problem that crops up right away is the relative unacceptability of the examples in (7) and (8):

(7)   ??Every student who has arrived in weeks smokes.
(8)   ??No student who has arrived in weeks smokes.

Gajewski argues that universal quantifiers have an existential presupposition, which makes their restriction non-downward entailing. Weak polarity items like *ever* and *any* in fine in these restrictions, because they are licensed by Strawson Downward Entailment, which ignores any presuppositions. Regarding the status of (7) and (8), I agree with Gajewski that they are bad, and their counterparts in Dutch are similarly bad, not to mention non-attested. However, the account given has at least three problems that I can see. First of all, it is unclear that the negative quantifier *no* has an existential presupposition. Certainly, *no*-phrases are fine in existential sentences, like *There are no students taking Linguistics 201 this year*. I take this to mean that these *no*-phrases do not have an existential presupposition there. Second, the same kind of account has already been used (in Hoeksema 1986a) to deal with another problem, namely the difference between *each* and *every* in sentences like (9a,b):

(9)   a.   Every student who has ever taken the test, flunked.
       b. *Each student who has ever taken the test, flunked.

The idea was that *each*, unlike *every*, quantifies over a discourse-given, that is presupposed, nonempty set, and therefore not downward entailing. If that account is correct, it won't be possible to use the same type of account to deal with example (7). Note by the way that if the difference between (9a) and (9b) is indeed a matter of presupposition, it shows up with the weak NPI *ever*, posing another problem for the Gajewski account. The third problem that I see is that *in weeks*, *in months*, *in years* and so on are particularly common in superlative noun phrases as postnominal modifiers. However, superlatives are one of the prime examples of Strawsonian contexts in the Von Fintel paper, and should therefore be restricted to weak NPIs, if the Gajewski proposal is correct.

The list of problems can be extended. Consider for instance the adverbial NPI *either*, as in *I don't like you either*. This expression is more restricted than *any* and *ever*. It does not appear with *only* or in the protasis of a conditional:

(10) a. I have never gone to Amsterdam. *If I go to Brussels either, I will buy you some chocolates.   (Rullmann 2003)
      b. *Only John likes pancakes either.

I should note here that there is a type of conditional which appears to be OK with *either*. An attested example is presented in (11):

(11) Captain Bullen refused to address him as "Your Grace" and I'd be damned if I'd do it either.
                    (Alistair MacLean, *The Golden Rendezvous*, p 29)

Conditionals starting out with *I'll be damned if I* or *I'll eat my hat if I* conventionally imply a negation, and it is not altogether surprising that they behave somewhat differently from more ordinary types of conditionals (cf. Horn 1989: 348 for similar examples with *until*).

Given that *either* is a strong NPI, we should not expect it with negated universal quantifiers, yet it does, as the following naturally-occurring data show:

(12) a. Nevertheless, Right-Sided Non-constituent Coordination is not always acceptable either (David Dowty, 1996, MS. NCC, Wrapping and Multimodal Categorial Grammars)

    b. Not everyone in the White House liked the decision, either.
                    (George W. Bush, *Decision Points*)

Similar cases showing no adverse effects from intervention by *much* are listed in (13).

(13) a. Charlie had not found much to say for himself either
                    (Kingsley Amis, *The Old Devils*, p. 324)
      b. And the most likely forecast for the next decade or so is that Americans will get what they expect—no disaster, but not much good news, either.
    (Paul Krugman, *The Age of Diminished Expectations*, p 203)

In light of these problems, it might be a good idea to cast our net a bit wider, and take a look at a larger set of polarity items, to see whether a classification in terms of two or three levels of strictness is going to work. This will be the topic of the next section.

3. Types of Polarity Items

Making a typology of polarity items can be done in a number of ways. Ideally, you start with fully worked-out theories of each item, and extensive theoretical knowledge of each context, and on the basis of that calculate for each pair of item and context whether they are compatible. Unfortunately, at the moment that would be just as unrealistic as proposing to Linnaeus in the 18th century to use DNA for his taxonomic schemes. A simpler alternative is to use intuitions, to determine what goes where. Unfortunately, that method has severe problems as well, such as cases where you can't really tell if something is ungrammatical due to a problem in polarity licensing, or to some other problem you haven't identified, or where an initial judgment is completely changed in a special set of contexts that you hadn't thought of beforehand. Questionnaire-based approaches won't help under such circumstances either, although these are useful if there is documented variation among speakers. Therefore I have found it useful to supplement intuitions with corpus data, to gain a better perspective, not just on absolute differences among items, but also relative differences in frequency. Corpus data have their own problems and drawbacks, but they do offer information that it hard to

gain by any other means. My corpus is hand-made. It is a data-base of polarity items that I encountered in books and magazines that I read, as well as material from electronic corpora, all of which I entered into a database and classified according to a number of criteria such as type of context, and various subtypes. My main reason for relying to a large degree on hand-work is a lexicographic concern: By searching Internet corpora, you can quickly find tons of data, but only for those items you already know. Otherwise, you could not search for them. If I want to find *new* items, and I do, I have to do it the slow way, by digesting a lot of reading material. In addition to this, I should also note that sifting through the material from electronic corpora still requires a lot of work that can't be automated easily, like deciding whether some occurrences really represents a polarity item usage, or some other usage, or properly classifying the context in which something appears.

Let's start out with a comparison of the two best-known polarity items of English, *ever* and *any*. First, take a look at Table 2, which contains my corpus data on *any*. Free choice uses have been left out. Note that I have included some very rare contexts, such as negated universals. I could have listed them under negation, but because they are important in the theoretical debate on the strong/weak distinction, I have given them a separate treatment, just like negated *much* and *many* are listed separately. Some examples from the corpus are given in (14):

(14) a. It was not every day (or week, or month) that any contact was effected between the British Police and the Garda
                        (Colin Dexter, *The Wench is Dead*, p 202)
     b. He speaks like a president, not always authoritative or anything, but he can form sentences, complex sentences with beginnings and ends (Dave Eggers, *A Heartbreaking Work of Staggering Genius*, p 288)
     c. He was not much afraid of anything that she might feel now.
                        (George Eliot, *Middlemarch*, p 867)

Table 2: Distribution of ANY in a database with 8828 occurrences
(excluding free choice uses)[1]

Context	#any	%	Context	#any	%
As far as	6	0.1	N-word	1284	14.5
As if	16	0.2	Only	31	0.4
As soon as[2]	17	0.2	Predicate	721	8.2
Before	119	1.4	Purpose clause	23	0.3
Compar equality	194	2.2	Question	1330	15.1
Compar inequal	513	5.8	Seldom/rarely	39	0.4
Conditional	628	7.1	Superlative	63	0.7
Few/little	83	0.9	The first	34	0.4
Hardly, barely, etc.	137	1.5	The last	20	0.2
Most	6	0.1	The only	53	0.6
Neg. universal	2	0.02	Too	97	1.1
Not	2935	33.2	Universal	75	0.9
Not many	4	0.05	Unless	5	0.06
Not much	8	0.1	Without	351	4

The context labeled *as if* concerns so-called rhetorical *as if*, as ex-
emplified by (15):

(15) a. As if anyone could put you on the defensive.
                (Erle Stanley Gardner, *The D.A. Holds a Candle*, 19)
      b. As if it were any pleasure to me to think ill of you
                                (George Eliot, *Middlemarch*, 271)

Of some interest is also the appearance of a few cases licensed by
the conditional complementizer *unless*. It is claimed in Geis (1970,
1973), and repeated in McCawley (1981), Lycan (2001), and Leslie
(2008), that *unless*-clauses do not license polarity items. The nice
minimal pair in (16) seems to bear witness to this.

(16) a. *Unless John cares a whit for Mary, he shouldn't marry her
      b.   If John does not care a whit for Mary, he shouldn't marry her.

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[1] A few minor contexts and hard-to-label cases are not in the table.

[2] This includes clauses not introduced by *as soon as*, but with similar interpreta-
tion, such as relative clauses with minimizing temporal nouns such as *moment* or
instant: I will let you know as soon as / the moment I know anything more. These
appear to be a peculiarity of English. Dutch or German do not have this kind of
relative clause with *as soon as* interpretation.

In defense of Geis, I should add that his observations appear to hold up quite well for the vast majority of negative polarity items, but the weaker ones like *any*, *ever* and *at all* may appear in *unless*-clauses, compare the examples in (17). Geis' main point, that *unless* does not pattern with *if not* with regard to polarity licensing, however, remains intact, given the existence of minimal pairs like (16) above.

(17) a. Unless there's anything more you need, I'll watch beside
            her for a while.   (Richard Adams, *Shardik*, p 342)
      b. I did this in a MS Word File, so unless anyone is really pissed
            off at the use of bandwidth, I'll update it every week or so
            with things that I forgot, and I'll repost it.
                              (*rec.music.gdead*, posting September 6, 1991)
      c. You should have trust in your partner unless he has ever
            done anything to make you think otherwise.
                                            (*Ask Sarah*, October 10, 2011)

Note that *unless* is problematic for accounts that require downward entailment for the licensing of *any*, since *unless* does not have this property, e.g., *You will die unless you eat something* (a true statement, if we take the relevant time interval long enough), does not entail *You will die unless you eat broccoli* (a false statement). However, this complementizer does have the property of creating a nonveridical context. In Dutch, I have been unable to find any polarity items licensed by *tenzij*, the word for *unless*, with one important exception: *enig*. This item is significant because it is known to be licensed in nonveridical contexts that are not downward entailing, at least until quite recently (Hoeksema 2010b). Among more than 3000 occurrences of *enig*, I found 2 in a clause introduced by *tenzij*, a number quite comparable to the 5 in 8828 that I found for *any*. Clearly, the context is quite rare in both languages.

When we compare *any* with *ever*, we see a great many similarities. All contexts where *any* shows up are contexts for *ever* and vice versa (see Table 3, based on my corpus data).

There are some notable differences in frequency. *Any* appears far more with *not* than *ever*. I assume this is due to English word order. Both *ever* and *not* show up in sentence-medial position, and when they are in adjacent positions, the string *not ever* is in direct competition with *never*. For *any*, there is competition with *no*, but since *not* and *any* are typically nonadjacent, being separated by the verb,

I assume the competition plays out differently. At any rate, whatever the precise cause of the difference, it seems unlikely it has anything to do with polarity licensing.

The fact that *without* is about 4 times more common as a trigger for *any* than it is for *ever* presumably has a syntactic explanation. Complements of *without* are mostly DPs, not clausal units, and only the latter may contain occurrences of the adverbial polarity item *ever*. Again, polarity licensing is presumably not a factor.

Regarding another big difference, however, we cannot be so sure. Note that in the table, *any* shows up in superlatives in less than 1% of occurrences, against 15% for *ever*. This highly significant difference seems to point at somewhat different functions for *any* and *ever*. *Ever* patterns, at least where superlative constructions are concerned, with a couple of other adverbial elements, in particular *in ages, in months, etc.*, *in his life*, and the postnominal modifier *alive*.

Table 3: ANY and EVER

Context	Any %	Ever %
as if	0.2	0.1
as soon as	0.2	0.1
before	1.4	1
comparative	5.8	8.8
comparative of equality	2.2	3.8
conditional	7.1	7.3
few/little	0.9	1.2
hardly/barely	1.5	1.9
most	0.1	0.03
neg+universal	0.02	0.03
not	33.3	8.4
not many	0.1	0.1
n-word	14.5	16.3
only	0.4	1.1
predicate	8.2	3.9
question	15.1	18.8
seldom/rarely	0.4	0.01
superlative	0.7	15.5
the first	0.4	2.9
the last	0.2	0.8
the only	0.6	2.7
too	1.1	0.3
universal	0.9	3.8
unless	0.06	0.03
without	3.9	1

4. A Closer Look at Some Contexts

To come up with a classification of polarity items, I will now consider a number of licensing contexts individually. I will not consider negation as a separate context, since I take it to be a defining property of any negative polarity item that it must be able to be licensed by negation. Even items that do not show up with direct clause-mate negation due to obligatory negative concord are licensed by negation in higher clauses. Since my goal is to classify polarity items on the basis of properties differentiating them, the scope of negation, even though it is without any doubt the most important context of all, is not going to play a significant role in what follows. If, as argued by Gajewski (2011) and Collins and Postal (2012), Neg-raising differentiates between types of polarity items, then higher negation could be used as a criterion. However, the study of Neg-raising has a good many complications of its own, and a fuller discussion will have to wait for another occasion.

4.1. Questions

The first context I will consider is questions. This is one of the more common contexts of polarity items, and most polarity items show up in it. In the discussions of strong-versus-weak, questions are usually ignored, except to note that strong items give rise to rhetorical questions. Weak polarity items are good no matter what the reading, so we expect that if we just consider whether an item may appear in a question or not, questions do not differentiate among polarity items. However, they do:

Table 4: Polarity items in questions

Yes	No
Any	Exactly ("you're not exactly smart")
Ever	Anymore [some variation]
Yet	Meer 'anymore'
At all	Mehr 'anymore'
Either	Squat / shit / diddly, etc.
Remotely	In X (in years, months, ages, etc.)
Minimizers	
Need / Hoeven / Brauchen	
Adverbial any ("any better" etc.)	
Can blame	
Can help	
Alive (postnominal)	
Ook maar 'even'	
Kwaad kunnen 'can harm'	

Note that we have not distinguished direct from embedded questions, or yes/no from *wh*-questions. If we compare the occurrences of *any* and *yet* we note a big difference between WH-questions and Yes/No-questions. While WH-questions are a common context for *any*, they are not for *yet*. There is also a less absolute, but nonetheless significant difference between *if* and *whether*-clauses for *yet*. While *yet* prefers *if* over *whether*, *any* does so to a far lesser extent (see Table 5).

Table 5: Questions with *any* vs *yet* (corpus data)

	any	yet
yes/no	62.9	77.3
if	12.3	21.2
whether	9.4	1.5
wh-direct	10.5	–
wh-indirect	4.8	–
Total	100%	100%

There is a bit of literature on the semantics of *if* and *whether* (Adger and Quer 2001, Eckardt 2006) but it is not obvious to me at this point how that would bear on the difference between *any* and *yet*.

4.2. Conditional clauses

Moving on to conditional clauses, we can note that the items that appear in the protasis of a conditional are a proper subset of the ones that may appear in questions. Whether this is a true generalization or mere coincidence will have to be decided on the basis of a larger set of items. As conditional clauses, I have included conditional *if*-clauses (not to be confused with the similar-looking *if*-questions), V1-clauses with fronted auxiliaries (e.g. *Should you need any assistance, please let us know*), conditional *when*-clauses, conditional conjunction *(Any messing with my girlfriend and you're dead, buddy!)*, the idiomatic expression *with any luck* (*With any luck, we'll have a white Christmas this year* = if we have any luck), but not *unless*-clauses, which have a much smaller range of items that they license, hence ought to be viewed as a separate context (see discussion above). Note that *unless*-clauses are not downward-entailing, whereas conditional clauses are (modulo some background assumptions about the context, cf. von Fintel 1999). In Dutch, the main types of conditionals are clauses with the complementizers *als* and *indien*, and V1-clauses. As far as I have been able to ascertain, the type of conditional complementizer, or lack thereof, in the case of V1-clauses, does not matter for the licensing of polarity items.

Table 6: Polarity items in conditionals

Yes	No
Any	Exactly ("you're not exactly smart")
Ever	Anymore[3] [some variation]
Yet	Meer 'anymore'[4]
At all	Mehr 'anymore'
Remotely	Squat / shit / diddly, etc.
Minimizers	Either (excluding averidical conditionals
Adverbial any ("any better" etc.)	Can blame
Can help	Kwaad kunnen 'can harm'
Alive (postnominal)	In X (in years, months, ages, etc.)
Ook maar 'even'	Need / Hoeven / Brauchen

[3] Jennifer Egan, *A Visit from the Goon Squad* (2010), p. 191, provides a rare example of *anymore* appearing in a conditional, clearly with counterfactual interpretation:
(i) He lays all this out the way you'd say, *After modern Chinese Painting, I'll go to the gym, then work in Bobst until dinner,* if you even made plans anymore,

4.3. Comparatives of inequality

The items that appear in the complement of a comparative form
a wider class than the ones that appear in conditionals, and what's
interesting, it is neither a subset nor a superset of the set of items that
may appear in questions. Note that the group of items of the form
In X, where X is some temporal noun like *months, years, ages* etc.
shows up in comparatives, but not in questions and conditionals. On
the other hand, *can blame* appears in questions like *Can you blame
her?* but not, to the best of my knowledge, in comparative clauses.

Table 7: Comparatives of inequality

Yes	No
Any	Exactly ("you're not exactly smart")
Ever	Anymore [some variation]
Yet	Meer 'anymore'
At all	Mehr 'anymore'
Either	Squat / shit / diddly, etc.
Remotely	Can blame
Minimizers	Kwaad kunnen 'can harm'
Need / Hoeven / Brauchen	
Adverbial any ("any better" etc.)	
Can help	
Alive (postnominal)	
Ook maar 'even'	
In X (years, months, ages, etc.)	

Regarding comparatives of equality, I will refrain from giving a full
overview, but I want to note some interesting differences between
them and comparatives of inequality. If you compare (18a), which
is fine in either construction, with its Dutch translation in (18b), you
see that in Dutch the comparative of inequality is a better context for
ook maar than the comparative of equality. For some English polarity
items, such as the fixed phrase *strictly necessary*, there seems to be a
similar difference, as suggested by the examples in (18c) and (18d).

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which you don't—if you were even in school anymore, which you aren't,
although that's supposed temporary.
[4] Hoeksema (2007) notes that while *meer* is generally disallowed in conditionals,
it may appear there in cases of parasitic licensing, that is, when it is helped along by
the presence of another, less restrictive, polarity item.

(18) a. She was better than / easily as good as anyone expected
      b. Zij was beter dan /*minstens even goed als ook maar
          iemand verwacht had
      c. He told us more than was strictly necessary
      d. ??He told us as much as was strictly necessary

4.4. Restriction of universal quantifiers

In Table 8, I list items that either do or do not appear in the restriction of a universal. By a universal, I mean the determiners *all, every,* free choice *any* and the complex determiner *all the*, as well as their counterparts in Dutch and German. Occasionally we find items in universally quantified free relatives, which I have also included in this data set. As I mentioned before, English *each* does not license polarity items. The list of items under NO is larger than the list of items under YES, in spite of the fact that the restriction of a universal quantifier is an anti-additive context. If anti-additivity really is a core notion in licensing, we should expect to find the same items that we see with n-words. But all the items in the NO column are fine with n-words.

Table 8: Restriction of universal quantifiers

Yes	No
Any	Exactly ("you're not exactly smart")
Ever	Anymore [some variation]
At all	Meer, mehr 'anymore'
Remotely	Squat / shit / diddly, etc.
Minimizers	In X (years, months, ages, etc.)
Adverbial any ("any better" etc.)	Need/Hoeven/Brauchen (special case: all)
Alive (postnominal)	Can blame
Ook maar 'even'	Yet
	Either
	Kwaad kunnen 'can harm'
	Can help

Matters are complicated a bit by the existence of a special case. When *all* appears in a copula construction, either as subject of *be* or as predicate nominal, some of the items listed under NO, suddenly move to the YES camp. Take for example English *need* and its Dutch

counterpart *hoeven* or its German cousin *brauchen*. The examples
in (19) are translations of each other, and they are relatively bad.

(19) a. I did every test I needed *(to) do
      b. *Ik heb elke test gedaan die ik hoefde te doen.   (Dutch)
      c. *Ich habe jeden Test gemacht die ich zu machen brauchte
                                                              (German)

On the other hand, the sentences in (20) seem OK:

(20) a. That is all we need bring
      b. Dat is alles wat we hoeven te brengen   (Dutch)
      c. Das ist alles was wir zu bringen brauchen   (German)

When we look at the corpus data, we see a sharp asymmetry between
ever and *need*. Whereas *ever* appears with all universal quantifiers,
need is restricted to *all*. Compare the data in Table 9:

Table 9: *Ever* and *need* in restrictions of universals

Universal quantifier	Ever	Need
All	67	17
All the	34	-
Any (-body/-thing)	35	-
Every (-body/-thing)	79	-
Free relative	1	-
He, who [generic]	1	-

Of the 17 cases found with *need*, 16 were in copular contexts simi-
lar to (20a). The special effect of *all* in copular sentences does not
seem to be restricted to the polarity-sensitive modal auxiliaries *need,
hoeven, brauchen*. The examples in (21) show a similar difference
in acceptability for *can help*, and the example in (22), from the
corpus data, is the only one I could find of *yet* in the restriction of a
universal quantifier.

(21) a. *Everybody who could help thinking about it, did.
      b. That is all I can help thinking about.

(22)   Because that's all you are yet. (Desmond Bagley, *The Snow Tiger*)

The question this raises, obviously, is why it should matter that *all* appears in a copular context. I would like to propose that this is due to a special interpretation that is associated with this context. A sentence like (23) is equivalent to (24), with a similar implicature of insignificance. We would neither utter (23) nor (24) if staying put is a big deal. The suggestion is one of a minor obligation. However, for sentences with transitive verbs, like (25), there is no such equivalence, and there is no implicature of insignificance.

(23)   All we need do is stay put.

(24)   We only need stay put.

(25)   ??John destroyed all books we need read

As for copular sentences with other universal quantifiers, we get different types of readings as well. Compare (26):

(26)   a. All I want is you = I want only you
        b. Everybody I want is you

Whereas (26a) is a straightforward expression of love, (26b) is just very odd, showing a clash between the quantifier *everybody* (which has an implicature that it quantifies over more than a singleton set) and the copular context.
    The similarity between (23) and (24) suggests that items licensed by *only* should also be licensed in copular sentences with *all*. And this seems indeed to be the case. *Need* and its Dutch and German counterparts cooccur quite frequently with *only* and other restrictive adverbs. Expressions that do not appear with *only*, like *in ages*, do not show up with *all* either:

(27)   a. *Mary has seen only Jones in ages.
        b. *All Mary has seen in ages is Jones.

Similarly in Dutch (compare 28):

(28) a. *Marie heeft alleen Jansen in tijden gezien.
      Marie has only Jansen in ages seen
      'Marie has seen only Jansen in ages'

    b. *Alles wat Marie in tijden gezien heeft, is Jansen.
       All   what Marie in ages seen   hat   is Jansen
       'All Marie has seen in ages, is Jansen'

4.5. Superlative contexts

Our next context is superlatives. The restriction of superlative noun phrases is not a very popular place to hang out for polarity items. *Any* shows up, but not very frequently, as we have seen, and only *ever* and *in ages, in years* etc., the temporal domain shifting adverbials, and postnominal *alive*, seem to be particularly keen on the presence of superlatives.[5]

Table 10: Restriction of Superlative

Yes	No
Any	Exactly ("you're not exactly smart")
Ever	Anymore [some variation]
In X (years, months, ages, etc.)	Meer, mehr 'anymore'
Yet	Squat / shit / diddly, etc.
Alive (postnominal)	At all
Ook maar 'even'	Need/Hoeven/Brauchen (special case: all)
	Can blame
	Remotely
	Either
	Kwaad kunnen 'can harm'
	Can help
	Adverbial any ("any better" etc.)
	Minimizers

[5] *Ever, in ages,* etc., are domain shifters in the sense that the domain of quantification, which is partly determined by reference time, is broadened by making larger the relevant period of time with respect to which an expression is evaluated. For instance: *Mary is the most beautiful girl* might hold in a domain consisting of a number of women currently under discussion, whereas *Mary is the most beautiful girl ever* necessarily holds in a much larger domain, comprising, say, all women the speaker has ever seen, or even all women that ever existed.

Among superlatives, some special cases need to be set apart. In particular minimizing superlatives of the kind studied by Fauconnier (1975) are best viewed not as regular superlatives, but as universal quantifiers. Some polarity items, like *remotely*, appear to be sensitive to this distinction, compare:

(29) a. #She was the most beautiful woman who was even remotely interested in him.
      b. The slightest hint of anything remotely smacking of atheism will send off alarm bells among the friars.

A similar difference in acceptability may be noted between *the most* and *the least* in the following pair of sentences:

(30) a. #Fred was the most likely person to be remotely interested in chess.
      b. Fred was the least likely person to be remotely interested in chess.

Here the interpretation is not universal, but negative: if Fred was the least likely person to be remotely interested, then Fred is not a likely candidate at all. To the best of my knowledge, such cases have not been noted in the literature before, and they seem to point toward a more significant role for pragmatic interpretation, in particular implicatures, than is often admitted in the literature, including my own work. A naturally-occurring example a la (30b) from the Internet is given in (31):

(31) It's also quite probably the stupidest, least likely to be remotely effective idea I've ever heard.[6]

4.6. Restriction of *the only*

Superlatives are among the Strawsonian contexts analyzed in Von Fintel (1999). Another such context is the restriction of *the only*. In Hoeksema (1986b) I argued that Dutch *de enige* is semantically related to superlatives, and licenses polarity items in the same way as superlatives. The von Fintel theory also makes this prediction. It turns out, however, that this claim is wrong. The set of items licensed by *de enige* is actually larger than that of superlatives, and forms a proper superset (compare Table 11). Note that *anymore* has to be

[6] http://forums.bf2s.com/viewtopic.php?pid=1765088, accessed July 21, 2012.

split up between American usage and British usage. British usage seems by and large to avoid the restriction of *the only* as a context for *anymore*.

Occurrences of minimizers are in this context are relatively rare, but attested:

(32) a. Yes sir, and it's the only baptism I'd give a snap for, by ginger. (N.S. Haynes, *History of the Disciples of Christ in Illinois 1819-1914*).

    b. Over 150 other kids knew about it, and I was the only person to do a damn thing.

Table 11: Restriction of *the only*

Yes	No
Any	Exactly ("you're not exactly smart")
Ever	Anymore [GB]
In X (years, months, ages, etc.)	Meer, mehr 'anymore'
Yet	Either
Alive (postnominal)	Can help
Ook maar 'even'	
At all	
Anymore [US]	
Squat/shit/diddly	
Minimizers	
Need, hoeven, brauchen	
Remotely	
Can blame	
Kwaad kunnen 'can harm'	
Adverbial any ("any better" etc.)	

4.7. Restrictive adverbs: *only, merely,* etc.

The licensing of polarity items by restrictive adverbs has been problematic for a number of reasons. One is the theoretical status of licensing by restrictive adverbs. According to the classical analysis in Horn (1969), a sentence like *Only Jones was asleep* presupposes that Jones was asleep and asserts that nobody else was. If we assume that the assertion is all that matters for the licensing of polarity items, we might expect that the licensing behavior of *only Jones* is the same as that of *nobody but Jones*, in other words, that of an n-word. However, as already noted for Dutch in Zwarts (1986: 318 ff.), *only*, or rather its Dutch counterpart *alleen*, is unable to license some of the polarity items that are commonly licensed by n-words. Two of Zwarts's examples are given below:

(33) a. *Alleen de ingewijden zullen er een zier voor voelen.
        Only the insiders will there a whit for care
        'Only the insiders will care a whit for it'

   b. *Alleen de coach heeft zich bijster tevreden getoond.
        Only the coach has self all-that content shown
        'Only the coach acted all that content'

Hoppenbrouwers (1986) noted that *alleen* does not license the universal readings of superlatives either, in circumstances where n-words do give rise to such a reading (cf. Fauconnier 1975, 1979 for discussion of the relation between superlatives and polarity items, and for a comment much like that of Hoppenbrouwers, Israel 2011: 65):

(34) a. Niemand kon het eenvoudigste probleem oplossen.
        Nobody could the simplest problem solve
        'Nobody could solve the simplest problem = nobody could solve any problem'

   b. Alleen Jan kon het eenvoudigste probleem oplossen
        Only John could the simplest problem solve
        'Only John could solve the simplest problem'
        (≠Only John could solve any problem)

One of the theoretical problems surrounding *only* concerns its monotonicity status. For many people (cf. e.g., Atlas 1993, 1996, Horn 1996, 2002, von Fintel 1999, Beaver and Clark 2008, inter alia, for some of the issues involved), a downward inference like the following is of questionable validity:

(35)   Only Jones eats vegetables
        ?Only Jones eats Brussels sprouts

Earlier in this paper, in our discussion of Strawson entailment, we noted that the argument in (35) is valid if we use as an additional premise the presupposition of the conclusion, namely that Jones eats Brussels sprouts. But if we use Strawson downward entailment merely as a generalization of downward entailment, then the oddness of the sentences in (33) and the lack of universal force in (34), should both come as a surprise.

Table 12: Scope of *only* and other restrictive adverbs

Yes	No
Any	Exactly ("you're not exactly smart")
Ever	Anymore / meer / mehr
Yet	Either
Alive (postnominal)	Can help
At all	Ook maar 'even'
Need, hoeven, brauchen	In X (years, months, ages, etc.)
Remotely	Minimizers
Kwaad kunnen 'can harm'	Squat, shit, diddly
Adverbial any ("any better" etc.)	
Can blame	

Beaver and Clark (2008: 186-7) give some examples of minimizers licensed by *only*. One of their naturally-occurring examples is:

(36) They're vicious, greedy buggers who'd only lift a finger to save their best friend if they thought they'd profit from it.

Beaver and Clark note that all their examples involve VP-adjoined *only*, not subject-initial *only*. This suggests, implicitly, that subject-initial *only* might be a different kettle of fish, and I believe it is.

Compare for instance the pair in (37):

(37) a.   Nobody did a thing.
      b. #Only Fred did a thing.

To my ear, (37b) is about as bad as (33a). I conclude that in a fuller account of licensing by restrictive adverbs, we need to distinguish between sentence-initial and VP-adjoined occurrences of *only*. In support of making such a distinction, I note that in Dutch, the main restrictive adverb adjoined to DPs, as in sentence-initial position, is *alleen*, whereas for adjunction to VP, the preferred form is the focus adverb cluster *alleen maar*. If the two types of use are to be distinguished semantically, it makes sense that some languages will want to mark it lexically as well. Compare:

(38) a. Alleen Jan danst.
          Only   Jan dances
        'Only Jan dances'

      b. Jan danst   alleen maar.
          Jan dances only
        'Jan only dances'

According to Beaver and Clark (2008: 200), Levinson (2008) and others, *only* does not license *yet*. However, Larry Horn (p.c.) provided me with the following example:

(39) Fresh white surfaces showed where the stained brown of the weathered limestone had fractured, and only the smallest of plants had yet gained a foothold in this tumbled pile of rock.
                        (Diana Gabaldon, *Dragonfly in Amber*, p. 414)

Other examples that I found are:

(40) a. Only one has yet been questioned, a singer called the Blue
         Bard.   (George R.R. Martin, *A FEast for Crows*, p. 930)
      b. I've only skimmed it yet but I doubt I'll be disappointed.[8]

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[8] http://lunarcamelco.wordpress.com/category/books/ [Posting March 12, 2012].

5. Conclusions and Outlook

I have documented a great deal of variation among polarity items with regard to the contexts in which they may appear. In Table 13 below, I present a summary of the results. Based on a fairly small sample of polarity items, and a subset of the contexts that could be considered, we see 12 types of licensing patterns. With more items and more contexts, presumably we will find a few more.

Note that the column for restrictions of universal quantifiers has a couple of -/+ markings, meaning that in general the item does not appear there, except for the special case of *all* in copular sentences, discussed in section 4.4. above.

Does this mean we have to assume that each polarity item can go any way it pleases, and no theory is likely to predict its distribution? Well, not quite. We see that items with similar lexical semantics tend to pattern alike. The minimizers behave as a block, and the modal auxiliaries *need, hoeven, brauchen* also pattern alike to an amazing degree. Litotes constructions like *can blame* and Dutch *kwaad kunnen* show a broadly similar distribution as well. English *anymore* is similar to German and Dutch *mehr/meer*. The adverbial elements *at all, remotely,* and adverbial *any* pattern alike, as do all expressions of the group *in weeks, in months, in ages* and so on. We have used 8 contexts to differentiate classes of polarity items (recall that context 1, negation, does not differentiate), so in principle, one could have $2^8 = 256$ classes of items. Expanding our scope to a few more contexts, we might even reckon with thousands of classes of items. Compared to that, 12 classes might not seem so bad after all. Looking at Table 13, you can see a number of predictions emerging. It looks like any item that appears in a WH-question may also appear in a yes/no-question (but not vice versa). If that turns out to be the case in general, we have an implicational universal that will help bring down the number of theoretically possible cases.

In other words, we do need a classification of polarity items, since distribution patterns are by no means random, but we have to abandon the idea that any such classification is going to be simply a binary strong/weak distinction. Pragmatically-based accounts like that of Israel (2011) do not fare any better in this regard. There, too, there is a binary division between elements that reinforce a statement and elements that serve to tone it down. These rhetorical differences are important, but do not help us much in helping us understand the

finer details of the variation sketched above. For a proper account, we will need a better understanding of each class of items, and we will need to see which set of semantic features they are sensitive to, so as to be able to predict, from these features, the set of contexts that make up their distribution. Some of these features will be the familiar entailment-based ones, like downward entailment, nonveridicality and anti-additivity, but I have presented evidence that implicatures play a role as well.

Table 13: 12 classes of polarity items. Contexts: 1 = negation, 2 = yes/no questions, 3 = *wh*-questions, 4 = comparatives of inequality, 5 = conditional clauses, 6 = restriction of universals, 7 = restriction of *the only*, 8 = restriction of superlatives, 9= scope of *only*.

	1	2	3	4	5	6	7	8	9
Any	+	+	+	+	+	+	+	+	+
Ever	+	+	+	+	+	+	+	+	+
Ook maar	+	+	+	+	+	+	+	+	+
Minimizer	+	+	+	+	+	+	+	-	-
Remotely	+	+	+	+	+	+	+	-	+
At all	+	+	+	+	+	+	+	-	+
Adv. Any	+	+	+	+	+	+	+	-	+
Yet	+	+	-	+	+	-/+	+	+	+
Either	+	+	-	+	-	-	-	-	-
In X	+	-	-	+	-	-	+	+	-
Can help	+	+	+	+	+	-/+	-	-	-
Can blame	+	+	+	-	-	-	+	-	-
Kwaad kunnen	+	+	+	-	-	-	+	-	+
Need, etc.	+	+	+	+	-	-/+	+	-	+
Anymore (US)	+	-	-	-	-	-	+	-	-
Squat	+	-	-	-	-	-	+	-	-
Exactly	+	-	-	-	-	-	-	-	-
Meer/mehr	+	-	-	-	-	-	-	-	-

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