The Pragmatics of Polarity[*]
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What part of 'no' don't you understand?
> *Feminist slogan and song title*

1. Polarity, opposition, and negation

Polarity and negation, more perhaps than any other grammatical phenomenon, sprawl awkwardly along the messy border separating semantics and pragmatics. Depending on who you ask, negation may be a logical operator or a type of speech act, a basic element of semantic representation or a pragmatically loaded form of communicative interaction. Ultimately, it has to be at least all of these. Polarity is, in essence, the relation between semantic opposites—between meanings (or expressions denoting meanings) which are fundamentally inconsistent with each other. As such polarity encompasses not just the logical relation between negative and affirmative propositions, but also the conceptual relations defining contrary pairs like *hot-cold, long-short,* and *good-bad*, and, most broadly, the rhetorical relation between arguments for and against a conclusion. The question is, how are these various and very different sorts of opposition represented in language and in the mind.

The grammar of polarity poses a paradox. What should in principle be a simple and symmetrical relation is in practice fraught with asymmetry. In principle, opposed terms must be equal in their opposition: one term cannot be more opposite than another. But in natural language opposites are never equal. There is a consistent imbalance between the unmarked expression of affirmation and the marked expression of negation; between the general utility of affirmative sentences and the pragmatically loaded uses of negative sentences; between the simple logic of double negation and the not uncomplicated pragmatics which insures that denying a negative is never quite the same as asserting a positive (cf. Horn 1991). And it's not just that negative and affirmative sentences are unequal—they are also to some degree incommensurable: not every negative sentence has a direct affirmative counterpart, nor does every affirmative have a simple negation. Natural languages commonly (perhaps always) include what artificial languages never do: a class of constructions

which do not themselves express negation or affirmation, but which are restricted to sentences of one or the other polarity. The existence (and indeed abundance) of such *polarity items* suggests that the resources which languages provide for negative and affirmative sentences can be surprisingly independent of one another.

From a logical point of view, these asymmetries are unexpected; however, they begin to make sense once one considers the functions which negation and affirmation may serve in actual language use. This chapter explores the landscape of these asymmetries, and seeks their motivations in the pragmatic functions they serve.

2. Varieties of Polar Experience

For the purposes of this paper I distinguish three basic types of polar opposition: contradiction, contrariety and reversal. All three feature prominently in natural language, and in human cognition generally. The first two are familiar from standard treatments of negation in logic and linguistics: contradiction is a relation in which one term must be true and the other false; contrariety is a relation in which only one term may be true, though both may be false. Reversal is somewhat special in that it involves an opposition, not between propositions or predicates *per se*, but rather between ordered sets of propositions or predicates—that is, between scales.

Contradiction is the most fundamental sort of opposition—the relation expressed by the one-place logical operator of propositional negation, and the prototypical (though by no means unique) meaning of natural language negation. Every human language includes at least one construction which can express the contradictory of an unmarked sentence. Such a device seems essential to the success of language as a representational system: in a deep sense, one cannot understand what a sentence means unless one also, and by the same token, understands what it would mean to contradict that sentence.

Contradiction is a pure binary opposition—the relation between two semantic values which between them exhaust the possibilities in a given domain. Most conceptual domains, however, include more than two possible values and in such cases entities stand in contrary opposition. Contrary propositions cannot be simultaneously true, but they can both be false. The sentences *Sally smiled* and *Sally didn't smile* express contradictory propositions, but *Sally smiled* and *Sally frowned*

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own responsibility.

are contraries. One cannot, at the same time and in the same respect, both smile and frown, but one can perfectly well do neither. Of course, this makes for a rather weak notion of contrariety, as any given term or proposition might have an unlimited number of such contraries with which it is incompatible but which are not, strictly speaking, its opposite. While being white is contrary to being blue, red, green or any other color, the true opposite of white is that unique color which differs from it more than all others, i.e. black. In the general spirit of Aristotle (e.g. *Metaphysics* 1055a, *Categories* 6a; cf. Horn 1989:37), we may thus distinguish (mere) incompatibles from true polar contraries—entities which live at opposite ends of a common conceptual domain.

Polar contrariety requires a domain in which entities are, or can be, ordered along a scalar dimension, for only in such cases can one reasonably speak of a maximal opposition. As it turns out, many, if not all, of our most basic conceptual domains are scalar in nature: perceptual, emotional and evaluative experiences of all sorts come in degrees, and the words we use to describe such experience reflect this scalarity. Not surprisingly then, polar contrariety is one of the basic semantic relations in the lexicon of any language. As Cruse (1986:197) points out, the sense of oppositeness we feel in pairs like *hot-cold, happy-sad, good-bad, love-hate,* and *all-none* is probably the most salient and deeply felt of all lexical relations: the one most likely to have a non-technical name in any language (e.g. French *contraire,* German *Gegenteil,* Turkish *karsi)* and the one most likely to be understood by any three year old.

That said, the lexical semantics of antonymy and of scalar expressions in general is surprisingly complicated (cf. inter alia, Lyons 1977; Cruse 1986; Bierwisch 1989). For our purposes, the most important complication involves the inferential relations which hold among scalar predicates: in particular, the fact that polar antonyms denoting opposite regions in a scalar domain systematically give rise to opposite sorts of inferences. This is clear when one considers the logic of a Horn scale, where scalar expressions, $\langle e_1, e_2,...e_n \rangle$, are ranked in terms of their entailments so that for an arbitrary sentence frame S and expressions $e_j > e_k$, $S(e_j)$ unilaterally entails $S(e_k)$ (Horn 1972, 1989: 231). The examples below illustrate Horn scales with expressions from the domains of quantity, epistemic modality, temperature, preference, and evaluation.

(1) ⟨all, most, many, some⟩   ⟨none, hardly any, few⟩

⟨necessary, likely, possible⟩   ⟨impossible, unlikely, uncertain⟩

⟨boiling, hot, warm⟩   ⟨freezing, cold, cool⟩

⟨adore, love, like⟩   ⟨loathe, hate, dislike⟩

⟨excellent, good, OK⟩   ⟨{terrible/awful}, bad, mediocre⟩

Each domain actually supports two distinct scales with opposite orderings at opposite ends of the domain. Thus for temperature there is both a 'hot' scale, for which *hot* is stronger than *warm* (e.g. *the soup was warm, if not downright hot/*cool*) and a 'cold' scale, where *cold* outranks *cool* (e.g. *her manner was cool, in fact it was cold/*warm).* Polar antonyms are thus not just far apart on a scalar dimension, they actually belong to distinct, in fact opposite, orderings (cf. Sapir 1944; Ducrot 1972).

The relation between such scales like these, with opposite orderings over the same domain, is one of reversal. This, our third and final form of opposition, may seem rather different from contrariety or contradiction: scales, after all, are not propositions—they cannot be true or false. But scales can and do define inferential relations between propositions, and these inferences crucially depend on the way a scale is ordered. To appreciate this it will help to clarify just what scales are, and just what sorts of inferences they can support.

There are two basic kinds of scalar inferences—scalar entailments and scalar implicatures—but there are many kinds of scales, with Horn scales being a special, albeit an especially well-studied case (cf. Horn 1972, 1989; Gazdar 1979; Matsumoto 1995; Schwenter 1998; Levinson 2000, inter alia). In general, the ordered elements in a scale need not be linguistic expressions, and the relations between them need not be limited to semantic entailment. Fauconnier (1975a, 1975b, 1976) showed that scalar inferences are not always logical, but rather depend on normal expectations about how the world works. Thus, foods can be ranked by their succulence, or problems by their complexity, and people can use these rankings to reason about what someone might eat, or what problems they might be able to solve: normally, for example, we expect those who can solve hard problems to succeed with easier problems as well.

Such pragmatic inferences can be captured in the structure of a scalar model (Fillmore, Kay and O'Connor 1988; Kay 1990, 1997, this volume). A scalar model consists of a set of propositions ordered in a way that supports inferences. The model

is built from a propositional function with one or more variables, each of which is associated with a conceptual scale of some sort (e.g. foods ordered in terms of their succulence)[1]. Just as a single conceptual domain may support the lexicalization of opposed Horn scales with reverse orderings, so too a single conceptual scale may combine with different propositional functions to form scalar models with inferences going in opposite directions (Fauconnier 1975a,b, 1976). Consider the examples in (2), based on a scale of times for running a mile: with the affirmative proposition in (2a), scalar entailments (symbolized by "=>") go from faster miles to slower miles, and scalar implicatures (symbolized by "|=") from slower to faster miles; under negation, in (2b), the direction of entailments and implicatures is exactly reversed.

2. a. Hank can run a five minute mile.
       => he can run a slower mile. |= he can't run a faster mile.

    b. Hank can't run a five minute mile.
       => he can't run a faster mile. |= he can run a slower mile.

Negation is but one of many constructions which reverse scalar inferences. Other reversing constructions, illustrated in (3), include the antecedent of a conditional, *before* clauses, the standard of a comparative, and the complement of an adversative predicate like *be surprised*.

3. a. If Hank can run a five minute mile, he'll be here on time.
    b. We'll have world peace before Hank runs a five minute mile.
    c. Jackie reads Hittite more easily than Hank can run a five minute mile.
    d. I'm surprised Hank can run a five minute mile.

 (3a) (pragmatically) entails that if Hank can run a four minute mile then he will also be on time, and it allows the implicature that a six minute mile will not guarantee a timely arrival. Similarly, (3d) suggests that any faster time would also be a surprise, but that a six minute mile might not.

    Scalar models may serve rhetorical functions that go beyond the immediate inferences which they support. Typically, in context, a sentence like (2a) will not just

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[1] Such scales come in a variety of forms, including taxonomies, meronomies, partonomies and rank orders: Hirschberg (1985) in fact argues that any partial ordering can be used to generate scalar

say how fast Hank can run, but will also provide an argument for some conclusion, for example that Hank is athletic, or that he has a chance of winning some race. Given such argumentative goals, the ordering in a scalar model effectively determines what counts as a strong or a weak argument for a given conclusion, while the opposition between reversing and non-reversing contexts effectively determines the rhetorical orientation of any given utterance.[2]

3. Asymmetries of Use: the onus of negativity

The basic asymmetry between negation and affirmation is readily apparent in the way negation dominates most discussions of polarity—so much so that polarity often seems to be virtually identified with negation alone. Affirmation, at least as a logical category, is taken for granted; it is negation, the marked member of the polar opposition, which cries out for explanation. Opinions on negation have been divided, but rarely impartial. Whether or not negation is the most fundamental of all logical relations, it is surely, as Horn notes (1989: 45), the most maligned. Negation, it seems, is always suspect—ontologically, epistemologically, and even morally. Philosophers have for centuries cast aspersions on its usefulness and integrity; more recently linguists and psycholinguists have joined the chorus with empirical evidence for the derivative and second class nature of negation with respect to affirmation. My purpose here, however, is not to bury negation but to praise it—to identify the ways it is actually used, and so useful, in natural language. The key to this usefulness, it turns out, lies precisely in its peculiar asymmetry with affirmation.

Of course, negation has never been without its supporters who insist on the basic symmetry inherent in any polar opposition. Typically, such symmetricalists have been concerned with negation primarily as a logical category: for them the essential fact is the purely symmetrical relation between contradictory propositions which negation makes possible. In this light, negation may occasionally even be recognized as the guarantor of meaning itself. Thus Spinoza's famous dictum, *determinatio est negatio,*

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implicatures. Whether or not a more constrained theory of scalar reasoning is feasible (cf. Levinson 2000), it is clear that the knowledge structures which underlie scalar models are remarkably diverse.
[2] In the Theory of Argumentation in Language (Ducrot 1973, 1980; Anscombre & Ducrot 1983) these sorts of argumentative relations are built directly into the structure of a scale. In this theory, sentences do not in fact convey truth-conditional content at all (at least not directly), but are seen rather as tools

rests on the epistemological insight that one cannot know what something is unless one also, and by the same token, knows what it is not. Still, in the long history of ideas from Paramenides to the present, negation has generally been held in rather low esteem.

The basic thrust of the charges against negation is that it is, in one way or another, secondary to and parasitic on the more wholesome category of affirmation. Affirmation is associated with truth, presence, plenitude and goodness; negation with falsity, absence, deprivation and evil. Affirmation is essential and necessary; negation is contingent and eliminable. Affirmative sentences are objective and relate directly to the world; negative sentences are subjective and relate merely to the affirmative sentences which they deny. Philosophers regularly question the very existence of negative propositions, and many, from Bacon and Kant to Bergson and Morris, have seen negation as, at best, a necessary evil—"a tool for rejecting or warding off error which in an epistemically perfect state would simply wither away," as Horn sums up the position (1989: 61).

A variety of empirical observations support the philosophical suspicion that negation is less than an equal partner with affirmation. The most obvious point is that negation is (almost) always a marked category. Languages employ special devices to express negation (i.e. negative inflections, particles, adverbs, auxiliaries, etc.), while the expression of affirmation tends to involve the absence of any such devices[3]. And negative sentences are not just formally but also semantically marked, being generally less informative than their positive counterparts. As Plato succinctly put it (see also Leech 1981, 1983), "about each form there is much that it is, but an infinite amount that it is not" (*Sophist,* 256E, cited in Horn 1989:60). Given this superabundance of negative facts, negative sentences tend not to tell us much: if I know that President Bush didn't eat a burrito for breakfast, I still do not know what, if anything, he did eat. Positive sentences can be uninformative as well: assertions like "Harry sleeps in his bed at night" or "Sally was raised by her biological parents" are odd, and unlikely to be uttered, because they say no more than what one might normally assume. But uninformativity appears to be a systematic danger with negative sentences. And since

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for orienting a discourse toward a conclusion of some sort. For a useful comparison of entailment-based and arugmentational approaches to the scalar properties of *even* see Kalokerinos (1995).

speakers generally do try to be informative, the appropriate use of a negative sentence tends to require a context in which the information it does convey is somehow particularly relevant.

As a marked category, negation thus has a marked distribution: it is the special case. The normal way to express an idea is to affirm it; negation is used primarily in "contexts of plausible denial" (Wason 1965). As Strawson puts it, "the standard and primary use of *not* is specifically to contradict or to correct; to cancel a suggestion of one's own or another's" (1952: 7). One does not normally deny something unless one thinks that someone might believe it. Givón (1975: 79ff) notes that it would be odd, at best, to begin a conversation by saying "Oh, my wife's not pregnant." The felicity of such an assertion depends on the possibility that someone might have thought that she was. Denial in general seems to presuppose the possibility, if not the expectation, that what is denied might actually have been the case. And so in as much as negative sentences are associated with denial, their use is sharply distinguished from, and in a sense secondary to the use of affirmative sentences.

As Givón (1975) points out, because negative sentences are more restricted and less frequent than positive sentences, they tend to mark fewer grammatical distinctions. For example, perfective tense and aspect constructions are often unmarked under negation (Schmid 1980: 101)—even in South Dravidian, where negation is sometimes expressed by the absence of a morpheme, the absent morpheme is a tense marker (Pederson 1993). In general, grammatical innovations spread from positive to negative clauses: Givón notes innovative tense-aspect constructions in Bemba, Swahili and Chana which occur with affirmative but not negative verbs (1975: 92-3). Givón also notes that it is common to find restrictions on the scope of adverbs under negation, on the use of referential indefinites under negation, and on the use of negation in a range of complex constructions. Thus negation may be awkward, or worse, in information questions (4), restrictive relatives (5), comparatives (6), and focus constructions (7), among others.

(4)   What did you (??not) do yesterday?

(5)   The woman I (??don't) want to marry drives a red Miata.

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[3] Pederson (1993) discusses the origin of zero-marked negatives in South Dravidian languages. For details on the cross-linguistic expression of negation see Dahl (1979), Payne (1985), and Kahrel & van den Berg (1994).

(6)   Jasper can run faster than Sidney {can/*can't}.

(7)   I looked around and near the bar I {saw/??didn't see} Glynda.

As Givón argues, the source of the trouble in such cases is pragmatic: very roughly, the use of negation makes these sentences so vague that either they defy interpretation, as in (4-6), or they fail to introduce a discourse referent where one is needed, as in (7). The details here, while interesting, need not concern us; the basic point is clear enough—that the use of negation, both in discourse and in a range of syntactic contexts, is systematically and significantly restricted in comparison with affirmation.

It's not just that negation is subject to restrictions: it's also just plain hard to process. All things being equal, subjects respond more slowly to negative sentences, and have more trouble recalling and evaluating them than they do with their positive counterparts (Wason 1965, 1972; Clark 1974; Carpenter & Just 1975; Fodor, Fodor & Garrett 1975). Thus, for example, subjects are quicker to judge a sentence like "The number 5 is odd" as true than they are to judge a sentence like the "The number 5 is not even" as false, despite the fact that the two are truth-conditionally equivalent. This sort of result suggests that negative sentences are inherently more complicated than positive sentences, and that their comprehension depends in some way on the addition of a negative judgement to a positive proposition[4].

Negation appears specially suited to mark the exception to a salient pattern: a dog with no fur will be described as such; a dog without earrings is just a dog. Negation is reactive: it is useful where it responds to and opposes what is, or what might have been, expected. This is why negation is so peculiarly suited for so-called "negative" speech acts—e.g. denial, rejection, refusal, etc—whose basic function is to answer and oppose some other speech act. Such speech acts are not themselves inherently negative, for they can always be accomplished without the use of negation (e.g. A: Can I have a kiss?; B: You can go to hell!); but the reactive nature of negation makes it inherently well-suited for their performance. Presumably, this is why such speech acts feel so 'negative,' and also perhaps why negation itself tends to carry such negative connotations.

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[4] Along these line Langacker (1991: 134-9) analyzes negation as involving the conceptualization of a background entity and profiling the absence of that entity from the current discourse space.

The fact is, negation is often experienced as an unpleasant sort of construction, and this unpleasantness has important consequences for the ways it is used. On the one hand, speakers may employ various sorts of indirection to soften the ill effects of a negative utterance; contrariwise, hearers may systematically strengthen the interpretation of negation to compensate for such euphemism. In general, this strengthening takes the form of an inference from a formally contradictory negation **not-p** to a strong contrary assertion **q**, effectively ignoring the logical possibility of something being neither **p** nor **q**. Horn (1989: §5) explores this phenomenon of "contrary-negation-in-contradictory-clothing" as it appears with affixal negation (*unhappy* = 'sad'), negative raising phenomena (*I don't think you should* = 'I think you shouldn't'), and sentential negations (*Elma doesn't like squid* = 'Elma dislikes squid').

The question is under what conditions does negation allow such contrary readings? The facts are complicated, but part of the answer seems to be that they occur with evaluatively positive (e-positive) predicates the denial of which may indirectly express an evaluatively negative (e-negative) judgement. Thus, for example, we find contrary readings available with (weakly) e-positive predicates, as in (8), but not with e-negative or strongly e-positive predicates, as in (9).

(8) a. He's not nice.   (= 'he's mean')
     b. She's not happy.   (= 'she's sad')

(9) a. He's not mean.   (≠ 'he's nice')
     b. She's not sad.   (≠ 'she's happy')
     c. She's not ecstatic. (≠ 'she's miserable')

Similarly, with affixal negation, the English *un-* prefix in (10) yields contrary meanings in combination with e-positive roots, but tends not to combine at all with the contrary e-negative roots (Zimmer 1964).

(10) happy   unhappy   sad   *unsad
      kind   unkind   cruel   *uncruel
      wise   unwise   foolish   *unfoolish

A form like *unhappy* provides an oblique way of delivering the loaded content of *sad;* but *unsad* can serve no similar purpose, as one is normally happy to express the content of *happy*.

The pragmatics of contrary negation is clearest perhaps in the phenomenon of neg(ative)-raising, as in (11), where a matrix negation is interpreted as applying to an embedded constituent.

(11) a. I don't think you should do that.　　　(= 'I think you should not ...')

   b. I don't suppose you'd like to dance.　　　(= 'I suppose you wouldn't...')

As many have noted (Lakoff 1969; Prince 1976), neg-raised sentences are typically felt as weaker and more tentative than their otherwise synonymous counterparts with lower-clause negation, and the phenomenon appears to be motivated in large part by the need to hedge or mitigate the expression of a negative judgement. In this sense, although the grammar of neg-raising may seem lawlessly illogical, it is animated by the best pragmatic intentions.[5]

The same may be said for negation in general, whose simple semantics makes it ideally suited for rather complicated pragmatic functions. Polarity in natural language is inherently asymmetrical—not because it is illogical, but rather, and simply, because there is so much it has to do.

3. Asymmetric Distributions: the pragmatics of sensitivity

Perhaps the most surprising asymmetry in the expression of polarity is the phenomenon of *polarity sensitivity*—the tendency for certain forms, *polarity items,* to be distributed unevenly across negative and affirmative contexts. Although the details vary from language to language, polarity items seem likely to occur in every human language. In many there are literally hundreds of such forms. This is actually rather odd: if one were to devise an artificial language, the idea of including forms which are systematically excluded from certain sentences might seem a perverse extravagance; however, it is an extravagance which natural languages commonly indulge.

Despite a large literature, there is actually no standard definition for polarity items (cf. van der Wouden 1994; Tovena 1998). Intuitively, they are constructions whose

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[5] I hasten to acknowledge that pragmatic motivations alone are not sufficient to explain the grammar of neg-raising. In particular, as Horn (1989) demonstrates, the set of matrix predicates in any language which allow neg-raising is, at least in part, a matter of convention. The point, in any case, is not that

use or interpretation is sensitive to polarity—that is, to the expression of contradiction, contrariety or reversal. Such a broad formulation, of course, makes for a messy category: since polarity is itself so complex, there are many ways a construction can be sensitive to its expression. In the prototypical case, polarity items are best distinguished by their asymmetric behavior in minimal pairs of negative and affirmative sentences: negative polarity items (NPIs) will occur in a negative sentence but not in its affirmative counterpart; positive polarity items (PPIs) will occur in an affirmative sentence but not (normally) in its negative counterpart. The examples in (12) illustrate the negative preferences of the English NPIs *sleep a wink, so much as,* and *all that.* The examples in (13) show the positive proclivities of three PPI constructions: predicative *some, a regular,* and *in the blink of an eye.*

(12) a. Clarissa (*did/didn't) *sleep a wink* that night.
       b. She (*would/wouldn't) *so much as* say hello to me.
       c. She (*is/isn't) *all that* interested in seeing my stamp collection.

(13) a. That guy Winthrop (is/*isn't) *some* mathematician.
       b. He (is/*isn't) *a regular* Einstein.
       c. He (can/*can't) calculate an eigen vector *in the blink of an eye.*

The full range of contexts in which NPIs may be licensed and PPIs inhibited corresponds roughly to the set of reversing constructions (cf. above, § 2). It includes, among others, the scope of negation, whether expressed by the adverbial *not,* by a negative quantifier such as *nobody, nothing* or *never,* or by a weakly negative form like *hardly, few* or *rarely;* the complements of adversative predicates like *be surprised, be amazed,* or *doubt;* the antecedent of a conditional; the restriction of a universal or a generic quantifier; the nuclear scope of *only* (and occasionally the restriction as well); the focus of a *yes-no* question; rhetorical information questions; comparative and equative constructions; and subordinate clauses marked by *before,* and occasionally, *long after.* The examples below illustrate a few of these contexts with the NPI *at all* and the PPI *considerably* .

(14) a. **Are you** at all interested in what I'm saying?
       b. ??**Are you** considerably interested in what I'm saying?

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pragmatics can explain grammar away (it can't), but that it can explain why grammar takes the forms it does.

(15)　a.　**If** Gladys is at all late, there may be trouble.

　　　b.　??**If** Gladys is considerably late, there may be trouble.

(16)　a.　She'd **sooner** die **than** appear at all drunk in public.

　　　b.　??She'd **sooner** die **than** appear considerably drunk in public.

(17)　a.　**Only** Hugo was at all impressed by her convoluted arguments.

　　　b.　??**Only** Hugo was considerably impressed by her convoluted arguments.

(18)　a.　I'm **amazed** that Elly is at all interested in birdwatching.

　　　b.　??I'm **amazed** that Elly is considerably interested in birdwatching.

　　A comprehensive theory of polarity sensitivity must face (at least) three general problems (Israel 1996; cf. Ladusaw 1996).

Licensing:	How are polarity items licensed? What makes polarity contexts a natural class?
Sensitivity:	What makes polarity items sensitive to polarity? Are there features which all polarity items share and which might explain their sensitivities?
Diversity:	Why do different polarity items, both within and across languages, often exhibit different sensitivities? Is polarity sensitivity a unified phenomenon?

Of these, the licensing problem is typically viewed as the most fundamental: since polarity items are defined in terms of their distributions, it makes sense to begin by clarifying just what these distributions are. Moreover, licensing has a certain allure for generative theories, as it lends itself to structural explanations; partly for this reason, polarity items have figured prominently in debates on the architecture of grammar, and especially on the existence and nature of a linguistic level of logical form (cf. Baker 1970; Ladusaw 1983; Linebarger 1987, 1991). However, as we shall see, polarity items tend to resist purely structural explanations, and pragmatics often plays a role in explaining the details of their sensitivities. Ultimately, I suggest, their grammaticality is a matter not of grammar alone, but depends crucially on their rhetorical fit with the contexts in which they occur.

3.1. The Semantics and Pragmatics of Licensing

Theories of polarity sensitivity divide into two major camps, one focused on syntax and the other on semantics, both of which find their roots in Klima's seminal paper *Negation in English*. Klima clearly distinguished two basic questions (cf. Ladusaw 1996): what makes something a polarity licensor (Ladusaw's *licensor question)*; and what sort of relation must obtain for a licensor to license a polarity item (Ladusaw's *licensing relation question)*. Klima proposed that polarity licensors share a "grammatico-semantic property" he called *affectivity* (1964: 313), and that NPIs are licensed if they occur "in construction with" (i.e. are c-commanded by) an appropriately affective licensor. These same questions still shape most modern accounts of polarity: semantic theories in general focus on the problem of how to cash out the notion of affectivity (Hoeksema 1983, 1986; Heim 1984; Kadmon & Landman 1993; Kas 1993; Dowty 1994; Zwarts 1996a, b; van der Wouden 1994; Giannakidou 1998); syntactic accounts, on the other hand, focus less on the variety of licensors and more on the syntactic relations which must hold between a licensor (usually negation) and a licensed polarity item (Laka 1990; Progovac 1994; Uribe-Etxebarria 1994; Kato 2000).

The modern semantic approach begins with Fauconnier's (1975a,b, 1976, 1978a) work on pragmatic scales and implication reversal, but it is most famously associated with Ladusaw's (1980, 1983) proposal that NPIs are sensitive to logical monotonicity and can only be licensed in the scope of a downward entailing (DE) operator. Intuitively, a DE context licenses inferences from general properties to specific instances, from sets to subsets. Negation is a DE operator because it allows inferences as in (19) from the general, *a bird,* to the specific, *a penguin.*

(19)   a. Beth didn't see a bird in the garden. —>
        b. Beth didn't see a penguin in the garden.

Upward entailing contexts—for example, simple affirmatives—license inferences in the other direction, from specific instances to general cases, as in (20).

(20)   a. Beth saw a penguin in the garden. —>
        b. Beth saw a bird in the garden.

The advantage of a monotonicity based theory is that it allows for a precise formulation of the constraints on polarity items in terms of a well-formedness condition on semantic representations. Thus Ladusaw defines the set of DE operators as in (21a) and offers (21b) as a necessary condition for licensing NPIs (1983: 383).

(21)   a. Given Boolean algebras A and B, a function d from A to B is downward entailing iff for any a_1, a_2 in the domain of d, if $a_1 \leq a_2$ then $d(a_2) \leq d(a_1)$.

          b. A negative polarity item will be acceptable only if it is in the scope of a downward entailing expression.

It is worth emphasizing that the Monotonicity Thesis in (21), at least as Ladusaw originally conceived it, is a structural constraint on the form of semantic representations (specifically, on the composition structure of a sentence's truth conditions). The significance of Ladusaw's theory lies in its conception of linguistic semantics. For Ladusaw, polarity licensing depends on an algorithmically derived representation of a sentence's literal, truth-conditional meaning. The theory thus stands as an argument for including such representations in a theory of grammar. Polarity sensitivity is probably the clearest example of a grammatical phenomena which depends on the logical properties of a sentence. The interesting claim here is that these logical properties require their own level of representation, distinct both from syntactic structure and from a pragmatically enriched sentence interpretation.

In fact, Fauconnier's original interpretation was radically different. Fauconnier argued that the scalar logic to which polarity items are sensitive is itself pragmatic in nature, and he concluded that polarity licensing does not depend on linguistic representations at all, but rather involves the interaction of linguistic and pragmatic knowledge in a dynamic process of meaning construction. As he put it, people "need not have extremely abstract *representations* of *sentences* in their heads, but they do need quite sophisticated and relatively abstract *processes* to interpret sentences in particular contexts" (Fauconnier 1978b: 49, emphasis in original).

Fauconnier may have underestimated the potential for a representational theory of polarity licensing, but he was surely right in emphasizing the importance of pragmatics. The fundamental advantage of Ladusaw's semantically driven theory is its formal precision; however, as Ladusaw concedes (1996: 328), this precision comes at a price. The monotonicity thesis makes categorical predictions about polarity licensing, but the behavior of polarity items is often far from categorical. For one

thing, polarity items vary in their sensitivities, with some items occurring only in the scope of negation, some with all DE operators, and others with some subset of potential licensors. Several proposals account for these facts by ranking polarity contexts in terms of their licensing strength and polarity items in terms of their licensing needs (e.g. Horn 1970; Edmondson 1981; van der Wouden 1994; Zwarts 1996a,b; Giannakidou 1998), although it is far from clear that the diversity of sensitivities can be reduced to a single hierarchy (cf. Hoeksema 1994, 2000; Israel 1995, 1998). What is clear, however, is that a comprehensive theory of sensitivity must be attuned to the needs of individual polarity items. Even more troubling for a theory like Ladusaw's is the fact that polarity items are often sensitive to pragmatic properties of sentences (Lakoff 1969, Smith 1975). This means that appearance in the scope of a DE operator may not be sufficient, and sometimes is not even necessary for licensing.

This point is emphasized in the work of Linebarger (1980, 1987, 1991). Like Ladusaw, Linebarger defines licensing in terms of constraints on grammatical representations; however, for her the constraints are essentially syntactic rather than semantic. As she puts it, "the distribution of [NPIs] in English reflects an interplay between syntax and pragmatics, with no apparent role for a level of 'pure' semantic representation" (1987: 326). Linebarger sees negation (that is, the abstract operator NOT) as the only true licensor. NPIs are taken to be "close associates of negation" (1991: 167), which must occur in the immediate scope of negation at Logical Form (LF—crucially, a syntactic level of representation). Building on the two tiered licensing theory of Baker (1970), Linebarger suggests that NPIs which do not meet this condition can be licensed derivatively, by conveying a negative implicature (NI) which is itself associated with an appropriate LF representation: "the use of an NPI in a sentence whose LF does not license it represents an allusion, one might say, to some entailed or implicated proposition, the NI, in which the NPI does occur in the immediate scope of negation" (1991: 167).

Licensing by implicature allows Linebarger to explain why NPIs often fail to be licensed in the scope of a DE operator (cf. Heim 1984; Yoshimura 1994), as in (22).

(22) a. Anyone who <u>gives a damn</u> about the environment enjoys recycling.
      b. ??Anyone who <u>gives a damn</u> about the environment shops at Ikea.

On Linebarger's account, (22a) works because it conveys the implicature that people who do not recycle do not give a damn about the environment, and (22b) fails because there is no natural connection between environmental friendliness and patronage of Ikea which might support similar negative implicature. The fact that (22b) begins to sound acceptable to the extent that one can make such a connection strongly suggests that implicature plays a crucial role here.

The examples in (23) illustrate the opposite point: that NPIs occasionally are licensed even without a DE operator.

(23)   a.   He kept dreaming of her long after he had <u>the slightest</u> desire to see her.
        b.   There are precisely four people in the whole world who would <u>so much as</u> consider <u>lifting a finger</u> to help that maniac.

Neither of these sentences contain an appropriate DE licensor, but they both generate negative implicatures: (23a) suggests that the dreams continued when he did **not** have the slightest desire, (23b) suggests that any sane person would **not** lift a finger to help.

While Linebarger makes a compelling case for the role of implicature in licensing, a natural worry is how such a powerful mechanism might be constrained (cf. Krifka 1992; Kadmon & Landman 1993; Yoshimura 1994). To address such concerns Linebarger proposes three constraints on when a negative implicature can license NPIs (1991: 166): **availability**—the speaker must be actively attempting to convey the NI; **strength**—the truth of the NI "must virtually guarantee" the truth of the overtly expressed proposition; and **foregrounding**—neither the NPI nor the NI can occur as background information in the conversational context. These constraints are a promising start: for instance (*pace* Horn 1996 and Israel 1998) they explain why *barely* does license NPIs while *almost* does not, despite the fact that *barely* has what appears to be a positive implicature, while *almost* has a negative one.

(24)   a.   Clara barely said a word to me at the party.
        b.   **NI:** Clara almost did not say a word to me at the party.
(25)   a.   *Clara almost said a word to me at the party.
        b.   **NI**: Clara didn't say a word to me at the party.

Whereas (24a) clearly conveys that Clara did, in fact, say at least one word, (25a) just as clearly suggests that Clara did not utter anything quite so elaborate. But (24a) licenses the NPI *say a word* because it introduces the implicature in (24b), and because this implicature is both foregrounded and guarantees the truth of (24a); the licensing failure in (25) reflects the strength requirement, since the NI that *Clara didn't say a word* by no means guarantees (25a), that Clara almost did say one.

While Linebarger's theory would benefit from a more explicit account of how negative implicatures are calculated, the real problem (for me, anyway) is not so much a lack of constraints on where the implicatures come from, as it is the peculiar role they play in her theory. Linebarger clearly demonstrates that polarity licensing can be context-sensitive, and she makes a compelling case that implicatures are crucial to the process. Still, licensing remains a structural condition on syntactic representations, and this has some odd consequences. Implicatures are assigned syntactic structures of their own, and although their calculation presumably depends on general cognitive processes, they are made subject to the constraints of an autonomous syntactic module. Furthermore, while the role of implicature poses problems for theory of licensing based strictly on sentence meaning, it does not obviously support a theory based on syntactic structure either: on the contrary, it suggests that polarity items might be sensitive directly to speaker meaning. Indeed, licensing by implicature might work to supplement a monotonicity-based theory like Ladusaw's just as easily as it does Linebarger's LF-based theory. The real question then is whether polarity items have a special relationship with negation, as Linebarger suggests, or whether they are somehow attuned to the kinds of inferences that DE operators can license, (or, perhaps, both). One natural place to look for enlightenment then is in the lexical semantics of polarity items themselves.

3.2. The Lexicon of Sensitivity

The traditional focus on licensing and structural explanation has led to a certain neglect of empirical issues related to the sensitivity and diversity problems. The most basic of these issues are lexicographical in nature (cf. Hoeksema 2000: 116): what is the complete inventory of polarity items for a given language? are there cross-linguistic regularities in these inventories? what sorts of meanings do polarity items typically encode? what sorts of meanings do they never encode? Although we still

lack any really satisfactory answers to these questions, the little we do know poses some interesting theoretical challenges.

By far the most well-known and widely observed class of polarity items are the minimizers—NPIs in which a stereotypically minimal unit is used to render an emphatic negation (Borkin 1971; Schmerling 1971; Fauconnier 1975a; Horn 1978, 1989; Heim 1984). Minimizers typically take the form of an indefinite NP which either combines freely with different predicates (*a jot, an iota, a red cent, a soul, a stitch of clothing, a stick of furniture*), or else is incorporated in a VP idiom (*lift a finger, sleep a wink, bat an eyelid, breathe a word, miss a beat, crack a book*).Minimizers are without a doubt the most eye-catching of all polarity items: they are abundant within languages and widespread across languages, and their emphatic force is exemplary of an important trend found in many polarity items.

The role of NPIs as strengtheners of negation is often seen as the key to their distributions: if strengthening is part of NPIs' conventional meaning, then sensitivity may simply reflect a need to appear in contexts where they will be appropriately strong. The insight goes back at least to Pott (1857, cited in Horn 1989: 452) who viewed minimizer NPIs as incorporating the meaning of a scalar focus particle like *even* . Modern accounts of indefinite NPIs (Kadmon & Landman 1993; Lee & Horn 1994; Lee 1996; Haspelmath 1997; Lahiri 1998; Horn 2000) regularly appeal to the work these forms perform in expressing informatively strong propositions. Krifka (1991, 1994, 1995) extends this sort of approach to a wide class of NPIs and PPIs. He notes that while many NPIs denote minimal units of some sort, PPIs typically involve maximal units: for example, high scalar degree adverbs—forms like *utterly, thoroughly, damnably,* and *as hell*—are chronically PPIs (cf. Hinds 1974; Klein 1998). Krifka proposes that polarity items are interpreted with respect to a set of alternatives, and that their sensitivity reflects a need to occur in contexts where they will be informative with respect to these alternatives—in effect, where they will yield strong speech acts rather than trivial ones.

But while many NPIs and PPIs do effectively strengthen a speech act, others work in just the opposite way, serving to hedge or mitigate the force of an expressed proposition. Such attenuating polarity items are in fact quite common: along with English NPIs like *all that, so very* and *much,* one finds the French *grand chose* 'much stuff' and *grand monde* 'many people,' the Dutch *bijster* 'very,' the Japanese *sonna-*

ni 'that much' and *anmari* 'too very' (Vasishth 1998), and the Persian *cændan* 'much' and *un-qædrha* 'that much' (Raghibdoust 1994).

There is in fact a reliable correlation between the pragmatic force of a polarity item (whether emphatic or attenuating) and its scalar semantics (Israel 1996, 1998, in prep.), and the interaction between them divides polarity items into four basic classes. Roughly, and with some principled exceptions (cf. Israel 2001), emphatic polarity items include NPIs denoting minimal scalar values and PPIs denoting maximal values, while attenuating polarity items include NPIs with high scalar values and PPIs with low scalar values. The lists below give a hint of the variety of such forms in each of these classes in English.

Emphatic NPIs:	*any, ever, at all, the least bit, in the slightest, give a damn, have a chance in hell, can fathom, can possibly, would dream of*
Emphatic PPIs:	*tons of N, scads of N, constantly, utterly, insanely, in a flash, within an inch of N, be bound to V, gotta V*
Attenuating NPIs:	*be all that, any too, overmuch, long, much, great shakes, be born yesterday, trouble to V, mince words, need*
Attenuating PPIs:	*some, somewhat, rather, sorta, a fair bit, a tad, a whiff, a hint, a tittle, a smidgen, more or less, would just as soon*

This regular correlation suggests a principled relationship between polarity sensitivity and scalar semantics: I call this the scalar model of polarity sensitivity. The basic idea is that polarity items are scalar operators—forms which are construed within the structure of a scalar model (cf. Kay 1990; this volume). The scalar denotation of a polarity item determines its position within the model, its pragmatic force constrains its inferential relation with other propositions in the model, and the two together create the effect of sensitivity. For example, an item like *lift a finger* denotes a minimal effort and contrasts with the expression of any greater effort; as an emphatic item it contributes its meaning to a strong proposition, and so must unilaterally entail contrasting propositions in the model. The result is that *lift a finger* can only be used in scale reversing contexts, where inferences run from lesser to greater efforts: *she didn't lift a finger* is fine because it licenses the inference that 'she didn't try very hard'; *she lifted a finger* yields no such inference: it fails because it expresses a weak proposition incompatible with its inherently emphatic nature.

A similar logic applies to attenuating polarity items. These forms require a construal in which they are entailed by, rather than themselves entailing, some default

norm within a scalar model. Again, unlicensed polarity items are semantically incoherent: a sentence like *her theory is all that complicated* simultaneously offers itself as a weak claim (due to the conventionally attenuating NPI *all that*) and yet makes a strong claim (i.e. 'the theory is very complicated'). The sentence is bad because it allows no construal consistent with both its scalar denotation and its attenuating pragmatics.

A key feature of the scalar model is the idea that polarity items themselves conventionally express certain pragmatic functions, and that they are licensed precisely (and only) where they can successfully discharge these functions. This is rather different from, for example, Krifka's theory, in which the lexical meanings of polarity items are cashed out basically in terms of a semantic denotation plus a set of alternatives, and the pragmatic rules which limit their distributions are general properties of sentences rather than of the polarity items themselves. On the other hand, it is very much in the spirit of a theory like Kadmon & Landman's (1993), which attributes the distributional constraints on English *any* to the interaction of a semantic feature, widening (analogous to the expression of a low scalar value) and a pragmatic requirement, strengthening (equivalent to emphasis in a scalar model).

What distinguishes the scalar model is its wide application to polarity items of all sorts. The theory seeks to explain why polarity items should exist at all, and it finds the reason precisely in their usefulness. The pragmatic functions which polarity items encode, emphasis and attenuation, reflect two antithetical ways in which scalar semantics may be deployed for rhetorical effect: emphatic expressions serve to mark commitment or emotional involvement in a communicative exchange, while attenuation both protects a speaker's credibility and shows deference to a hearer by minimizing any demands on his credulity. These complementary functions may thus be seen as tools for negotiating politeness (cf. Brown & Levinson 1978).

The scalar model receives circumstantial support from the fact that polarity items do come from semantic domains which are in some sense inherently scalar. This is obviously true of the measure terms and degree adverbs which are so common among polarity items (von Bergen & von Bergen 1993; van der Wouden 1994; Klein 1998), but it also holds for other major cross-linguistic sources of polarity items, among others, indefinite pronouns and determiners (Haspelmath 1997), modal verbs (Edmondson 1983; de Haan 1994), and temporal and aspectual adverbs (Tovena

1998; Hoeksema 2000). By the same token, the reason why color terms, for example, are probably never polarity sensitive (except, as with *a red cent,* as part of some idiom) may be that alternatives within the color domain are not easily construed as exhibiting scalar structure.

Still, the scalar model and its four-way taxonomy are at best just a first approximation of the forms polarity items may take and the ways they may differ: even if modal, aspectual and indefinite polarity items are all fundamentally scalar, that doesn't mean they should all behave exactly the same. Every polarity item has its own story: the scalar model just makes some general predictions about what sorts of characters will appear in these stories. The scalar model does, however, take a strong view that sensitivity is a lexical property of polarity items, and that the varieties of sensitivity reflect the lexical details which distinguish different polarity items. The fine-grained study of such differences is still in its infancy (cf. van der Wouden 1997; von Klopp 1998; Tovena 1998; Hoeksema 2000), but it may yet prove a growth industry in polarity studies.

3.3. The Scalar Pragmatics of Licensing

The robust correlation between scalar semantics and polarity sensitivity suggests that, *pace* Linebarger, polarity items do have a special relationship to scalar inferencing: the question is what sort of relationship is it? One possibility, as I suggested above, is that it is purely pragmatic, that licensing depends directly on the meanings of polarity items and their coherence with the contexts in which they occur. The more standard assumption, following Ladusaw (1980), is that polarity items are sensitive to logical properties of sentence grammar—to an algorithmically derived representation of a sentence's literal truth-conditional meaning. Indeed, polarity items are often seen as providing the best evidence there is for such representations. In this section I will argue to the contrary that the inferential properties which license polarity items are pragmatic in nature and cannot be reduced to logical properties of sentence meaning.

A variety of polarity contexts are not, strictly speaking, downward entailing. Non-rhetorical questions are perhaps the most notorious example of a non-monotonic polarity licensor (Fauconnier 1980; Krifka 1995). Similarly, the antecedent of a conditional usually licenses downward inferences, but as (26) suggests, not always;

and, as Atlas (1996) notes, the status of *only* as DE operator seems doubtful given the lack of entailment from examples like (27a) to (27b).

(26) a. If you work hard, you'll succeed ==>?
   b. If you work hard and are incompetent, you'll succeed.
(27) a. Of all my sisters, only Gwendolyn keeps pets. ==>?
   b. Of all my sisters, only Gwendolyn keeps a pet mongoose.

There are, however, various ways in which the logic of downward entailingness can be extended to accommodate these sorts of contexts (cf. Heim 1984; von Fintel 1999; Horn 2001), and I will simply concede that such cases may be handled with a sufficiently sophisticated theory of semantic representations.

More interesting for my purposes, are cases where the inferences which license a polarity item clearly depend on pragmatic assumptions that cannot be part of sentence meaning. In extreme cases it is difficult to discern any licensor at all. Examples like those in (28) involve what Horn (to appear) calls *Flaubert triggers* since, "like God in the deist universe and the author in the Flaubertian novel, so is negation [in these examples]: everywhere present yet nowhere visible."

(28)   a. It's nice to sit at a table with a candle <u>at all</u>. [dinner conversation]

   b. The tone [of Germaine Greer's attack on manufacturers of vaginal deodorants] wasn't light-hearted, which might have justified touching the subject <u>at all</u>. [C. McCabe, *S.F. Chronicle*, cited in Horn 1978: 153]

   c. Sensitive Man as portrayed in popular culture was always a caricature, of course. But the signs of his discrediting have been building, along with male confusion. (We speak of those heterosexual men, mainly in their 30's, 40's, and 50's, who <u>ever</u> <u>gave a thought</u> to <u>any</u> of this.) [*New York Times,* May 8, 1994; cited in Horn *to appear*]

   d. The reason one <u>ever</u> <u>bothers to</u> decant a wine is to leave the sediment ... behind in the bottle. [*SouthWest Airlines Spirit* August 1994: 47]

Such uses are rare, but they are not random aberrations. Crucially, the NPIs work in these examples because they do function in context as emphatic scalar endpoints: thus in (28a), *at all* emphasizes the degree to which having a candle is in itself a treat, and in (28c) the NPIs underscore the exceptionality of a rare species of male.

The determiners *most* and *few* provide a more systematic example of a context in which licensing crucially depends on pragmatic rather than logical inferencing.

Ladusaw finds *most* difficult to judge (1980: 151), but the examples below suggest that it is neither upward nor downward entailing on its first argument.

(29) a. [Most of the boys who ate an apple] got sick. –/–>
      b. <–/–[Most of the boys who ate fruit] got sick.

(29a) does not entail (29b): it could be that all the boys ate some fruit, and that the apples were poisoned so that most of those who ate an apple got sick, but that really very few boys got sick because most just ate cherimoyas and blackberries and avoided the poisoned apples. This shows that *most* is not upward entailing on its first argument. Similarly, (30b) does not entail (30a): after all, it could be that the cherimoyas were poisoned, but that the apples contained an antidote, so that most of the boys who ate fruit got sick, but those lucky few who ate an apple were spared. This shows that *most* is not downward entailing on its first argument. Parallel examples may be constructed for *few* to show that it is also non-monotonic on its first argument.

Despite their non-monotonicity *most* and *few* do occasionally license NPIs (Heim 1984; Jackson 1994; Barker 1995; Israel 1995, 1998), including, at least marginally, strong NPIs like *lift a finger* and *the least bit*.

(30) a. Most children with <u>any</u> sense steal candy. [from Barker 1995: 117]
      b. Most people who <u>would lift a finger</u> to help Bill now are either very foolish or very well-paid.
(31) a. Few children with <u>any</u> sense play Frisbee on freeways.
      b. Few people with <u>the least bit</u> of human feeling could doubt her sincerity.

Apparently, under the right circumstances *most* and *few* do allow the limited downward entailments needed to license a polarity item (cf. Heim 1984: 102-4). For example, *any* is licensed in (30a) and (31a) by the inferences that most children with a lot of sense would also steal candy, and that few children with a lot of sense would play Frisbee on the highway. In other words, these forms license NPIs because, and precisely to the extent that, they trigger appropriate scalar inferences.

These inferences are crucially context sensitive. Because these forms are non-monotonic, they may trigger inferences in either direction in a scalar model. In (32),

for example, given a scale of puzzles ranked by difficulty, *most* can license pragmatic inferences either from easy puzzles to harder puzzles, or from harder puzzles to easier puzzles, depending on what it is the inferences are about.

(32) a. [Most students who could solve the easy puzzles] got a prize.
          —> [Most students who could solve the hard puzzles] got a prize.
      b. [Most students who could solve the hard puzzles] had trouble on the exam.
          —> [Most who could solve the easy puzzles] had trouble on the exam.

The inference in (32a) follows from an assumption that major accomplishments, like solving a difficult puzzle, will be at least as well rewarded as minor accomplishments. The inference in (32b), on the other hand, depends on the assumption that those with modest abilities will have as much difficulty as those with greater abilities. Crucially, it is only in the first case, where inferences run from easy puzzles to hard ones, that *most* can license NPIs.

(33) a. Most students who could solve even a single puzzle got a prize.
      b. *Most students who could solve even a single puzzle had trouble on the exam.

My conclusion is that *most* does license polarity items by virtue of its inferential properties, but that these are not logical properties of the form itself, nor even of the sentences it occurs in. Rather they reflect the complex interaction of syntactic, semantic and especially pragmatic factors which determine the availability of an appropriate scalar construal.

The need for a coherent scalar construal also helps explain why NPIs sometimes fail to be licensed when they do occur in the scope of a DE operator. For example, Yoshimura (1994) shows that the use of NPIs in *before* clauses as in (34) (an unambiguously DE context) may depend on pragmatic assumptions about how the world works.

(34) a. Miss Prism {spilled/??poured} her wine before she had drunk a drop.
      b. The alarm clock was {ringing/??plugged in} before I could sleep a wink.

As Yoshimura argues, the felicity of the NPI in these examples depends on the availability of an implicit contrast between what is said and what might have been

expected: at least in polite society, one does not expect wine to be drunk before it is poured; and one normally makes a point of plugging in the alarm clock before one even tries to go to sleep. Yoshimura formulates this need for an implicit contrast as a procedural semantic constraint on polarity licensing. Such a constraint is, in fact, implicit in the structure of a scalar model, since the key notions of emphasis and attenuation are defined by the contrast between different propositions in a model. Where normal assumptions about how the world works fail to make such a contrast available, as with the poured wine and the plugged in alarm clock, a scalar construal is impossible, and so polarity items cannot be license.

The need for a scalar construal systematically limits the licensing potential of all polarity triggers, including even sentential negation.

(35) a. Cecily didn't eat a bite of her food.
      b. ??Cecily didn't stare at a bite of her food.

The contrast in (35) reflects the fact while there are many activities for which a bite of food might count as a natural minimal unit, staring is not one of them: one can just as easily stare at a banquet as at a single bite. Since the expressed proposition does not seem to contrast with any weaker proposition, the NPI fails to express its emphatic force, and the sentence fails to be grammatical. Again, what counts for NPI licensing is not so much the logical properties of a licensor but the way those properties can help an NPI to fulfill its inherent pragmatic functions.

Finally, I should acknowledge that even if polarity items are basically pragmatic operators, they still can be subject to syntactic constraints: they might, for instance, undergo processes of grammaticalization which narrow their use to certain syntactic constructions; or they might start of as negative idioms which for one reason or another never get generalized to other licensing contexts. In this sense, Linebarger is surely right that NPIs are (at least sometimes) "close associates of negation," and that they may be subject to constraints which are more structural than semantic.

The real question is how we should think of such constraints. My own (minority) view is that they reflect collocational dependencies between polarity items and licensing constructions—that polarity items are, in effect, idioms and that their

distributions are learned on the basis of conventional usage[6]. On this view, part of what it means to know a polarity item is to know what contexts it occurs in, and so the use of a polarity item in a novel context (i.e. one where it has not previously been heard) will reflect the degree to which that context is felt to be similar (lexically, semantically, pragmatically and syntactically) to contexts where it has previously occurred. The weakness of such a usage-based model, of course, is that it is grossly unconstrained: it begs the question of what similarities may be linguistically significant. On the other hand, this may be just the right question to beg at this point. A more constrained theory may come once we come to terms with the diverse sensitivities polarity items may exhibit,[7] and this can only be done through the detailed study of the idiomatic properties of a large range of examples.

4. Conclusions

Having said so much, and so quickly, I can do no more than return to the paradox with which I began. Polarity, the opposition between negation and affirmation, seems to be both simple and symmetrical, and yet its behavior in natural language is neither. As it turns out, there are many parts of "no" one might easily not understand. Negation, it seems, is simply too useful to be confined by the simplicity of its own logic. The question is, what is the relation between the logic of negation and the pragmatics of polarity? Is negation essentially a logical relation with many pragmatic uses, or is it rather an argumentative device from whose uses we distill a logical essence? These are questions I personally would rather ask than have to answer. If nothing else, I hope this essay will help us ask them more clearly.

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[6] Similar views can be found in Fillmore, Kay & O'Connor (1988) and van der Wouden (1997).
[7] Haspelmath's (1997) cross-linguistic study of indefinite pronouns provides a particularly striking portrait of the many ways distributional constraints may vary.

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