

## Polarity: Some Questions for Discussion

Anna Szabolcsi

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What does polarity sensitivity derive from? Is there a unitary source, possibly in scalar semantics/pragmatics? Are the differences in distribution predicted? Do they follow from independent lexical semantics? Are the intervention effects one of a kind?

**LADUSAW 1979: NPI must be in the scope of a downward entailing operator.**

**KADMON AND LANDMAN 1993: *Any* widens the domain to include marginal cases. Use of *any* is acceptable if the proposition with widening is stronger than the one with plain  $a(n)$ .**

**KRIFKA 1995: Structured meanings and illocutionary operators in the treatment of polarity**

Problems with K&L:

- *Any* expresses widening only when stressed.
- *Any* can be used where the notion of tolerance for exceptions is problematic:  
*This sequence doesn't contain any prime numbers.*
- Non-compositionality of the strengthening requirement

Weak NPIs (e.g. unstressed *any*, *ever*)

Semantics:

*Mary saw anything* <Background, Focus, Alternatives>  
< $\lambda Q\lambda i\exists y[Q_i(y) \ \& \ \text{saw}_i(m,y)]$ , thing,  $\{P|P\subset\text{thing}\}$ >

Exhaustivity requirement: Alternatives together make up focus.

Pragmatics:

ASSERT(<B,F,A>)(c) =  $c \cap B(F)$  iff

B(F) is assertable wrto c and

speaker has reason not to assert any other alternatives to B(F), and

some other alternative is assertable and would make a difference in c.

ASSERT(<B,F,A>)(c) = SCALAR.ASSERT(<B,F,A>)(c) iff

the alternatives are informationally ordered with respect to each other

SCALAR.ASSERT(<B,F,A>)(c) =

$\{i \in c | B(F) \text{ holds in } c \text{ and all stronger alternatives are negated}\}$

- *Mary saw anything* is pragmatically bad, because assertion contradicts scalar assertion.

Strong NPIs (e.g. stressed *ANY*, *much of a [clarinetist]*, *[tired] at all*, *[drink] a drop*)

Semantics:

*Mary saw ANYthing* < $\lambda Q\lambda i\exists y[Q_i(y) \ \& \ \text{saw}_i(m,y)]$ , thing,  $\{P|P\subset\text{thing} \ \& \ P \text{ is "not minor"}\}$ >

Non-exhaustivity requirement: Alternatives together make up a proper subset of focus.

Pragmatics:

EMPHATIC.ASSERT(<B,F,A>)(c) =  $c \cap B(F)$  iff

$c \cap B(F)$  is less likely than any other alternative, and moreover,

$c \cap B(F)$  is less likely than the conjunction of all the alternatives.

- *Mary saw ANYthing* is pragmatically bad: it requires that the proposition that Mary got a "thing" be stronger than the proposition that Mary got a P, where  $P\subset\text{thing}$ : a contradiction.

## How does Krifka's theory explain the distribution of NPIs?

### Explains:

- Weak NPIs don't occur in emphatic assertions and strong NPIs in regular (scalar) ones.
- Downward entailing context is needed.

f is downward entailing      iff     $f(a \vee b) \rightarrow f(a) \wedge f(b)$

### Doesn't explain without further assumptions:

- Zwarts' observation: strong NPIs are restricted to anti-additive contexts, e.g. *not* or *no girl*.

f is anti-additive                      iff     $f(a \vee b) = f(a) \wedge f(b)$

“Emphatic assertions tend to be emphatic ‘across the board’. That is, whenever there are expressions that are related to alternatives in an emphatic assertion, the meaning of the expression has to be extreme with respect to the alternatives... It is plausible to assume that downward entailing quantifiers come with alternatives... Clearly, *no* is the extreme value with respect to this set of alternatives... There are certain quantifiers [*hardly anyone*] that are technically not anti-additive but allow for strong NPIs ... Given that Zwarts' observations seem to be tendencies rather than strictly grammatical facts, we perhaps even do not want to rule out combinations like

\* *Fewer than three girls did anything at all*

by fundamental principles.”

- No “flip-flop”: NPIs are often okay in the scope of two downward entailing operators (not in all combinations though), i.e. in an upward entailing context:

*If he knows anything about logic, he will know Modus Ponens.*

*If he doesn't know anything about logic, he will (still) know Modus Ponens.*

- Intervention effects:

\* *Mary never goes out with the man / every man who has any problems.*

?? *Mary didn't shout that John had any problems.*

Proposal for no flip-flop and intervention: The illocutionary operators are part of the semantic recursion. Once the alternatives of a NPI are exploited by one of them, no higher scalar/emphatic assertion operator can use them. (Discussion fairly sketchy.)



Let us call the above “scalar theories” for short. They derive polarity sensitivity for items that introduce ordered alternatives or are associated with domain extension.

Do all sensitive items fit the bill? The ones below have not been thought to be scalar.

- Giannakidou 1998:

Sensitivity in Affective Polarity Items (APIs), which occur in non-veridical contexts, a superset of the downward entailing ones:

- An API  $\alpha$  is a dependent existential quantifier.
- An existential quantifier  $\exists x_{ni}$  is dependent iff the variable  $x_{ni}$  it contributes does not introduce a discourse referent in  $w_0$  / in some individual’s epistemic model  $M(x)$ .
- Non-emphatics  $[[kanenas]] = \lambda P \exists x_{ni} [person(x_{ni}) \ \& \ P(x_{ni})]$

Similarly, subjunctive relatives are allowed only if we do not know if the modified DP denotes an existing object, and occur in intensional contexts.

- Ladusaw 1992:

Reduces negative concord (NC) to NPI-licensing: in (some?) NC languages all superficially negative morphemes are NPIs, licensed by a c-commanding covert negation.

- Szabolcsi 2004:

Positive polarity item *someone* cannot scope immediately under a clausemate negative -- unless the illegitimate constellation is placed into a NPI-licensing context.

<i>John [didn't call someone].</i>	* not > some
<i>I don't think that John [didn't call someone].</i>	√ not > not > some
<i>At most five boys [didn't call someone].</i>	√ few > not > some
<i>Only John [didn't call someone].</i>	√ only > not > some
<i>I regret that John [didn't call someone].</i>	√ regret > not > some
<i>If we [don't call someone], we are doomed.</i>	√ if (not > some)

Rescuing is not a matter of eliminating downward entailingness in the extended context:

<i>Few people called someone.</i>	√ few > some
<i>More than two people [didn't call someone].</i>	* more than two ... not > some

Thus, *[didn't call someone]<sub>not>some</sub>* has the distribution of traditional NPIs:

Unlicensed NPIs:

\*He called [anyone]

\*He [didn't call someone]<sub>not>some</sub>

Licensed NPIs:

I don't think he called [anyone]

I don't think he [didn't call someone]<sub>not>some</sub>

Scalar theories are good at explaining the need for downward entailing contexts. But there is a significant diversity in licensing needs. These are not explained by the core assumptions of scalar theories, see above (sometimes by any assumptions known to me). Some further examples of diversity:

- Zwarts 1993, van der Wouden 1997:
  - [a] Must be in the scope of a downward entailing operator: *hoeven* ‘need’
  - [b] Must be in the scope of an antiadditive operator: *ook maar* ‘also but = any’, *hand voor ogen* ‘hand before eyes’, *met een vinger* ‘with a finger’
  - [c] Must be in the scope of an antimorphic operator: *mals* ‘tender’, *pluis* ‘plush’
  
- Giannakidou 1998:
  - [α] Licensed by non-veridicality, (in)directly: Greek non-emphatics
  - [β] Licensed by anti-veridicality, (in)directly: Greek emphatics, minimizers, etc.
  - [γ] Licensed by anti-veridicality, directly: Polish n-words
  - [δ] Licensed by negation, directly: Serbo-Croatian n-words
  
- Moxey—Sanford—Dawydiak 2001:
 

*few, not quite all* support the tags *neither, do they*, and *either*, and complement set anaphora *at most n, at least n* support the tags *so, don’t they*, and *too*, and reference set anaphora cf. *Q fans went to the game. They enjoyed it greatly/watched it on tv.*

They argue that the former deny, and the latter affirm, a contextual supposition, which is more important than upward/downward entailingness.
  
- DeDecker—Larsson—Martin 2005 (see data in Electronic poster)

Experimental study of the licensing of *sleep a wink, in ages, ever, much, at all*, and *yet* by *no, not more than n, at most n, less than n, few, only, not even, not every, no less than n*.

The analysis not based on numbers/actual acceptability levels, but instead on relative hierarchies of quantifiers for each NPI. The groups of NPIs that emerge are not quite familiar from the standard literature.

- (i) *sleep a wink, in ages* – more loosely: *ever*
- (ii) *much* – loosely: *at all*
- (iii) *yet*

The licensors do not quite pattern together as the literature would predict. E.g.,

- (a) the downward entailing but not antiadditive quantifiers *few, less than n, at most n*, and *no more than n* do not behave identically;
- (b) *no less than n*, an upward entailing quantifier, is not an entirely unsuccessful licensor;
- (c) While *not every* is generally a poor licensor, which can be explained as an intervention effect, it is the No.2 licensor of *yet*. (Corroborated by naturally occurring examples found on Google.)

What is the status of scalar semantics/pragmatics, then? Does it derive polarity sensitivity? Does it do something else?

Non-scalar lexical properties may also be explanatory; see some examples below. An intriguing question is whether they manifest themselves in the item's behavior beyond forcing its licensing needs.

- Giannakidou 1998  
Non-emphatic *kanenas* 'anyone' and subjunctive relatives, see p. 4 above.
- Giannakidou 2004  
Four kinds of 'even' in Greek, see talk tomorrow.
- Alonso-Ovalle and Guerzoni 2004
  - a.  $[[nadie/nessuno]] = \lambda P.\exists x[\text{person}'(x) \ \& \ P(x)]$
  - b. Conventional implicature:  $\neg \exists x[\text{person}'(x) \ \& \ P(x)]$Clash can be resolved by negatives without a factive presupposition, or under denials that remove implicatures.

It is common to all the above approaches that NPIs are inherently doomed to failure unless they occur in a particular kind of context. An alternative, failure-proof approach is to make NPIs show up in just the right contexts. This comes with a different set of lexical assumptions.

- Postal 2000  
  
Does not start with lexical items that are designated to be NPIs. Instead, certain lexical representations come with semantically significant underlying negations ( $\neg$  or  $\neg\neg$ ), and map to different surface morphologies depending on whether those negations stay in place or are removed. The surface forms known as n-words and NPIs are two possible realizations.

- Szabolcsi 2004  
  
Rescuable PPIs (*someone*, see p. 4) are "double NPIs" and complete Postal's matrix for spelling out an underlying  $\neg\neg\exists$ .

NPI-licensing is the formation of a resumptive negative quantifier ("a binary version of negative concord"). It factors out, and absorbs, the negative components of the licenser and of the NPI.

$$\text{no}\langle x,y\rangle \dots [[\text{licenser neg } \dots] \dots [\text{NPI neg } \dots]] \dots \quad \Rightarrow \text{absorption}$$
$$\dots [[\text{licenser } \dots x \dots] \dots [\text{NPI } \dots y \dots]]$$

The NPIs as underlyingly negation-containing expressions approach is neutral as to how additional lexical properties of the NPI may result in scalar implicatures.

The relation between negative/positive polarity items and the licensing/offending operators is blocked by certain interveners, as observed by Kroch (1979), Linebarger (1987), etc.  
Is this intervention effect one of a kind, or is it just one instance of a more general phenomenon?

- Chierchia 2001

Harmful interveners are strong members of a scale, innocuous ones are the weakest; see p.3. This characterization fits well with the scalar theory but suggests that intervention effects in NPI-licensing are at best accidentally reminiscent of those in other areas of grammar.

- Intervention (weak island) effects (see Szabolcsi 1998-2002 for overview)

In adjunct/non-referential wh extraction (*how, how many, why*)  
wide scope assignment of non-referential quantifiers (*somewhat*)  
split constructions (*was für ... Leute, combien... de livres*)  
functional readings (*which book about herself did no student read*)  
event-related readings (*four thousand ships passed through the lock*)  
Kennedy-effects in comparatives (*every girl is less tall than John is*)  
Beck-effects and feature movement in the sense of Pesetsky 2000  
negative polarity licensing (*didn't ... any*)  
cross-sentential anaphora (*I saw a man<sub>i</sub>. He<sub>i</sub> whistled.*)

By wh-islands  
negative/affective islands  
extraposition islands  
VP-adverbs (*beaucoup*)  
quantifiers like *every, most, (more than) three*, etc. when scoping between;  
but not singular definites, collectives  
minimal amount indefinites and *any*  
*want, may*

- Honcoop 1998, generalizing de Swart 1992 via Dekker 1993:

Reduce weak island sensitive contexts to split constructions. Reduce the class of harmful interveners # to those that create inaccessible domains for non-c-command anaphora.‡

\* Operator ... # ... restrictor

- Szabolcsi 2004:

Re NPI-licensing: Resumptive quantification factors the common operator out of two or more quantifiers, resulting in a configuration where the operator is split from its restrictors and is thus vulnerable to intervention.

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‡ Honcoop argues that the operator can only be connected to the separated restrictor if the latter undergoes Existential Disclosure (ED). ED involves dynamic binding and is thus blocked by inaccessible domains.

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