

On saying less with more

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Scales, Degrees and Implicature - Kickoff Workshop



Leibniz-Zentrum
Allgemeine Sprachwissenschaft

Modifiers with a scalar (degree-based) meaning that make **weaker** assertions than salient alternatives.

- (1) The house is **fairly** / **pretty** / **kinda** large.
(cf. ... extremely large)
- (2) Lisa has **about** / **roughly** / **around** 50 sheep.
(cf. ... (exactly) 50 ...)
- (3) Homer didn't drink **much** coffee.
(cf. ... any coffee / a drop of coffee)
- (4) Red wine isn't **exactly** healthy.
(cf. ... really unhealthy)
- (5) I'm not **(all) that** tired.
(cf. ... not the slightest bit tired)

3 Patterns: Scalar Implicature



Degree attenuators – like other scalar terms – give rise to scalar implicatures.

- (6) The house is **fairly** large.
↪ The house is not very large.

- (7) Lisa has **about** 50 sheep.
↪ The speaker cannot assert that Lisa has exactly 50 sheep.

- (8) Homer didn't drink **much** coffee.
↪ Homer drank some (=NOT didn't drink any) coffee.

3 Patterns: Polarity Sensitivity



Degree attenuators are consistently polarity items (attenuating polarity items - Israel 1996, 2011):

(8) The house is / *isn't **fairly** / **pretty** / **kinda** large. PPI

(9) Lisa has / *doesn't have **about** / **roughly** 50 sheep. PPI

(10) Homer *drank / didn't drink **much** coffee. NPI

(11) Red wine *is / isn't **exactly** healthy. NPI

(12) I *am / am not **(all) that** tired. NPI

- Not easily accounted for by theories that link polarity sensitivity to semantic strengthening (e.g. Chierchia, 2013).

3 Patterns: Understatement



(Some) degree attenuators trigger strengthening implicatures
(R-based implicature - Horn 1984; understatement - Brown and Levinson 1987;
Israel 2006; negative strengthening - Horn 1989, 2017; Levinson 2000; a.o.)

(13) The film was **pretty** good . . . you should see it!

(14) Homer isn't **much** taller than Marge.

- a. 'NOT taller by a large degree'
- b. 'taller by only a small degree'

(15) a. Sure, they're **not exactly healthy**, but they're much healthier than your typical cookie, have a soft but slightly chewy texture that I adore, and they are vegan. \approx **not healthy in the strictest sense**

b. Being comfort food, grilled cheese burgers are **not exactly healthy**. And that's okay, you're not eating them everyday. So you'll want a side dish that's equally comforting...and unhealthy. \approx **very unhealthy**

Can these three phenomena observed with degree attenuators – scalar implicature, polarity sensitivity and understatement – be given a unified analysis?

Following long tradition, we'll attempt to account for the behavior of degree attenuators via general principles of reasoning about alternatives (cf. Krifka, 1995; Chierchia, 2013; Spector, 2014, and many others):

- If a speaker uses an expression, and that expression has a better alternative, then it can be inferred that the speaker had some reason not to use the alternative.
- If an expression has a better alternative that can be used whenever the first expression can, then the first expression will be blocked.

More formally, we'll assume the following pragmatic principle, based on Krifka (1995) and more directly Katzir (2007), and seek to derive the three phenomena of interest from it:

Conversational principle (from Katzir 2007)

Do not assert a sentence ϕ if there is an **alternative** ϕ' such that both

- i) ϕ' is **better than** ϕ , and
- ii) ϕ' **can be asserted**.

▷ It can't be this simple - but let's see how far this takes us.

Define these three components of the system . . .

- alternative
- better than
- can be asserted (or: has a reason not to assert)

. . . in such a way that scalar implicatures, polarity sensitivity, and understatement emerge as consequences.

Again following Katzir (2007), we assume a structural view of alternatives:

Structural alternatives: $ALT(\phi)$ – the set of alternatives to ϕ – contains expressions ϕ' that can be derived from ϕ by deletion of constituents in ϕ or replacement of constituents in ϕ with constituents of the same category.

- ▷ With some further restrictions.

Assume (following Katzir):

- ‘better than’ (\succ) = ‘more informative than’

$$\phi \succ \psi \text{ iff } \phi \succ_{INF} \psi \text{ iff } \{w : \phi_w\} \subset \{w : \psi_w\}$$

- ‘ ϕ can be asserted’ = ‘the speaker believes ϕ to be true, relevant and supported by the facts’ (weakly assertable)

$\phi =$ *The house is fairly large.* $\phi' =$ *The house is very large.*

$$\phi' \succ \phi$$

\therefore *fairly large* \rightsquigarrow *very large* not assertable.

[NB: There's nothing new here!]

Three additional properties of degree attenuators (that provide clues to the source of their polarity sensitivity):

- Degree attenuators are modifiers – so have the corresponding unmodified forms as alternatives.
- Degree attenuators exhibit variable polarity sensitivity.
- Degree attenuators are vague.

- (16) a. Lisa has / *doesn't have **about** / **roughly** 50 sheep.
b. Lisa *has / doesn't have more than **about** / **roughly** 50 sheep.
- (17) a. Homer *drank / didn't drink **much** coffee.
b. Homer is / isn't **much** taller than Marge.
- (18) a. Red wine *is / isn't **exactly** healthy.
b. Lisa has / ?doesn't have **exactly** 50 sheep.
- (19) a. Bart *is / isn't **(all) that** tall.
b. You have to be at least 4 feet tall to go on this ride. Bart is / isn't **that** tall.

- (20) a. The house is / ??isn't **quite** large.
b. The cup ?is / isn't **quite** full.

(21) **Romanian:**

- a. Ana e **destul** de înaltă.
'Ana is pretty tall.' / 'Ana is tall enough.'
- b. Ana nu e **destul** de înaltă.
'Ana is not tall enough.'
- Suggests polarity sensitivity cannot derive from a lexical feature (contra Israel, 1996) but instead must result from the scalar semantics of the modifier and modified expression.

Degree attenuators and / or the expressions they modify are consistently **vague**, i.e. lacking sharp boundaries – and vagueness often distinguishes their polarity sensitive and non-polarity sensitive uses.

- (22)
- a. quite large (vs. quite full)
 - b. about 50
 - c. much coffee (vs. much more than 1 liter of coffee)
 - d. exactly healthy (vs. exactly 50)
 - e. that tall
- Cf. Israel (1996): attenuating polarity items reference non-extreme / mid-scale standards.

A revised definition of the ‘better than’ relation in terms of both informativity and simplicity:

$$(23) \quad \phi \succ \psi \text{ iff} \\ \phi \succeq_{INF} \psi \wedge \phi \succeq_{SIMP} \psi \wedge (\phi \succ_{INF} \psi \vee \phi \succ_{SIMP} \psi)$$

- ϕ is better than ψ iff it is at least as informative and at least as simple, and has an advantage on either informativity or simplicity.

Where:

$$(24) \quad \phi \succ_{SIMP} \psi \text{ iff} \\ \phi \text{ can be derived from } \psi \text{ by substitution/deletion but not vice versa.}$$

Our previous definition of 'more informative than' is adequate for paradigm cases of alternatives with clear truth conditions:

$$(25) \quad \phi \succ_{INF} \psi \text{ iff } \{w : \phi_w\} \subset \{w : \psi_w\}$$

- E.g. $\langle \text{some, all} \rangle$, $\langle \text{or, and} \rangle$, $\langle \text{(at least) 3, (at least) (4)} \rangle$, etc.

But this becomes problematic when ϕ and/or ψ are vague.

- On one way of resolving the vagueness, ϕ might asymmetrically entail ψ , but on another, the two might be equivalent, or the entailment might even be reversed (cf. Leffel et al., 2019).

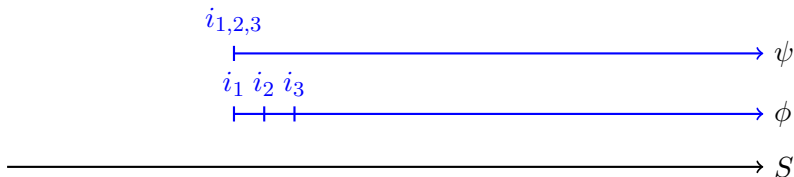
Claim: We need a strict definition of relative informativity.

To model vagueness and underspecification of meaning, we assume separate world w and interpretation i parameters of evaluation (Krifka, 2012):

- w specifies the state of the world.
- i specifies the interpretation of expressions of the language.

W is the set of possible worlds, I the set of available interpretations.

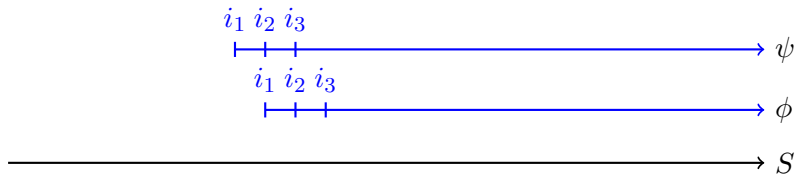
Weakly Stronger



- (26) $\phi \succ_{WS} \psi$ iff
 $\forall i \in I[\{w : \phi_{i,w}\} \subseteq \{w : \psi_{i,w}\}] \wedge \exists i \in I[\{w : \phi_{i,w}\} \subset \{w : \psi_{i,w}\}]$

- Never weaker; stronger on at least 1 interpretation

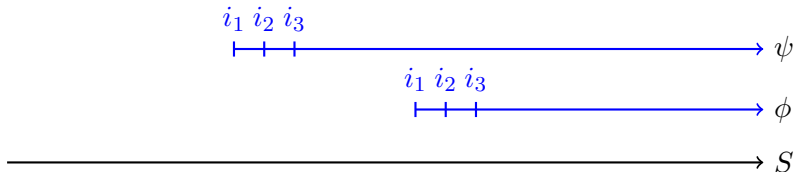
Strictly Stronger



$$(26) \quad \phi \succ_{SS} \psi \text{ iff } \forall i \in I [\{w : \phi_{i,w}\} \subset \{w : \psi_{i,w}\}]$$

- Stronger on every individual interpretation

Definitively Stronger



$$(26) \quad \phi \succ_{DS} \psi \text{ iff } \forall i, j \in I [\{w : \phi_{i,w}\} \subset \{w : \psi_{j,w}\}]$$

- Stronger across interpretations

We'll define 'more informative' \succ_{INF} as 'definitively stronger' \succ_{DS} .

- Polarity sensitivity will be the result.

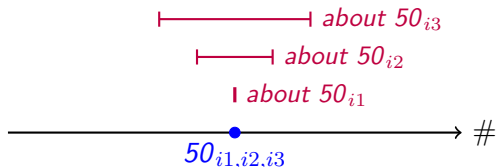
$\phi =$ *Lisa has / doesn't have about 50 sheep*

$\max\{n : \text{Lisa has } n \text{ sheep}\} \in / \notin [50 - k_i, 50 + k_i], 0 \leq k_i \leq 50$

$\phi' =$ *Lisa has / doesn't have 50 sheep*

$\max\{n : \text{Lisa has } n \text{ sheep}\} = / \neq 50$

(Kennedy, 2015; Egré et al., 2020)



$\phi \sim_{INF} \phi'$

$\phi' \succ_{SIMP} \phi$

$\therefore \phi' \succ \phi$

$\phi \rightsquigarrow \phi'$ not assertable.

Positive sentence: Implicature can be accommodated by restricting I .

Negative sentence: Implicature contradictory regardless of $i \rightarrow$ **blocking!**

Degree attenuators are modifiers that **overlap** semantically with the corresponding unmodified form – meaning that there is some possible interpretation of the modified form that is equivalent to some interpretation of the unmodified form. Polarity-based distributional restrictions result from contradictory manner implicatures:

PPIs: unmodified form weakly stronger (but not definitively stronger) than modified form:

- *about n; fairly, kind of*

NPIs: modified form weakly stronger (but not definitively stronger) than unmodified form:

- *more than about n, much, exactly*

[Plus some more difficult cases]

(Solt 2017, 2018; Solt and Wilson 2021)

- (26) a. The film was pretty good . . . but not great. SI
b. The film was pretty good - you should see it! Understatement
- (27) a. The vegan cookies are not exactly healthy.
≈ not healthy in the strictest sense . . . but not so bad
b. That double-cheese sausage pizza isn't exactly healthy.
≈ really unhealthy

- Understatement vs. scalar implicature

[U]nderstatement and attenuation involve different ways of framing the content of what is said against the background of some informationally stronger content which might have been said but wasn't. . . .

Both figures present a proposition in a scalar frame as contrasting with some stronger alternative, but understatement actually implicates the stronger alternative. (Israel, 2006)

- Anti-correlation of scalar implicature and negative strengthening (Gotzner et al., 2018)
- Understatement as off-record strategy (Brown and Levinson, 1987):

[S]aying less and meaning more frees . . . the speaker from assuming full responsibility for what she communicates . . . (Israel, 2006)

Conversational principle (from Katzir 2007)

Do not assert a sentence ϕ if there is an **alternative** ϕ' such that both

- i) ϕ' is **better than** ϕ , and
- ii) ϕ' **can be asserted**.

' ϕ can be asserted' = 'the speaker believes ϕ to be true, relevant and supported by the facts, **and is willing to commit to ϕ** '

Open Questions:

- What is strengthened meaning (*not exactly healthy* \rightsquigarrow *not healthy*? \rightsquigarrow (*very*) *unhealthy*?) Is this alternative derived in present system?
- Why do some degree attenuators favor understatement while others favor scalar implicature?

- Degree attenuators are modifiers that – due to their weak and vague semantics – do not offer sufficient incremental informativity to offset their extra complexity relative to the unmodified form.
- Their behavior can be explained in terms of reasoning about alternatives - especially the unmodified one:
 - scalar implicature
 - polarity sensitivity
 - (perhaps) understatement
- Open questions remain, including:
 - Overgeneration / constraining alternative set
 - Linguistic vs. conceptual alternatives (Buccola et al., 2021)
 - Varying implicature strength
 - Relationship between understatement and polarity sensitivity

Thank you!

This work was supported by the DFG under grant SO1157/1-2.

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