Vacuity in models of intensification

Rick Nouwen (Utrecht)

Scales, degrees, implicature

	completely absolutely	almost nearly	extremely	very awfully	rather pretty	a bit slightly
Stoffel	intensive	-	intensive		downtoner	
Borst	intensive	downtoner	intensive		downtoner	
Biedermann	absolute	-	high		moderate	weak
Bolinger	booster	-	booster		compromiser	minimizer
Bäcklund	highest	absence	high		moderate	low
Gary	completive	approximater	booster		compromiser	diminisher
Van Os	absolute	approximative	extreme	high	moderate	diminishing
Klein	absolute	approximative	extreme	high	moderate	minimal
Paradis	maximizer	approximator	boosters		moderators	diminishers
this talk			H-adverbs		M-adverbs	
			Intensifiers			

maximum standard   minimum

Adapted from: H. Klein, Adverbs of degree in Dutch and related languages, Benjamins, 1998.

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Two-tier approaches to vague predication

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$[\![$Scarlett is tall$]\!] =$ height(scarlett) $\geq \theta$

⟦pos adjective⟧ = $\lambda x.\mu(x) \geq \theta$

⟦Scarlett is tall⟧ = height(scarlett) $\geq \theta$

- Positive form sentences express open propositions
- The contextual standard of comparison is inferred (e.g. Lassiter & Goodman, 2013)

Extending the two-tier approach to intensified vagueness

- Intensified positive forms are vague
- Natural idea: $\text{height}(\text{Scarlett}) \geq f\theta$
- But what *is* this f? Where does it come from?

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Three options for the semantic contribution of an intensifier:

- **poverty**: the value of f is the intensifier's only semantic contribution
- **vacuity**: the value of f is not specified, it is inferred
- **inheritance**: f linked to semantic content that is not included in this formula

The presumed semantic poverty of intensifiers

Poverty $\sim$ Cliff's law (1959)

$$v = \alpha_c \beta_s + K$$

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modifier (c)		adjective (s)	
$\emptyset$	1	evil	-1.246
slightly	.555	wicked	-1.158
somewhat	.685	contemptible	-.913
rather	.846	bad	-1.025
pretty	.935	average	-.040
quite	1.042	charming	.802
decidely	1.216	lovable	.836
unusually	1.291	admirable	.983
very	1.317	nice	1.007
extremely	1.593	good	1.078

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Vacuity $\sim$ Bennett & Goodman 2018:

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Katz 2005, Sæbø 2010:

Scarlett is very charming $\Leftrightarrow$ height(Scarlett) $\geq \theta + d$

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Bennett & Goodman, 2018

A positive form sentence + intensifier m:

$$[\![m]\!] = \mu(x) \geq f\theta$$

Hearer infers $f\theta$, based on prior beliefs about $\mu(x)$, the known cost of uttering m and alternative messages M.

Inference of the contextual standard of comparison

Bennett & Goodman, 2018

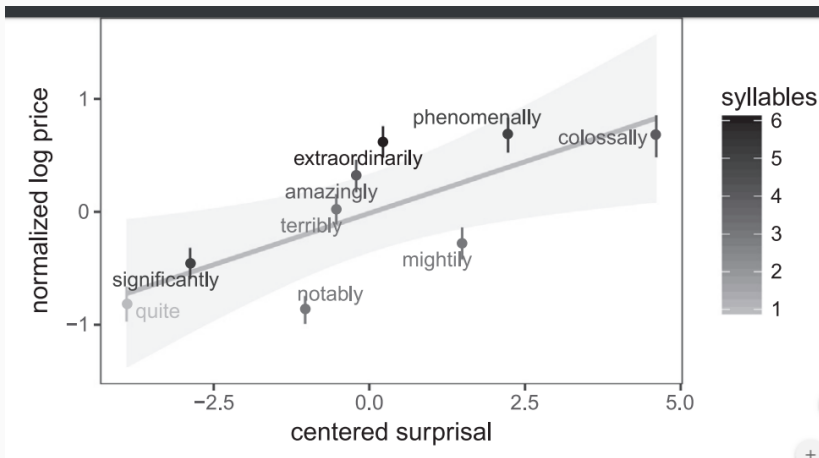$$\llbracket \text{Scarlett is tall} \rrbracket = \text{height(Scarlett)} \geq \theta$$
$$\llbracket \text{Scarlett is very tall} \rrbracket = \text{height(Scarlett)} \geq f_i\theta$$
$$\llbracket \text{Scarlett is awfully tall} \rrbracket = \text{height(Scarlett)} \geq f_j\theta$$
$$\llbracket \text{Scarlett is terribly tall} \rrbracket = \text{height(Scarlett)} \geq f_k\theta$$

Hearer infers the relevant threshold on the basis of utterance cost.

$$S(m|d,\theta) \propto exp(\lambda(log(P(d|m,f,\theta)) - \text{cost}(m)))$$

Figure axis labels: normalized log price (y-axis), centered surprisal (x-axis). Data points labeled: phenomenally, extraordinarily, amazingly, terribly, colossally, mightily, significantly, quite, notably. Legend: syllables (1–6).

Bennett & Goodman, Cognition 178, 2018

More evidence of vacuity?

- Moxey and Sanford 1993, O'Muircheartaigh et al. 1993, Wright et al. 1995
- intensifier only has semantic effect **within** participants

	How many days of the week are you (very) satisfied with life?		How many days of the week are you (very) dissatisfied with life?	
	within	between	within	between
without very	3.92	-	1.51	-
with very	2.17	3.68	.76	1.48

data from: O'Muircheartaight et al. 1993

- intensifiers have extremely poor semantics
- their interpretative effect results from considerations of manner
- and competition

Scarlett is terribly nice.   bleached
$\nRightarrow$ the speaker is in terror

pretty, dreadfully, fairly ...

Scarlett is disgustingly nice.   unbleached
$\Rightarrow$ the speaker is disgusted

surprisingly, shockingly, ridiculously

Scarlett is terribly nice.   bleached
$\not\Rightarrow$ the speaker is in terror

pretty, dreadfully, fairly, ...

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Remnants of lexical content in bleached intensifiers

	English	Dutch	German
high degree	terribly, awfully	erg (*bad*), zeer (*sore*), ontzettend (*disrupting*, verschrikkelijk (*terrible*)	sehr (etym. *sore/zeer*), furchtbar (*terrible*), fuerchterlich (*terrible*), irre (*insane*)
medium degree	pretty, fairly	aardig (*nice*), best (*best*), tamelijk (*fitting*), vrij (*free*)	leidlich (*tolerable*), ziemlich *fitting*

The relation between evaluative polarity and intensity
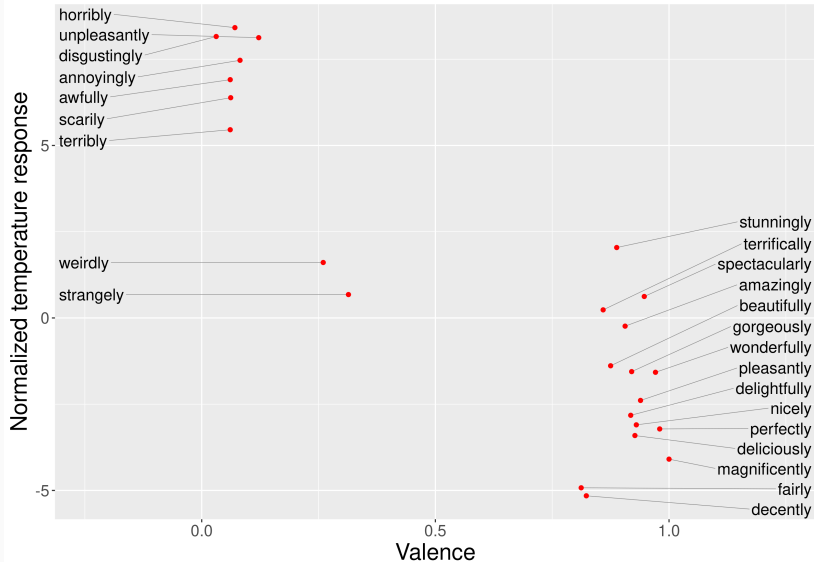
$$\mu(x) \geq f\theta$$

- there has to be some room for lexical content

- for bleached intensifiers, f is not just pragmatically inferred but also conventionally linked to content through some diachronic process

- for unbleached intensifiers, there has to be content to the intensifier beyond f

- but can we maintain the general picture of an inferred threshold?

Unbleached intensifiers: A naive proposal

See Wheeler 1972, and discussion in Morzycki 2008, Katz 2010, Nouwen 2010

Scarlett is surprisingly tall
$\rightsquigarrow$ surprising$[\lambda w.\text{height}(\text{scarlett})(w) = \text{height}(\text{scarlett})(@)]$

Paraphrase: *it is surprising that Scarlett has the height that she has.*

See Wheeler 1972, and discussion in Morzycki 2008, Katz 2010, Nouwen 2010

Scarlett is surprisingly tall
$\rightsquigarrow$ surprising[λw.height(scarlett)(w) = height(scarlett)(@)]

Paraphrase: *it is surprising that Scarlett has the height that she has.*

Problem: say Scarlett is much shorter than expected. Then her height will cause surprise. But she's not surprisingly tall.

A puzzle (due to Morzycki 2008)

Image by Robert Oosterbroek; source: de Utrechtse Internet Courant 29/7/2015

It is dangerous that the canal has the width that it has.

Image by Robert Oosterbroek; source: de Utrechtse Internet Courant 29/7/2015

It is dangerous that the canal has the width that it has.

The canal is dangerously wide

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Morzycki 2008: *it is dangerous how extremely wide the canal is.*

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It is pleasantly warm.

A solution and a problem

The canal is dangerously wide.

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It is pleasantly warm.

Jean-Claude van Damme has received surprisingly many acting accolades.

Proposal: Parallel positive propositions

Intuition:

- QUD: How warm is it?, How tall is Scarlett?, How many awards for acting did he win?
- Utterance: intensified positive form sentence

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Intuition:

- QUD: How warm is it?, How tall is Scarlett?, How many awards for acting did he win?
- Utterance: intensified positive form sentence
- Evaluative intensifier: evaluates the answer to the QUD (backgrounded information)
- Adjective positive form: partially answers the question (asserted)

Unbleached (evaluative) intensifiers are expressive-like (Gehrke & Castroviejo 2016, 2019, cf. Xie and Luo 2019, Nouwen 2013).

It is pleasantly warm.

QUD: How warm is it?

Space of propositions is the partition induced by the equivalence relation $\lambda w'.\lambda w.\mathsf{warm}(x)(w) = \mathsf{warm}(x)(w')$

1. Prior beliefs about the QUD: $P(\delta)$

2. Update based on pleasure evaluation: $\mathsf{pleasure}(\delta) \geq \theta_{pl}$

3. Subsequent update of the assertion: $\mathsf{warm}(x) \geq \theta_{wrm}$
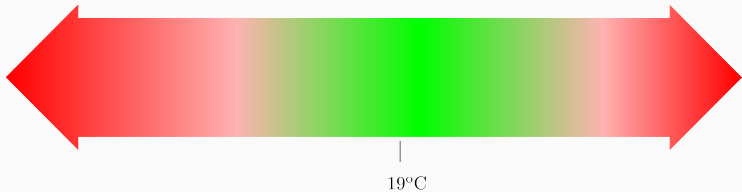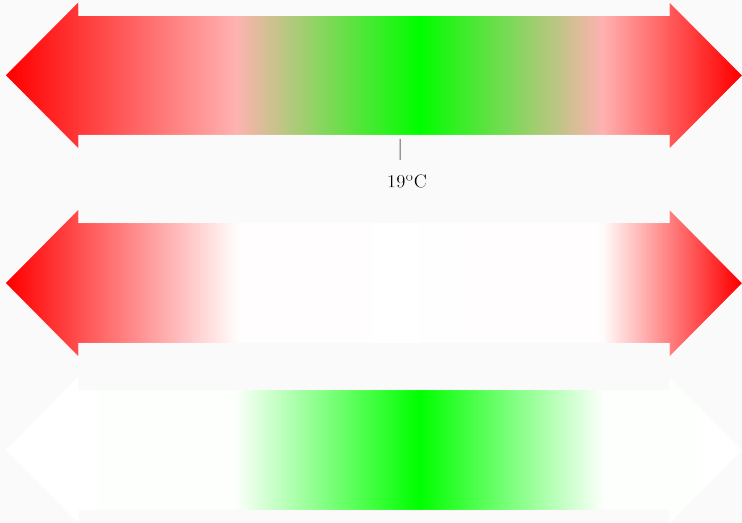
19°C

19°C

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$19^{\circ}\mathrm{C}$

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19°C

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Proposal for unbleached intensifiers:
Scarlett is shockingly tall

QUD:	$\mathcal{R} = \lambda w.\lambda w'.\text{height}(\text{Scarlett})(w) = \text{height}(\text{Scarlett})(w')$
background:	$\lambda w.\text{shock}([w]_{\mathcal{R}}) \geq \theta_{\text{shock}}$
assertion:	$\lambda w.\text{height}(\text{Scarlett}) \geq \theta_{\text{tall}}$

Proposal for unbleached intensifiers:
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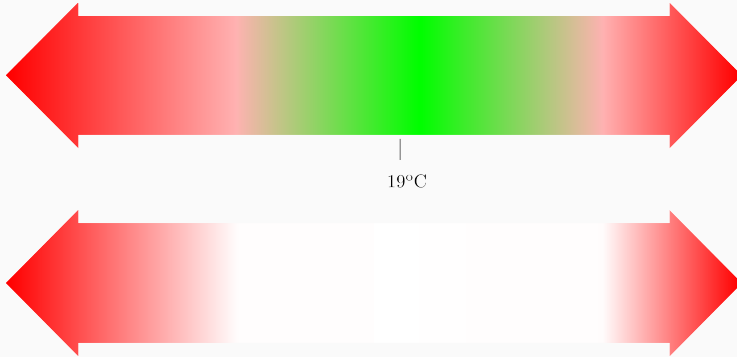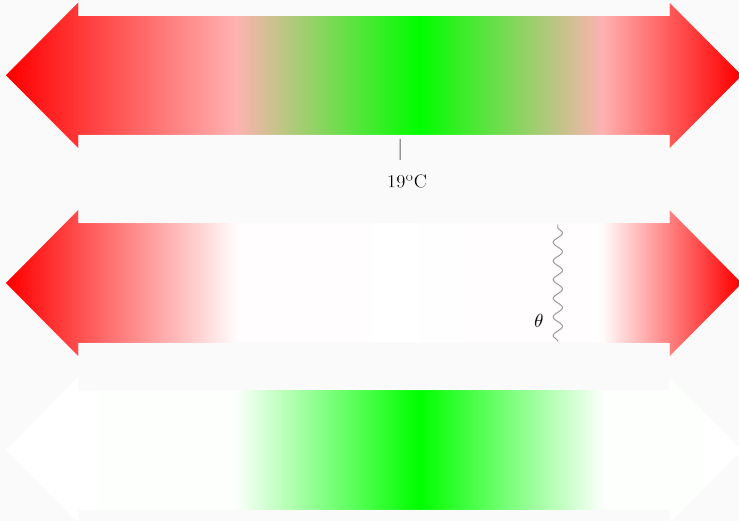
What about bleached intensifiers?
Scarlett is terribly tall
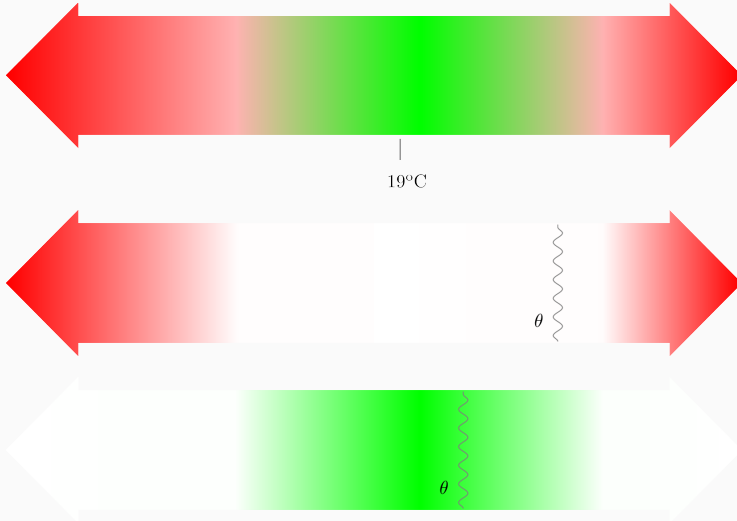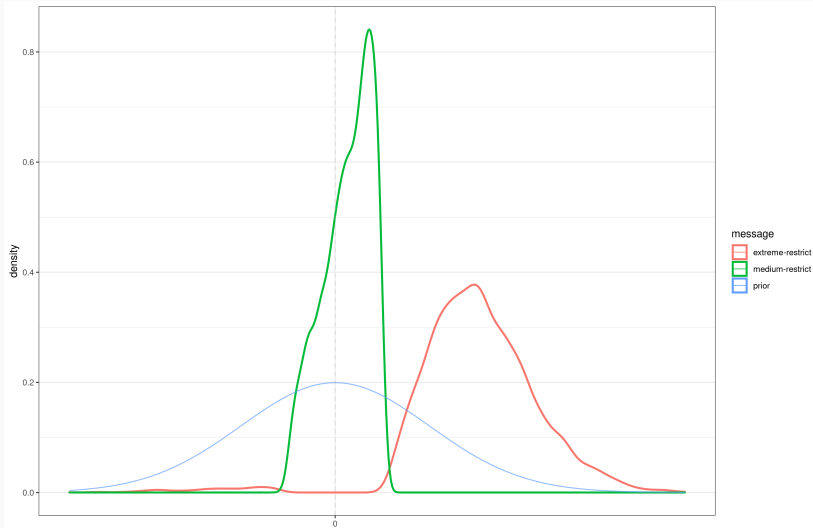
Semantic side of the proposal

Proposal for unbleached intensifiers:
Scarlett is shockingly tall

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> QUD: $\mathcal{R} = \lambda w.\lambda w'.\text{height(Scarlett)}(w) = \text{height(Scarlett)}(w')$
> background: $\lambda w.\text{terror}([w]_{\mathcal{R}}) \geq \theta_{\text{terror}}$
> assertion: $\lambda w.\text{height(Scarlett)} \geq f\theta_{\text{tall}}$

Summary

- Unbleached intensifier introduce a parallel evaluation
- which affects the inference of the contextual standard of comparison for the adjective

- Bleached intensifiers have a relatively poor semantics
- But it is unrealistic to believe they are merely triggers of M-implicatures
- Conventionally linked to a boosting value
- Which in turn is connected to the content of the original unbleached version of the intensifier

Thanks!

References:

H. Klein, *Adverbs of degree in Dutch and related languages*, 1998; N. Cliff, *Psychological Review* 66, 1959; G. Katz, *SuB9*, 2005; K. Sæbø, *Studia Lingistica*, 64(1), 2010; Bennett & Goodman, *Cognition* 178, 2018; Lassiter & Goodman, Synthese 194, 2015; C. O'Muircheartaight et al., *The public opinion quarterly*, 1993; Sanford & Moxey, *European Journal of Cognitive Psychology* 5, 1993; Wright et al., Applied cognitive psychology 9, 1995; G. Wheeler *Nous* 6, 1972; M. Morzycki, Event structures in linguistic form and interpretation, 2008; R. Nouwen, *Vagueness and Language Use*, 2011; B. Gehrke & E. Castroviejo, *Secondary Content*, 2019; R. Nouwen, *Nederlandse Taalkunde*, 2013.