# 1 Scale structure (~15)
# 2 Absolute adjectives (~10)

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# 1
# Scale structure
# Counter-Evidence from Degree modifiers

# Scale structure

Kennedy and McNally 2001-2005; Winter and Rothstein 2005; Kennedy 2007

The basic motivation: The distribution & semantics of degree modifiers

**Minimizers** : {*slightly, somewhat, a bit*} $\lambda G \lambda x. \exists d > \mathbf{min(G)}, G(d)(x))$

**Maximizers** {*perfectly, completely, entirely, fully*} $\lambda G \lambda x. \exists d = \mathbf{max(G)}, G(d)(x)$

**Proportional** : {*half, partially, n%*} $\lambda G \lambda x. \exists d = (\mathbf{max(G)} - \mathbf{min(G)})/2, G(d)(x))$.

**Boosters:** {*pretty, very, rather*} $\lambda G \lambda x. \exists d >> \mathbf{cutoff(G)}, G(d)(x))$

**Relative As** *tall /short* **doubly open**, (–min,–max)

**Partial As** *dirty /wet* **lower bound**, [+min,–max)

**Total As** *clean /dry* **upper bound**, (–min,+max]

*empty/full, open/closed , transparent/ opaque* **doubly bound**, [+min,+max].

This classification helps establishing :

- standard type (Kennedy 2007; Syrett 2007)
- licensed inferences e.g., *x is Per than y* => x is P, if P is partial; y is not P, if P is total (Kennedy and McNally 2005).

# Problem: Modifier interpretations

**Minimizers + doubly bound As:** ***slightly/ a bit + full/ empty/ closed***

**Grammaticality**: A bit deviant
**Frequency**: Partial (lower bound) >> Total (lower+upper/upper bound)
**Interpretation**: Different with total and partial adjectives

The city square is

a. slightly/a bit dirty ⇒ is covered by a small amount of dirt; is more clean than dirty.

Any degree above the minimum, but - close to it

b. slightly/a bit full ⇒ is rather full; is more full than empty

c. slightly/a bit empty ⇒ is rather empty; mostly empty is more empty than full

Cannot reference degrees close to the minimum!

*d. slightly clean* (= rather clean) ≅ *slightly dirty*

⇒ **This data is not at all expected by the standard analysis of minimizers (as** $\lambda G \lambda x. \exists d > \mathbf{min(G)}, G(d)(x)$**) and these adjectives (as +min).**

# *Slightly* as *rather*

In a naturally occurring use of *too:*

a. Thanksgiving dinner has been eaten and re-eaten. The turkey’s been picked down to the bones. Endorphins lulled you to sleep with that **slightly “full”** feeling. Your house seems **rather full too**, with family and friends occupying every seat

*Slightly empty* = ‘but few fotos’ = *rather empty*:

b. Home now but slightly empty handed. **didn't take a lot of photos** while away.

*Slightly empty* = rather empty yet not sterile:

c. ...makes me think of an Edward Hopper painting. **Slightly empty and yet slightly not sterile**.

# Google image for Slightly full


# Slightly dirty $\cong$ Slightly clean

Google image

# A new analysis: *Slightly G* $\simeq$ *Barely G*

(inspired by Sevi 2001; Horn 2010)

**Referencing Gs Ger than no G:** (i) degrees $d_1$ above G's cutoff, s.t. (ii) any $d_2$ a tiny bit smaller than $d_1$ fails to exceed the cutoff (iii) $d_1$ is not the maximum

$$\lambda G \lambda x.\ \text{(i)}\ \exists d_1 \geq cutoff(G), G(d_1)(x)$$
$$\text{(ii)}\ \forall d_2 < d_1, d_2 < cutoff(G)$$
$$\text{(iii)}\ \exists d_3 \geq d_1, \neg G(d_3)(x).$$

$\Rightarrow$The standard must be smaller than max(full), thus the deviance of minimizers + total As

$\Rightarrow$Reference to cutoff, thus the *rather full* vs. *little dirty* inferences

# Minimizers not referencing minimums

To capture both *slightly dirty* and *slightly full/empty* we need to give away reference to absolute minimums, min(full) / min(dirty)

**This eliminates the basic motivation for the +min vs. –min distinction.**

Why should *full* but not *tall* have an absolute minimum?

- Both have no non-zero minimum:
  - *Full* ranks volumes of full parts of containers.
  - But volume is infinitely divisible, just like height. One can never get to absolute zero volume by taking full parts of containers (volumes) and dividing them.
- Both have a zero:
  - Why should it be internal for *full* but external for *tall* ???
  - An arbitrary difference? So how do children learn it?
  - The economy principle (an existing endpoint must be the cutoff; Kennedy 2007) is economic only if the existence of an endpoint is easily predictable., but is it??

# #Minimizers + Relative 'all open' As

Slightly P entities must be P, minimally Per than a non P;

But, intuitively, any entity minimally shorter than a tall entity must also count as tall (=> the Sorites paradox, indicative of relative adjectives; Kennedy 2007).

+/- A prominent cutoff <=> +/- *slightly*

*# slightly tall/ short*

vs.

*slightly tall for my age*

*slightly too short to reach the ceiling*.

A bit tall a bit short = borderlines; near cutoff, not 0!

- ≅ neither/both tall and short = we can't draw a line, so we must say both things despite inconsistency
- ≠ minimally tall (almost 0 height), minimally short (almost infinity)

# *Somewhat*

A minimizer not relating to cutoffs:

*Somewhat P* ≠> P (except in partials)
=> not quite P

Modifies relative (mainly negative) adjectives:

*Somewhat short, slow, fat*
(not a reliable cue to +min absolute adjectives. )

**To conclude, the proposed analysis undermines the ±min distinction (lower-bound vs. lower-open As)**

# Standard-boosters: *Pretty, rather, very*
# Maximizers*: completely, totally,*

Boosters imply P with relative/partial Ps; not P, with total Ps

*Pretty/rather long* $\Rightarrow$ *long*

*Pretty/rather bent* $\Rightarrow$ *bent*

*Pretty/rather straight* $\Rightarrow$ ***not** straight*

Maximizers imply max P with total Ps, but not with other Ps

Completely full $\Rightarrow$ *max. full*

*Completely beautiful/dirty* $\not\Rightarrow$ *max. beautiful/dirty*

Dutch, Russian, Hebrew…

Unger (1975); Kennedy and McNally (2001): Repair strategies, Ambiguity

- *pretty straight* $\cong$ *pretty close to straight* $\Rightarrow$ *not straight*

-*Completely* has another sense similar to that of *very*

This is necessary when relying on absolute maximums (scale maximum), rather than local, argument dependent, context sensitive maximums

# Negative relative As license maximizers

## Russian:

Maximizers can modify relative adjectives, as in:

*Entirely short* (Tribushinina, to appear):

≠The absolute zero on the height scale

= Some **context dependent minimum** height

## English:

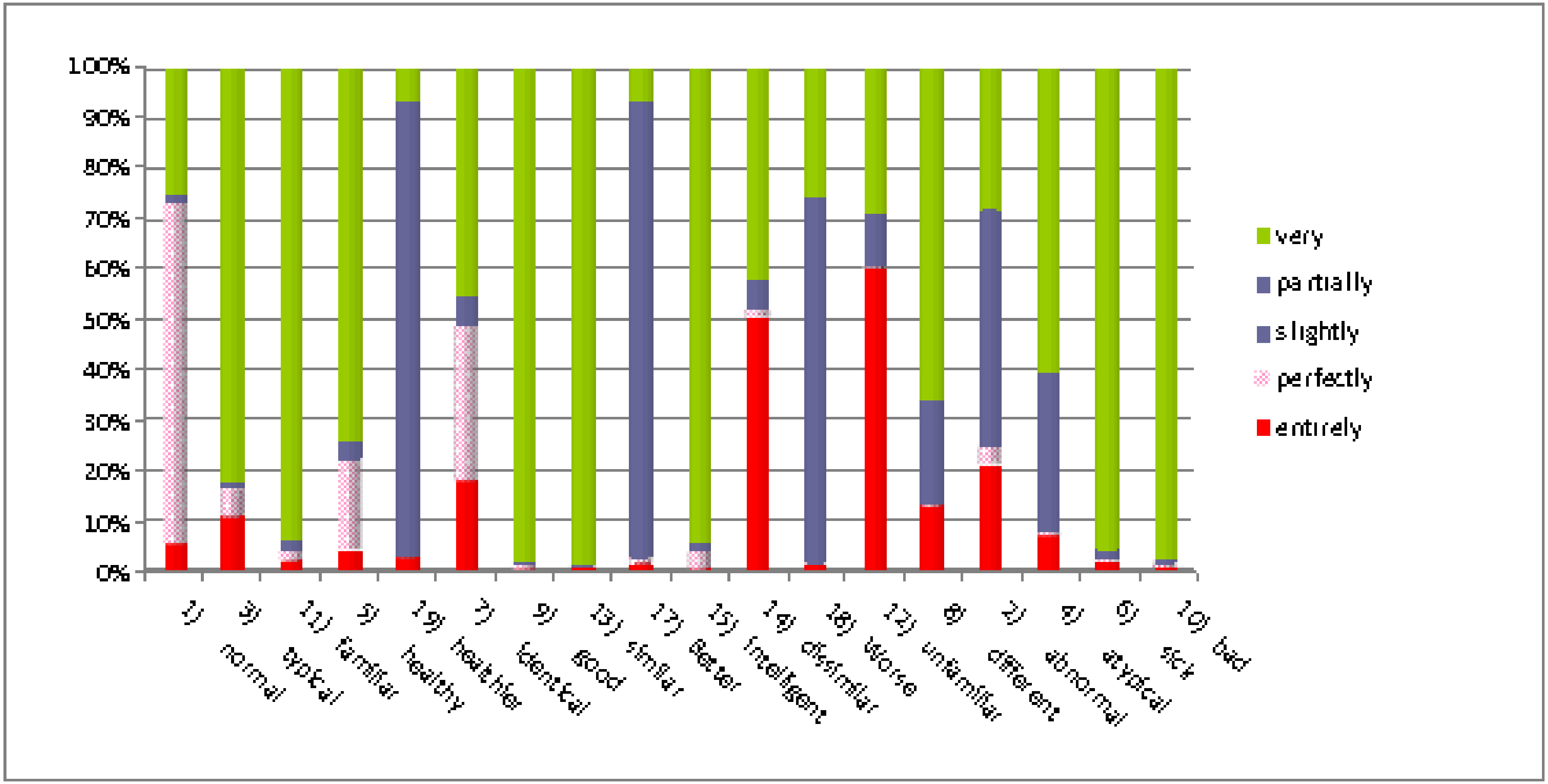
*Entirely different* (Syrett 2007)

*Entirely dissimilar, sick, bad, abnormal…*

## Dutch:

*Helemaal* with relative/partial As (Tribushinina 2010)

# *Entirely*: Non total negative As Google



# Unexpected results wrt negative adjectives

By other standard tests, *bad* is relative/partial:

- #*the paper is not bad, but it is somewhat bad* is odd;
- *my paper is worse than yours* => my paper is bad
- *my paper is worse than yours* ≠> your paper is not bad

By modifier distribution, *bad* is relative/total:

- *entirely bad* and *perfectly bad* are grammatical
- *slightly bad* and *somewhat bad* are odd
- |*entirely /perfectly bad* | >> |*slightly/partially bad*|

| he corpus of contemporary American English (Coca, Nov. 2010) | Slightly A | Somewhat A | Slightly Adv | Somewhat Adv |
|---|---|---|---|---|
| Full | 0.004% | 0.00% | **0.05%** | 0.00% |
| empty | 0.000% | 0.02% | 0.00% | **0.15%** |
| opaque | **0.057%** | 0.40% | **0.30%** | **2.10%** |
| transparent | **0.102%** | 0.10% | **0.49%** | **0.49%** |
| closed | 0.011% | 0.01% | **0.15%** | **0.15%** |
| open | **0.118%** | 0.01% | **1.65%** | **0.15%** |
| clean | 0.000% | 0.01% | 0.00% | 0.12% |
| dirty | **0.051%** | 0.05% | **0.87%** | **0.87%** |
| healthy | 0.000% | 0.02% | 0.00% | **0.16%** |
| sick | **0.104%** | 0.02% | **0.81%** | **0.14%** |
| wet | 0.073% | 0.00% | **0.81%** | 0.00% |
| dry | **0.028%** | 0.05% | **0.37%** | **0.68%** |
| straight | 0.000% | 0.00% | 0.00% | 0.04% |
| bent | **2.448%** | 0.02% | **33.46%** | **0.26%** |
| long | 0.003% | 0.00% | 0.02% | 0.02% |
| short | **0.015%** | **0.06%** | **0.08%** | **0.29%** |
| fast | 0.003% | 0.00% | 0.01% | 0.00% |
| slow | **0.031%** | **0.06%** | **0.26%** | **0.51%** |

# Conclusions 1

- Minimizers give no evidence for +/-min
- Maximizers hardly do for +/- **absolute** max.
- We want, ideally, one interpretation per modifier, that still predicts the differences between adjective types

⇒The basic data motivating the typology of scale-structure and economy principle are still puzzles.

# 2
# Absolute vs. relative As:

## Variance within vs. between individuals, resp.

**with Assaf Toledo, Utrecht**

# All interpretations of *x is A* employ a comparison class C, but:

In Relative As: C = A prominent category of x

In Absolute As: C = Realizations of x in other indices (x's counterparts; Lewis 1986).

The child is tall/ short: In comparison with other concrete children

**Many possible categories (the child's class, age, gender, all children, etc.)**

**=> equally prominent (or no) bounds**

**=> Vagueness**

The shirt is *dirty /clean:* In comparison with how dirty or clean that same shirt could be (cf. Bierwisch 1989).

**The individual imposes bounds on the class variance**

**(how unsoiled and bright we can imagine the shirt to be)**

**=> Contextual(!) endpoint standards**

# A counterpart class

Let POS, C and f associate adjectives A in indices w with:

(i) a set of instances: POS(A,w)

(ii) a degree function: $f(A,w): D_x \rightarrow D_d$

(iii) a function from entities x into comparison classes:

$\lambda x \in D_x.C(A,x,w)$

**A is *absolute* iff $\forall x_1$, $C(A,x_1,w) \subseteq \{x_2 \in D_x \mid counterparts(x_1,x_2,v), R(v,w)\}$**

World knowledge and contextual purposes (e.g. precision level) affect interpretation by restricting C(A,x,w) to counterparts of indices that are normal with respect to A, x and w (Kratzer 1981).

# Absolute: Variance between individuals

**Partial $A_P$:** $POS(A_P,w) = \lambda \mathbf{x} \in C(A_P,x,w).\ \exists \mathbf{y} \in C(A_P,x,w),\ \mathbf{f(A_P,w)(x) > f(A_P,w)(y)}$

*The table is dirty* is true iff it is covered with more dirt than one of its contextually prominent counterparts is (so **it exceeds the minimum for itself**)

**Total $A_T$:** $POS(A_{T,w}) = \lambda \mathbf{x} \in C(A_T,x,w).\ \forall \mathbf{y} \in C(A_T,x,w),\ \mathbf{f(A_T,w)(x) \geq f(A_T,w)(y)}$

*The room is full* is true iff the room is at least as full as any of its prominent counterparts (so **it reaches the maximum for itself**.)

e.g., if f(empty,w) = |free chairs in x in w|

C(empty,x,w) = x in any v with equally many chairs but different no. of free chairs

*The room is empty except for one chair* ≅

|Free chairs in x in w | ≥ |Free chairs in x in v | - 1, for all v

Yoon 1996

# Intuitive inference patterns

a. x is full/Empty $\Rightarrow$
x is as full/empty as x can be
(x can't be fuller/emptier)

b. x is Dirty/clean $\Rightarrow$
x can/ can't be cleaner (less dirty), respectively.

c. x is tall/short $\neq>$
x is (not) as tall/short as x can be
(we may infer that x can be either taller or shorter, or neither, but nothing follows).

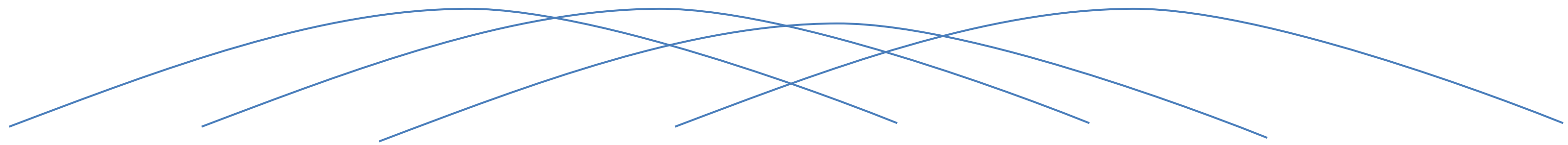
# Relative: Variance within individuals

*The child is tall*

No single comparison class = x's class, boys at x's age, boys, eight year olds, children, …

No natural max / min height in many of the sets for POS(tall,w) to relate to.

0



*tall's* scale is **NOT** linguistically construed as open on both sides.

Zero height exists and is captured easily by speakers.

**But** no child comes close to it! Nor do we know the non-zero minimum for children.

⇒ *Tall* can only reference positive deviations from some midpoint

⇒ In normal distributions, this could be the average

⇒ In many cases this could be any rel. big height gap in the comparison class

⇒ When and only when the comparison class is sufficiently restricted, POS($A_R$,w) can reference deviation from the midpoint:
partial modifiers (as in *slightly tall for his age*)
partial inferences (x is *taller than y is short => x is tall*).

# *#This glass is full for a wine glass*

For **no** x,w, $C(full,x,w) = \lambda x \in D_x\ wine\text{-}glass(x,w))$.

The comparison class = The same glass in different indexes ≠

The *for* phrase imposes = A class of different glasses in the same index

(Cf. the standard theory: *for* phrases are bad because the standard is absolute – can't vary with context)

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# Standard-shifts due to context

(Cruse 1980)

- A surgery knife vs. a kitchen knife
- A wine glass filled up to the middle counts *full*, while a *fuller* tea cup does not.
- In Italy, a *completely full* Espresso cup is *less full* than a *half full* tea cup.
- *When Bill is absolutely polite and Jane completely impolite, she is still more polite*.

The consistency of such judgments speaks **against absolute scale-maxima,** in favor of **comparison-class maxima**.

The maximum among the counterparts may be different in different entities.

# *The tall one* vs. #*the full one*

Context (Kennedy 2007): Only two salient glasses, $\{g_1, g_2\}$, neither tall nor full:

- We can ask for *the tall one*

  because the taller counts as *the tall* for $\{g_1,g_2\}$,

- But we cannot possibly ask for *the full one*

  because $\{g_1,g_2\}$ is not a proper comparison class and none of the glasses is as full as it can be.

# Modifiers as restrictors or wideners

(inspired by Yael Greenberg 2010, PC)

Pragmatics: Fine-grained degrees may normally be ignorable (e.g. single grains of dust).

**Boosters**: Comparison class restrictors (Klein 1980) => weakening universals: *rather full/clean* $\Rightarrow$ *not full/clean*
strengthening existentials: *rather dirty* $\Rightarrow$ *dirty*

**Maximizers***:* *W*idener to the *complete* set of counterparts =>
strengthening universals: *completely full* $\Rightarrow$ *full*

**Minimizers**: *W*idener weakening existentials:
*slightly dirty* => *dirty* wrt slight amounts of dirt.

# Relative comparisons for absolute As

x can be **dirtier than y**

either because the amount of dirt on x is greater, f(dirty,w)(x) > f(dirty,w)(y),

or because, for ex., x is covered with pretty much dust (compared to x), and y isn't (compared to y); so x is pretty dirty, but y isn't (cf. Kamp 1980; Doetjes 2010).

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# Relative interpretations for absolute As:

*Very* is frequent (Syrett 2007) and it allows for *for* phrases (McNally 2010):

**For a new student**, she is **very** familiar with the class routines and regulations, in fact she is **completely** familiar with them $x \in POS(Very\ P_R, x, w)$ & $x \in POS(P_T, x, w)$

"X is very $P_T$ " is a bit deviant (like "slightly $P_T$"):

Very P = the result of applying P supposing the comparison class is the set of P entities (Klein 1980)

$POS(Very\ P_T, x, w) = \lambda x \in POS(P_T, x, w)$. X is maximally $P_T$ in $POS(P_T, x, w)$ (as $P_T$ as x can be) =>

$POS(P_T, x, w) \neq \lambda x \in C(P_T, x, w)$. x is maximally $P_T$ in $C(P_T, x, w)$ (as $P_T$ as x can be) ☹

So the relative int. with *very* comparing **between** individuals is preferred:

$POS(Very\ P_R, x, w) = \lambda x \in POS(P_R, x, w)$. X is more $P_R$ than some midpoint/gap in $POS(P_R, x, w)$ ( => $P_R$) ☺

# An incongruent condition with adjectives? Acceptability judgments, DUTCH

## (with Tribushinina, Gulian and Timmer)

Our neighbors are

| | | |
|---|---|---|
| Nouns | 1. Congruent: | lawyers. |
| | 2. Incongruent: | #ideas. |
| Adjectives | 3. Congruent: | intelligent. |
| | 4. Incongruent: | #abstract. |

1 = "totally unacceptable“, 7 = "totally acceptable”.

One way Anova with four correlated samples:

| Congruent vs. Incongruent | | |
|---|---|---|
| Nouns: | **M1 >> M2** | **P<.01** |
| Adjectives: | **M3 >> M4** | **P<.01** |

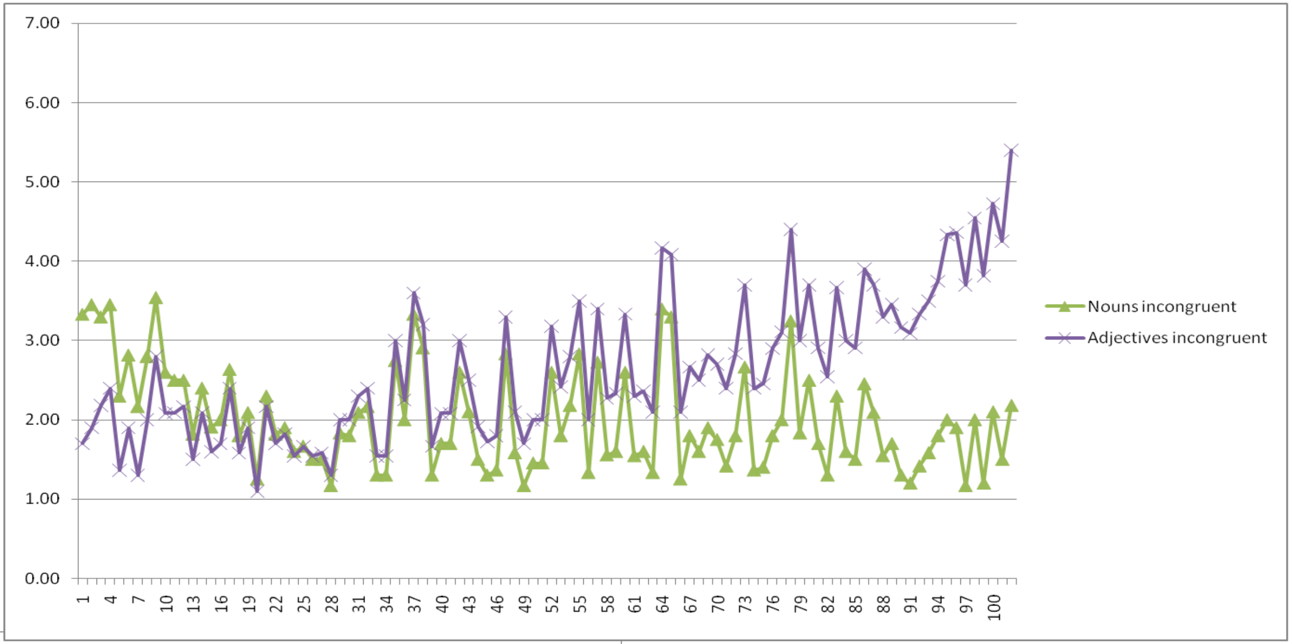
| Nouns vs. Adjectives | | |
|---|---|---|
| Congruent | **M1 << M3** | **P<.05** |
| Incongruent | **M2 << M4** | **P<.01** |

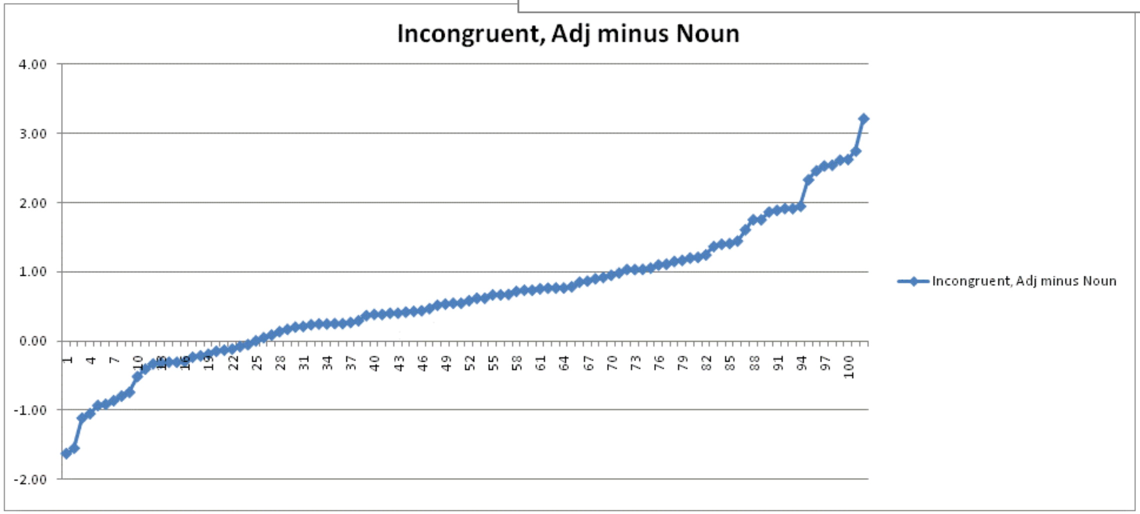
If adjectival predicates are in fact generally more acceptable than nominal ones, this supports an analysis whereby their interpretation is heavily dependent on the thing they are predicated of.

*Data Summary*

| | Samples | | | | |
|---|---|---|---|---|---|
| | 1 Nouns congruent | 2 Nouns incongruent | 3 Adjectives congruent | 4 Adjectives incongruent | Total |
| N | 102 | 102 | 102 | 102 | 408 |
| Mean | 5.3261 | 1.9995 | 5.7212 | 2.6285 | 3.9188 |
| Std.Dev. | 1.1991 | 0.6315 | 1.0114 | 0.9031 | 1.8876 |

# An incongruent condition with adjectives? Acceptability judgments, DUTCH




'unacceptable'

"These bushes are ideas" vs.
"These bushes are abstract" (4.8).

'poetic', 'metaphoric'

# An incongruent condition with adjectives? Acceptability judgments, DUTCH

Instructions:
A sentence is **acceptable** if it sounds normal, natural, you would not be surprised if you come across its meaning; a sentence is **unacceptable** if it sounds incorrect or strange.
1 = "totally unacceptable“, 7 = "totally acceptable”.

| | | |
|---|---|---|
| Deze struiken zijn abstract | These bushes are abstract | 1.564452 |

| | | |
|---|---|---|
| Deze gebeurtenissen zijn piepklein. | These events are tiny. | 3.67 |
| Dronken bestuurders zijn duidelijk. | Drunk drivers are clear. | 3.00 |
| Zijn brieven zijn gierig. | His letters are greedy. | 2.91 |
| Alle sprookjes zijn onbreekbaar. | All stories are unbreakable. | 3.90 |

| | | |
|---|---|---|
| De kinderen zijn ruw. | The kids are raw. | 4.36 |
| De garnalen zijn relaxed. | The shrimp are relaxed. | 3.70 |

| | | |
|---|---|---|
| Paarse vlinders zijn logisch. | Purple butterflies are logical. | 3.33 |
| Sommige vloeistoffen zijn rommelig. | Some liquids are messy. | 3.50 |

| | | |
|---|---|---|
| Deze straten zijn sterk. | These streets are strong. | 3.82 |
| Haar ideeën zijn intact. | Her ideas are intact. | 4.73 |
| Onze plafonds zijn hardvochtig. | Our ceilings are harsh. | 4.25 |

# Conclusions 2

A convention for the creation of a comparison class or its lack thereof (rather than scale structure) is the basis for differences between Adj. types:

- Their standards
- Inference patterns
- Licensing & interpretation of degree modifiers
- Context sensitivity at times and its absence at other times in absolute adjectives.

Which As classify as absolute/relative:

-/+ Possibility to interpret as absolute (*$tall_T$) OR

-/+ Unit based measurement convention ??


# THANK YOU!

**Comments are most welcomed**

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