WHERE DOES NOMINAL GRADABILITY COME FROM? MISGIVINGS, SECOND THOUGHTS, REGRETS, AND THE HOPE OF REDEMPTION

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University of Massachusetts May 8, 2014 Something we think we understand (Kennedy & McNally 2005, Rotstein & Winter 2001, others):

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a. rather { transparent straight long }
b. perfectly { transparent straight #long }
c. partly { transparent #straight #long }
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Something we don't really understand:

(2) a. real { idiot smoker sportscar }
b. big { idiot smoker #sportscar }
c. utter { idiot #smoker #sportscar }

(#indicates ill-formedness on a degree reading)

**Big-picture questions:** 

- How does nominal gradability come about?
- What makes certain nouns more easily gradable than others?
- How do nouns differ from adjectives with respect to gradability?
- What does this reveal about gradability in general?

Guiding ideas:

- nouns are only indirectly gradable
- nouns lack a degree argument, but ...
- ... some are nevertheless associated with scales
- a major axis of variation among degree-modified nouns: how a scale is retrieved from a noun meaning

## Adnominal degree morphemes

- Prototypicality modifiers
- Dimensions and dimensional modifiers

Conclusion

(3)

The modifiers in (3) are not actually (ordinary) adjectives (Morzycki 2009, de Vries 2010, Xie 2010; cf. Constantinescu 2011):



The size adjectives in (4) *are* regular adjectives, but doing something special:

(4) (4) (4) (4) (4) (4) (4) (4) (4) (4) (5)  Not the same meaning as homophonous adjectives:

- true bullshit would, on the usual meaning of true, be contradictory
- true disaster vs. <sup>?</sup>untrue disaster
- total idiot but not #partial idiot
- some don't even have adjectival homophones: utter, downright, out-and-out, straight-up, outright

No predicative use:

(5) 
$$\#$$
That  $\begin{cases} disaster \\ idiot \\ magic \\ bullshit \end{cases}$  is  $\begin{cases} true \\ real \\ utter \\ absolute \\ outright \end{cases}$ .

Even worse with seem, a classic diagnostic of adjective-hood:

(6)	#That <	(disaster idiot magic bullshit	> seems <	(true real utter absolute outright	\ }.
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Can't support their own degree modification:

Broadly similar facts in other languages (examples welcome!). Japanese:

Japanese counterparts also lack a predicative use:



'That idiot is utter/absolute/outright.'

Japanese counterparts also can't support their own degree modification:



Adnominal degree words often have ad-adjectival cognates:

- (11) a. true  $\sim$  truly
  - b. real  $\sim$  really
  - c. utter  $\sim$  utterly
  - d. slight  $\sim$  slightly
  - e. absolute  $\sim$  absolutely
  - f. outright  $\sim$  outright (e.g., *outright dead*)
  - g. flat-out  $\sim$  flat-out (e.g., *flat-out dead*)
  - h. downright  $\sim$  downright (e.g., *downright dead*)

Adnominal modifiers (at least the ones at issue here):

- syntactically & semantically distinct from ordinary adjectives
- analogous to degree morphemes in AP such as more, very, less, really

# ✓ Adnominal degree morphemes

## Prototypicality modifiers

Dimensions and dimensional modifiers

Conclusion

Nouns support more structurally complicated degree constructions too:

- (12) a. Clyde is more phonologist than phonetician.b. Clyde is more of an idiot than Floyd.
- (13) a. Clyde is a bigger idiot than Floyd.b. Clyde is as big an idiot as Floyd.

Reasons to think nouns have a degree argument:

- Nouns have specialized degree words.
- Nouns support comparatives and equatives.
- Gradability is crosscategorial (Sapir 1944, Bolinger 1972, Abney 1987, Doetjes 1997, others).

Slap on a degree argument and go home?

But nouns aren't *as* gradable as adjectives.

If they both had degree arguments, what's the difference?

Project from here on: degree morphemes in the absence of degree arguments.

*Real* and *true* occur relatively freely (see also Constantinescu 2011):

Similar freedom in Japanese (hontoo-no 'real').

Analytical intuition: *real* and *true* use scales of prototypicality. A *real idiot* is an especially prototypical one.

Importance of prototypicality for nominal gradability not a surprise (Kamp & Partee 1995, Sassoon 2007a, de Vries 2010, Sassoon 2007b).

Prototypicality is a bit slippery. Predictions?

NPs with no prototypes (Kamp & Partee 1995) should be odd with *real*:

(15) Floyd is a 
$${real \\ true} { ??male nurse \\ #non-Methodist \\ #resident }.$$

Possibly related to contrastive focus reduplication (Ghomeshi et al. 2004):

(16) I'll make the fruit salad, and you make the SALAD-salad.

They explicitly appeal to prototypicality.

(Is it possible to test this for nouns without prototypes?)

Possibly related to Japanese *rashii* (McCready & Ogata 2007):

(17) onna rashii onna woman RASHII woman 'feminine woman'

M&O call this a 'stereotypical adjective' which requires 'exemplify[ing] the properties ordinarily associated' with an individual.

Perhaps even related to *-ish* and *-like*:

(18) a. I read something novel- 
$$\begin{cases} ish \\ like \end{cases}$$
.  
b. That bird was pigeon-  $\begin{cases} ish \\ like \end{pmatrix}$ .

*Real sportscar* (roughly): 'very similar to the prototypical sportscar'.

Ingredients:

- prototype maps a noun denotation to its prototype
- similar<sub>c</sub> maps an individual and a prototype to the (maximal) degree of their similarity (in c)
- standard<sub>c</sub>(N) = the degree of similarity to a prototype sufficient to count as a member of extension of N (in c)
- $\blacksquare \gg_c$  is a vague 'considerably exceeds' relation

*Real* requires exceeding the standard considerably (like *very*):

(19) a. 
$$\llbracket real \rrbracket^c = \lambda f \lambda x$$
. similar<sub>c</sub>(x, prototype(f))  $\gg_c$   
standard<sub>c</sub>(f)

b.  $[[real sportscar]]^c$ =  $\lambda x$ . similar<sub>c</sub>(x, prototype(sportscar))  $\gg_c$ standard<sub>c</sub>(sportscar)

#### Unmodified noun:

(20) [[ the sportscar]] =  $\iota x[\operatorname{sportscar}(x)]$ 

### Assuming (21):

(21) sportscar(x) ⇔ similar<sub>c</sub>(x, prototype(sportscar)) > standard<sub>c</sub>(sportscar) These are doubly ruled out:

(22) a. #That sportscar is real.b. #a very real sportscar

Wrong category, wrong type.

Contrast with more of a, which is also relatively free:

(23)	a. This is more of a {	disaster idiot smoker basketball fan American sportscar	
	b. Floyd is more of a	{ male nurse non-Methodist ?resident	} than Clyde.

Suggests that more of a not about prototypes.

- Is the notion of a prototypical idiot appropriate or even coherent?
- A real sportscar may actually be quite atypical. Likewise for real idiot. Is this a problem?

De Vries (2010): most gradable nouns have upper-open scales.

Intuitively, no upper bound on e.g. idiocy. More important:

- (24) a. This glass is more full than that one. entails: That one isn't full.
  - b. Floyd is more of an idiot than Clyde. doesn't entail: Clyde isn't an idiot.

Any scale based on proximity to a prototype should be upper-closed.

### Same issue:

- Suppose George is the prototypical idiot.
- Now take away a few brain cells. Was this actually the prototype all along?
- Keep going. Now he's dead. Is this the prototype?

The desiderata: to explain...

- atypical real sportscar
- real idiot
- oddness in e.g. *#real non-Methodist*
- perhaps, why more of a isn't sensitive to prototypes but nevertheless similarly promiscuous
- relation to the non-fake reading?

De Vries (2010): any scale based on proximity to a prototype should be upper-closed. We need to talk about better or worse *exemplars*, not prototypes.

So:

- real sportscar: a good exemplar of a sportscar
- *real idiot*: a good exemplar of an idiot

Straightforward to implement.
What about *real sportscars* and *real idiots* being unusual?

- prototypical exemplars of a category aren't typical
- the prototypical triangle presumably exist in the real world
- similar reasoning should go through for exemplars

Worry:

- People find 2 and 4 better exemplars of even numbers than 34 and 806 (Armstrong et al. 1983, cited by de Vries).
- Does that make 2 and 4 *true even numbers*?

# (25) Floyd: Name an even number. Clyde: 806. Floyd: No, a { real ? true } even number, like 2 or 4!

An alternative approach:

- appeal to some notion of normality or stereotypical ways things might be
- an intensional approach
- advocated by Constantinescu (2011)
- indirectly, crucial component in McCready & Ogata (2007)

McCready & Ogata (2007), for Japanese rashii:

- requires that an individual have more of the stereotypical properties associated with a noun: a *rashii woman* is a stereotypical one
- conditionals of epistemic normality: what is taken to be normal given background knowledge
- p > q iff, whenever p, the normal thing would be p
- maybe one could frame this using an epistemic modal base and a stereotypical ordering source?

the set of stereotypical properties:

stereotypical(woman)  
= 
$$\begin{cases} P : \forall x [woman(x) > P(x)] \land \\ \neg \forall x [woman(x) \rightarrow P(x)] \end{cases}$$

rasshi simply says there are lots of these (literally counts them):

 $[[rasshi woman]] = \lambda x : woman(x) .$ |stereotypical(woman)| > standard<sub>c</sub>(many) Nice feature of this: no need for prototypes:

- a prototype is simply the most stereotypical individual
- nothing requires that there be one

Applying this to *real idiot*:

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(26) [[rasshi idiot]] = \lambda x : idiot(x) .
|stereotypical(idiot)| > standard<sub>c</sub>(many)
```

But is a *real idiot* actually the most stereotypical idiot or even the best exemplar of idiocy?

Yet another option: *a real idiot* is someone who is an idiot in worlds in which the standards of idiocy are especially stringent.

## ✓ Adnominal degree morphemes

✓ Prototypicality modifiers

## Dimensions and dimensional modifiers

Conclusion

Degree readings of size adjectives and major more restricted:



The idea: no degree argument, but certain nouns *are* inherently conceptually associated with scales.

Similar move necessary to reflect polysemy in adjectives:

(28) a. The US is bigger than Canada. (population) b. Canada is bigger than the US. (area)

Big's lexical entry must make available multiple dimensions:

(29) dimensions(big) =  $\{size-by-population, size-by-area, ...\}$ 

To be big, it is sufficient to exceed the standard on just one dimension.

Sassoon (2007b, 2013): this depends on the adjective. *Healthy* requires all dimensions, *sick* only one.

Standard assumption about simple adjectives: an unpronounced degree morpheme POS (Cresswell 1976, von Stechow 1984, Kennedy 1997, and many others). Possible implementation:

(30) 
$$[\![POS]\!]^c = \lambda g \lambda x : \exists D \begin{bmatrix} D \in dimensions(g) \land \\ \mu(D)(x) \ge standard_c(D) \end{bmatrix}$$

... where  $\mu(D)$  is the measure function ( $\langle e, d \rangle$ ) associated with the dimension *D*.

(31) 
$$\llbracket Canada \text{ is POS } big \rrbracket^{c} = \exists D \begin{bmatrix} D \in dimensions(big) \land \\ \mu(D)(x) \ge standard_{c}(D) \end{bmatrix}$$

Nouns may specify dimensions too:

```
(32) a. dimensions(basketball-fan) =
                      attention-devoted-to-basketball,
enthusiasm-for-basketball,
knowledge-about-basketball,
                        frequent-attendance,
        b. dimensions(smoker) =
                      frequency-of-smoking,
enthusiasm-for-smoking
```

For *chair*, though, it would be hard to articulate dimensions. No salient gradable quality is sufficient to be a chair.

So, dimensions(chair) is undefined.

On its degree reading, *big* requires that the measure of an individual along a lexically-determined dimension be large (treating *big* as a degree head, even though it isn't one):

(33) a. 
$$\llbracket big_{Deg_N} \rrbracket^c = \lambda f \lambda x : \exists D \begin{bmatrix} D \in dimensions(f) \land \\ large_c(\mu(D)(x)) \end{bmatrix}$$

$$\exists D \ [[Clyde is a big_{Deg_N} smoker]]^c = \\ \exists D \ [D \in dimensions(smoker) \land \\ large_c(\mu(D)(Clyde)) \end{cases}$$

NB: Still no degree argument for nouns: [smoker] is  $\langle e, t \rangle$ ;  $[big_{Deg_N}]$  is  $\langle et, et \rangle$ .

How does this ensure that (34a) entails (34b)?

(34) a. Clyde is a big<sub>Deg<sub>N</sub></sub> smoker.b. Clyde is an smoker.

It doesn't. Could add requirement of exceeding standard by a large amount:

(35) 
$$[Clyde is a \ big_{Deg_N} \ smoker]^c =$$
  
$$\exists D \begin{bmatrix} D \in dimensions(smoker) \land \\ large_c(\mu(D)(Clyde) - standard_c(D)) \end{bmatrix}$$

...but, a more interesting hypothesis:

(36) On their degree readings, nouns have minimal standards.

## As with *chair*, **dimensions**(**sportscar**) not defined. Rules out <sup>#</sup>*big*<sub>Deg<sub>N</sub></sub> *sportscar*:

(37) 
$$\llbracket \# \text{ This is a big}_{Deg_N} \text{ sportscar} \rrbracket^c = \exists D \begin{bmatrix} D \in \text{dimensions}(\text{sportscar}) \land \\ \text{large}_c(\mu(D)(\text{this})) \end{bmatrix}$$

### More restricted still:



Similar facts in Japanese. Elsewhere? (Examples welcome.)

What's special about e.g. *disaster* and *idiot*?

- Being a basketball fan is complicated.
- Being an idiot is simple.

Some nouns specify only one dimension:

- (39) a. dimensions(idiot) =  $\{idiocy\}$ 
  - b. dimensions(disaster) = {disastrousness}

Utter presupposes that its noun is unidimensional:

(40) a. 
$$\llbracket utter \rrbracket^{c}$$
  
=  $\lambda f \lambda x$ .  $large_{c}(\mu(\iota D[D \in dimensions(f)])(x))$   
b.  $\llbracket Clyde \text{ is an utter idiot} \rrbracket^{c}$   
=  $large_{c}(\mu(\iota D[D \in dimensions(idiot)])(Clyde))$   
=  $large_{c}(\mu(idiocy)(Clyde))$ 

Requires that the measure of Clyde along the idiocy scale be large.

What goes wrong in *#utter smoker*?

- failure of presupposition
- there are multiple dimensions specified by *smoker*
- so  $\iota D[D \in \text{dimensions}(\text{smoker})]$  is undefined

What goes wrong in *#utter sportscar*?

- same as in #big sportscar
- failure of presupposition
- there are no dimensions specified by sportscar
- so dimensions(sportscar) is undefined

Is it plausible to say that *basketball fan* has multiple dimensions but *sportscar* has none?

This could be simply a lexical stipulation, but it'd be nice to do better.

#### Sassoon (2007b, 2013):

- (41) a. Floyd is healthy except for his high blood pressure.b. Floyd is not sick except for his high blood pressure.
- (42) a. #Tweety is a bird except for the gills.
  - b. #Tweety isn't a bird except for the feathers.

This might be evidence that *bird* is non-dimensional (contra Sassoon).

## We should find a contrast with multidimensional nouns. Maybe?

- (43) a. Floyd isn't a smoker except for the occasional cigar.
  - b. Floyd isn't a basketball fan except for his constant betting on games.

Why do so many unidimensional nouns seem suspiciously emotively loaded?

Maybe this isn't about dimensions but about *expressive meaning*?

(44) Clyde saw a fucking goat. suggests: speaker is agitated

#### Typical expressive:

(45) Clyde didn't see a fucking goat. suggests: speaker is agitated

Compare to:

## (46) Clyde didn't see a(n) {idiot disaster genius}. doesn't suggest: speaker is agitated

Maybe this isn't about dimensions or expressive meaning but extremeness?

A class of cross-categorial degree modifiers that occur with 'extreme' predicates (Morzycki 2012):

(47)  $\begin{cases}
outright \\
flat-out \\
straight-up \\
out-and-out \\
downright
\end{cases}
\begin{cases}
huge/#big \\
fantastic/#OK \\
excessive/#appropriate
\end{cases}$ 

Are unidimensional degree modifiers actually just extreme? Would explain #utter heap.

## ✓ Adnominal degree morphemes

- ✓ Prototypicality modifiers
- ✓ Dimensions and dimensional modifiers

## Conclusion

This motivated a three-way distinction among nouns:

- nondimensional: *sportscar*
- multidimensional: smoker
- unidimensional: idiot

Any evidence for this outside of degree modifiers?

Exclamatives (Ai Taniguchi, p.c.):

Bigger picture:

- nouns support varied array of degree modifiers
- only indirectly gradable
- some adnominal degree modifiers involve something like prototypicality (*real, true*)
- others involve scales provided lexically but indirectly by the noun
  - some presuppose a single scale (*utter, complete*)
  - others don't (big, huge, major)

- major axis of variation among adnominal degree modifiers: how they extract a scale from noun
- yields a typology of nouns: nondimensional, multidimensional, unidimensional
- So... where does all this leave adjectives?
## Thanks!

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- nothing here to suggest that scale structure isn't important for nouns too
- probably not relevant to presence or absence of a degree argument
- probably not relevant to real/true
- what about big vs utter?

Utterly may require upper-closed scales:

(49) {utterly completely absolutely} { impossible/#possible closed/#open full/#empty

Nominalizations:



(50) {utter complete absolute} { impossibility/#possibility ?closure/#openness transparency/opacity ??fullness/emptiness

But:



So: scale structure remains important, but probably not an account of the contrast.

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