Inherent Evaluativity

Goal: Two related challenges have been the focus of research on the semantics of degree constructions. The first is the distribution of Measure Phrases (MPs), and the second concerns the distribution of evaluative readings. A theory of MP distribution should account for e.g. (1).

1. a. John is 6 feet tall. b. *John is 3 feet short.

Evaluativity (aka 'norm-relatedness') may be defined as the phenomenon in which the interpretation of an adjective in a given construction is dependent on a contextual standard. A theory of evaluativity should explain the pattern which emerges in (2) [(+E) denotes Evaluative].

2.

a. John is tall.	(+E)	e. John is short.	(+E)
b. How tall is John?	(-E)	f. How short is John?	(+E)
c. John is as tall as Mary.	(-E)	g. John is as short as Mary.	(+E)
d. John is taller than Mary.	(-E)	h. John is shorter than Mary.	(-E)

It has been noted (Bierwisch 1989, Sassoon 2008) that these challenges are related: Adjectives that do not license MPs (1b) are evaluative in equatives and degree questions (2g,f). The goal of this paper is to meet these two challenges and account for the correlation noted by Bierwisch.

A Previous Approach: A commonly assumed semantics for gradable adjectives is (3) (Creswell 1976, a.o.). Under this account evaluativity must enter independently. Rett (2008) proposes a freely occurring covert morpheme [EVAL] (4), arguing that constructions enter a markedness competition in which a marked adjective is licensed if it yields distinct truth conditions. Thus, evaluativity emerges if the marked construction w/o EVAL is equivalent to the unmarked one.

3. a. $[\![tall]\!] = \lambda x.\lambda d.Height(x) \geq d$ b. $[\![short]\!] = \lambda x.\lambda d.Height(x) \leq d$

4. $[[EVAL]]^{c} = \lambda Adj_{<d,t>}.Adj\ (d)\ AND\ d > Standard_{c}$

Weaknesses: (i) Equatives must receive an "exact" interpretation; (ii) No account for MP distribution; (iii) Antonym pairs which are both +E (e.g. #How hot is ice?; #How cold is fire?).

The proposal: I will present a mirror image to Rett's, under which evaluativity is an inherent part of the semantics, (5). Instead of accounting for evaluativity, the challenge will be to do away with it. My account avoids Rett's weaknesses, capitalizing on the fact that *doing away* may yield pathological results. Existentially closing the (raised) degree, the bare positive (2a,e) is +E (6).

5. a. $[\![tall]\!]^{c} = \lambda d.\lambda x.Height(x) \geq d\ AND\ d > standard_{c}$
   b. $[\![short]\!]^{c} = \lambda d.\lambda x.Height(x) \leq d\ AND\ d < standard_{c}$

6. a. $[\![John\ is\ tall]\!]^{c} = \exists d\ s.t.Height(J) \geq d\ AND\ d > standard_{c}$
   b. $[\![John\ is\ short]\!]^{c} = \exists d\ s.t.Height(J) \leq d\ AND\ d < standard_{c}$

Further assume the existence of a freely occurring covert Standard Shifting Morpheme (SSM):

7. a. $[\![SSM\ Adj]\!]^{c} = [\![Adj]\!]^{c_0}$ *; where context* $c_0 \equiv c$ *, except that* $std_{c_0}(Adj) = 0$
   b. $[\![SSM(tall)]\!]^{c} = \lambda d.\lambda x.Height(x) \geq d\ AND\ d > 0$
   c. $[\![SSM(short)]\!]^{c} = \lambda d.\lambda x.Height(x) \leq d\ AND\ d < 0$ $[FALSE\ for\ all\ d,x]$

The core idea will be that the only way to eliminate evaluativity is to apply SSM. The distribution of evaluative readings will be a consequence of whether or not SSM yields a pathological result. MP distribution will follow from the same logic once a suitable lexical entry for MPs is given.

The Bare Positive: Assume a triviality filter that bans constructions which yield a tautology or contradiction independently of their arguments (Rett 2008, Gajewski 2002). The claim is that evaluativity emerges iff SSM is blocked by this filter. The story in (6) for (2a,e) remains stable as applying SSM would yield a tautology or a contradiction for *tall* and *short*, respectively.

MP Distribution: Consider the following denotation for MPs (cf. Beck 2009):

8. $[\![n\ units]\!] = \lambda D_{<d,t>}: D\ is\ a\ total\ function\ on\ Deg.\ \left|\left|D\right|\right| \geq n$

Under (8) MPs are quantifiers over degrees and must raise to their scope position (i.e. *(6 feet)*$(\lambda d.J\ is\ d\ tall)$). Assume the contextual standard is given not by a single degree but by an interval *std*, and define *d>std := T if d>sup(std); F if d<inf(std); UNDEFINED otherwise*. As is, by (5), MPs are *never* licensed. For "tall"-type adjectives this is rectified by SSM, whereas applying SSM to "short"-type adjectives yields an empty set (7c), so that the former is predicted to license MPs while the latter should not. This explains (1). Furthermore, occurrence of an MP is correctly predicted to eliminate evaluativity. These predictions cut across the standard classification of adjectives: instead of polarity (or markedness), what determines MP licensing is whether SSM may apply without yielding ∅. Support for this is given by antonym pairs both of which license MPs (9) (cf. Winter 2005). Such adjectives measure divergence from the standard, thus for them we assume *standard=0* (e.g. Expected Time of Arrival in (9a,b)). That evaluativity and MP licensing obtain is a result of *std=0* (SSM applies vacuously to a single point standard).

9.a. $[\![late]\!]^c = \lambda d.\lambda x.lateness(x) \geq\ d\ \&\ d > ETA_c$ c. John is 3 minutes late (+E)

b. $[\![\mathrm{early}]\!]^c = \lambda \mathrm{d}.\lambda \mathrm{x}.\mathrm{earliness}(\mathrm{x}) \leq\ \mathrm{d}\ \&\ d < ETA_c$ d. John is 3 minutes early (+E)

Degree Questions: The above generalizes to 'how'-questions if one assumes the Karttunen denotation for questions (sets of propositions) along with an existential quantifier semantics (over degrees) for "how": $how(Q(SSM)tall\ is\ John) = \{\lambda w.height_w(John) \geq d\ and\ d > (0)\ std | d\ a\ degree\}$. A true answer can exist only if a suitable degree exists, so applying SSM is again limited to "tall"-type adjectives while "short"-type adjectives are predicted to be evaluative (2b,f). [Applying SSM to "short" would yield the contradiction for every d.]

Comparatives and Equatives: To account for comparatives and equatives, assume SSM may shift *std* not only to 0 but to other contextually salient degrees, specifically the degree associated with that entity to which we compare (WLOG for the above, as this option didn't exist). Assume:

10. *comparative*: $[\![-er]\!] = \lambda \mathrm{B}_{<d,t>}.\lambda\mu_{<dt,t>}.\lambda \mathrm{A}_{<d,t>}.\mu(\mathrm{A}\backslash\mathrm{B})$ [i.e. $\mu(\mathrm{A} \cap \mathrm{B}^{\mathrm{Comp}})$]

11. *equative*: $[\![as]\!] = \lambda \mathrm{B}_{<d,t>}.\lambda\rho_{\mathrm{d}}.\lambda \mathrm{A}_{<d,t>}.|\mathrm{A}|/|\mathrm{B}| \geq \rho$

Taking e.g. (2d) we have $B = \{d|h(M) \geq d \wedge d > Std\}$, $A = \{d|h(J) \geq d \wedge d > Std\}$. If SSM shifts to 0 we get A=(0,h_J], B=(0,h_M], and applying existential closure ($\exists\mu \neq 0$) (2d) is true iff $h_J > h_M$. Shifting instead of 0 to h_M we have A=(h_M ,h_J], B= ∅, giving the same result. For (2h) SSM-to-0 yields a contradiction and is blocked but SSM-to-h_M now gives A=[h_J, h_M) and B= ∅ as needed. In sum, for the comparative, a shifting morpheme which eliminates evaluativity is available for all gradable adjectives and thus non-evaluativity is always predicted. MP licensing follows from the denotation (the interval denoted by the standard is replaced by a single degree).

For equatives applying SSM-to-0 for "tall"-type adjs. is fine (2c), but yields a contradiction on "short"-type adjs., for which SSM-to-h_M is also banned (division by 0), so the only available interpretation for these is evaluative (2g). This further predicts that *"This tie is twice as cheap as that jacket"* be vague as it must be context-dependent to survive. [Note: in (11) I assume an existential closure of the form $\exists\rho \geq 1$ but this doesn't ban e.g. *"I'm half as tall as you are"*.]

A Predicted Generalization: Having accounted for (1) and (2) we can now Generalize Bierwisch's (1989) Observation (GBO): *Adjectives do not license MPs in the non-comparative form iff they are (i) evaluative in equative and 'how'-question constructions; and (ii) have originally non-zero standards.* GBO is an embodiment of the principle that evaluativity is inherent and may be eliminated iff SSM applies non-vacuously.

Questions remain as to independent sources of MP-banning (e.g. * 1000° hot – perhaps SSM fails due to a vague "0"?) but the correlation between MP and evaluativity distribution embodied by GBO obtains for these as well, supporting this new theory of inherent evaluativity.