A *slightly* modified economy principle: Stable properties have non-stable standards

Scale structure theory classifies gradable adjectives G by their scale type, namely as lower-bounded (+min), upper bounded (+max), both, or neither. In Kennedy (2007), modifiers like *slightly* ('minimizers') are viewed as referencing lower bounds (*slightly* $\Leftrightarrow \lambda G \lambda x.\exists d > \mathbf{min(G)}$, G(d)(x)), therefore restricted to +min adjectives, as Table T1 below illustrates. Also, according to the *economy* principle (Kennedy 2007), scale-bounds function as membership-standards. Let s(G) stand for G's standard: *x is G* is true iff x is G to at least degree s(G). G is called 'total' iff G's standard is G's maximum (s(G) = max(G)), and 'partial' iff G's standard is next to G's minimum (s(G) > min(G)). A boundless G has a vague and context relative (non stable) standard.

T1	Lower-bound / Upper-bound	**+min** (✓*slightly A*)	**−min** (*slightly A)
+max		**Total**: full, empty, closed, opaque.	**Total**: clean, healthy, dry, straight.
		Partial: open, transparent.	
−max		**Partial**: dirty, sick, wet, bent.	**Relative**: long, short, fast, slow.

This paper presents evidence supporting an analysis of minimizers as referencing standards, rather than lower bounds (+min). Thereby, it weakens the basis for the ±min distinction between relative and partial adjectives. At the same time, it explains why relative adjectives may be lower bounded, yet not partial, by appropriately constraining the *economy* principle.

A. Minimizers: Considering the frequency of *slightly* among adverbially modified tokens of the adjectives of table T1 in COCA 2010, *slightly* seems to be restricted to +min adjectives (98%). However, mere minimizers should not be sensitive to ±max, while *slightly* significantly prefers +min,−max (93%) to +min,+max (5%). Moreover, besides the requirement for the existence of a minimum, and preference for absence of a maximum, *slightly* is clearly sensitive to the nature of the standard. It selects almost only partial adjectives (98%). Relatedly, an acceptability-judgments survey reveals a significant difference in felicity of *slightly* with only-lower bounded vs. relative adjectives (p < 0.01), as well as vs. doubly bounded adjectives (p ≤ 0.01). Finally, the interpretation of *slightly* (as well as similar modifiers like *a bit*) with partial and total adjectives is quite different, as the inference patterns (1) vs. (2-3) illustrate.

(1) The city square is slightly dirty ⇒
    The city square is covered by a small amount of dirt; is more clean than dirty.
(2) The city square is slightly full ⇒ The city square is rather full; it is more full than empty.
(3) The city square is slightly empty ⇒
    The city square is rather empty; more empty than full; mostly empty

In partial adjectives, *slightly* references any degree above the minimum, and typically small degrees close to the minimum (cf. (1)). Yet, it cannot possibly reference small degrees with total adjectives: Speakers judge *slightly full* as either ungrammatical or conveying *rather full.* Similarly, they insist that *slightly clean* (when used) must be very close to *slightly dirty* on the two sides of the cutoff between *clean* and *dirty*; so both adjectives typically relate to small amounts of dirt (**much** cleanness). This data reoccurs in different languages like Dutch, Hebrew, and Russian, but is not at all expected by the standard analysis of minimizers given above.

An analysis: To capture the above distribution and interpretation range within a unified analysis, minimizers like *slightly G* should be analyzed as referring to (i) denotation minima (not scale minima), i.e. entities whose maximal degree equals G's standard, and (ii) entities with non-maximal degrees (cf. Rotstein and Winter 2005, as well as Sevi 2001 and Horn 2010 re. *barely*, and Kagan and Alexeyenko 2011 re. Russian *ovat*):

$$\text{slightly} \Leftrightarrow \lambda G \lambda x.\ \textbf{(i)}\ \max\{d: G(d)(x)\} = s(G)\ \&\ \textbf{(ii)}\ \exists d, \neg G(d)(x)$$

How is the data accounted for on this analysis? First, (ii) explains the low frequency and reduced felicity of minimizers with +max adjectives; e.g. *slightly full* forces us to accommodate a standard slightly smaller than *full*'s actual standard – scale maximum: (2) (and (3)) imply that the city square is not full (empty) to its maximal degree.

Second, (i) explains the *rather full* vs. *little dirty* inferences (1-3). *Slightly* relates to non-maximal <u>standards</u>, so with partial (minimum-standard) adjectives, it is predicted to convey 'minimally G', and with total (maximum-standard) adjectives – 'almost maximally G'.

Third, the infelicity of *slightly* with relative adjectives is also captured. As long as the standard remains unspecified, *slightly* can't be licensed. Exceptional uses of, e.g., *a bit tall a bit short* (mainly in children speech; Tribushinina 2011) never refer to scale ends, but only to borderline cases, which, in effect, form the standard of *tall* and *short*. This usage implies that borderlines are both tall and short, which is contradictory, and thus generally avoided by adults.

Finally, predictably, the situation changes once a standard is specified; we cannot say #*slightly tall/short*, while we easily say *slightly tall for her age* and *slightly too short to reach the ceiling*; why? Because a *for* phrase triggers specification of a group-based standard (e.g., the average at *her age*), and a *too* phrase – a goal-based standard (Heim 2000; Kagan et al. 2011).

Other (potential) minimizers (Kennedy and McNally 2005) seem not to reference scale-minima either. For example, considering COCA 2010, for table T1, *partially* patterns with proportional modifiers; it occurs mainly with double bounds (73%) and prefers only +max (21%) to only +min (6%). *Somewhat* patterns as a mere existential – it appears restricted to neither a scale type, nor any particular standard, and it can modify relative adjectives (total+partial 78%, relative 22%). These results counter a scale-minimum analysis of minimizers.

B. Relative lower bounds: If minimizers (e.g. *slightly*) do not reference scale-minima, their unacceptability with relative adjectives like *tall* does not show that the latter fail to have scale-minima (–min). Some adjectives are intuitively doubly-open (e.g. glad-sad; negative-positive; Bierwisch 1987). Doubly-open scales (–min,–max) capture their unique properties. But consider *heavy* and *tall*. Intuitively, there are no negative weights/ heights, meaning that these scales are bounded by zero. The principle whereby endpoints function as standards (Kennedy 2007) is *economic*, because the existence/absence of endpoints is predictable. And indeed, the zero of many relative adjectives is salient; e.g., speakers are aware of the zero on the scale of height, weight, speed and price (which are all scales of relative adjectives). But if relative adjectives can have lower bounds, why don't their bounds function as membership-standards?

My proposal rests on 2 observations. First, the economy principle is blocked when triviality bans reference to G's zero, for otherwise reference to G's negative denotation – the zero – would never be possible. For example, predicating *not tall* or *0 cm tall* of the surface of the floor is odd, because of triviality – it results in tautologies, since surfaces, by definition, never have height (dually, *not-short* or *tall* generate contradictions). Similarly, 'still objects', by the definition of 'still', never have speed (**slow/fast*); 'free products' never cost (**cheap/expensive*); etc.

Second, triviality typically bans reference to zero only in adjectives predicating *stable* properties of their objects, like height; yet, e.g., considering the length in inches of a vector v that changes its length in time, speakers may naturally call v, when its length is 0, *0 inches long*.

This suggests that markers of (un)stable properties (S/I-level) may reveal when economy fails to dictate zero standards: In the presence of evidence to the effect that G denotes a stable property (cf. 'rarely/often {sick, open, wet, #tall, #expensive, …}'), G will classify as relative (not partial), even if bounded. New survey results (30 adjectives) support this hypothesis, revealing high correlation between, e.g., the felicity of *rarely* and of *completely*/*slightly*.