

Background

We investigate context dependence in two subclasses of gradable adjectives (GAs): **relative GAs** as in (1), and **absolute GAs** as in (2):

- (1) Alex is **tall**. (2) My glass is **empty**.

Context dependence: In both cases, the interpretation of the adjective is partially determined by the contexts in which they are used:

- (3) Alex is **tall**. (5) My glass is **empty**.
 [Alex is a 6 yr old girl] [at a bar]
 (4) The Sears Tower is **tall**. (6) The tank is **empty**.
 [on a road trip]

Different basic meanings? However, the two classes differ in important ways related to the (un)availability of precise interpretations.

	Relative GAs behave like vague predicates	Absolute GAs have precise meanings
Sorites paradox	✓	X
borderline cases	✓	X

Puzzle: How do we reconcile the apparent similarity in context dependence, and the differences in the (un)availability of precise meanings [1-2]?

> **Hypothesis1:** For both classes, meaning variability reflects semantic indeterminacy — part of the basic meanings of *tall* and *empty* must be supplied by the context of utterance.

> **Part to be explained:** existence of precise interpretations for absolute GAs.

> **Hypothesis2:** Relative GAs have semantically indeterminate meanings; Absolute GAs have precise meanings, explaining why precise interpretations are available.

> **Part to be explained:** source of meaning variability in absolute GAs.

We present four Mechanical Turk experiments that provide support for Hypothesis2.

> **Exp1-2:** RGAs sensitive to salience in the local context in a way that AGAs are not.

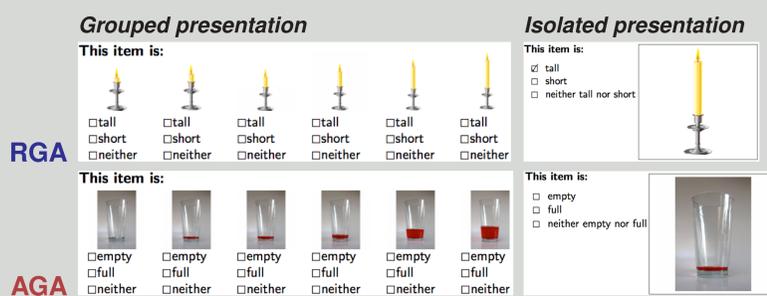
> **Exp3-4:** RGAs and AGAs have different dynamic patterns. AGAs, consistent with [4], show an asymmetry in the direction of shiftability, while RGAs do not.

Exp1-2: Sensitivity to the local discourse context

Questions:

- > Are standards of comparison for relative GAs sensitive to the local context?
- > Do absolute GAs pattern like RGAs? Or do they behave like they have precise meanings?

Items: Sets of images representing 6 points on a continuum characterized by an adjective pair (*tall-short* candle).



Local context manipulation: Participants indicated for each image-adjective pair whether they considered the pictured object to be e.g. *tall*, *short*, or *neither*. They saw items in **one of two presentation types**:

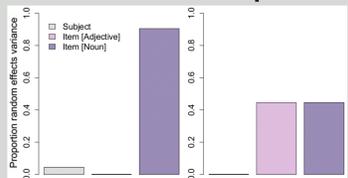
> **Isolated (Exp1, n₁=28):** each trial represented its own local discourse context; interspersed with trials with other adjective-noun pairings

> **Grouped (Exp2, n₂=20):** adjective-noun pairs from the same continuum presented together, thereby providing an implicit comparison class on each trial

Responses were fitted with mixed-effects regression models with **Subject**, **Adjective**, **Noun** as random effects, and **Scale position** (position on continuum) as fixed effect [3].

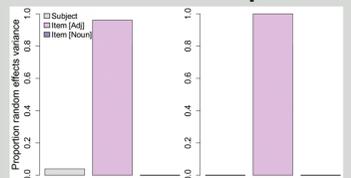
RE variance: RGAs

Isolated Grouped



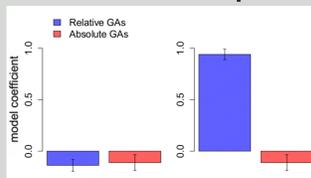
RE variance: AGAs

Isolated Grouped



Scale position

Isolated Grouped



Results—distribution of random effects:

> **RGAs:** *Isolated presentation* increased dependence on item-specific prototypes: identity of the head noun accounted more of random effects variance for isolated relative to grouped presentation.

> **AGAs:** Most of RE variance due to adjective identity; crucially, no difference as a function of presentation type.

Results—scale position:

> **RGAs:** Scale position was a reliable predictor of response for grouped but not for isolated presentation

> **AGAs:** No difference by presentation type.

Together, Experiments 1-2 demonstrate that

> **RGAs** rely on the local context to supply comparison classes.

> **AGAs** exhibit relative stability despite changes to the local context.

Exp3-4: Ordering effects

Questions:

- > Do RGAs and AGAs differ in terms of the shiftability of their standards?
- > Does setting a maximally precise standard of precision for an AGA *decrease* the likelihood of accepting the same adjective (i.e. relaxing the previously set standard) on a subsequent trial? (**Exp4, n₄=36**)
- > Does a prior high standard trial for a RGA have a similar effect on subsequent interpretation of the same adjective? (**Exp3, n₃=36**)

Relative



This item is {tall, short, neither}

Absolute



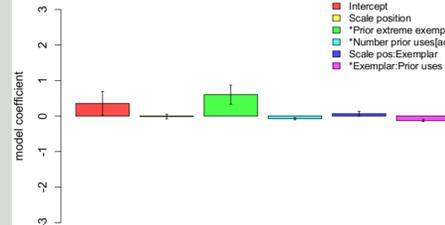
This item is {full, empty, neither}

Participants judged images as in Exp1 (isolated).

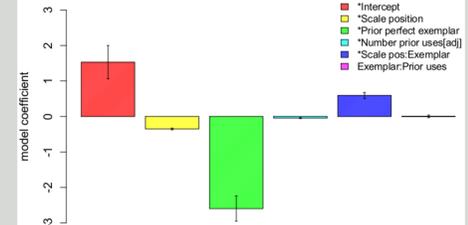
Responses fit to mixed-effects regression models with the following fixed effects:

- > **Scale position** (1=*tallest/emptiest*, 6=*least tall/empty*)
- > **Number prior instances** of the same adjective
- > **Prior precise/extreme exemplar** (RGA: tallest ladder; AGA: completely empty cup)

RGA model coefficients



AGA model coefficients



Results—Relative GAs:

> **Prior exposure to extreme exemplar** increased likelihood of accepting a subsequent use of the same adjective

> No interaction with current item's **scale position**

> Effect of prior extreme exemplar decreased as **number of intervening uses** of the same adjective increased

Results—Absolute GAs:

> **Prior exposure to a max precision exemplar** decreased likelihood of accepting a subsequent use of the same adjective

> Interaction with current item's **scale position**: objects distant from maximally precise were more strongly affected by a prior maximally-precise exemplar

> Effect of prior max precision exemplar did not interact with **number of intervening uses** of the same adjective

Experiments 3-4 show that RGAs and AGAs differ in terms of how their standards can be shifted across multiple uses:

> **RGAs:** Prior extreme exemplars has a *facilitative* effect on subsequent acceptance of the same adjective

> **AGAs:** Prior maximally precise exemplars make comprehenders *more resistant* to accept subsequent uses of the same adjective — compatible with standards of precision being harder to lower/loosen than raise/make more precise

> Compatible with existing proposals [4] (see also [5]): standards of precision—unlike standards of comparison—hard to lower once they have been set high (i.e. at maximum precision) in a discourse context.

Conclusions

These results provide additional evidence for a distinction between Relative and Absolute GAs. We show that these classes of expressions can be differentiated with respect to:

(i) Sensitivity to different aspects of the context

> Standards of comparison for RGAs are closely tied to the local discourse representation

> Standards of precision for AGAs are linked to broader features of the context at large

(ii) Dynamic profiles

> Shiftability of standards of precision for AGAs is asymmetrical: they allow shifts to higher levels of precision, and resist loosening a standard that was previously set at maximum precision

> Standards of comparison for RGAs are also shiftable, but do not show a difference in the direction of shiftability

In work currently in progress, we investigate differences in sensitivity between RGAs and AGAs to aspects of the global communicative (i.e. not necessarily linguistic) context, such as goal structure and communicative intent.

References

- [1] Lasnik 1999. Pragmatic Halos. *Language* 75(3). [2] Kennedy & McNally 2005. Scale Structure, Degree Modification, and the Semantics of Gradable Predicates. *Language* 81. [3] Agresti 2012. *Categorical Data Analysis*, 3rd ed., Wiley. [4] Lewis 1979. Scorekeeping in a language game. *J Phil Logic* 8(1). [5] Syrett, Kennedy & Lidz 2010. Meaning and context in children's understanding of gradable adjectives. *J Semantics* 27(1).