

Comments on “Pragmatic Reasoning and
Semantic Convention”
by Xiang, Kennedy, Xu and Leffel

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Kickoff workshop “Scales, degrees and implicatures”
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Reminder on the setting

(1) a. x is tall.

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 - b. $height(x) \geq \theta_{tall}$

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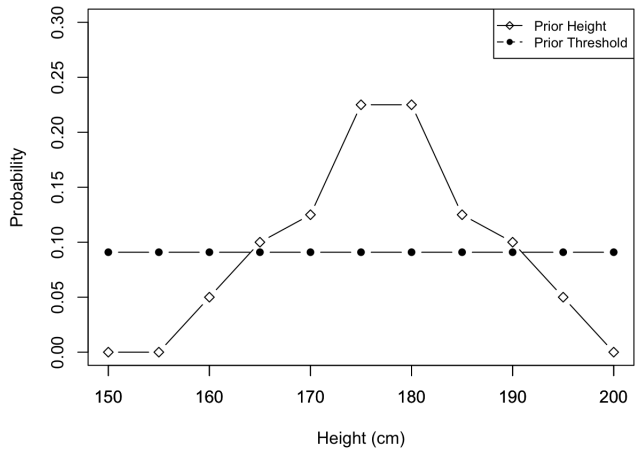
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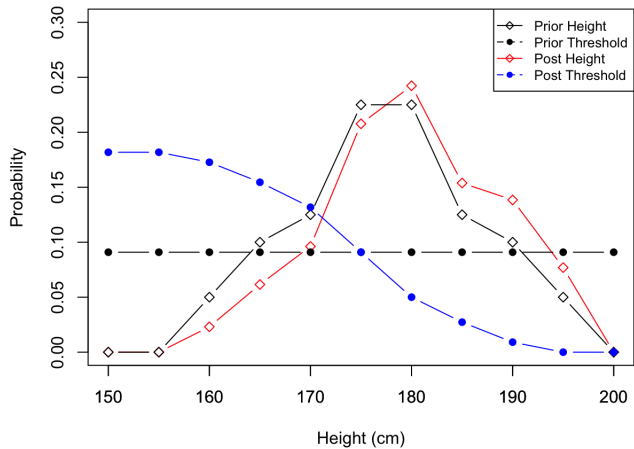
When hearing “ x is tall”, listener makes a Bayesian inference both about $height(x)$, and about the threshold θ_{tall} used by the speaker.

Conversely, speaker ought to select θ_{tall} in a way that would make her utterance as informative as possible.

Listener and speaker can be assumed to share prior on height distribution.

(Lassiter and Goodman 2013, 2015; Qing and Franke 2014)





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Overview of XKXL

Using **empirical priors** on distribution of x and **uniform prior** on threshold θ for ADJ of three types (MAX, MIN, REL):

- ▶ LG and QF models make good predictions about **posterior on the value of x** (in “ x is ADJ”) [*figure selection task*]
- ▶ LG and QF models make not so good predictions about **posterior on threshold θ**) [*truth-value judgment task*]

Take home message from XKXL

The predictions of both models improve if we can assume that:

- ▶ (i) priors on thresholds are **not uniform**
- ▶ (ii) priors on thresholds are **constrained by grammar** (semantically informed, as demonstrated for the case of MAX and MIN adjectives).

Threshold setting

*“QF shares with LG the feature that thresholds are based on prior beliefs about **how objects in the world distribute along various dimensions**, and not on differences in the lexical semantic representations of different kinds of adjectives”.*

Do thresholds supervene on distributions?

Three theses:

- ▶ (**Strong**) Every difference in threshold-setting along a dimension of comparison is the result of a difference in the statistical distribution of items along that dimension.
- ▶ (**Weak**) Threshold-setting depends in part on the difference in the statistical distribution of items along that dimension.
- ▶ (**None**) Threshold-setting does not depend on the distribution of items along the relevant dimension.

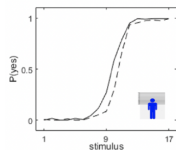
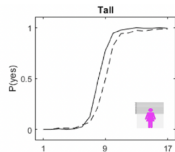
Why doubt strong supervenience

- ▶ Even in relative adjectives, the distribution of truth-value judgments does not appear to depend solely on the distribution of items along a dimension of comparison.
- ▶ It also depends on the representation of **subjective** and **normative** reference points (Rosch 1978 on color, Barsalou 1987 on ideals, Verheyen, Dewil, Egré 2018 on subjectivity)

(2) This car is expensive.

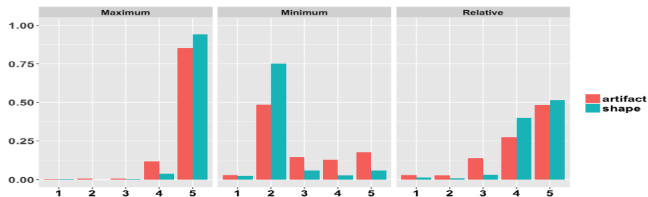
Depends on price distribution, but also on actual budget / ideal price.

TV Judgments about *tall*



Male participants (dashed) and Female participants (continuous) have different biases (=prior thresholds) to judge tallness, though likely common prior on heights distribution (Verheyen, Dewil, Egré 2018)

A question about reverse engineered thresholds



Question: as I understand, these reverse engineered threshold distributions are fed as new priors for the LG and QF algorithms.

But could one try to estimate which priors ought to be fed to the LG and QF algorithms in order to derive these posteriors on thresholds?

A question about Truth-value judgments

“Participants were told that they should click on the checkbox beneath the image or images that they believed the sentence “appropriately describes”, a judgment that we take to stand proxy for truth value judgments”

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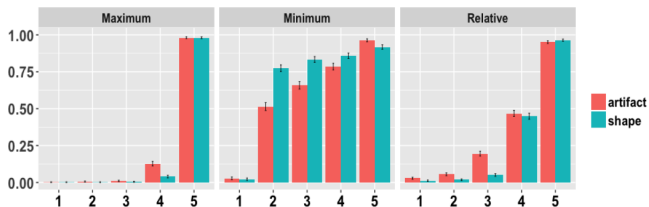
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- ▶ Or assume a participant does not select tee-shirt with just one stripe because although they would say “true”, they find that it is not clearly striped.

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- ▶ Or assume a participant does not select tee-shirt with just one stripe because although they would say “true”, they find that it is not clearly striped.
- ▶ Are participants respecting monotonicity in this task? (viz. selecting all more striped figures than a figure checked for striped).

A question about MIN adjectives



Empirically the MIN adjectives are almost dual images of MAX ADJ but show a (small) gradient: the higher the degree, the more the ADJ is ascribed (viz. the larger the angle, the more checks on “bent”)

The LG and QF models predict a stronger gradient. Intuitively this matches the idea that the larger the angle, the more “bent”, and the higher the assent to “bent”.

Could we argue that the gradient ought only be an effect of clarity, as opposed to truth vs falsity?