

## Vagueness, Context Dependence and Interest Relativity

### 1 Questions about vagueness

Graff (2000) summarizes the challenge for a theory of vagueness in the following three questions:

1. *The Semantic Question*

If the inductive premise of a sorites argument is false, then is its classical negation — the SHARP BOUNDARIES CLAIM, that there is an adjacent pair in a sorites sequence such that one has the property named by the vague predicate and the other doesn't — true?

- (a) If yes, how is this compatible with borderline cases?
- (b) If no, what revision of classical logic and semantics must be made to accommodate?

2. *The Epistemological Question*

If the inductive premise is false, why are we unable to say which of its instances fail, even in the presence of (what we think is) complete knowledge of the facts relevant to judgments about the predicate?

3. *The Psychological Question*

If the inductive premise is false, why are we so inclined to accept it in the first place? What makes vague predicates tolerant in the relevant way? Why do they seem BOUNDARYLESS?

Graff argues that the two kinds of analyses we have discussed so far fail to provide satisfactory answers to these questions:

- Supervaluation accounts address the semantic question, but have nothing (much) to say about the epistemological and psychological questions. Though as Graff observes, this kind of analysis could be augmented in such a way as to address these latter two questions, if we were inclined to accept the answer to the semantic question (and the rejection of classical logic that it entails). The question is whether in so doing this, we lose the initial motivation for the analysis.

Something to keep in mind: supervaluations as a model of imprecision ('loose talk'), rather than vagueness.

- Epistemic accounts address the semantic and epistemological questions, but not the psychological one. In particular, there is no account of why we don't have the following reaction to the inductive premise: 'That's false! I don't know where the shift from P to not-P is, so there are cases that I'm not willing to make a decision on, but I know it's in there somewhere, so the inductive premise must be false.'

Williamson (1997) suggests the answer has to do with the relation between imagination and experience:

- You can't gain information through imagination that you couldn't gain through experience.
- You can't recognize the experience of the boundary transition in a sorites sequence because the transition lacks a distinctive appearance.
- Therefore, you can't imagine the transition.

But according to Graff, this doesn't help us with the trickier question of why we *believe* of every pair in a sorites sequence that the boundary is not there. In order to answer the psychological question, she says, we need an account that is more directly *psychological*.

## 2 Raffman's contextualism

### 2.1 Overview

Raffman (1994, 1996) provides another perspective on the problem of vagueness: reconciling TOLERANCE (insensitivity to marginal changes) with CATEGORIZATION (the difference between being red and orange, tall and not tall, etc.). As she says (1994, p. 42), 'our successful employment of this chunk of natural language comes to seem a fact of magic.'

Raffman (1996) presents three facts about vague predicates and sorites sequences:

1. They are context dependent.
2. When presented with a sorites sequence based on a vague predicate  $P$ , a competent speaker will at some point stop (start) judging  $P$  to be true of objects in the sequence.
3. Even if we fix the (external) context, the shift can vary from speaker to speaker and from run to run. This is also a part of competence with  $P$ .

**Her question:** How can we simultaneously explain the fact that a competent speaker seems to be able to apply incompatible predicates (*red vs. something-other-than-red; tall vs. not tall*) to marginally different (adjacent) items in the sequence AND the fact that people accept the inductive premise of the Paradox?

**Her answer:** The mistake lies in failing to realize that any evaluation of a sorites sequence will trigger a context shift, which in turn triggers a shifts in the extension of the predicate in such a way as to:

- ensure that incompatible predicates are never applied to adjacent pairs, and
- make (what looks like) a sequence of inductive premises all *true*, giving the illusion of validity, but
- since there is an extension shift, the predicate at the end of the series is not the same as the one at the beginning, so the argument is invalid.

### 2.2 Details

There are three pieces to her analysis. The first is a crucial distinction between the kind of judgments involved in a sorites sequence:

- DISCRIMINATION: Judgments of sameness/difference between pairs.
- CATEGORIZATION: Judgments of similarity to a prototype/standard.

Raffman points out (correctly) that singular judgments about items involve categorization, and it is relative to this that a cutoff point is established. This relates to fact 2 above: for any run of a sorites, a competent speaker will at some point make a category shift.

Discrimination doesn't care where the cutoff point is, but it imposes a different kind of constraint: *adjacent pairs must be categorized in the same way*. She backs this up by referring to experimental work on anchoring (Tversky and Kahneman 1974), though there are some questions as to what underlies this constraint in the case of a sorities sequence. (Is it purely perceptual? Can it be overridden? Graff has some answers to these, as we will see).

At first glance, this looks like enough: maybe the way we understand (1a) is (1b), in which case we can explain our susceptibility to the Paradox in terms of an overzealous (or lazy, depending on how you look at it) discriminator:

- (1)
  - a. For any  $n$ , if  $n$  is  $P$  then  $n + 1$  is  $P$ .
  - b. For any  $n$ , if  $n$  looks  $P$  then  $n + 1$  looks  $P$  when  $n$  and  $n + 1$  are judged pairwise.

This can't be the end of the story, though, for a couple of reasons. First, I've switched from *is* to *looks*, to accommodate the kinds of judgments that are involved in discrimination.

Second, this tells us nothing about the answer to the first part of the question: how do we make category shifts? This leads to the second part of the analysis:

- **BACKWARDS SPREAD:** A category shift consists in a shift of perspective in which the new category instantaneously 'spreads backward' along a string of the preceding objects in the sequence. (p. 50)

Backwards spread is the result of entering a new psychological state, a Gestalt shift that triggers a move from one 'anchor' to another: from the influence of the RED category to the influence of the ORANGE one. This derives boundarylessness: a shift in category triggers a shift in the border away from the edge, giving the impression that it never was there in the first place.

And in fact, as far as the semantics is concerned, it never is: this is where CONTEXT DEPENDENCE comes in. According to Raffman, the extension of a vague predicate  $P$  is determined by two contextual factors that together make up the TOTAL CONTEXT:

- **EXTERNAL CONTEXT:** The discourse factors that fix domain, comparison class, dimension, etc. of  $P$ .
- **INTERNAL CONTEXT:** The properties of an individual's psychological state that determine dispositions to make judgments of  $P$  relative to some external context.

In particular, a category shift cases a change in internal context (from a state in which *red* dominates to one in which *orange* does; from *tall* to *something-other-than-tall*; etc.), which changes the extension of the predicate in the way described above: by a backwards shift.

- This reconciles boundarylessness with category shifts: when a category shift occurs between marginally different items, it shifts the meaning of  $P$  in such a way that those items can never be judged relative to the same total context, and so never relative to the same meaning of  $P$ .
- The inductive premise of the Paradox is false, because it is false for the pair at which the category shift takes place.
- We think that it is true because it is possible to construct a sequence of true statements that look like the inductive premises, but which in fact do not represent valid reasoning thanks to the context dependence of the predicate.

- (2) CONTEXT: 100 color chips ranging from 'pure' red to 'pure' orange, natural light, white background
  - a. Patch 1 is red. 1
  - b.
    - (i) If patch 1 is red, then patch 2 is red. 1 → 1 = 1
    - (ii) If patch 2 is red, then patch 3 is red. 1 → 1 = 1
    - (iii) ...
    - (iv) If patch 45 is red, then patch 46 is red. 46 ∈  $\llbracket red \rrbracket$     1 → 1 = 1
    - (v) SHIFT
    - (vi) If patch 46 is red, then patch 47 is red. 46 ∉  $\llbracket red \rrbracket$     0 → 0 = 1
    - (vii) ...
  - c. Therefore, patch 100 is red. 0

In sum, the contextualist account (or at least this one) answers all three questions posed by Graff. In particular, it answers the psychological one by arguing that vague predicates are sensitive not just to external context, but to internal (psychological) context as well.

### 2.3 Implications

Raffmann leaves open questions about the actual semantics of vague predicates, but it seems that her analysis could be grafted on to at least the supervaluationist analysis as a way of addressing the epistemological and psychological questions. Since it also answers the semantic question, though, we would want to find independent arguments for giving up standard models.

It is also in principle compatible with an epistemological analysis, since it is designed more to account for boundarylessness than borderline cases. (Raffmann explicitly distinguishes between borderline cases and objects involved in category shifts.)

With respect to the semantics of GAs, the contextualist account appears to be equally compatible with a degree or a non-degree analysis. The former is straightforward: let the ‘positive’ morpheme derive whatever property is the one we want, e.g. (3).

$$(3) \quad \llbracket pos \rrbracket^c = \lambda g \in D_{\langle e,d \rangle} \lambda x. g(x) \succ \mathbf{prototype}(g)(c)$$

The non-degree analysis could be essentially equivalent to  $pos(g)$  on the degree analysis. (That is, we could talk about degrees in the truth conditions; they just wouldn’t play any role in the compositional semantics.) However, this approach might run into a version of the problem that the supervaluationist implementation of the latter runs into in the case of explicit vs. implicit comparison and CRISP JUDGMENTS.

- (4) CONTEXT: A 600 word essay and a 200 word essay
- a. This essay is longer than that one.
  - b. Compared to that essay, this one is long.

- (5) CONTEXT: A 600 word essay and a 590 word essay
- a. This essay is longer than that one.
  - b. ??Compared to that essay, this one is long.

The anomaly of (5b) is going to follow straightforwardly: backwards shift should induce unsatisfiable truth conditions (any context in which this essay is long is going to be a context in which that essay is long, but *compared to* (by hypothesis) asks us to consider a context in which that essay is not in the extension of long).

The worry is that we’re now going to run into the same problem with (5a), if comparison involves something like quantification over potential contextual interpretations of the predicate.

Perhaps my biggest worry about this analysis is that it seems to require things like ‘borderline tall’ and (worse) ‘not tall’ to correspond to psychological categories. Is this coherent? Or can we say that once we’ve made the judgment that something is no longer  $P$ , any subsequent judgments are influenced by a psychological state based on the antonym category? Or is merely saying ‘no’ (or ‘yes’) enough to trigger a relevant shift in psychological state, regardless of whether we’ve actually moved into a new category?

### 3 Interest relativity

Graff (2000) develops a quasi-contextualist account eliminates these worries, though it may raise new ones. Like Raffman (and Williamson), her answer to the semantic question is that the inductive premise is in fact false.

Like Raffman, she seeks to explain the existence of borderline cases and develop an answer to the

psychological and epistemological questions together, by developing a (slightly less) cognitive account of boundarylessness.

Unlike Raffman, Graff essentially proposes that we can explain everything in terms of discrimination, without getting into questions of categorization and the effect of category shifts on meaning. The central feature of the analysis is the following SIMILARITY CONSTRAINT in (6).

(6) *Similarity Constraint*

Whatever standard is in use for a vague expression, anything that is *saliently* similar, in the relevant respect, to something that meets the standard itself meets the standards; anything saliently similar to something that fails to meet the standard itself fails to meet the standard.

Setting aside the underlying basis for this constraint, it should be fairly clear how it is going to answer the epistemological and psychological questions:

- When we evaluate any given adjacent pair of objects in a sorites sequence, the very act of our evaluation raises the similarity of the pair *relative to the property that generates the sequence* to salience, rendering the proposition true for the pair we are considering.
- Given that any instance is true, it is no surprise that we regard the universal generalization as true.

So far, this looks like a variant of Raffman’s analysis. Graff’s innovation is to derive the Similarity Constraint from a particular semantic analysis of the positive form; one that does not entail the same sort of context-dependence as Raffman’s analysis. Specifically, Graff proposes that an object has the property expressed by the positive form of a gradable predicate  $g$  just in case the degree to which it is  $g$  is *significantly greater than* some norm for  $g$ , relative to our interests.

We’ve already seen that the notion of norm is not all that helpful, so it may be sufficient just to assume (7) (Kennedy to appear).

$$(7) \quad \llbracket pos \rrbracket = \lambda g \lambda x. \mathbf{significant}(g(x))$$

The idea is that a degree is going to be significant relative to two things: the meaning of the measure function (in particular, its domain), and some set of interests, purposes, etc. Both of these factors are determined by the context, so a change in either one is going to entail a change what counts as significant, and a corresponding change in the extension of the predicate. But its content is always the same: it expresses the property *have a significant degree of  $g$* . This may or may not make it different from Raffman’s analysis (Stanley 2003).

According to Graff, this meaning also derives the Similarity Constraint:

- Two things that are qualitatively different can be *the same for present purposes*, even when they are known to be qualitatively different.
- If two things are the same for present purposes relative to dimension  $\delta$ , then one can have a significant degree of  $g_\delta$  if and only if the other one does.
- That’s because being the same for present purposes means that I would not distinguish between them were I forced to make a judgment, because the cost of doing so outweighs the benefits (goes against my interest in efficiency). Making two things saliently similar, as in a sorities judgment, makes them live options, and hence the same for present purposes.

So at the end of the day, the analysis is a fully *semantic* one. It entails a degree semantics of gradable predicates. (Think of what would happen if we tried to derive a comparative from a

basic meaning of *tall* along the lines of ‘have a significant amount of height’: we would fail to license crisp judgments in comparatives, at the very least.)

However, it is also unclear how this analysis generalizes *beyond* gradable predicates. This is something to think about.

## References

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