

# Vagueness and Semantic Methodology

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Two salient and appealing claims in Diana Raffman's *Unruly Words* are that sorites-inducing vagueness is marked by a distinction between permissible and mandatory application, a distinction that is irrelevant to non-vague words; and that the notion of a borderline case (more exactly, of a soritical borderline case) should be characterized, at bottom, in terms of two contrary predicates (meeting certain other conditions) and not in terms of one predicate alone, or a predicate and its negation. This claim, which she calls "the incompatibilist analysis of borderline cases" (38), tells us, for example, that, at a fundamental level, we should not speak of a borderline case for "red" but instead of a borderline case for a pair like "red"["orange"].

The analysis leads Raffman to say that borderline cases for a pair  $\phi$  [ $\phi^*$ ] are neither  $\phi$  nor  $\phi^*$ . In that case, one might wonder how it could be, as she says, *permissible* to apply  $\phi$  to a borderline case, and also permissible to apply its contrary  $\phi^*$ . It seems we need a conception of permissibility according to which it is permissible to say something false.

## Competence and Semantic Methodology

An argument from competent use to permissibility might be reconstructed as follows:

- 1 As an empirical fact, "competent speakers" apply both  $\phi$  and a contrary  $\phi^*$  to some objects.
- 2 Since  $\phi$  and  $\phi^*$  are contraries, they cannot both be true of an object.

- 3 Hence it cannot be that both competent applications are true.
- 4 Competent speakers will never apply a predicate to an object if the meaning of the predicate, together with the nature of the object, makes it mandatory not to do so.
- 5 Hence it is not mandatory for the speaker not to apply  $\varphi$  to the object; that is, it is permissible for her to apply it. Likewise for  $\varphi^*$ .

Raffman says “I propose to take the character of competent use as evidence of the semantic structure of vague words” (Raffman 2014: 96)<sup>1</sup>, and I have tried to express the idea in premise (4). But this is plainly inadequate as it stands. A competent speaker might be joking, engaged in fiction, or ignorant. Moreover, competent speakers can disagree, but they cannot both be right, so standard semantic theories cannot reflect every feature of competent use. Competence of a kind that might be relevant to semantics needs somehow to include knowledge of facts, or something similar.

Many discussions of vagueness appeal to the notion of being in an “epistemically ideal” position for applying vague predicates, but much remains to be explained about what this amounts to. In the case of colors, it is sometimes assumed that “normal perceivers in normal circumstances” are ideally placed to detect colors. The vagaries of color contrast and color constancy show that more needs to be said. Someone in the usual kind of “forced march” situation is not in an epistemically ideal position, since their remembered previous judgments may influence their current ones. In the case of the application of words like “rich” (a salient example in the book), one might think that only those with some statistical knowledge of income distribution, however rough, would have the kind of competence that would justify a semantic theorist in shaping her account to their use. One should not try to make semantics register uses of “rich” (relative to average household income in the US in 2014) in the mouth of one who believes that most people earn more than \$100,000 a year.

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<sup>1</sup> Raffman earlier contrasted “a feature of the competent use of a vague word” with “semantics strictly speaking” (23). Near the end of the book she says “The responses or judgments of competent speakers do not determine whether an item satisfies a given predicate (169)”. But as they at least provide evidence for the meaning of the predicate, and as Raffman assumes that meaning determines extension, this seems to undervalue the data from competence. I will follow the line of thought presented in the quotation from p. 96, given above. An earlier presentation of the methodology includes common sense as evidence: her plan is to “ground our theorizing about vagueness as deeply as possible in commonsense intuition and our actual competent use of vague words” (12).

Raffman imposes no such requirement, and offers no discussion of the underlying methodology.

### Hysteresis

Raffman is one of the few theorists in any discipline who have attempted to assemble empirical data relating to the use of vague expressions, and her final chapter reports some of this work. She is interested in the phenomenon of hysteresis, but juxtaposing some of her remarks might puzzle some readers. She says that her prediction that “applications of hue predicates are hysteretic” was confirmed (156), and that the hysteresis explains the “dynamic sorites paradox” (see below); but she also says that her results confirmed those of Kalmus who “found no hysteresis” (153). The apparent contradiction is explained by various distinct notions of hysteresis in play, or various different circumstances in which hysteresis could be made manifest. Concerning hue judgments, the one that interests Raffman is

*reversal hysteresis*: suppose a subject is presented with a series of hues in a soritical order, one hue at a time (no comparisons available to direct perception); suppose further that, once the subject has switched from one judgment (say “blue”) to another (say “borderline”), the experimenter displays shades that have been already judged in reverse soritical order, without informing the subject; then if the subject judges  $n$  shades differently at the second encounter, the subject has displayed hysteresis to degree  $n$ .

This is the hysteresis effect that she says emerged from her experiments. The kind that did not emerge might be called

*serial hysteresis*: suppose a subject is presented with a series of hues in a soritical order, one hue at a time, going from, say, clear cases of blue to clear cases of green; and that the subject’s first judgment switch occurs at shade  $i$ . Now suppose the subject is presented with the same shades in the opposite order (from high numbered shades to low numbered ones), and that her first judgment switch occurs at shade  $j$ . If  $j < i$ , the subject displays hysteresis to degree  $n = i - j$ .

I take it that a weighing machine would display the analog of reversal hysteresis iff it displayed the analog of serial hysteresis, so it would be interesting to have a fuller explanation of how the two kinds could come apart in the case of perception-based vague judgments.

There is also a third kind of phenomenon that might be called

*forced march hysteresis*: suppose a subject is presented with a series of side-by-side pairs of patches whose hues are adjacent in a soritical order,

and asked to judge the hue of the rightmost patch; and that it is manifest to the subject, for any subsequent pair, that it has on its left the patch that was previously the rightmost patch, and a new patch on the right; and that the subject cannot discern any difference between the patches in any pair. Suppose the subject's first new judgment occurs at patch  $i$ . Now suppose the subject is presented with the same pairs in the opposite order, and that her first judgment switch occurs at shade  $j$ . If  $j < i$ , the subject displays hysteresis to degree  $n = i - j$ .

Here earlier judgments play a role that has no exact analog in the case of instruments.

It is unclear to me whether Part III of Raffman's experiments tested for forced march hysteresis, but in any case, as she says herself, this behavior could be explained without reference to vagueness by the "commonsense precept that, all else being equal, like things should be treated alike" (p. 175). The victim of forced march hysteresis may apply the precept as follows: "I have just judged patch  $n$  to be  $\phi$  (when it was on the right of the pair) and now it is on the left but it looks just like patch  $n + 1$ , now on the right. So I should also judge patch  $n + 1$  to be  $\phi$ ". The principle is of course defeasible, and will be defeated when, for example, the subject simply cannot bear to call the patch now presented blue, even if she knows she has judged its immediate predecessor to be blue.<sup>2</sup> Until then, it is a source of epistemic distortion: subjects are too much in the grip of earlier judgments.<sup>3</sup>

The data concerning reversal hysteresis are supposed to help explain why we think that the second premise of the "dynamic sorites paradox" is true, when in reality it is false:

(2D) "For any  $n$ , if S classifies patch  $\#n$  as blue, then S must also classify patch  $\#(n+1)$  as blue" (136).

If S knows, when engaged in the classification of  $\#(n+1)$ , that she has just classified  $\#n$  as blue, and if she is aware of no difference between them, (2D) seems closest to a forced march situation, for which the commonsense precept gives an adequate explanation. It is hard to see how hysteresis enters the story, or why anyone would think (2D) is true. If "must" entails "will", it is obviously false, and other interpretations make it unappealing.

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<sup>2</sup> Raffman reports that Crispin Wright pointed out that applications of precise predicates are also likely to be subject to forced march hysteresis. I think he is right, and I don't understand why she resists his suggestion (at p. 160–1).

<sup>3</sup> Kamp (1981) takes a different view: up to a point, the earlier judgments expand the extension of the predicate to make the judgments true.

I think what Raffman really wants is a satisfactory account of the phenomenology of our use of vague predicates. We see “seamlessness”, yet we make discriminations. Once we’ve made the shift in a sorites series from “blue” to, say, “green”, the previous shade no longer strikes us as blue (though it had before the shift); instead it now strikes us as green. So we are never in a position of having to make conflicting judgments about indistinguishable things. This is what she takes to be at work in reversal hysteresis. But this does not undo the fact that subjects end up with opposite judgments about adjacent patches (something we know apriori that they must, relative to the usual assumptions about a sorites series). It was open to her to say that these apparently conflicting judgments are not really conflicting as they invoke different “ranges”. Although this idea is present (e.g. 169), Raffman does not use it in this way.

### Ranges

Raffman’s solution to the problem mentioned in the first paragraph (how can it be permissible to apply a vague predicate to something that does not satisfy it) is to relativize truth to “ranges”,<sup>4</sup> sharp sets of values, like hues or heights,<sup>5</sup> meeting various further conditions. E.g. a range for “blue” should contain everything bluer than anything in the range, and should not contain anything to which “blue” could not permissibly be applied. A predicate is borderline for an object just if it applies to the object relative to some range, and also fails to apply to the object relative to some range. It is permissible to apply  $\phi$  to  $x$  if and only if  $x$  falls within some range associated with  $\phi$ .<sup>6</sup> It can be permissible to apply “blue” to something and also permissible to apply “green” to the same thing. This does not precisely align with Raffman’s earlier claim that a blue[green] borderline case is one that is neither blue nor green; but at least there are ranges relative to which a borderline case is not blue and ranges relative to which it is not green.

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<sup>4</sup> The proposal is unveiled on p. 96. The first explicit relativization of satisfaction that I noticed is on p. 101, and of truth on p. 103, where truth thus relativized is called “ordinary everyday truth”. This cannot be taken with full seriousness, since whereas a sentence can be true relative to one range and false relative to another, it cannot be “ordinary everyday true” and also “ordinary everyday false”. If A is true and so is B then “A & B” is true. But if A is true relative to a range and B is true relative to a range, it does not follow that there is a range relative to which “A & B” is true.

<sup>5</sup> The association is to be relative to a context which will determine things like the relevant comparison class for the predicate (e.g. for “tall” whether the comparison is for adults or six-year-olds). As the contextual features are not used to model any of the features distinctive of vagueness, I will bracket them in this discussion.

<sup>6</sup> This overlooks Raffman’s distinction between ranges and extensions: the members of a range are values, e.g. heights, and these determine an extension (the things having heights within the range) but the members of the extension are not members of the range.

Although Raffman warns that her ranges are not to be confused with the precisifications of supervaluation theory (102–3), her theory is similar enough to supervaluationism to share some of its features and problems.

A shared feature is the rejection of bivalence, as this would ordinarily be understood. Simple bivalence says that every suitable sentence (well-formed, declarative etc) has exactly one of the truth values *true* and *false*. (A more nuanced version might speak of utterances rather than sentences, so as to allow for some contextual relativization.) Multi-range semantics has no basic unrelativized notion of truth, and the theory denies that every suitable sentence or utterance is either true with respect to every range (“supertrue”) or false with respect to every range (“superfalse”).

A kind of range-relative bivalence survives in her theory: for every range and every sentence, either the sentence is true with respect to the range or false with respect to the range (holding context constant). But this is not real bivalence: it allows a sentence to have more than one semantic value in the same context.

Raffman needs to reject bivalence, for it entails a kind of cutoff to which she is opposed.<sup>7</sup> Take a context, a sorites series of objects, say of  $n$  color patches from red to orange, and the  $n$  sentences of the form “patch # $n$  is red”. Given bivalence, each of the sentences is either true or false. The first is true, the last is false. Hence there must be an adjacent pair of sentences in the series of which one is true and the other false. This seems to mark a kind of boundary Raffman is anxious to avoid. The argument has nothing to do with how speakers might judge things, nothing to do with any distinctive use of vague language, nothing to do with linguistic intuitions, nothing to do with forced marches; and it abstracts from the possibly problematic logic of English conditionals.

Here are four problems the range theory shares with supervaluationism.

1. *Penumbral connections*. This is Fine’s phrase (1975: 270) for the problem of doing justice to logical connections between vague expressions. There are pairs of ranges, one for “blue” and another for “green”, which overlap. If such pairs were allowed to figure in evaluation, we would be forced to say that there are ranges on which “Something is blue and green” is true. But such a pair would “violate certain intuitive semantic principles” (115). One can infer that Raffman thinks one such principle is “No one of middle income is richer than someone of upper middle income”. Although there are individually acceptable ranges, one of which places a given salary in the extension of “middle income” (as opposed to “rich”), even though it is higher than the highest salary another range includes in the extension of “upper middle income” (as opposed to “rich”), these do not constitute a per-

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<sup>7</sup> Although she more than once says that she is committed to bivalence (12, 24, 26, 39, 129), this is not born out by her multi-range semantics.

missible *pair* of ranges. For the stated “intuitive semantic principle” would be false with respect to this pair.

This injects an entirely new methodology. Whereas initially we were supposed to be looking just at how we handle predicates in their application to objects, attention now turns to intuitive judgments about generalizations which have the special feature that no correct semantics for the language would admit interpretations on which these are false. We need to be able to pick out the generalizations that are true in virtue of meaning alone. Dummett, in a passage Raffman discusses (45), could be construed as treating “Every patch is red or orange” as such a generalization (the context being a series of patches progressing from reds to oranges). Raffman evidently disagrees. It is not clear to me how such conflicts should be resolved.

The remaining problems are ones that Raffman did not, as far as I can see, address.

2. *Truth of negation of major premise.* Raffman’s theory rules that, where “F” is vague,  $\forall x(Fx \rightarrow F(n+1))$  is false, that is, false relative to every range. The familiar problem from discussions of supervaluation theory is that it apparently follows that the negation of the universally quantified premise is true. As applied to “blue”, the negation says that

(Cutoff) for some  $n$ ,  $n$  is blue and  $n+1$  is not.

This is true relative to every range, and has often been found counterintuitive. The problem was noted in an early statement of supervaluationism (Fine 1975) and was used as an objection to the approach by Sanford (1976: 206), an objection accepted by Kamp (1981: 237).

3. *Metalogical vocabulary.* Raffman takes it that “blue” and “green” are contraries, and so cannot be *true of* any one object. Understanding “true of”, in the context of multi-range semantics, is not straightforward. If what is at issue is “ordinary, everyday truth”, and ordinary truth is a matter of truth with respect to a range (as she says in various places, e.g. 113), “blue” and “green” are not contraries: there could be an object of which “blue” is true relative to a range and of which “green” is true relative to a range. That follows from the fact that, on her view, a blue[green] borderline patch can be competently (i.e. permissibly) classified as blue and can be competently classified as green, and ranges are built to mirror these competent classifications. She might instead define contrariety as follows: predicates  $\phi$  and  $\phi^*$  are contrary just if the sentence “Necessarily, nothing is both  $\phi$  and  $\phi^*$ ” is an “intuitive semantic principle”. To distinguish “mere” contraries from contradictories one could add that the sentence “Possibly, something is neither  $\phi$  nor  $\phi^*$ ” should also have the same status. The latter is just what

seemed incorrect to Dummett, for  $\phi$ ="red" and  $\phi^*$ ="orange". The metalinguistic principles require justice.

4. *Sharp cutoffs?* Every set of ranges associated with a soritical predicate contains a minimum. For "blue" the minimum is the least blue shade in any of the ranges. It seems that this must mark some kind of cutoff: it is the least blue thing that, stretching our discretion as far as we can, can permissibly be called blue. For anything less blue, our license no longer holds sway. Can this sharp cutoff be reconciled with the nature of vagueness?

The envisaged cutoff may be merely one we are permitted to draw, rather than one we are mandated to draw. Rather in the spirit of Fine (1975: §5), this seems to be Raffman's view:

a predicate ' $\phi$ ' is vague only if ' $\phi$ ', and also 'range of application of " $\phi$ " and its indefinitely many iterations, have multiple arbitrary different ranges of application" (106).

Does the dizzying prospect of an endless hierarchy of vagueness mean that the original issue has gone away?

### License

A great advantage of Raffman's conception of license is that it gives a better explanation of our use of vague language than is available to epistemists. These theorists may say that some applications of a predicate are permissible but not mandatory: they do not conflict with anything that anyone knows or could know, but also are not known to be correct. For these theorists, permissibility would be a purely epistemic notion, implying no (or reduced) epistemic blame. Raffman, by contrast, takes permissibility to require reflection in semantics, specifically, in a semantics upon which truth is relativized to ranges. Raffman's account has the merit that for her, but not for the epistemicist, permissible application guarantees freedom from error. This does justice to what seems to me to be a salient feature of vague language.

### References

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