What Cannot be Evaluated Cannot be Evaluated and it Cannot be Supervalued Either

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WHAT CANNOT BE EVALUATED CANNOT BE EVALUATED,
AND IT CANNOT BE SUPERVALUED EITHER*

This is a long paper with a long title, but its moral is succinct. There are supposed to be two, closely related, philosophical problems about sentences with truth-value gaps: If a sentence cannot be semantically evaluated, how can it mean anything at all? And how can classical logic be preserved for a language that contains such sentences? We are neutral on whether either of these supposed problems is real. But we claim that, if either is, supervvaluations will not solve it.

There are many sentences that contain empty names; there are many sentences whose presuppositions fail; and there are many sentences whose predicates are vague (by some authors' lights all predicates are). It seems plausible that at least some of these sentences are incapable of semantic evaluation; a fortiori, that they lack truth values. Let us suppose for a working example that 'The present king of France is bald' is one of these.

Now, it seems that such sentences cannot be meaningless since complex sentences of which they are constituents can be logically true or logically false. For example, 'Either it is the case that the present king of France is bald or it is not the case that the present king of France is bald' looks to express a logical truth; hence, a fortiori, to be truth evaluable; hence, a fortiori, to be meaningful. Surely, the constituents of a meaningful sentence cannot themselves be mean-

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1 For simplicity, we assume that sentences are the bearers of semantic values, meanings, and the like. It is notorious that there are more plausible candidates, but nothing in our argument will turn on this.


3 It is, of course, implausible that all sentences with vague predicates lack truth value; 'bald' is paradigmatically vague, but 'Yul Brenner was bald' is definitely true. Generally, when we speak of vague sentences, we have in mind sentences that have truth-value gaps in consequence of their vagueness. For convenience, we shall call such sentences *gap vague.*
ingless? So, the first of our two philosophical problems is the following puzzle: On the one hand, how can a sentence be meaningful if it lacks a truth value? But, on the other, how can a meaningless sentence be a constituent of a sentence that has a truth value?

Here is the second problem: philosophers worry that once bivalence fails and truth-value gaps are introduced into semantics, classical logic will have to go. In particular, for the sorts of reasons we have just been considering, they worry about the law of excluded middle. Suppose \( P \) is a sentence that lacks truth value. Then, presumably, so too does \( \neg P \); and so too does \( P \lor \neg P \). We confess not to be losing sleep over this, but there are purists who cannot bear it.

You might suppose that a philosopher who takes these worries seriously is going to have to insist that there just are no sentences with truth-value gaps after all. But Bas van Fraassen and Kit Fine, among many others, now argue that you can both deny the law of bivalence, thereby doing justice to the intuitions about the present king of France's being bald, and hold onto excluded middle, thereby placating the classical-logic freaks. Moreover, it is suggested that the mechanisms that allow you to do this make clear how sentences that lack truth values can, as it were, be meaningful in virtue of their potential for having them, thereby solving the first problem as well as the second.

All these glad tidings rely essentially on the method of supervaluations; with which, however, we find that we have grown disenchanted. We shall argue that there is something fundamentally wrong with using supervaluation techniques either for preserving classical logic or for providing a semantics for linguistic expressions ordinarily thought to produce truth-value gaps. Our discussion will focus mostly on showing that supervaluations do not solve the problem of gap vagueness. But in reply 7, we shall make the corresponding case for truth-value gaps that arise from presupposition failure. Right from the start, however, we want to emphasize that the objections we are raising are philosophical rather than logical. We have no argument with supervaluations considered as a piece of formal mathematics. Our point will be that, if you are partial to the formalism because you are worried about the two philosophical problems with which we started, you are in for being badly disappointed.

I. SUPervaluations

So, what is a supervaluation and how exactly is it supposed to preserve classical logic and provide a semantics for vague language? We
shall focus largely on Fine’s treatment. Our exposition of this view will be as brief and as untechnical as we can manage.

Classical valuations. Suppose we take some first-order language $L$ with monadic vague predicates; syntax as usual. And let us imagine a (partial) model $M$ for $L$ with assignments of extensions to predicates in such a way that some objects in the domain are definitely in the extension of a predicate; others are definitely not in its extension; and for the remaining objects it is indeterminate whether they are or are not in the extension. Semantic values for sentences will be built up in familiar ways: some sentences will be definitely true; some definitely false; and others without truth value.

A classical valuation closes the truth-value gaps in a partly arbitrary fashion. On the one hand, an admissible classical valuation $M^*$ must preserve definite truth and definite falsehood. That is:

If a sentence $S$ is definitely true in the partial model $M$, then $S$ is true in every admissible classical valuation $M^*$ derived from $M$; and if a sentence $S$ is definitely false in $M$, $S$ is false in every admissible classical valuation $M^*$ derived from $M$.

On the other hand, if ‘$a$ is $F$’ is neither true nor false in $M$ (because $a$ neither definitely is nor is not in the extension of $F$ in $M$), then the denotation of $a$ must be quasi-arbitrarily assigned either to the extension or the anti-extension of $F$ (but not both) in every classical valuation $M^*$ of $M$—this is what Fine calls a preciseification of the extension of $F$. In effect, it guarantees bivalence in all acceptable classical valuations of $M$ (thus their name).


Certain further coherence requirements—what Fine calls *penumbral connections*—are also imposed on these quasi-arbitrary assignments of truth values to sentences in classical valuations. For example, consider two vague predicates, ‘red’ and ‘pink’. The umbra of ‘red’ are those things which are definitely red, that is, of which ‘x is red’ is definitely true, while the penumbra of ‘red’ are those things not definitely not red, but also not definitely not red, that is, of which ‘x is red’ is neither true nor false; similarly for the umbra and penumbra of ‘pink’. Notice that the umbrellas of ‘red’ and ‘pink’ exclude each other; their intersection is empty. But ‘red’ and ‘pink’ share a penumbral region assuming there are things that are borderline between pink and red.

Precisification achieves bivalence, precisified predicates only have umbrellas. If the precisification of a predicate is to be meaning preserving, however, various nonlogical (in effect, “conceptual”) relations of exclusion and inclusion must be respected. In the present case, since nothing can be both red and pink, a precisification is acceptable only if the new extensions of ‘red’ and ‘pink’ do not overlap. This is what Fine calls an *external* penumbral connection (*op. cit.*, p. 276). He also speaks of *internal* connections (*op. cit.*, p. 276). If, in a precisification, Al goes into the extension of ‘bald’ and Bill has the same number of fewer hairs than Al, then Bill must go into that extension of ‘bald’, too; and so forth.

We can now say what a supervaluation is. A supervaluation on $M$ combines the results of all the classical valuations $M^*$ on $M$; in effect, it tells us what these classical valuations have in common. Thus, a sentence is *super true* on a base model $M$ if it is true in every classical valuation $M^*$ of $M$; and it *super false* on a base model $M$ if it is false in every classical valuation $M^*$ of $M$; otherwise, it is neither super true nor super false.

So, whatever is true in the original model $M$ will be super true in any supervaluation on $M$, but there may be super truths not true in the original model. For example, even if $P$ is neither definitely true nor definitely false in $M$, any sentence of the form ‘$P$ or not-$P$’ will be super true in any supervaluation on $M$. This is because $P$ will be assigned either true or false in every classical valuation $M^*$ on $M$; and the semantics for ‘or’ and ‘not’ is standard. In short, even if there are truth-value gaps in $M$, because classical valuations impose bivalence, excluded middle is preserved by supervaluation. Similarly, mutatis mutandis, for other (propositional) classical logical truths and falsehoods.

Let us now consider how this apparatus applies to the case of vagueness in particular.
II. VAGUENESS

As we have seen, vague language is supposed to create special problems for semantics. On the one hand, if there are gap-vague sentences, bivalence is threatened since gap-vague sentences are neither true nor false. And vagueness is also supposed to threaten excluded middle when \( P \) is a gap-vague constituent of a sentence of the form \( \neg P \lor \neg \neg P \). Supervaluation apparently copes with both these challenges.

If we say a sentence is classically valid if and only if it is true in every classical valuation on every model \( M \), and that it is super valid if and only if it is super true on all models \( M \), then it is provable that a sentence is classically valid if and only if it is super valid. Hence, the logic for statements containing vague predicates can be classical whether or not some elementary statements are gap vague. So, supervaluation "leads to a classical logic for vague sentences" (op. cit., p. 276). 8

The theory is a partial vindication of the classical position; for the truth conditions are, if not classical, then classical at one remove. There is but one rule linking truth to classical truth, namely, that true is true in each of a set of interpretations. This rule is of general application and not dependent upon the nature of language or interpretation. The actual work is done by the clauses for truth in a single interpretation, and those are classical (op. cit., p. 278).

So much, then, for our exposition. Supervaluations are alleged to provide a semantics for vague language (and, mutatis mutandis, language containing non denoting singular terms), to preserve classical logic in the face of truth-value gaps, (and, though we shall not discuss this, to solve the sorites (and the) paradoxes as well). It is almost too good to be true. More than almost, we are inclined to think.

There are, as the reader is most likely aware, all sorts of criticisms of supervaluation techniques in the literature on philosophical logic. Some doubt that it really succeeds in preserving classical logical truths; some doubt that it can provide a solution to the sorites paradoxes (as, presumably, an account of vagueness ought to do); some

8 Cf. Kamp and Partee, "Prototype Theory and Compositionality," p. 149: "[T]he supervaluation technique...was motivated in large part to reflect the intuition that there is difference among such [that is, \( a \& a \), \( a \& a \), \( a \& a \& a \& a \& a \)] cases: if \( a \) lacks a truth-value, so should \( a \& a \), but \( a \& a \& a \) should nevertheless be counted as definitely false and \( a \& a \) as definitely true."

doubt that it adequately acknowledges that vagueness is essential to
the functioning of natural languages.\textsuperscript{11} We shall remain (relatively)
neutral about such criticisms; partly because we do not understand a
lot of them, but mostly because, as far as we can tell, none of them
challenges the \textit{intelligibility} of the idea of a classical valuation of sen-
tences that have truth-value gaps. That is what we propose to do.

III. WHAT IS SERIOUSLY WRONG WITH SUPervaluationAL ACCOUNTS
OF VAGUE LANGUAGES

Our problem with supervaluations is that they appear to flout what
one might take to be a platitude, namely:

(P) Conceptual truths must be respected by all classical models, includ-
ing classical valuations.

When we first wrote this paper, we took for granted that nobody
would be seriously opposed to (P). We have learned better since. We
have been told, for example, that (P) implies an unQuinean toler-
ance for facts of meaning and thus should not be granted.

Now, it is quite true that, if you are a Quinean about meaning, you
should not encumber lexical semantics with notions of conceptual
truth. But, then, if you are a Quinean about meaning, you should
not be doing lexical semantics \textit{at all}. The parties to the present dis-
cussion are all people who want a formal theory of what items in
the nonlogical vocabulary contribute to the meanings of sentences (in-
cluding, a fortiori, what vague items in the nonlogical vocabulary
contribute to the meanings of sentences). We are going along with
this for the sake of argument. Accordingly, we use ‘conceptual
truths’ in (P) as a dummy term for contributions that nonlogical vo-
cabulary makes to meaning, whatever they may turn out to be. If
there are not any conceptual truths, then the problems under discus-
sion do not arise. If there are conceptual truths, then they determine
what the topic under discussion \textit{is}, so they must not be flouted on
pain of equivocation.\textsuperscript{12} Note that honoring (P) is the very motivation
that leads supervaluation theorists to postulate “penumbral connec-
tions.” According to Fine (and Dummett and Kamp), you need
penumbral connections to ensure that (for example) there are no
red things in the extension of ‘pink’ in any classical valuation of Eng-

\textsuperscript{11} For example, Dummett; and Wright, footnote 29.

\textsuperscript{12} J. Tappenden, in “The Liar and Sorites Paradoxes: Toward a Unified Treat-
ment,” this \textit{Journal}, xc, 11 (November 1993): 551-77, suggests that it is all right if a
penumbral sentence is not true in a model, just as long as it also is \textit{not} false in that
model. Since this weak reading of \textit{P} is strong enough for our polemical purposes,
we do not propose to argue the issue.
lish. Surely, this must be because all instances of the schema 'if x is red, then x is not pink' are conceptual truths.

We endorse (P) because we think that, if there are lexical meanings and conceptual truths, then it must be that a lexical item has its meaning essentially and that conceptual truths are preserved by meaning-preserving operations. We shall say a little in defense of this later in the discussion (see especially reply 3). But we admit that these are deep issues; maybe somebody can figure out some quite different way of individuating lexical items. We are therefore content if what follows convinces you of this: you cannot rely on supervaluation to solve the problems of vagueness, logical truth, and so on, unless you are prepared to abandon the intuitive connection between meaning and conceptual necessity. And if you do decide to go the supervaluation route, you are thereby in debt for a construal of lexical meaning that does not require conceptual truths to be preserved whenever meaning is. We rather think that most philosophers would take this to be too high a price to pay for the benefits of supervaluation. We do; but be that as it may.

We now propose to argue that there are conceptual truths about gap-vague sentences which: (1) (P) demands that classical valuations respect; and (2) if respected, preclude certain of the precisifications that Fine, Dummett, Kamp, et alia say are needed if a supervaluation is to recover truths of classical logic. We take this to imply that there is no way of assigning supervaluations to gap-vague sentences which respects all the necessary truths, both logical and conceptual. So supervaluations cannot be the right semantics for gap-vague sentences.

Assume, what we suppose is plausible, that there is no fact of the matter about whether a man one ninth of whose head is covered with (his) hair is bald. (If you do not like this fraction, feel free to pick a different one; all that we require is that sentences of the form 'If x has (fraction) n of his head covered with hair, then x is bald' are definitely gap vague.) We claim that, if there is no matter of fact about whether someone one ninth of whose head is covered with (his) hair is bald, then it is necessary (indeed, conceptually necessary) that there is no matter of fact about whether someone one ninth of whose head is covered with hair is bald. So, if it is unsettled in the actual world, then it is unsettled in every world. If you doubt this is necessary, ask yourself what facts about the world (or about English, for that matter) would convince you that, by gum, people one ninth of whose heads are covered with hair are definitely bald after all. If you doubt the necessity is conceptual, remember that baldness does not have a "hidden essence." You could not discover empirically that
hairless people are not bald in the way you could (maybe) discover empirically that XYZ is not water.

Now consider Al. If it is noncontingent that there is no fact of the matter about whether someone one ninth of whose head is covered with hair is bald, then every model in which Al has one ninth of his head covered with hair is ipso facto a model in which it is indeterminate whether Al is bald. That is, the sentence ‘Al is bald’ (hereafter the Al sentence) is indeterminate in every such model. But the point of precisification is to impose bivalence; it intends to exclude models in which the Al sentence is neither definitely true nor definitely false. To do so, it requires that we consider indefinitely many models in which Al has hair on one ninth of his head and the Al sentence is true and indefinitely many models in which Al has hair on one ninth of his head and the Al sentence is false. But now we see that there can be no models of either kind: on the one hand, the connection between having hair on one ninth of one’s head and being neither determinately bald nor determinately not bald is conceptual; and on the other, (P) tells us that acceptable models must respect all the conceptual truths.15

So we cannot precisify a language that contains the sentence (not, of course, the mere form of words; a form of words can mean what you will) ‘Al is bald’. So you cannot precisify English. So you cannot supravalue the gap-vague sentences of English and the reason you cannot is precisely that they are gap vague. Gap vagueness is, as one might say, an enduring trait of the sentences that have it. You cannot both think it away and preserve the semantics of the sentences about which you are thinking.

IV. REPLIES AND REPLIES TO REPLIES

We think this argument undermines the very idea of precisifying vague sentences, so we could stop here. There are, however, some interesting lines of reply that we have gleaned from the literature or heard in conversation. We find them very unconvincing; saying why we do should help clarify our view of the conceptual geography. The rest of the paper is devoted to that.

15 It has been suggested to us that conceptual truths that we want precisification to honor are somehow “metalinguistic” or “higher level” in a way that the ones about ‘red’ and ‘pink’ and such are not. It is unclear to us why it would matter if this were so; and, anyhow, as far as we can see it is not. The crucial consideration is that you cannot make a man more (/less) bald without altering his hair-to-head ration. So if there is any valuation on which the Al sentence is true (/false/indeterminate) and Al’s head-to-hair ratio is \(m/n\), then the Al sentence is true (/false/indeterminate) in every valuation on which Al’s head is head-to-hair ratio \(m/n\).
Reply 1. Someone might complain that our worry has nothing to do with supervaluation theory per se; flouting conceptual truths is something that is done all the time in classical model theory.

Suppose we ask a student to evaluate the argument: something is a round square; so, everything is a round square. We expect the verdict “formally invalid in predicate logic.” Are we thereby requiring our student to do what cannot be done? Of course not! But if we can reasonably demand the consideration of models that flout the conceptual truth that nothing square is round, why can we not equally reasonably demand consideration of models in which a necessarily vague sentence has a truth value?

But this goes much too fast. To be sure, the argument we have given the student to evaluate contains a premise that is conceptually false. But that it does is not what makes the argument invalid in predicate logic. What makes it invalid is that it wants to infer from ‘Some x is F’ to ‘Every x is F’. Correspondingly, when we ask the student to evaluate the argument, we are asking him to attend only to those of its features to which predicate logic is designed to be sensitive: relations among connectives and among the quantifiers of the sentences; relations of identity and difference among their predicate structures (for example, whether the premise and the conclusion have the same predicate—whatever that predicate may mean), and so forth. Since, by stipulation, the argument’s validity turns on only these features, the occurrence of ‘round square’ in the premise and conclusion is inessential. The assessment would have gone through in exactly the same way if the argument had been about red circles, or old houses, or prime numbers. When we consider the formal validity of an argument containing ‘round square’, we do not flout the meaning of the expression; we just ignore it.

So, then, to repeat the question with which the objection started: If predicate logic can abstract from the conceptual incoherence of squares being round, why can supervaluation not abstract from the conceptual incoherence of the Al sentence being definitely true?

Answer: the vagueness of the Al sentence depends on its nonlogical vocabulary; so a theory of vagueness cannot abstract from the semantics of the nonlogical vocabulary any more than predicate logic can abstract from the semantics of ‘and’ or ‘some’. If what you care about is the “truth conditions for a vague language,”14 you cannot ignore the lexical features in virtue of which language is vague. It is the semantics of the nonlogical vocabulary of which a theory of vagueness is supposed to be a theory.

14 Fine, p. 265.
Look, if it is legitimate to save excluded middle by flouting conceptual truths that arise from the nonlogical vocabulary, why not call a spade a spade and say that what makes a sentence logically true has nothing at all to do with the semantics of its nonlogical vocabulary; that logical truth is determined entirely by logical form. This is what van Fraassen calls the naive view that "questions of validity can be decided on the basis of syntactic form alone." 15 Well, if it is pretty clever and sophisticated to ignore the necessary imprecisifiability of a vague term, why would it not be really clever and sophisticated to ignore the rest of the semantics of the nonlogical terms as well, and hold that 'Either you are bald if you have one-ninth hair cover or not (you are bald if you have one-ninth hair cover)' is true because it is of the form 'P v ¬P'?

Reply 2. "You say that, if it is indeterminate whether one-ninth hair cover is bald, then it is necessary that it is indeterminate whether one ninth hair cover is bald. But that cannot be right. Notice that it is perfectly coherent for someone to stipulate (perhaps in a certain context or for a purpose) that one-ninth hair cover is bald. On your account, that could not be so since the proposition thus stipulated would be necessarily false."

We think this shows what we are anyhow inclined to believe: pace Tappenden, it is unwise to take stipulation as a model for precisification. In particular, you cannot assume that, if it is all right to stipulate that (P), then there must be an acceptable model in which (P) is true. The reason you cannot is that, whereas it is common ground that precisification is required to honor penumbral connections, acceptable stipulations often flout them.

We think that often enough when you stipulate that a is F, what is being mandated is not really something about the semantics of 'F', but just that a shall be counted with the Fs (in the context or for the purpose at hand). When that is its force, stipulation can indeed defy patent truths, including patent conceptual truths. 'Married men separated from their wives should count as bachelors (indeed, are bachelors) for the purpose of the census'; 'Ketchup counts as a vegetable for the purposes of the Republicans' school-lunch program'; 'Coaches count as players for the purposes of the official roster'; 'Neither Jews nor Italians count as minorities for purposes of affirmative action'; and so forth.

We have no positive account to offer of what makes, or can make, a stipulation acceptable. We would be surprised if an account of any

substance could be of any generality. Suffice it that stipulations need not and often do not preserve the semantic features on which the identity of expressions depend. That you can stipulate that one-ninth covered is bald does not, therefore, imply there is a model in which that is so.

Reply 3. Here is a positive proposal from Fine about what it is for a language to endure in the face of semantic change: definite extensions (that is, extensions in the umbra) have to be preserved.

[Language can retain its identity upon precisification.... The identity of language is visible, as it were, in the permanence of recorded truth...][Let the actual meaning of a simple predicate, say, be what helps determine its instances and counterinstances. Let its potential meaning consist of the possibilities for making more precise. The point is that the meaning of an expression is a product of both its actual and potential meaning. In understanding a language, one has thereby understood how it can be made more precise (op. cit., p. 277).

The idea is that supervaluation answers the question 'How can classical logic be preserved for a vague language?' because it answers the question 'How can a sentence that cannot be semantically evaluated mean anything at all?' What preserves the meaning of a sentence under precisification just is that precisification preserves definite truth and falsity. Constrained as an answer to our sort of objection, this reply simply refuses to niggle about the conceptual probity of assigning truth values to gap-vague sentences. Rather, it proposes a perfectly general sufficient condition for distinguishing precisification from stipulation (precisification preserves extensions in the umbra; stipulation does not), and it defends the condition by arguing that it draws the line at an intuitively acceptable place. In effect, this reply says that flouting (P) in the precisification of gap-vague terms is all right because the gap vagueness of a term is not essential to its identity:

...a sentence does not become indefinite upon being made more precise. This is, perhaps, partly definitional of 'making more precise'. For what distinguishes this operation from a mere change in meaning is that it preserves truth value (op. cit., p. 275).

Here is Dummett in a similar vein:

For every vague statement, there is a certain range of acceptable ways of making it definite, that is, of associating determinate truth-conditions with it. A method of making a vague statement definite is acceptable so long as it renders the statement true in every case in which before, it
was definitely true, and false in every case in which, before, it was defi-
nitely false (op. cit., pp. 310-11).

The trouble with this line, according to us, is that the distinction be-
tween stipulation and precisification that it proposes is not plausi-
ble after all. We would have thought that what makes a precisification
(or, mutatis mutandis, any linguistic change) meaning preserving is
not that it conserves unaltered the (determinate) truth values of sen-
tences that contain the predicate, but rather that it conserves the
necessary truths that contain the predicate, conceptual necessities in-
cluded.

Here is a thought experiment that illustrates how these two crite-
ria for meaning preservation can diverge. Suppose that, in aid of
calendar reform, we decide to skip a day, so the third of next
month is a Tuesday instead of a Monday. The reform is thus uncon-
servative about the determinate extension of ‘Tuesday’, but the in-
tuition (anyhow, our intuition) is that it is conservative about what
‘Tuesday’ means. Now, imagine a reform that institutes a six-day
week, with Wednesdays following Mondays. This violates (inter alia)
‘Weeks have 7 days’ and ‘Wednesday is the third day after
Sunday’, both of which are presumably conceptually necessary. In
this case, the (our) intuition is that the meanings of the terms in
this part of the language have not, to use Fine’s term, “endured the
change.”

If you do not like the example, so be it; for the point it is sup-
posed to illuminate is not really moot in the current discussion. As
remarked above, Fine and others put “penumbral connections” in
place precisely to ensure that necessities like ‘if red, then not pink’
are preserved under precisification. That must be because they
think precisification ought to preserve something more than deter-
minate extension; specifically, it must be because they think that
precisification ought to preserve conceptual necessities. But that it
is indeterminate whether someone who has one-ninth hair cover is
bald is conceptually necessary, and so must be preserved under any
precisification that illuminates the meaning of ‘bald’; which, how-
ever, it is not if there are acceptable models in which Al has one-
ninth hair cover and the Al sentence is true. Such a model fails to
meet the conditions for “enduring” language, in just the same way,
and to just the same extent, as a model in which ‘This red thing is
pink’ is true. We return to a point we made in endorsing (P): it is
extremely plausible that respecting determinate extensions is not,
after all, a sufficient condition for meaning to be preserved under
linguistic change. This should surprise no one who thinks that
meaning and conceptual necessity must somehow be intrinsically related.

Reply 4. "All right, all right, so strictly speaking, 'bald' does not mean "bald" in a language in which 'is bald' is determinately true of someone with one-ninth hair cover. So the language for whose semantics precisification preserves the truths of classical logic is not, strictly speaking, English. But, gee, it is a lot like English. Like enough so that we can learn interesting things about what 'bald' means in English by attending to the behavior of its not-quite-English counterpart."

Reply 3 said that the necessities that precisification violates are not constitutive of the meanings of gap-vague terms. Reply 4 admits that they are but is prepared to live with the resulting equivocations. The literature does not always respect the distinction between reply 3 and reply 4, but sometimes it does. For example, Fine says:

[Under the pressure of their own use, the meanings of terms will need to change. The terms, in their old sense, will not be adequate to express the new truths, pose the next questions, make the right distinctions. Now clearly it is convenient that the changes in meaning be conservative, that the true records before the change remain true after the change (op. cit., p. 275).]

Or, consider Sainsbury:

'Heap' is a vague predicate but it could be replaced by a sharp predicate.... Indeed such replacement is the only way forward if someone relentlessly pursues the question, asked of a penumbral object, whether it is a heap or not. We have to say: There is no answer to that question, but we could introduce new predicates, rather like 'heap,' of which we could answer that question (op. cit., pp. 38-39).

or, Sainsbury again,

[We] 'sharpen' the predicate 'heap' by using the new predicate 'newheap'....We will say that [a sentence containing a vague predicate] is (definitely) true iff it is true however its vague predicates are sharpened (op. cit., p. 33).

Oh, well, one chap's light is another chap's darkness. It is unclear to us how the vagueness of English expressions is to be illuminated by investigating the homophonic expressions in a language that is not English and none of whose terms is vague. If it is clear to you, you are welcome to it. But you owe us an account of what 'newheap' and the like are required to share with their English counterparts, if not the conceptual truths about heaps.
Reply 5. "A model is acceptable if and only if every sentence that is determinately true is true in the model; but what is the big sweat?" (Our colleague Vann McGee once said something like this to us, only more politely.) Answer: this criterion of acceptability presupposes a viable notion of same sentence; it has got to be the same sentence that is both determinately true and also true in the acceptable model. But sentences are semantic entities, so a necessary condition for their identity is (presumably) the preservation of the conceptual truths into which they enter. If acceptable models can flout conceptual truths, the proposed criterion is not satisfied by precisifications. (And if, per contra, sentences are not semantic entities, it beats us how the fact that a sentence is true in a model if and only if a homophonic sentence is determinately true could have anything to do with the acceptability of the model.)

Reply 6. "You guys think that precisifying extensions would result in, for example, the sentence 'Anyone with one-ninth hair cover is bald' being assigned true (that is, definitely true) in some classical valuations; but that is unsuitable. What is assigned is something like true-in-a-classical-valuation; or better, $t$-in-a-classical-valuation. Who says a sentence cannot be both necessarily indeterminate and $t$-in-a-classical-valuation? '$t$-in-a-classical-valuation' is my word, so I get to decide what it entails."

Fine! But if $t$-in-a-classical-valuation is completely independent of truth tout court, that is, of so-called definite truth, then how can the fact that 'Al is bald' is $t$-in-some-classical-valuations and $f$in-others make the complex sentence 'Either Al is bald or Al is not bald' definitely true? We thought the claim was that the disjunction is definitely true because at least one of its disjuncts is true in every classical valuation. Why on earth should having one disjunct that is '$t$-in-a-classical-valuation' in every valuation make a disjunction definitely true?

To put the point slightly differently, the present objection is that 'true' in 'true-in-a-classical-valuation' is an orthographic accident, not to be confused with 'true' in 'definitely true'. But then how is it possible to define 'definitely true' in terms of it? Having a friend who is dogmatic is quite unlike having a friend who barks, so it would be a surprise if you could construe the one state of affairs in terms of the other. Likewise, according to the present objection, being '$t$-in-a-classical-valuation' is quite unlike being 'true' since a sentence that is necessarily indeterminate can be '$t$-in-a-classical-valuation'. But (surprise, surprise!) being $t$-in-every-classical-valuation entails being definitely true all the same. How are we to understand
this? And if it is not to be understood but merely to be admired, in
what sense has supervaluation shown us how vague language works?

It has been suggested to us that we should think of ‘\( t \)-in-a-classical-
valuation’ as being defined not explicitly but in use (following Lud-
wig Wittgenstein rather than Bertrand Russell, we suppose). If we
meditate on how the predicate functions across an exhaustive set of
classical valuations, we shall come to understand it; and the logic
and truth conditions of vague language will thereby be illuminated
for us. Well, maybe. But, so far, what strikes us when we meditate on
the behavior of ‘\( t \)-in-a-classical-valuation’ is that, although we are told
that it does not mean true, and although we take the hyphens to say
that it does not contain ‘true’, still, atomic sentences that are \( t \)-in-
classical-valuations contribute exactly what true sentences would to the
semantics of the complex sentences that contain them. Could this be
an accident?

Really, of course, for a sentence to be true in a model is for it to be
true in that model; it is for the sentence to bear the same relation to
the model that a (definitely) true sentence bears to the actual world.
The intuitive force of supervaluation depends on this in all sorts of
ways. For example, if you break the connection between ‘\( t \)-in-a-
model’ and ‘true in a model’, there is nothing left to guarantee that
whatever is \( t \)-in-a-model is ipso facto truth evaluable, either in that
model or, indeed, at all. So, what is to stop ‘The number two is feel-
ing blue’ or ‘Colorless green ideas sleep furiously’ getting evaluated
along with ‘The cat is on the mat’, ‘The present king of France is male’,
and ‘Al is bald’?

In fact, once you break the connection between ‘\( t \)-in-a-model’ and
‘true-in-a-model’, what makes being \( t \)-in-a-model a semantic prop-
erty?16 And if there is nothing to make it a semantic property, then
presumably things that have no semantic properties (tables and
chairs, as it might be) could be \( t \)-in-model-\( M \), too. Is there not some-
thing pretty clearly wrong with a theory of vagueness that is compati-
bile with tables and chairs being vague?17 We had supposed that
supervaluation was going to distinguish between things that cannot be
semantically evaluated and are, indeed, not meaningful (for exam-

16 To be sure, having a truth value is a sufficient condition for being \( t \)-\( (or-f) \)-in-
that-model. But that is not enough to make being \( t \)-\( (or-f) \)-in-the-model itself a se-
monic property. Being butter is a sufficient condition for being yellow. It does not
follow that yellow is a dairy product.

17 Like classical valuations of sentences, classical valuations of tables and chairs
preserve definite truth and falsity. As it happens, they do so vacuously.
ple, gap-vague sentences). We had understood that was part of what the ads commend the theory for; but apparently not.

Reply 7. Outside the base model, elementary sentences are holophrastic. (This one will take a little longer.)

Supervaluations were first applied by van Fraassen\textsuperscript{18} to provide a semantics for free logic. Subsequently, he applied the notion of supervaluations, or a generalization therefrom, to analyze the relation of presupposition and the semantics of sentences that lack truth value on account of presupposition failures. (He then applied the conceptual apparatus to such semantic paradoxes as the liar and the strengthened liar.\textsuperscript{19}) Since the reply we are about to consider builds on van Fraassen’s account of supervaluation, and since his discussion centers not on vagueness but on truth-value gaps that occur when sentences contain vacuous (nondenoting) singular terms, we now turn to these. Whereas the supervaluation treatment of vagueness is widely agreed to be mooot, its use in respect of problems about nonde-noting singular terms has become something of a received practice.

As van Fraassen conceives of classical valuations, if the name ‘Pegasus’ or the definite description ‘the present king of France’ does not denote in a partial model $M$, there are no constraints on what truth values may be assigned to atomic sentences containing them in a classical valuation $M^*$ on $M$.\textsuperscript{20} That is, truth values are assigned arbitrarily to sentences like ‘Pegasus has wings’ or ‘The present king of France is male’. Both are assigned true in some classical valuations $M^*$ on $M$, false in others, and the supervaluation story about complex sentences like ‘Either the present king of France is male or the present king of France is not male’ goes through as before.

But now our worry would appear to arise again. Just as some predicates are necessarily vague, some singular terms necessarily fail to denote; for example, ‘the man who is taller than himself’ (and also ‘Pegasus’ if Saul Kripke’s\textsuperscript{21} story about names is right). So it looks like van Fraassen classical valuations are in the business of assigning (nonce) truth values to sentences whose putative referring expres-


\textsuperscript{19} “Presuppositions, Implications, and Self-reference.”

\textsuperscript{20} “Presupposition, Implications, and Self-reference.”

\textsuperscript{21} Naming and Necessity (Cambridge: Harvard, 1980).
sions cannot refer; hence, to sentences which cannot have truth values. How are such assignments to be understood?

(What we take to be) van Fraassen’s answer to this constitutes reply 7: what truth value a sentence has in a given $M^e$ is independent of any semantic contents of either the predicates or the singular terms it contains. In effect, sentences like ‘The present king of France is male’, ‘Pegasus has wings’, and ‘The man who is taller than himself is Russian’ are all treated as mere surds, that is, as having assigned truth values but no internal semantic structure. So, for example, on van Fraassen’s account, it is quite consistent for both ‘The man who is taller than himself is Russian’ and ‘Necessarily there is no man who is taller than himself’ to be true in a classical valuation $M^e$ (indeed, the second must be true in every classical valuation $M^e$ since it is definitely true and classical valuation preserves definite truth/falsity). van Fraassen wants us to take seriously the idea that no semantic value is assigned to the nondenoting singular terms in his classical valuations.

Well, of course, you can say this if you like; but, if you do, we promise not to understand you. First blush, a sentence cannot have a truth value if (that is, in a model in which) its syntactically singular referring expressions do not refer. That is why people think that ‘The present king of France is male’ lacks a truth value in the actual world. But then, if a sentence contains a singular term that fails to refer necessarily, it cannot have a truth value in any model. A fortiori, it cannot have an arbitrary truth value in any model. So, it cannot be supervalued.

Possible reply: “No, no, you miss the point when you speak of ‘syntactically singular referring expressions’. I am saying that ‘The man who is taller than himself is Russian’ has no internal structure in $M^e$, semantic or syntactic. Or, rather, since it has no internal syntactic structure in $M^e$, a fortiori it has no internal semantic structure in $M^e$. As far as the assignment of a truth value in $M^e$ is concerned, the sentence is holophrastic. Its truth value does not depend on its parts because it has no parts for its truth value to depend on.”

We can hardly believe our ears. By what criterion is it the very same sentence that does contain ‘the man who is taller than himself’ as a constituent when it is evaluated in $M$ but does not contain ‘the man who is taller than himself’ when it is evaluated in $M^e$? And are you saying that what syntax a sentence has depends on what model it is evaluated in? Geez! Say it is not true.

The point we are making about reply 7 is really continuous with the one that we made about the supervaluation of gap-vague sen-
tences; both propose to sacrifice a kind of semantic innocence that it surely would be well to retain. In the former case, if the assignment of truth values to gap-vague sentences is allowed to violate conceptual necessities, how can it be said that the meaning of a sentence is preserved under precisification? Analogously: If a sentence with a singular term gets its truth value in one way (namely, in virtue of its compositional structure) in a model where the term denotes, but in a quite different way (namely, arbitrarily) in a model where the term does not denote, how can it be said that the meaning of the sentence is preserved from one model to the other? What becomes of the innocent assumption that, if God were to provide us with a present king of France, He would not thereby change what 'the present king of France' means?

van Fraassen says that "a classical valuation gives a faithful picture of which sentences are true and which false in some (possible) situation."22 Faithful to what, we wonder? Not to truth values since they are assigned arbitrarily; not to internal semantic structure, since it is ignored. Not to internal syntactic structure, since it is ignored, too. Not to truth conditions, since, prima facie, some of the sentences with which we are concerned ('The man who is taller than himself is Russian') are necessarily indeterminate. All that the analysis is really faithful to, as far as we can tell, is the logical form of the complex sentences in which nondenoting expressions occur. See above, reply 1 and reply 4, for the corresponding point about vagueness.

No English sentence of the form 'The man who is taller than himself is X' can be true. This is conceptually necessary, so it is true in every model in which the semantics of English singular terms is respected. To insist that there is a model in which some other sentence—one that does not contain the expression 'the man who is taller than himself'—is true, is to tell us nothing about the semantics of singular terms in English. What it tells us is just that you have decided to change the subject.23

23 Like us, Ermano Bencivenga has misgivings about van Fraassen's not making the evaluation of elementary sentences depend on internal structure. Bencivenga remarks, for example, that the identity symbol is as good a logical constant as the disjunction symbol, but the former will be invisible if the internal structure of elementary sentences is ignored.

We entirely approve of Bencivenga's attempt to avoid holophrasism, but his theory cannot avoid our chief worry, which is how to avoid valuations that assign referents to necessarily nonreferring expressions while also avoiding valuations that change the subject. A full treatment would need more space than we have, so we shall scant the details. (Although his theory has altered slightly over the years, we shall restrict discussion to Bencivenga's accounts in "Truth, Correspondence, and
CONCLUSION

The intuitive appeal of the supervaluation technique comes, we think, from cases like 'The present king of France is male'. Since it is only contingent that there is currently no king of France, it is only contingent that this sentence lacks a truth value. Where a truth-value gap is merely contingent, we know pretty well what it would be like to fix the world so as to make the gap go away. The situation is less clear in the case of sentences with vague terms, because it is less clear that it is the world's fault that they lack truth values; maybe you cannot make them precise without changing just the thing about them that you are trying to study.


Bencivenga's assignment of denotations to definite descriptions is perfectly orthodox: in any model, 'The-F' will have for its denotation the unique member of the domain that satisfies 'F', if there is one. If there is no such unique member in a model, then a sentence containing 'The-F' will lack a truth value in that model. Since complex sentences are evaluated in the usual way, the truth value even of cases of the excluded middle, like 'The winged horse is white or the winged horse is not white', will be undefined in some models. This means that Bencivenga cannot hold that a sentence containing 'The-F' is super true just in case it is true in every extension of the base model M. Instead, he will restrict the quantification over models just to those extensions in which a value for the sentence is defined. This spares him the need to assign arbitrary denotations to empty descriptions.

In effect, what Bencivenga does is this: as usual, let a model M be a pair <D, f>, where D is the domain and f a function that assigns extensions to terms in the familiar ways. If M = <D, f> and M* = <D*, f*>, then M* is an extension of M just in case D is a subset of D* and f is a subset of f*. Since there are no winged horses in any customary model M for English, the intersection of f('winged') and f('horse') will be empty in all the customary models, and the denotation of 'the winged horse' will accordingly be undefined in all the customary models.

It is easy to imagine, however, a model M* that is an extension of M in which: f*('winged') = f('winged'), f*('white') = f('white'), and f*('horse') = f('horse') + 1 white seagull. For such an M*, f*('the winged horse') = that seagull and 'The winged horse is white' is true in the model. This model is ipso facto relevant to the supervaluation of 'the winged horse is white'. So too, of course, is a model in which f('horse') is extended to include a black crow rather than a white seagull and 'The winged horse is white' is false.

So there are some extensions of the customary model in which the value of 'The winged horse is white' is defined and the sentence is true and there are some extensions in which the value is defined and it is false. It follows that this sentence is neither super true nor super false in the customary model. But 'the winged horse is white or the winged horse is not white' will be super true in the customary model since it is true in every extension where the value of 'the winged horse is white' is
That certainly seems to be so when lack of truth value is conceptually necessary; presumably, conceptual necessity is itself a semantic phenomenon, at least inter alia. Which is to say that it must be preserved by any operation that claims to be meaning preserving. For a semantic theory to fool around with the constitutive properties of an expression is for it to describe the semantics of some other expression. To solve a semantic problem by pretending away necessary truths is only to pretend to solve the problem.

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defined. (This is in fact, a considerable simplification of Bencivenga's treatment, but it conveys the underlying intuition. It will suffice for our purposes since his notion of extension is less restrictive than the one we have just described.)

The reader will, no doubt, have anticipated our objection: if all that is required of \( f^*(\text{'horse'}) \) is that it include \( f(\text{'horse'}) \) as a subset, then extensions will not, in general, be meaning preserving. Patently, they will not be if \( f^*(\text{'horse'}) \) includes elements to which it is conceptually necessary that 'horse' does not apply. Consider the extension in which 'the winged horse is white' is true because \( f^*(\text{'horse'}) \) contains a seagull. There would seem to be only two possibilities: either it is a model in which some seagulls are horses, or it is a model in which 'horse' does not mean "horse." Since we are inclined to think that it is some sort of necessary truth that seagulls are not horses, we think that the evaluation of 'the winged horse is white' as true in this model must involve an equivocation on 'horse'. (If, however, our modal intuitions strike you as wrong, the point can be adjusted to whatever ones suit your fancy. For example, let the sentence to be evaluated be 'the prime horse is equal to 2' and let \( f^*(\text{'horse'}) = f(\text{'horse'}) + 2 \).)

If 'horse' does not mean "horse" in these sorts of models, then 'the winged horse' does not mean what it customarily means; that is, it does not mean what it means in the models that represent English. In that case, it is hard to see how a notion of super truth that is defined relative to such models could be germane to whether English sentences of the form 'the winged horse is \( F \)' or the winged horse is not \( F \) are true. This is, of course, the same dilemma that we kept encountering in the body of the text: where truth-value gaps are necessary, the choice supervaluation offers is to ignore salient structure or to equivocate. Neither alternative strikes us as awfully attractive.