EVANS' IDENTITY PUZZLE AND VAGUENESS

By arguing that vagueness reduces to indeterminacy between precise precisifications, and that precisifications are counterparts (in Lewis' sense) Elisabeth Barnes hopes to show a fallacy in Evans' argument against ontic indeterminacy. However, as I argue, vagueness does not reduce to indeterminacy between determinate options, and Barnes' view, thus, fails to convince.

By Tobias Alexius

In her a 2009 article *Indeterminacy, identity and counterparts* Elisabeth Barnes presents a supervaluationist view of indeterminacy inspired by David Lewis' (1968) counterpart theory. She uses this view to show that Gareth Evans' famous (1978) argument against the possibility of ontic indeterminacy supposedly misses its mark. In this article, I argue against Barnes' style of supervaluationism (and supervaluationism in general). I will not do so in order to defend Evans' argument (which I think fails for independent reasons). Rather, my goal is to show that the core supervaluationist approach to vagueness – to explain it in terms of indeterminacy between precisifications – fails because it confuses two logical types of indeterminacy: *indecisiveness* and *vagueness*. Barnes' attempt to add counterpart theory to the mix makes no difference in this regard, and thus, because supervaluationism in general fails to account for vagueness, her argument against Evans has no bite.

In part (1) of the article, I explain the key features of supervaluationism and Barnes' own brand of it. I also give an overview of Evans' argument, and explain – very briefly – how Barnes' view is supposed to work against it. In part (2) I argue against supervaluationism by drawing a distinction between two logical types of indeterminacy: indecisive indeterminacy and vagueness, and show how supervaluationists, by confusing these logical types, fail to capture the real structure of vagueness.

I. Evans' argument

Gareth Evans [1978] constructed a famous argument against the possibility of ontic indeterminacy, which goes as follows[1]:

(1) $\nabla(a = b)$

(2) $\Delta(a = a)$

(3) From (1) and (2): *a* has a property that *b* lacks, namely the property of being determinately identical to *a*.

(4) From (3) and Leibniz's law: $\Delta(a \neq b)$

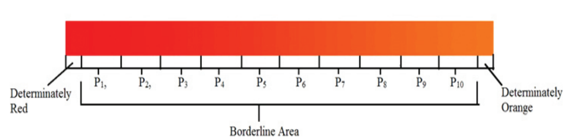
(5) From (1) and (4) we have a contradiction.

This argument is an identity puzzle, which supposedly shows that identity cannot be indeterminate. Note that this is different from saying that there cannot be indeterminate identity *statements* (there quite clearly can be!). Rather, the argument pertains to *ontological* indeterminacy (*i.e.* indeterminacy in the world itself). It is meant to show that it cannot, as a matter of fact, be indeterminate whether two objects are identical (even though it can be epistemically or semantically indeterminate).[2] The core of Evans' argument is the tension between the indeterminacy of the first premise and the (apparent) undeniability of the second premise. As we shall see, Barnes aims to solve this tension by arguing that indeterminate identity statements can have different truth-values depending on which context they are embedded in.

II. Barnes' Supervaluationism

Supervaluationism, in regards to indeterminacy, is the view that vague statements, such as 'A is red' (given that 'red' is a vague concept) are, in fact, determinately true, but only relative to a range of admissible precisifications of the statement. On this view, the logic of indeterminacy is treated as a special case of, or close relative to, modal logic and possible world semantics, where "it is indeterminate that…" parallels "it is possible that…" and "it is determinate that…" parallels "it is necessary that…". The only obvious asymmetry between possible world and [in]determinacy semantics in this context is that if something is necessary, it is also possible, whereas an indeterminate claim cannot also be determinate. Thus, 'possible' means *true in at least one possible world*, whereas 'indeterminate' means *true relative to at least one, but not all, admissible precisifications*.

With the above in mind, supervaluationists can present a formal definition of indeterminacy along the following lines. Let 'Q' be the statement 'A is red'. Because 'red' is a vague predicate, it can be precisified into various determinate predicates, each of which gives us an exact demarcation between red and orange (and changing the truth value of Q). Now, let's say that, for the sake of simplicity, there are only ten admissible precisifications of 'red'. We then get the following picture:



Each P_n is a precisification of 'red' according to which there is an absolute determinate answer as to whether a particular point on the colour spectrum counts as red or not. We call the set of all these admissible precisifications 'S', and assign truth values to Q relative to specific members of S by use of the truth-function 'a'. Thus, if A is the colour of P5 we could write:

$a_{P5}(Q) = 1$ (meaning that Q is true relative to precisification P_5)

and…

$a_{P4}(Q) = 0$ (meaning that Q is false relative to precisification P_4)

We could then define indeterminate as follows:

$$Q \leftrightarrow (\ \ x(S\ \ x)\quad a_x(Q)=0)$$
$$(\ \ y(S\ \ y)\quad a_y(Q)=1)$$

It is indeterminate whether Q iff there exists some admissible precisification of Q such that Q is false relative to that precisification, *and* there exists some other admissible precisification of Q such that Q is true relative to that precisification. Similarly, determinacy can be defined as follows:

$$\Delta Q \leftrightarrow (\ \ x(S\ \ x)\quad a_x(Q)=1)$$

It is determinate that Q iff for all x, x is a member of S and Q is true relative to x. Or, in simpler terms, Q is determinately the case iff Q is true at all admissible precisifications of Q. Note that S can have more than one member, even in determinate cases. The only restriction on determinacy is that Q be *true* at every admissible precisification.[3]

The kind of reasoning that the above definitions exemplify is typical of supervaluationists. They see vagueness as something, which can be understood as indeterminacy between determinate options. The background strategy being employed here looks as follows: If a case is vague we can abstract away from the vagueness by precisifying our language. Any indeterminacy that remains can then be explained as indecisiveness (of some sort) between determinate options. I think this strategy is mistaken and gets the nature of vagueness wrong, but we shall return to this topic later.

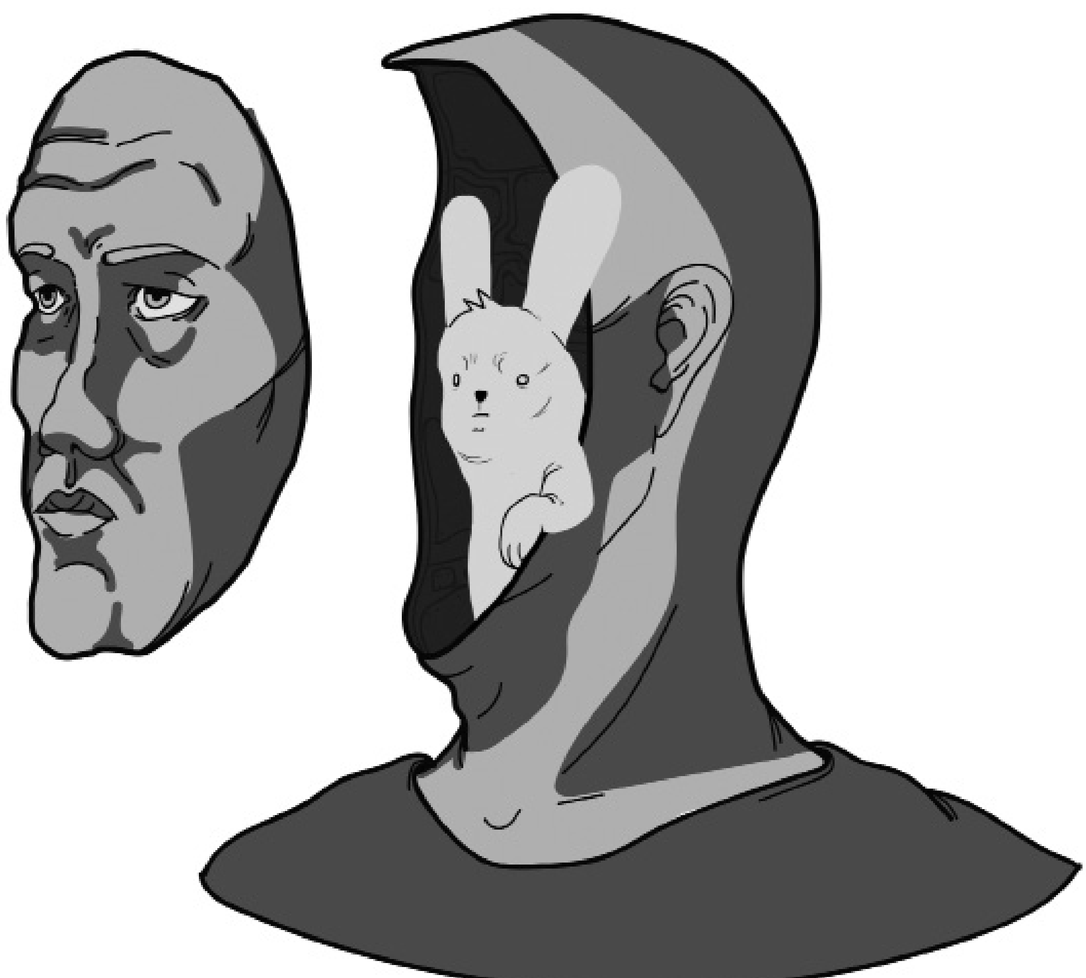
Barnes' own brand of supervaluationism includes parts of Lewis [1968] counterpart theory of modality. Specifically, Barnes wants to add the idea that objects are world-bound (i.e. that the same object x can only exist in one world), and that strict identity therefore cannot hold across worlds. On this view, modal claims like ◊p(F) are made true, not by some possible world in which there is an object x that is identical to p and where p(F) is true, but rather by some world in which there is an x which is a counterpart to p, call it p1, such that p1(F) is true at that world. A counterpart to p is an object in a possible world that is relevantly similar to p. The notion of 'relevantly similar' is, of course, highly problematic, but I will not explore it further here. The intuitive idea is clear enough for our purposes.

Barnes uses counterpart theory in the following way. According to standard supervaluationism vague terms can be associated with a set of admissible precisifications, and according to standard counterpart theory, we should deny strict trans-world identity of objects across possible worlds. Barnes combines these to deny strict cross-precisificational identity of precisified terms. She writes:

> … precisifications give us a helpful model for distinguishing determinacy and indeterminacy, but they are not the way things really are – in reality, things (words, objects, properties etc. – depends on your theory of vagueness) are vague. With this in mind, then, it is best not to speak of strict identity across precisifications. Rather, we have actual (vague) things and then we have their precisified counterparts. We can thus latch on to truth claims about actual things based on the way things are in precisifications, while at the same time maintaining that nothing here in the vague world is identical with anything in the precisifications. (2009, p.11)

Now, the key benefit of Barnes' counterpart-theoretical-supervaluationism (CTS for short) is that it opens for the possibility of making truth-values of indeterminacy claims context-relative, just as standard counterpart theory allows for context relative truth-values in modal statements. For instance, a statement like $\Delta x(F)$ would normally be true iff $x(F)$ is true on all admissible precisifications, whereas with CTS, the same statement is true iff all counterparts of x that are picked out in some particular context are F. Effectively, this amounts to relativizing membership of the set of admissible precisifications to the context of the utterance. To give a concrete example, the statement 'Philip is determinately fast' might be determinately true at his school, but false when uttered at the Olympic Games. The reason for this is that at his school, the set of admissible precisifications of 'fast' is less strict than it is at the Olympic Games. This relativisation of admissibility would be problematic if we required strict identity between precisifications, but since CTS has dropped that requirement Barnes has no problem saying that some precisifications are only valid in certain contexts.

To sum up, CTS has three core components: (a) vagu-



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eness can be precisified in a way analogous to modal statements in possible world semantics, (b) the precisifications are not identical to the original term nor to each other, but are each other's counterparts, (c) which precisifications count as admissible is context-dependent.

III. How CTS solves Evans' identity puzzle

Barnes argues that the CTS framework dispels the contradiction of Evans' identity puzzle because it turns absolute identity relations between precisifications into context-sensitive counterpart relations. This, in turn, allows us to say that statements that are determinately true in one context can be indeterminate in another (because the set of admissible precisifications has different members depending on context). Thus, it might very well be the case that contexts in which we refer to the object 'ab' as 'a' invoke different counterpart-relations than do the contexts in which we refer to it as 'b'. If so, then in moving from premise (1) in Evans' argument ((a=b)) to premise (2) (Δ(a=a)) we are moving between contexts – which means the argument equivocates. This, of course, disqualifies any conclusions that draw on both premises (including Evans' conclusion: Δ(a≠b)).

The core idea here is quite simple. In modal counterpart theory it can be the case that (a=b) and ◊(a≠b) even though å(a=a). This is because different terms provide different contexts and, therefore, different counter-part relations which impact the truth-value of relevant modal claims. Analogously in CTS, since the (in)determinacy operators are thought of as modal operators in possible world semantics (except ranging over precisifications), and because CTS makes use of counterpart theory to account for the relation between precisifications, the same argument is valid. Thus, it can be the case that (a=b) even though Δ(a=a) because the two statements change context and have different counterparts against which to judge the truth of the relevant (in)determinacy claims.

IV. Why Barnes is wrong

A worry one might have about Barnes' view is that it makes perfect sense in semantic, but not ontic cases. Even if we assume that the indeterminacy operators are just special instances of the modal operators, it still remains difficult to understand what CTS really *amounts to* if interpreted as an ontic thesis. Barnes' own suggestion is that we take precisifications to literally *be* possible worlds. The idea being that there is a real vague world w_0, and a set of non-vague worlds $\{w_1 \dots w_n\}$, each of which come equally close to being determinate replicas of w_0. Vagueness is then understood as it being indeterminate which of these possible worlds is the *actual* world. To quote Barnes:

> This modal … construal of the determinacy operators relies on the distinction, familiar from Ersatz theories of modality, between the actual world and the actual*ized* world. If the world contains indeterminacy, then there is more than one world in the space of precisifications – because if the world contains indeterminacy then the world admits of precisification in various ways. If, for example, it's indeterminate whether p, then there will be at least two worlds in the space of precisifications – one which represents things as being p, and one which represents things as being not-p. Both possible worlds in the set of precisifications are fully precise, but if at the actual world it is indeterminate whether p, it will be indeterminate which of these two fully precise worlds is actualized. (2009, p.5)

Of course, this raises many questions. Are we supposed to side with Lewis, accept modal realism, and somehow believe that in ontically vague cases it can be undecided which possible world is actualized? Or are we supposed to be abstractionists, treat possible worlds as abstract objects and the real world as sometimes undecided as to which of these worlds best describe it (or match it, or whatever is a suitable description of the relation between abstract objects and the physical world)? Barnes writes:

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> Determinately [in indeterminate cases], there is one and only one actualized world. But if there's indeterminacy in the actual world, then it's indeterminate *which* of the possible worlds it is. This is just a modelling of the basic thought that if the world is indeterminate, then there is no unique, determinately correct representation of it. (2009, p.5)

According to this view, ontic indeterminacy is a state of the world which cannot be accurately described in any one determinate way, but which, instead, lies open to a number of 'equally good determinate interpretations'. At first, this might sound suspiciously like a semantic thesis – but it is not. A semanticist would have to say that the world is *closed* to being described in more than one way, but that, because of deficiencies in our representational capacities, we are still *trying* to represent it using indeterminate semantics. The difference between the two theses is that, in the ontic case, the indeterminate description is *veridical*, and in the semantic case it is an inaccurate *approximation*. Now, I will not debate further how best to interpret the metaphysical implications of CTS, even though the issue is central for understanding Barnes' answer to Evans' puzzle. The reason is that Barnes' (and many other supervaluationists) fail at a much earlier stage – namely in their general description of vagueness. As a result, Barnes' use of the CTS framework is not properly grounded. The core of the critique against supervaluationism to which I am alluding is that it fails to recognize the existence of two different logical types of indeterminacy, each of which needs to be analysed on their own. I choose to call these logical types *indecisiveness* and *vagueness* respectively (no proper terminological tradition has yet been settled upon). Indecisiveness is the kind of indeterminacy that appears in, for instance, split-future cases, where the indeterminacy is undecidedness between two (or more) determinate options. If asked, for example, how an on-going football game will end, the best one could say would be that "either team A wins, team B wins, the game will be cancelled or the game will end in a draw". The indeterminacy here is indeterminacy between four determinate options that are mutually exclusive. To represent this linguistically, all we need is a non-inclusive disjunction:

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Non-inclusively: A B C D.

Which we can generalise into:

Non-inclusively: A –A.

Vagueness, on the other hand, is the kind of indeterminacy that shows itself in *sorites reasoning* (where gradual change makes it impossible to form non-arbitrary determinate judgements). A perfect example of this kind of indeterminacy is the red-orange colour spectrum from before, where it's impossible to single out a point as demarcating red from orange.[4] Vagueness is not straight-up disjunctive. Rather, it should be understood as indeterminacy combined with a *lack* of clearly defined alternatives. I will use ' $_v$' to mark vagueness.

With this in mind, we can define supervaluationism as the idea that vagueness reduces to indecisiveness. For, according to supervaluationists, a vague predicate reduces to a set of admissible precisifications of that predicate, each of which is perfectly determinate. But since this set is nothing more than a very large non-inclusive disjunction (red is either P_1 or P_2 or P_3 or …P_n, but it is indeterminate which) supervaluationists have, in fact, turned vagueness into indecisiveness. But how does this relate to Barnes' attempt to solve Evans' argument? It is quite clear that Barnes needs supervaluationism in order to make sense of her use of counterpart theory. The very core of CTS is, after all, that *precisifications* of vague concepts are counterparts, and this, in turn, allows for context-sensitive identity. Thus, if the core idea of supervaluationism – that vagueness reduces to indecisiveness – fails, so does Barnes' whole project.

But does supervaluationism fail? I think it does. It fails because, as I have already alluded to, it is impossible to reduce vagueness to indecisive indeterminacy. The most telling sign of this is that indecisive indeterminacy cannot be used to create sorites cases. A sorites case requires that *no* precisification accurately captures the truth of the matter, for this is what explains the arbitrariness inherent in our choice among the members of the set of admissible precisifications. A competent user of the concept of 'red' is not, as it were, confused as to which precisification P_1… P_n accurately represents 'red' (or is the *right concept of* red). Rather, a competent user of 'red' feels more comfortable saying that all of the precisifications are equally admissible *because* they are nothing but equally good *approximations* of "gradual facts".

In order to capture this gradual non-disjunctive character of vagueness, some philosophers have suggested that we should turn to fuzzy logics (in which statements can be given a range of truth values between 1 and 0).[5] Using this system, we could give voice to the idea above: if Q is the statement that X is red, and we use the precisification P_5 as our definition of 'red', then, on the view I've been sketching:

$a_{P5}(Q)$ = 0,75 (meaning that Q is sort of true relative to precisification P_5)

and…

$a_{P5}(Q)$ = 0,25 (meaning that Q is also sort of false relative to precisification P_5)[6]

In other words, even if we grant that there is such a thing as a set of admissible precisifications, we would be wrong to say that vague statements are statements which are determinately true/false relative to those precisifications.

What we should say, instead, is that *indecisively* indeterminate statements are determinately true relative to a chosen precisification, whereas *vague* statements are, at best, *true-ish* relative to a chosen precisification.

The reason this analysis of vagueness blocks reduction into indecisiveness is that the 'sort of true' of vague statements is inherently contradictory. As can be seen above, if something is vaguely P, then it is also – simultaneously – vaguely not P. Thus, we cannot represent vagueness as 'P -P', but must instead use 'P -P', and somehow specify 'how true' each disjunct is. This inherent contradictory structure is what makes vagueness sorites-susceptible, and if you get rid of it by fully precisifying each disjunct, as the supervaluationist suggests, all you are left with is a number of determinate answers and a question mark, with nothing to explain the question mark.

Furthermore, since we are trying to understand the structure of ontic indeterminacy, we shouldn't use a model of vagueness which misrepresents vague phenomena. If vagueness is not indecisive, then we cannot use an indecisive model to derive true statements about the full structure of vague phenomena. It is, after all, a basic philosophical idea that we know about the world by way of veridical representations, and so it would be erroneous to assume that a method we know produces non-veridical representations of vague phenomena could be an accurate guide to the logical structure of those phenomena. Indeed, I find it surprising that Barnes does not see these conflicting interests herself, especially considering that she freely admits that supervaluationist approaches to vagueness do not (or indeed, cannot) get their target phenomena right:

> If we take vagueness as a real (and perhaps even necessary/ineliminable) feature of the world, then it's natural to suppose that, for any vague term or object, the precisified version of it will be similar in relevant respect, but they will not quite be *that term* (or object). This copes well with the common objection to the supervaluationist – that she has merely 'changed the subject' by precisifying. Well, in a sense she has; strictly speaking, she's talking about a different word/object when dealing with a precisification. *But that doesn't prevent her from gaining information about the actual word/object*. (2009, p.10)

What Barnes misses is the following central point: the part that the precisifications are wrong about (i.e. the indeterminate nature of the word/object in question) is *precisely* the part of the phenomenon that we are trying to understand. The fact that we can gain *some* information about the actual phenomenon from the precisified counterparts does not help us understand *vagueness,* since all vagueness has been removed from the counterparts from the very beginning.

Conclusion

It seems clear that in reducing vagueness to indecisiveness we lose the contradictory nature of vagueness which allows us to construct sorites cases. This is a heavy price to pay for the supervaluationist, as he must find some other explanation as to why the choice of precisification in such cases is arbitrary (or, possibly, become a nihilist about sorites cases). Without a solution to these issues the supervaluationist's view is not credible. Furthermore, Barnes cannot wield the explanatory powers of CTS unless she first vindicates supervaluationism from these more general worries. This makes her answer to Evans' puzzle spurious – at least if that puzzle is interpreted as applying to both indecisive and vague indeterminacy.

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NOTES

[1] As per normal, 'Δ' stands for 'determinate' and ' ' for 'indeterminate'.

[2] See Lewis (1988) for an excellent clarification of this point.

[3] This, of course, opens up for various kinds of *over*-determinacy, which comes with its own set of problems. I will not go into these problems here.

[4] Matti Eklund (2013) suggests that we could define vagueness as sorites-susceptibility. I think this is a good suggestion, since it captures both the indeterminacy and the arbitrariness of vague cases.

[5] I am not taking sides in the debate between fuzzy logics and three-valued logic here. In fact, I am not even sure we need to abandon logical bivalence to handle the incoherent nature of vagueness. I am simply using fuzzy logics to make a more important point.

[6] The chosen values here are arbitrary, and meant only to help construct a larger structural argument.