VAGUENESS (B)

I. Supervaluationism is perhaps the most popular theory of vagueness. One of the philosophers who introduced it in the 1970s was K. Fine. This theory accepts that, of the statements containing vague words, some are true, some are false, and some are neither.

A *sharpening* of, e.g., the predicate ‘child’ is an assignment to it, as its extension, of a set of people such that: (i) it contains all those who are definitely children; (ii) does not contain anyone who is definitely not a child; and (iii) if s contains x but does not contain y, where x and y are borderline cases for ‘child’, then x is closer than y to being definitely a child. So the sharpening draws the line between children and people who are not children at a particular age. A *valuation* for a language is a set of sharpenings: for every vague predicate of the language, the valuation contains a sharpening of it; and the sharpenings within the same valuation are compatible with each other. For example, it is not the case, within the same valuation, that a female person is included in the extension of ‘child’ but excluded from the extension of ‘girl’. Every valuation is a way of understanding the predicates of the language, but it is a way that deviates from their real meaning, since it imposes precision where in reality there is none. (I ignore phenomena of vagueness in words that are not predicates.)

When we focus on any one valuation, we can use the classical semantic rules to find out whether various statements are true for that valuation or false for it. A predication, e.g., ‘A is a child’, is true for the valuation or false for the valuation depending on whether the valuation includes or does not include A in the extension of the predicate ‘child’. In the case of compound statements that have been constructed using ‘not’, ‘and’, ‘or’, etc., we use the classical truth-tables to find out whether the statements are true for the valuation or false for the valuation. Statements that have the form of a universal or existential quantification are treated, as usual, like conjunctions or disjunctions respectively. (For instance, ‘There is a student who is bald’ is true for the valuation or false for it depending on what ‘George is bald, or John is bald, or ...’ is.) Thus, each statement is either true for the valuation or false for the valuation. (I ignore compound statements that have been constructed in ways other than those we have just seen, e.g., using modal operators.)

The central idea of supervaluationism is that a statement is true (i.e., true in its real meaning) iff it is true in all valuations; false iff it is false in all valuations; and neither true nor false iff it is true in some valuations and false in others. Those who follow the theory usually adopt the standard philosophical definition of validity: an argument is valid iff the premisses could not be true (i.e., true in their real meaning) without the conclusion also being true.

According to supervaluationism, some of the hypothetical premisses in the sorites (somewhere in the middle) are neither true nor false. That is why the reasoning is not sound. For example, the sentence ‘If 142 grains of sand do not constitute a heap, neither do 143’ is false for the valuation that includes 143 but not 142 in the extension of the predicate ‘number of grains of sand that constitute a heap’, and it is true for all other valuations.

II. Supervaluationism accepts classical logic but largely rejects classical semantics, as regards vague concepts. What is this distinction? Classical logic consists, on the one hand, of the formulas that constitute axioms or theorems in what we call ‘the classical predicate calculus' (classical first-order logic) and, on the other, of the patterns of reasoning that that calculus approves. For example, supervaluationism accepts the law of excluded middle, p or not-p, arguing that every statement of the form 'p or not-p' is true. If, e.g., X is borderline for 'bald', the sentence 'X is bald' turns out true for some valuations and false for others. So does the sentence 'X is not bald'. However, the disjunction 'X is bald or X is not bald' turns out true for all valuations. On the other hand, classical semantics consists of principles about truth and falsehood that are not part of classical logic but usually accompany it. For example, supervaluationism denies the principle of bivalence, i.e., that every statement is either true or false. It also denies that, for every statement **S**, either **S** is true or not-**S** is true. It also denies that, for all statements **A** and **B**, if the disjunction '**A** or **B**' is true, then either **A** is true or **B** is true.

According to supervaluationism, we cannot calculate the truth-value of a composite statement (the plain truth-value, i.e., whether it is true, false or neither, not the truth-value for a valuation) from the truth-values (the plain truth-values) of the component statements. For example, it may be that **A** has the same value as **C**, and **B** has the same value as **D**, but **A** $\rightarrow$ **B** has a different value from **C** $\rightarrow$ **D**. Mainly thanks to that feature, the theory avoids many of the problems we saw in other theories: (i) It recognizes that all converses of the hypothetical premisses of the sorites are true. (ii) It makes out all tautologies of the form **A** $\rightarrow$ **A** to be true and all contradictions of the form **A** $\wedge$ $\neg$**A** to be false. (iii) It accepts that all arguments that have the form of modus ponens are valid. (iv) It distinguishes between the sentence 'Eve is a girl iff Eve is a child' (which it makes out to be true) and the sentence 'Eve is a girl iff Eve is not a child' (which it makes out to be false).

It is sometimes said that higher-order vagueness is a problem for supervaluationism. I think, however, that it is only a problem for those advocates of the theory who believe that they are studying vagueness using precise concepts. Let's say that X is a borderline case for 'definitely red'. Then the set s of objects that are redder than X constitutes a borderline case for the predicate 'set containing all the things that are definitely red': if X is not definitely red, then s satisfies that predicate; if X is definitely red, then s does not satisfy the predicate (because it does not contain X). Since s is a borderline case for the predicate in question, the assignment of s, as an extension, to 'red' is a borderline case for the predicate 'sharpening'. Thus higher-order vagueness shows that the term 'sharpening' and, consequently, the terms 'valuation', 'true for all valuations', etc. are vague. However, using vague concepts is not a problem for supervaluationism, as it was for the theory of degrees of truth. This use shows that the theory ought to follow the logic it proposes for vague concepts. The theory of degrees of truth introduced a non-classical logic for vague concepts, but followed classical logic in studying these concepts. Supervaluationism, however, accepts that vague concepts, too, are governed by classical logic. Hence it is not problematic that it follows that logic.

III. Problems with supervaluationism:

(a) It makes out, e.g., the following sentence to be true:

(1) There is an integer j such that those whose height is j millimeters are not tall but those whose height is j + 1 millimeters are tall.

(When we discuss 'tall', let's ignore the fact that its application depends on our *comparison class*; for example, do we mean tall for an ordinary man or for a basketball player? Let's say that by 'tall' we mean 'tall for an adult male in contemporary Greece'. Then, the predicate is still vague.) Why is (1) true for every valuation? Because each valuation assigns a set of numbers to the predicate ‘integer x such that those whose height is x millimeters are tall’, and there will be some number that is the largest integer before those belonging to the set. The problem here is twofold. On the one hand, intuitively (1) is not true. On the other hand, supervaluationism is one of the theories denying that ‘tall’ draws a sharp boundary; this denial does not fit in with accepting (1) as true.

Those who follow the theory may respond that what is not true is the sentence

(2) There is an integer j such that those whose height is j millimeters are definitely not tall but those whose height is j + 1 millimeters are definitely tall.

They can assert that this fact—that (2) is not true—both gives rise to our intuitions about (1) and is what they mean when they claim that ‘tall’ draws no sharp boundary. Supervaluationism may treat ‘definitely’ as an operator on predicates: it takes a predicate and yields a compound predicate. In each valuation, the extension of, e.g., ‘definitely tall’ will be a subset of the extension of ‘tall’ (otherwise, the two sharpenings will not be compatible). (2) is made out to be false for some valuations because, in some valuations, some integers (at least one) remain outside both the extension of the predicate ‘integer x such that those whose height is x millimeters are definitely not tall’ and the extension of ‘integer x such that those whose height is x millimeters are definitely tall’. (Most likely, that happens not only in some valuations, but in all of them.)

Alternatively, those who follow supervaluationism may respond that there is no number that satisfies the compound predicate ‘integer j such that those whose height is j millimeters are not tall but those whose height is j + 1 millimeters are tall’. They can assert that this fact both gives rise to our intuitions about (1) and is what they mean when they claim that ‘tall’ draws no sharp boundary. They treat satisfaction as they do truth: an object satisfies a vague predicate (it satisfies it outright) iff it satisfies it for every valuation. Each valuation includes a number (just one) in the extension of the predicate ‘integer j such that those whose height is j millimeters are not tall but those whose height is j + 1 millimeters are tall’. But there is no number that all valuations include in that extension. Therefore, no number satisfies the compound predicate for all valuations. (That no number satisfies the predicate and yet (1) is true is one of the odd combinations of views that we find in supervaluationism.)

(b) This problem was expounded by T. Williamson. Like all theories claiming that some statements are neither true nor false, supervaluationism faces a problem arising from the disquotational schema about truth (the statement ‘p’ is true if and only if p). Let’s take a statement that, according to supervaluationism, is neither true nor false, e.g., ‘John is bald’, where John is a borderline case. We can deduce a contradiction as follows:

¬(the statement ‘John is bald’ is true) and ¬(the statement ‘John is bald’ is false). But ‘John is bald’ is false iff ‘¬(John is bald)’ is true. Hence, ¬(the statement ‘John is bald’ is true) and ¬(the statement ‘¬(John is bald)’ is true). Now, by the disquotational schema, the statement ‘John is bald’ is true iff John is bald; and the statement ‘¬(John is bald)’ is true iff ¬(John is bald). Therefore, ¬(John is bald) and ¬¬(John is bald).

Except for the claim that ‘John is bald’ is true iff John is bald and the claim that ‘¬(John is bald)’ is true iff ¬(John is bald), supervaluationism approves all other premisses and all steps in the argument of the preceding paragraph. (The rule of inference used in all steps is the rule of substitution of equivalents.) Thus the theory is forced to deny the disquotational character of truth. Williamson argues that since the statement ‘John is bald’ means that

John is bald, it must also be true iff John is bald — the same can be said for the negation '¬(John is bald)'.

IV. Those who follow the epistemic theory of vagueness use a form of the soritic reasoning as a *reductio ad absurdum.* Specifically, they so use the following reasoning:

> 1 grain of sand does not constitute a heap.
> For every (natural) number j, if j grains of sand do not constitute a heap, then j + 1 do not constitute a heap either.
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> Therefore, 10,000 grains of sand do not constitute a heap.

They argue that, since 10,000 grains of sand do constitute a heap, it is not the case that, for every (natural) number j, if j grains of sand do not constitute a heap, then j + 1 do not constitute a heap either. Hence there is a number j such that j grains of sand do not constitute a heap but j + 1 do. They similarly argue for (1). They conclude that vague words draw sharp boundaries, so vagueness is a matter of ignorance. We do not know, and cannot know, where the boundaries are. A borderline case is a case for which we cannot know which side of the boundary it lies on. Perhaps the best-known representative of the epistemic theory is T. Williamson.

The epistemic theory retains both classical logic and classical semantics. I think this is an advantage. For the principles of classical logic and classical semantics seem obvious to many people. Furthermore, it is preferable from a pragmatic point of view to retain them, since that saves us from various complications.

The epistemic theory must explain why we cannot know where the boundary lies. For example, if George is tall, but is also borderline for 'tall', why can't we know that he is tall? Here is an explanation given by Williamson:

Knowledge involving vague concepts is governed by a *margin for error* principle: if the height of x is similar to the height of y and we know that x is tall, then y is tall. Thus, since George is very close to the boundary drawn by 'tall', we cannot know that he is tall. For his height is similar to that of some people who are not tall, so the margin for error principle prevents us from knowing that he is tall. But why should that principle apply in the case of, e.g., 'tall'? The reason is the following. The linguistic meaning of the predicate 'tall', and therefore the boundary it draws, is determined mainly by the dispositions of the speakers, that is, the degree to which they are willing to apply the predicate, or to deny it, under various conditions. It is not only the dispositions of one speaker that play a role, but those of all speakers, and it is not only the dispositions that exist today that play a role, but also those that existed some time ago; but even in the case of each speaker individually, their current dispositions that play a role are complex, since they concern the extent to which they would be willing to consider someone tall in various kinds of circumstances. If the whole system of speakers' dispositions were even slightly different, the boundary drawn by 'tall' would be in a slightly different position. So let's suppose I say or think 'X is tall' and X is indeed tall but has a height similar to that of some people who are not tall. Then my statement or thought is true, but could easily have been false. For the boundary could easily have been drawn at a slightly different position such that X, having the same height as in reality, was on the other side. Hence, my statement or thought is true by chance; it did not result from a process or mechanism that reliably leads to truths. For that reason, it does not count as an expression of knowledge. I cannot say or think ‘X is tall’ and thereby express knowledge.

That explanation presupposes a principle that is generally accepted in contemporary epistemology: if someone believes something, and their belief is true, but they have stumbled upon the truth by chance (that is, it is a matter of luck or coincidence that they formed that true belief and did not form a false one instead), then they do not have knowledge of what they believe.

The epistemic theory is the opposite of verificationism about language. According to verificationism, no sentence has such truth-conditions that it is impossible to know whether or not those conditions are met in reality.

Most people have strong intuitions against the epistemic theory.

And there are problems for the theory in the philosophy of language: Is it really the case that speakers’ use of a vague predicate, together with their relevant dispositions and other mental states, determines a specific boundary between things that satisfy the predicate and those that do not? If, in some cases, they did not determine such a boundary, would classical logic and classical semantics still apply?

References

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