Vagueness 3

PHIL2511 Paradoxes
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Admin

Required reading: Sainsbury, Chapter 3,

Required reading for next seminar: Sainsbury, Chapter 6

Optional reading:

i) Olin, ‘The Sorities Paradox’

ii) Williamson, ‘Vagueness and Ignorance’

iii) Braun and Sider, ‘Vague, So Untrue’

For a book of good papers on vagueness, see Keefe and Smith, *Vagueness: A Reader* (Available electronically at HKU library)

Essay 1 able to be picked up: Monday March 18, from the philosophy office

The Paradox of the Heap: the Premises

(1) A 10,000 grained collection is a heap

(2) If a 10,000 grained collection is a heap, then a 9,999 grained collection is a heap

(3) If a 9,999 grained collection is a heap, then a 9,998 grained collection is a heap

…………………

(10000) If a 2 grained collection is a heap, then a 1 grained collection is a heap

The Paradox of the Heap: the Paradoxical Argument

If we apply modus ponens (1) and (2), we get

(2*) A 9,999 grained collection is a heap

Modus Ponens: From ‘A’ and ‘If A then B’, we can derive ‘B’

The Paradox of the Heap: the Paradoxical Argument (cont)

If we apply modus ponens to (2) and (2*), we get

(3*) A 9,998 grained collection is a heap

If we apply modus ponens to (3) and (3*), we get

(4*) A 9,997 grained collection is a heap

And so on and so forth, until we get

(10000*) A 1 grained collection is a heap

Response 1: Supervaluationism

- Vagueness is a lack of complete meaning
- A word that has an incomplete meaning has multiple different ways of being completed
- The different ways of completing an incomplete meaning are called **sharpenings**
- By revealing a vague word’s sharpenings, we reveal the word’s incomplete meaning in the same kind of way that we could reveal what someone’s incomplete house is like by showing all the ways in which it could be finished

Supervaluationism (cont)

Suppose s is a sharpening of ‘heap’. Then

i) If ‘heap’ is definitely true of x then s is true of it

ii) If ‘heap’ is definitely false of x then s is false of it

iii) For each x, s is either true of x or false of x

iv) s respects the “underlying order” of ‘heap’: if s is true of a n grained collection then it will also be true of an n+1 grained collection

Supervaluationism (cont)

A sentence S is true iff all the sharpenings of S are true

A sentence S is false iff all the sharpenings of S are false

A sentence that ascribes a vague predicate to a borderline case is true on some sharpenings and false on other sharpenings, and hence is neither true nor false

The supervaluationist solution to the paradox of the heap

- Suppose a and b are borderline for ‘heap’, and a has one more grain that b (For example, a might have 76 grains and b might have 75 grains)
- Since a and b are both borderline for ‘heap’, there is a sharpening of ‘heap’ on which ‘a is a heap’ is true, but ‘b is a heap’ is false.
- Hence, ‘If a is a heap then b is a heap’ is false on one sharpening, and hence not true
- The paradoxical argument therefore has a false premises

Objection 1: Clash with linguistic intuition (see Braun/Sider p18)

(v) and (∃) are both true according to supervaluationism, but they are both seem false (where 'the patch' refers to a borderline case of redness and pinkness)

(v) The patch is pink or the patch is red

(∃) There is some number, n, such that an n grained collection is a heap, whereas a n-1 grained collection is not a heap

Objection 2: Truth behaves oddly (see Braun/Sider p18)

Example 1: Given supervaluationism, (v) is true even though neither ‘The patch is pink’ or ‘The patch is red’ is true

Example 2: Given supervalutionism, (∃) is true even though there are no true instances of

‘ an n grained collection is a heap, whereas an n-1 grained collection is a heap’

Objection 3: Incompatibility with the T-schema (see Braun/Sider p21)

The T-schema is a very plausible principle concerning truth.

(T-schema) ‘ϕ’ is true iff ϕ

Consider the following instance of the T-schema, where ‘The patch’ refers to a patch which is a borderline case of redness:

(T) ‘The patch of red’ is true iff the patch is red

Objection 3 (cont)

Since ‘The patch’ refers to a borderline case of redness, according to supervaluationalism, RHS(T) is true on some sharpenings and false on other sharpenings.

According to supervaluationalism,

(SF) ‘The patch is red’ is false iff ‘The patch is red’ is false on all its sharpenings

Hence, according to supervaluationalism, RHS(T) is not false

Objection 3 (cont)

According to supervaluationalism:

(ST) ‘The patch is red’ is true iff ‘The patch is red’ is true on all its sharpenings

Since RHS(ST) is false, LHS(ST) is false.

Since LHS(T)=LHS(ST), it follows that LHS(T) is false given supervaluationalism.

Conclusion: Given supervaluationalism, LHS(T) is false, but RHS(T) is not false.

Hence, given supervaluationalism, (T) is false!

Objection 4: Higher order vagueness

This version of supervaluationism has the consequence that there is a sharp cut-off point between being definitely a heap and not being definitely a heap.

But it seems false that there could be such a sharp cut-off.

Response to objection 4

Claim that the language in which the supervaluationist theory is stated is also vague, and hence ‘is a sharpening of S’ also has borderline cases.

Reply: But God could state the supervaluationist theory in a precise language. And in God’s precise language, the supervaluationist theory would entail a sharp cut off between being a definite heap and not being a definite heap.

Response 2: Degrees of Truth

Question: Is a 16 year old girl an adult?

A natural answer: “That is to some extent true”, “There is a certain amount of truth to that”

Degree theorists take this answer seriously: They think that sentences have different degrees of truth ranging between 1 and 0, with 1 for definite truth, 0 for definite falsity, and values inbetweeen for borderline cases.

The standard degree theory

Let [P] be the degree of truth of the sentence P. Then:

i) [~P] = 1 – [P]

ii) [P and Q] = Min{[P], [Q]}

iii) [P or Q] = Max{[P],[Q]}

iv) [If P then Q] is 1 when [Q] is at least as big as [Q]; and is otherwise 1 – ([P] – [Q])

The degree theory's solution to the paradox of the heap

Suppose an n grain collection is a border line case of a heap. Then:

i) [An n grain collection is a heap] is bigger than 0 and smaller than 1, and is slightly bigger than [An n-1 grain collection is a heap]

And hence:

ii) [If an n grain collection is a heap then an n-1 grain collection is a heap] is slightly less than 1

The degree theory’s solution to the paradox of the heap (cont)

An application of modus ponens to premises that have slightly less than degree 1 of truth can result in a conclusion that is slightly more less than 1.

Repeated application of modus ponens to such premises can therefore result in a final conclusion that has a degree of truth of zero

This is what happens in the sorities argument

Objection 1

Degree theorists typically define an argument to be valid iff the degree of truth of its conclusion is not less than any of its premises.

Problem: This account renders modus ponens invalid

Response: Come up with a different account of validity?

Objection 2

If [P] is 0.5 then [P or ~P] is 0.5. But ‘P or ~P’ should be definitely true!

Response: No, borderline cases of ‘P or ~P’ do not seem definitely true

Objection 3

How do the precise degrees of truth get fixed? Example, what determines what precise degree of truth ‘An 76 grain collection is a heap’ gets?

Response: The precise degrees of numbers don’t matter and are merely conventional. All that matters is the relative size of the degrees of truth, and it is easier to see what makes it the case that one sentence has a higher degree of truth than another.

Example: it is easy to see that ‘a 76 grain collection is a heap’ is more true than ‘a 75 grain collection is a heap’

Objection 4

Suppose:

[x is red] = 1 [x is small]=0.5

[y is red] = 0.5 [y is small]=0.5

Intuitively, ‘x is red and x is small’ should be more true than ‘y is red and y is small’.

But according to the standard degree theory, they have the same degree of truth, namely 0.5

Objection 5

On the degree theory so far developed, there is a sharp cut-off between definitely being a heap and definitely not being a heap.

This sharp cut-off will occur when the truth value of ‘An n grained collection is a heap’ goes less than 1 for the first time.

But such a sharp cut-off is implausible

Response to objection 5

The language in which the degree theory is stated is also vague, and hence ‘has degree less than 1’ also has borderline cases.

Reply: But God could state the degree theory in a precise language. And in God’s precise language, the degree theory would entail a sharp cut off between being a definite heap and not being a definite heap.

Response 3: Objective Vagueness

Objective vagueness: Vagueness isn’t a defect in language, it is an objective feature of the world.

An example to illustrate the objective vagueness theory: Let r be a precise region of Australia such that it is a vague matter whether the Australian desert is wholly contained in r

The supervaluationist account of the example

- ‘The Australian Desert is contained in r’ has multiple sharpenings due to the ‘The Australian Desert’ having multiple sharpenings
- Under each sharpening of `The Australian Desert’, `The Australian Desert’ refers to a different precise region. (Under one of these sharpenings, for example, ‘The Australian Desert’ refers to r.)
- ‘The Australian Desert is contained in r’ is neither true nor false since it is true under some sharpenings, but false under others

The Objective Vagueness account of the example

- ‘The Australian Desert’ has only one sharpening
- Under this one sharpening it refers to a particular object, which we may call d
- d has vague properties, such as the property of having a particular vague spatial extent

Question: Given the objective vagueness theory, is it a vague matter whether d is identical to r?

Evan’s argument that d is determinately not identical to r

Suppose it is indeterminate whether d is identical to r. Then

1. ‘is such that it is indeterminate whether it is identical to r’ is true of d [from assumption]
2. It is not the case that it is indeterminate whether r is identical to r [independently obvious]
3. ‘is such that it is indeterminate whether it is identical to r’ is not true of r [from 2]
4. d is not identical to r [from 1, 3 and Leibniz’s law]

Since (4) contradicts the assumption that it is indeterminate whether d is identical to r, the assumption must be false.

Since it is not determinate that d is identical to r, it must be determinately the case that d is not identical to r.

Objection 1 to the objective vagueness

The objective vagueness theory is **unparsimonious**: In addition to all the normal objects, such as all the precise regions, there are additional vague objects, such the Australian Desert

Objection 2 to objective vagueness

Given the objective vagueness theory, there are objects with **spooky and mysterious properties**.

Example: According to the objective vagueness theory, there is an object, the Australian Desert, with the weird property of having a certain vague spatial extent

Response 4: The epistemic theory

The epistemic theory: Vague expressions do have sharp cut-offs, but we just don’t know where those sharp cut-offs are.

Example: There is precise number of grains at which a collection changes from being a heap to being a non-heap.

Objection 1: No account can be given for what makes it the case that vague expressions like ‘heap’ have the precise cut-offs they have

The epistemic theory (cont)

Objection 2: No satisfactory account can be given for why we can’t know where the precise cut-off is (if there is a precise cut-off)

Williamson attempts to respond to these and other objections in ‘Vagueness and Ignorance’.

See also Olin, ‘The Sorities Paradox’ pp. 182-189

Response 5: Semantic nihilism

Semantic nihilism: Each sentence containing a vague expression is not true

Consequence of semantic nihilism: Virtually every sentence in English is not true (including this one!)

Objection 1: If virtually all our sentences fail to be useful, how can they be so useful

Objection 2: Isn't semantic nihilism self-refuting?

Semantic nihilism (cont)

Braun and Sider offer interesting responses to these objections in ‘Vague, So Untrue’ http://tedsider.org/papers/vague_so_untrue.pdf

Warning: Braun and Sider’s paper is challenging!