Vague Composition and the Problem of the Many

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Overview

Some Problems of the Many

- Assume that the scene contains what we'd normally describe as a cat on the mat.
- Assume also that it is vague, in some sense, which hairs are hairs of that cat.
- Then one might think that it is indeterminate in some sense which thing is the cat on the mat.
- If this indeterminacy is semantic, then there are problems about how we can think and talk about the same cat.
- I've previously argued that this is not a problem for supervaluationism, but I think it is a problem for other theories.

Vagueness and Parthood

- A natural move at this point is to suggest that the vagueness is metaphysical, rather than semantic, and there is a common (vague) cat that we think and talk about.
- One implementation of that would be to say that the cat has vague parts.
- I don't think this can work, because of an argument I have against vague parthood.
- Elizabeth Barnes and Robbie Williams have recently pointed out that this argument needs stronger premises than I originally claimed it needed.
- But I think the argument can be fixed up to avoid these problems, and vague parthood can't stay.

Objects and Events

- I think we get a better picture of what's going on by rethinking what cats are.
- Like most other everyday things, they are really **events**, not **objects**.
- This picture of ordinary things solves a number of puzzles.
- Some of these are traditional puzzles of material constitution.
- One other is a puzzle about what happens when objects go out of existence.
- And yet more concern the problems of the many under consideration here.

Vague Events

- Could events be vague?
- Given the arguments in section 2, this is closely related to the kind of principles of composition there are for events.
- I think it's plausible that the equivalent of unrestricted composition does not hold for events.
- If that's so, there might well be vague events.
- And that solves our problems of the many.

Some Problems of the Many

Imagine that we have a cat on a mat, such as this cat.

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On a view of vagueness where it is all representational, there is no such thing as a vague cat.

- There is some sense in which it is vague which hairs are hairs of the cat. (I assume there are some hairs that are at best vaguely connected to the cat. If not, pick some other small part, such as an electron, that is vague whether or not it is part of the cat. But I'll keep using 'hair' for this small part.)
- But that's because it is vague which combination of hair and cat body is denoted by 'the cat'.
- What is determinate is that 'the cat' denotes some combination of hair and cat body, and that combination is on the mat.
- So it's perfectly true that the cat is on the mat, even though there's no thing such that it's perfectly true that *it* is a cat on the mat.

On that picture of vagueness, we can have perfectly true existentially quantified statements without a perfectly true instance.

And, assuming there are only finitely many combinations of hair and cat body that could be denoted by 'the cat', there is a perfectly true disjunction that has no perfectly true disjunct.

That's a puzzle for those who would like to eliminate perfectly true disjunctions without a perfectly true disjunct.

That includes some intuitionistic theories of vagueness, and it also includes 'standard' many-valued treatments of vagueness.

But the cat raises problems for other theories too.

Imagine that Bojan can see the cat on the mat. (As shown here.)

And assume that Bojan can't speak English, he only speaks Catalan. In Catalan, Bojan reports what he sees by saying "El gat sobre la catifa."

I gather 'catifa' is better translated as 'rug', than 'mat', but hopefully that poetic licence won't matter a lot.

Now these claims both seem to be true.

1. Bojan said that the cat is on the mat.
2. Bojan believes that the cat is on the mat.

There's a puzzle, due to Stephen Schiffer, for supervaluationism here.

- It seems that both (1) and (2) are perfectly true, and given supervaluationism, that means they are supertrue.
- So they are true on all precisifications.
- The different precisifications of 'the cat' are different combinations of cat body and hairs.
- But Bojan did not say of each such combination that it is on the mat, and he does not believe of each such combination that it is on the mat. He simply didn't say, and doesn't believe, that much.
- So supervaluationism is false.

I proposed a solution to this in 'Many Many Problems'

- There is a penumbral connection between the words 'the cat' as they appear in (1) and (2), the words 'El gat' as they appear in Bojan's utterance, and whatever representation of the cat is inside Bojan's head.
- On any precisification of 'the cat', it has the same denotation as 'El gat', and as that mental representation.
- So on any precisification of 'the cat', it's true that Bojan said of its denotation that it's on the mat, and true that he believes of it that it's on the mat.

That's not a terrible solution for the supervaluationist, but I'm not sure how to generalise it to non-supervaluationists.

And that matters because there's a related problem around here for epistemicists.

- Not only are (1) and (2) true, we know they are true.
- So they must be safely true.
- But we don't know just what (1) and (2) say.
- So it must be that whatever it is they might say, those propositions are true. (If it feels like there's a use/mention confusion here, that's because it's very hard to state the core ideas behind epistemicism without tripping into things that feel like use/mention confusions. I think this is a big issue, but not one I'm addressing today.)
- And now we're back in the business of worrying whether Bojan said the millions of things needed to make each of the possible contents of (1) true, or believes each of the things needed to make each of the possible contents of (2) true.
- Intuitively, he did not say so many things, and does not believe so many things.

I can imagine a few ways out for the epistemicist.

- **Social Semantic Externalism:** Perhaps the fact that Bojan's in the same linguistic community as us means that his words and ours have, and can be known to have, the same denotation even when the denotation is unknown. But Bojan isn't in our linguistic community; we're speaking English and he's speaking Catalan.

I can imagine a few ways out for the epistemicist.

- **Speech Act Pluralism:** It's plausible that Bojan expreses many propositions by uttering "El gat sobre la catifa." Maybe he utters the squillions of propositions needed to make every possible value of (1) true. That's possible, but it feels like an insane version of speech act pluralism to me. Note that Bojan didn't intend to communicate all these propositions, so it's a much stronger version of pluralism than is defended in the literature. In any case, this could only save (1).

I can imagine a few ways out for the epistemicist.

- **Unstructured Belief Content:** Perhaps Bojan has in his head nothing like a language of thought, but rather a 'map by which he steers'. Plausibly that map might entail each of the possible precisifications of 'The cat is on the mat'. If you're prepared to buy the map theory of belief (not a trivial purchase, but more plausible than the last two proposals) that would explain why we know (2) is true. (1) is still a mystery.

So Schiffer's puzzle about reporting is not just a puzzle for the supervaluationist.

Indeed, I think my earlier proposal *solves* the puzzle for supervaluationists, but doesn't generalise to other theories.

Other theorists would do better if they could have a vague cat that was (determinately, knowably) denoted in Bojan's utterance, Bojan's mind, and our reports of his utterance and mind.

Similarly, those theorists who don't like true disjunctions without a true disjunct would also do better if they could posit a vague cat that is determinately on the mat, even if it is vague which hairs it has.

But can we really live with vague cats?

Vagueness and Parthood

In "Many Many Problems" I offered the following objection to vague parthood.

1. Assume it is vague whether a is part of b.
2. Let c be the fusion of a and b.
3. Then if a is a part of b, $c = b$, and if a is not a part of b, $c \neq b$.
4. Since it is vague whether a is a part of b, from 3 it follows that it is vague whether $c = b$.
5. But, as Evans argued, it is incoherent to have vague identity.
6. So vague parthood is incoherent.

Recently Elizabeth Barnes and Robbie Williams have offered a powerful objection to this argument. One way to appreciate Barnes and Williams's objection is by noting that a parody of my argument seems to rule out *contingent* parthood.

1. Assume it is contingent whether a is part of b.
2. Let c be the fusion of a and b.
3. Then if a is a part of b, $c = b$, and if a is not a part of b, $c \neq b$.
4. Since it is contingent whether a is a part of b, from 3 it follows that it is contingent whether $c = b$.
5. But, as Kripke argued, it is incoherent to have contingent identity.
6. So contingent parthood is incoherent.

I'm not 100% opposed to the conclusion of the parody argument, but I think most people will say that it's a lousy argument. And I think I know where they'll say it goes wrong.

- The term c in the argument is not a rigid designator; it is shorthand for a description.
- And that description picks out different things in different worlds.
- If a is a part of b, it denotes b, and if not, it denotes something larger than b.
- There's no incoherence about it being contingent whether some object is the unique satisfier of a description, especially if that description denotes different things in different worlds.
- It's coherent, for example, to say that Usain Bolt is the fastest man alive, but he might not have been.
- So the alleged Kripkean incoherence is not really incoherent at all.

Barnes and Williams note that you can say the same thing about my argument.

- It might be that the term c is referentially indeterminate.
- It is indeterminate whether it denotes b; it does so iff a is part of b.
- Given referential indeterminacy, there's no incoherence in identity statements being vague, just like given referential non-rigidity, there's no incoherence in identity statements being contingent.

What's striking about Barnes and Williams's objection is that they can run this objection without giving up (a form of) unrestricted composition.

- On Barnes and Williams's model, we still have it being a determinate truth that for all x, y, there is a unique fusion of x and y.
- What they allow is that it could be indeterminate what that fusion is.
- This last allowance is necessary.
- Given the following premise, my argument goes through.

  Strong Fusion Premise
  For any two things x, y, there is a thing z such that it is determinately the fusion of x and y.

Here's another way for my argument to go through.

1. Given any two things x, y such that y is not a part of x, there is a thing that is, determinately, the mereological difference between y and x, that is, determinately every part of y that does not overlap x is part of it, and determinately it shares no parts in common with x.

2. Assume, for *reductio* that a is a vague part of b, and that b has some parts that are not part of a.

3. Let c be the mereological difference, in the sense of premise 1, between b and a.

4. Then $c = b$ iff a is not a part of b.

5. So it is vague whether $c = b$.

6. But that's incoherent, so the assumption must be false.

Here we've been careful to ensure that c is a determinate designator. Premise 1 not only guarantees the existence of a mereological difference, it guarantees its determinateness, so c can determinately denote it.

- So you might think that this is the place to question the argument.
- But I think this principle is in fact very plausible.
- Think again about our cat, with a hair vaguely attached to it.
- It's very plausible that we can talk about the rest of the cat - i.e. the cat not including that hair.
- In doing so, it seems to me that we can pick out a particular object. That object may be vague, there may be other hairs that are vaguely attached, but that's no reason to deny we can pick it out.
- But that assumption is sufficient to reinstate the objection I made to vague parthood.

There are some other oddities about Barnes and Williams's model that I won't develop here. (I'm not sure these are objections, but they are oddities worth exploring.)

- Assume we have a cat with a vaguely attached hair. The hair could have been a little more tightly attached. If that were true, then it would be a little truer that the hair was part of the cat. I think Barnes and Williams's model implies there has to be another vague cat-like entity such that it is also vague whether this hair is part of it, but if the hair was attached a little more tightly, it would be **less** true that the hair was part of it. That's I think odd.

- It's difficult to model the following situation in Barnes and Williams's model: there are two hairs h_1 and h_2, and both are vaguely part of the cat, but h_1 is more clearly part of the cat than h_2, so it's determinately true that if h_2 is part of the cat, so is h_1. This might just mean I'm bad at modelling, but I don't think the model handles this situation well.

So I conclude that I was right all along! Vague parthood is problematic.

So if we are to solve the problems from section 1, we'll need some other way of doing it.

Objects and Events

The main aim of this section is to argue that ordinary things are **events**, not **objects** in a metaphysically significant sense of 'objects'.

I'm mostly going to be talking about cats here, but what I say is meant to apply to chairs, computers, books and almost every other thing we ordinarily talk about.

One reason for thinking of ordinary things as events comes from the puzzles of material constitution.

I assume people here are largely familiar with these puzzles, so I'll go over them fairly quickly.

Just which puzzles of material constitution a theory faces depends on which kind of theory it is. In particular, it depends on whether the theory endorses:

Monism: The view that a cat is identical to the organic matter which constitutes it; or

Dualism: The view that a cat is numerically distinct from the organic matter which constitutes it.

Puzzles for Monism 1: Contingent Identity

Monism seems to lead to contingent identity, as follows.

- Let Tibbles be a cat, and TibMat the organic matter that constitutes all of Tibbles except his tail.
- If Monism is true, then if Tibbles' tail had been destroyed, Tibbles would be identical to TibMat.
- But Tibbles is not identical to TibMat.
- So some non-identity claim is contingent, which seems objectionable.

A similar argument can be used to argue that given monism, there are true temporary identities.

Puzzles for Monism 2: Leibniz's Law

Intuitively, there are several different properties of Tibbles and his matter.

1. Tibbles' matter could survive Tibbles' ingesting a large quantity of arsenic, Tibbles could not.
2. Tibbles is friendly, Tibbles' matter is not.

The monist has to explain away these intuitions. A non-standard modal theory, such as counterpart theory, might explain 1, but has a harder time with 2.

Puzzles for Dualism 1: Overcrowding

Tibbles and Tibbles' matter are in the one spot, yet are meant to be non-identical objects. We might think this will lead to crowding problems. There are several ways to bring out this intuition.

- We can't put a lump of coal where Tibbles is, because Tibbles prevents other matter going there. So why doesn't Tibbles prevent his own matter going there?
- If we weigh Tibbles and Tibbles' matter, we get just the weight of one of them, not the weight of both.
- Anything behind Tibbles can't be seen, because Tibbles occludes them. Is the occlusion caused once, by Tibbles, or by both Tibbles and his matter?

I suspect these puzzles are less significant than the ones to follow.

Puzzles for Dualism 2: Grounding

It's crucial to dualism that Tibbles have different properties from
his matter.

But it isn't clear what could ground these differences in properties.

There's no obvious truthmaker for the fact that Tibbles is friendlier
than his matter, or that he's less likely to survive his ingesting of
arsenic.

At this stage, dualism is looking like it isn't obviously compatible
with natural forms of physicalism.

Puzzles for Dualism 3: Composition

The monist has a natural picture of composition: fusion is the only way to make material objects out of smaller material objects.

The dualist can't accept this; both Tibbles and his matter are composed out of the same small material chunks.

But somehow one way of composing creates a cat, and the other way creates some cat-matter.

I'm disinclined to believe there are two forms of material composition like this, and I'm even less inclined to believe that they could generate things with properties as well defined as Tibbles and his matter.

None of these problems seem to arise in the case of events. Consider this example:

- Assume God creates a hailstorm to punish an errant tribe.
- He creates the hailstones *ex nihilo* 200 stories up in the sky, and with an initial momentum headed downward and tribeward at high speed.
- When a hailstorm hits the ground, it is immediately annihilated by God.

In the example, we have two importantly distinct things.

- We have the collection of hailstones, which I take to be the fusion of all the individual hailstones.
- And we have the hailstorm, which is an event, not a fusion of objects at all.

In some ways these look like two things made out of common material, but none of the puzzles of material constitution seem to even arise.

Let's look back at the puzzles for dualism.

Overcrowding: It's not a problem that the hailstones and the hailstorm are in the one place. Indeed, you'd hope an event would be located where its constituent objects are located.

Grounding: The hailstones and the hailstorm have different properties in virtue of the fact that one of them is an object (a large, discontinuous object), and the other is an event, and events have different properties to objects.

Composition: The individual hailstones are **parts** of the large mass of hailstone that God rains down, and **constituents** of the event of the hailstorm. These look like different composition relations. And the reason they are more acceptable than the dualist's relations is that they are building different kinds of things.

Takeaway lesson from this:

- If ordinary things are events, not objects, the puzzles of material constitution simply don't arise.

So I conclude ordinary things are events. A cat is the event of some organic matter being arranged cat-wise, a chair is the event of some wood being arranged chair-wise and so on.

Here's a second argument that ordinary things aren't material objects.

1. The only way for material objects, i.e., matter, to go out of existence is by being converted to energy.

2. When a medium sized object is converted to energy, $e = mc^2$ guarantees that it's converted to a lot of energy.

3. When a lot of energy is created, there's a loud bang.

4. So, when a medium-sized material object goes out of existence, there's a loud bang. (From 1, 2, 3).

5. But a cat can go out of existence with no loud bang at all, e.g., when it ingests arsenic.

6. So a cat is not a medium-sized material object. (From 4, 5)

7. Cats are medium-sized.

8. So a cat is not a material object (From 6, 7)

It would be wrong to conclude from that argument that cats are immaterial objects.

That's because there are no immaterial objects!

So cats must not be objects.

What are they then? The natural thing to say is that they're events.

Here are two non-philosophical antecedents of my view.

Both are meant a little frivolously, but both are helpful for showing the kind of picture that I have in mind.

Alfred Marshall, *Principles of Economics*, first edition, 1890.

> Man cannot create material things. In the mental and
> moral world indeed he may produce new ideas; but when
> he is said to produce material things, he really only
> produces utilities; or in other words, his efforts and
> sacrifices result in changing the form or arrangement of
> matter to adapt it better for the satisfaction of wants.
> All that he can do in the physical world is either to
> readjust matter so as to make it more useful, as when he
> makes a log of wood into a table.

I think Marshall says all this for some slightly dubious political reasons, but I think the metaphysics is basically correct.

Marshall is writing pre-relativity theory (and of course pre-QM) so we might wonder whether there are in principle objections to his view.

Perhaps we could, if we had any reason to, convert a lot of energy into a small material thing.

But in general we can't **create** material things. Since we can create chairs, it follows I think that chairs aren't material things. Rather, they are events of some matter being arranged chair-wise.

Kayne West, *Diamonds from Sierra Leone*, 2005.

> I'm not a businessman, I'm a business, man.

I think it's worth reflecting a little on what the metaphysical status of a business is.

- Should we identify a business with a storefront, or (in the case of an online business) with some space on a webserver?
- That will give us the wrong persistence conditions.
- Better to say that a business is a kind of event. So whether Kanye is a business or not, he is of the same metaphysical kind as a business.

The view I'm putting forward here might naturally be compared to a view that posits stuff as the constituents of material objects. Here's how you'd translate between my view and a stuff view.

- Most of what they'd call stuff, I'd call matter. (I don't know quite how to make sense of a stuff view on a microscopic level, so I don't know how the translation works there.)
- Both what they call objects, and what they call events, I call events. I think they are making an unprincipled distinction between events that are closely tied to a particular bit of matter, like a cat, and events that are less tied to any particular matter, like a baseball game.

I think my way of doing things is more principled, and more economical, but the views aren't I think a million miles apart.

I won't have time to go into this here, but note that my position also reduces the counter-intuitiveness of two other positions that some people find objectionable. These are:

1. Unrestricted pairwise fusion for material objects.
2. Temporal parts for ordinary things.

The first is not counter-intuitive because it is very plausible that when there are two chunks of matter, there is a larger chunk they compose. If the only material objects are chunks of matter, then that's all there is to fusion.

And it is very plausible that **events** have temporal parts, so if ordinary things are events, it turns out to be intuitive that they have temporal parts too.

Vague Events

The conclusion of this section will be that if a cat is an event, then it could be vague what it is constituted by.

That is, my arguments against vague parthood doesn't generalise to arguments against vague composition.

So the theory that cats are events helps resolve the problems discussed in section 2.

There are two quite different ways you might try to have a theory of events that allows for vague constitution.

Plentiful Events: This is basically Jaegwon Kim's view. An event is just the having of some property by some object.

Sparse Events: Only relatively natural (in Lewis's sense of 'natural') occurrences are events. Perhaps the only events are those that are needed for the causal history of the world. Or perhaps the events are demarcated some other way, but there aren't that many events around.

I'm ultimately going to favour a sparse conception of events, but I think either conception blocks an argument against vague constitution.

If events are plentiful, then the same material can constitute two events. (This is plausibly true even on a sparse conception of events, but it's clearly true on a plentiful conception.)

For instance, if Alex whistles while she works, then there's the event of Alex's whistling and the event of Alex's working, both constituted by Alex's body.

That is enough to prevent arguments against vague parthood from generalising to arguments against vague constitution.

To see this, consider against Tibbles, and his vague hair h.

- The argument told us to consider the part of Tibbles excluding h, and raised worries that this was vaguely identical to Tibbles.
- But that assumes that if h is not a constituent of Tibbles, then Tibbles is identical to the h-free part of Tibbles.
- On a plentiful conception of events, there's no reason to believe that.
- If h is not a part of Tibbles, then Tibbles will have the same constituents as his h-free parts. But having the same constituents does not guarantee identity for events.
- So it's possible that Tibbles is determinately not identical to his h-free part, even if h is a vague constituent of Tibbles.

On the sparse conception of events, it's even easier to see how the argument against vague constitution would fail.

- Again, consider Tibbles and h.
- Since Tibbles is (determinately) a cat, the only things he could be identical to are other cats.
- But now what is being picked out by the phrase 'the h-free part of Tibbles'? It seems to me that this denotes a material object, namely Tibbles' matter minus (perhaps) h. We need not concede it denotes the event of that matter behaving cat-like, because on a sparse conception of events, there is no reason to believe there is such an event.
- And that material object isn't a cat, since cats are material events, not material objects.
- So Tibbles is determinately not identical to anything we might get by adding or subtracting h. Those kind of mereological operations give us material objects, and Tibbles is not a material object.

So here's why the argument against vague constitution fails:

- If events are plentiful, there are enough events around to state a parallel version of the argument against vague parthood. But there's no reason to believe that perfectly overlapping events are identical, and without that we can't argue from vague parthood to vague identity.

- If events are sparse, then there aren't enough events around to cause any problems. Tibbles isn't vaguely identical to any cat like him except in respect of h because there is no such *cat*, even if there are material objects that are like his matter except in respect of h.

So I conclude that Tibbles is an event with vague constituents.

That is, there are some propositions of the form *h is a constituent of Tibbles* that are truer than 0=1 and less true than 0=0.

Note that I really need to say 'propositions' here; the vagueness resides in the event itself, not in our descriptions of it. We need something like metaphysical vagueness here to get vague constituency, which we need for our solution.

And that solution solves some of our problems whether events are plentiful or sparse.

But to solve all of the problems it seems to me that we need sparse events.

Think again about Bojan looking at the cat, and our report "Bojan believes that the cat is on the mat."

We were worried that there were too many possible denotations of 'the cat' for that to be (clearly, determinately, knowably) true.

On the Kimian theory of events, that problem is made *worse* by moving from thinking of cats as objects to thinking of them as events.

The sparse theory of events makes things easier, in a way.

There's just one cat, and Bojan is thinking of it, and we refer to it when reporting on Bojan.

For many hairs, it is vague whether the hair is a constituent of the cat.

The hairs aren't parts of the cat, though they are parts of the matter that makes up the cat. So they aren't vague parts of the cat.

The difficult question here is whether we can really live with sparse events.

What could make it the case that some lump of matter constitutes an event and other very similar lumps do not?

I'm not going to give a full answer to this, but I'll end with two notes as to why this might be less of a challenge than it seems.

It's wrong to think that there's a single thing that makes for the presence of events.

- There need not be any one that makes it the case that some matter constitutes a cat, and other matter a computer, and other matter a candlestick business, and other matter a chess match.
- Rather, there will be different answers as to what makes for biological events, artifactual events, industrial events and game events.
- In each case the persistence of property traces over time; that is, the event will be a site for causal activity.
- But we shouldn't expect a unified theory of event formation.
- The world is messy, and so are the events that populate it.

And at least on an intuitionstic account of the logic of vagueness, we can question the presupposition of the challenge.

- The puzzle was, how can we have two similar chunks of matter, one of which constitutes an event and the other of which does not?
- But on an intuitionistic theory, we don't have to accept that there is any chunk of matter here which constitutes an event.
- The presence of a vague cat doesn't entail the existence of some matter which precisely constitutes it, any more than the presence of a vague predicate entails the existence of a boundary marker for it.

On a 'degree of truth' intuitionist approach, we can say even more.
(In a longer version of this paper, I go into more detail about how
such an approach can be made to work.)

- If M and M' are very similar, then it will be almost perfectly
  true that if all of M is part of what constitutes this cat, then
  all of M' is part of what constitutes this cat.

So we don't need to posit any sharp boundaries in nature between
which matter constitutes events and which does not.

Conclusions

Some Problems of the Many

If we identify cats with cat matter, or indeed even say that cats are material objects, some version of the problem of the many become pressing.

If we take a representational view of vagueness, these problems are only solvable for supervaluationists.

Vagueness and Parthood

These puzzles would be solvable if we had vague parthood. But vague parthood implies vague identity, and that's unacceptable.

Objects and Events

The solution is to say that ordinary things like cats, the things that generate the problem of the many, are events, not objects.

This can be independently motivated by thinking about puzzles of material constitution, and about creation and destruction of matter.

Vague Events

It can be vague which matter constitutes an event. This allows us
to say cats are vague events, and thinkers and speakers can have
thoughts in common about a particular vague cat.

The End