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Undermining Motivations for Universalism

ABSTRACT: Universalism (the thesis that for any ys , those ys compose a further object) is an answer to the Special Composition Question. In the literature there are three arguments – what I call the arguments from elegance – that universalists often rely upon, but which are rarely examined in-depth. I argue that these motivations cannot be had by the perdurantist, for to avoid a commitment to badly behaved superluminal objects perdurantists must answer the ‘Proper Continuant Question’. Any answer to that question necessarily ensures that there is a restricted answer to the Special Composition Question that is just as elegant as universalism. Thus, if you are a perdurantist, the arguments from elegance fail to motivate universalism for there will always be a restricted composition that is just as good.

1. Introduction

This paper is about the

Special Composition Question (SCQ): What are the necessary and sufficient conditions for the ys to compose a further material object?

Universalism, the thesis that any collection of things compose a further thing, is the most popular answer to the SCQ. Whilst some motivations for universalism have received wide coverage (such as the Lewis-Sider argument from vagueness) some arguments – what I call the ‘arguments from elegance’ – have been given only scant discussion. In that they appear to drive some large part of the popular support for universalism, a close examination has long been needed. For reasons of space, I only deal with the motivations from a perdurantist point of view (where I’ll take perdurantism to be the thesis that for every instant t that an object exists at, it has an instantaneous temporal part at t). This is no great impediment as universalism is more often than not paired with perdurantism (or the stage theoretic variations thereof, which are close enough for our purposes here). Proponents of such a pairing include Armstrong [1989], Braddon-Mitchell and Miller [2006], Heller [1991], Hudson [2001], Lewis [1986] and Sider [2001].

In §1 I present the three arguments from elegance. Before diving into my argument against those motivations, I first explain the alleged commitment of perdurantism-universalism to superluminal objects (§2) and then discuss one way to avoid that commitment (§3). However, using that option to avoid the commitment raises another question, the ‘Proper Continuant Question’ (§4), the answer to which necessarily undermines each of the arguments from elegance (§5-6). §7 deals with a possible response on behalf of the perdurantist-universalist. Finally, §8 explains how the only other way to avoid superluminal objects results in having to answer the question from §4

anyhow. Thus the perdurantist-universalist must make concessions that undermine certain (popular) arguments for universalism.

2. The Arguments from Elegance

There are three arguments from elegance. The *argument from simplicity* is that universalism is simpler than the competing answers, and as simplicity is to be cherished, we should endorse universalism [Cameron 2007: 116;¹ Hudson 2005: 130; Markosian 2008: 343; and Nolan 2005: 36 all count it as a motivation. See also van Cleve 1986: 145, although it is less clear whether he is suggesting the argument from a healthy ontology (*q.v.*)]. For instance, compare universalism to another answer to the SCQ, say *Serial*:

For all ys , the ys compose a further object iff either the ys are F_1s and are R_1 related, or the ys are F_2s and are R_2 related or the ys are F_3s and are R_3 related or ...

Serial is a decidedly complex answer. Far better, so the argument goes, to prefer a simple answer like universalism to *Serial*. Similarly for all other answers to the SCQ – for every alternative, universalism (in merely saying that all collections compose) is always going to be more attractive. The only comparable answer is nihilism (the thesis that nothing composes), but presumably the universalist comes armed with excellent reasons to deny nihilism, so universalism wins by elimination. You may well have qualms with this argument (such as whether we should prize such simplicity given the counterintuitive gerry-mandered objects universalism commits us to; whether all competing non-nihilist answers are, in fact, more complex; or whether we should deny nihilism etc.) but charitably set them aside. So, in summation, the argument is: we should prize theoretical simplicity; such simplicity is had by taking an answer to the SCQ that says that either every collection of objects compose or none of them do; nihilism is false; therefore universalism is true. So we have the first of the arguments from elegance.

The second argument from elegance is the *argument from cultural prejudice* [Hawthorne 2006: xii;² Hudson 2006: 636; Jubien 1993: 2; Merricks 2001: 74-5; Sider 2008: 257-61]. Different cultures have different beliefs about what objects exist. For example:

Example one: French butchers don't cut beef as English butchers do. Instead they divide the animal into different portions not recognised by their island bound counterparts. We could take this to be representative of an ontological difference – that not only don't the French think it's a

¹ Although see his *n45*.

² Hawthorne's argument concerns itself with those who accept the *plenitude principle*: that any filled region of spacetime is exactly occupied by a material object. Whilst not the same as universalism, it is so close that for our purposes it is reasonable to conflate Hawthorne's argument here as being one for universalism also.

cut of beef, but they don't even think the uncut cow corpses have those things as parts. That is, the English think there are some objects which exist, and are parts of the beef, which the French do not think exist. If this is right then the French would, quite literally, think the English weren't cutting nature at the joints [David 1998: 333].³

Example two: Western culture holds that a yam persists when it goes from ripe to being overripe, but the Trobriander people believe that what we call an unripe yam is a 'taytu' that ceases to be during the ripening process. Upon ripening it is replaced by a distinct object – a 'yowana' [Lee 1950: 91].

Whilst these cultural differences aren't as severe as the difference between admitting/denying the existence of objects composed out of any material objects you care to mention, it is little stretch of the imagination to think that such cultural divisions are, in principle, possible (such as with the imaginary cultures discussed by Dorr [2005] and Hirsch [1982: 32-3]).

If composition were restricted, then some cultures will be wrong about what objects there are – in other words, wrong about which things compose. The fear is, then, that restricting composition will be prejudiced. This fear is motivated on the assumption that any proposed restricted answer to the SCQ will attempt to meet certain desiderata (e.g. that yams exist, but that taytu don't), but that they are only desiderata because of the cultural upbringing of the proponent. If the proponent was from a different culture, they would have different desiderata. So, if these assumptions are right, restricted answers will be motivated from an unwarranted prejudice towards one's own cultural beliefs. Given we should shun cultural prejudice, we should shun restricted composition. This quickly leads us to universalism for (so the argument goes) every culture would then be right when they assert that some things compose an object (a particular cut of meat, or a taytu). So, universalism would be a culturally neutral answer for every culture is in the same boat (of being right when they say composition takes place, and wrong when they deny it).⁴

³ With thanks to Shane Glackin for pointing out this example to me (and the tagline). You may protest at the assumption and say that the French think it *exists* but that it just isn't a good cut of meat. But that is the heart of the argument from cultural prejudice: where we have a potential ontological dispute over whether *x* exists (in this case, whether a certain hunk of meat exists) we could deny that there's a dispute. Instead, we could say that clearly *x* exists and we're disputing whether or not *x* falls under a particular predicate (in this case, '___is a good cut of meat'). But if we generalise that response, we get universalism. I might cite a disagreement between myself and another culture over whether there are trout-turkeys. The line of response in this footnote demands that we say this dispute isn't *ontological*: that clearly trout-turkeys *exist*, and that it's just a question of whether trout-turkeys are interesting objects or not, or fall under our regular domains of quantification etc. Repeat this for all such putative disagreements, and we arrive at universalism.

⁴ Indeed, to capture conflicting cultural beliefs about the lifespans of objects, such as in the taytu/yowanna case, we will need perdurantism as well.

A variation on the argument would be to recognise that other cultures have as much grounds to believe in the existence of the objects of their folk ontology as we do. So if you think you should believe in the objects of your own culture's folk ontology (e.g. mountains, islands, cars etc.), parity leads you to believe in the folk objects of every (even merely possible) culture. Universalism then follows as it appears that some (perhaps merely possible) culture could include in its folk ontology objects composed out of any collection of material objects you care to mention.

The final argument is the *argument from a healthy ontology*. Define a healthy ontology as an ontology that includes all of the objects of our folk belief, and a sparse ontology as one that does not. Sparse ontologies, in lacking the objects of folk belief, are necessarily committed to one of two options. Option one is to introduce some fancy theory (such as the paraphrasing strategies given by van Inwagen [1990: 98-114] or Merricks [2001: 162-190]) to account for why the folk are not radically incorrect when they talk about the objects of folk ontology, even though such objects don't exist. The second option is to bite the bullet and say that no such theory is forthcoming, and that the folk *are* radically incorrect when it comes to what objects exist. In the former case we need to do some serious work to get such a theory off of the ground (as the debate surrounding such paraphrases demonstrates), whilst in the latter case it is, at the very least, embarrassing to claim that everyone is just out-and-out wrong about what objects exist (for it is not as if saying 'There are unicorns' and 'There are tables' are on a par [Merricks 2001: 171]). These problems may not be fatal, but the argument from healthy ontology argues that they are costs we should, and easily can, avoid by instead accepting a liberal principle of composition that guarantees a healthy ontology. Assuming that universalism is the only such liberal principle, we have our third argument. Markosian sums it up thusly:

[...] unlike some answers to SCQ [...] [Universalism] posits the existence of plenty of objects. Thus the proponents of [Universalism] will never have to deal with the problems that go with having a sparse ontology. [Markosian 2008: 343]

Similarly, we see Hawthorne endorsing the argument from a healthy ontology, for he says of universalism that, as well as meeting the demands of the argument from cultural prejudice:

This expansion [of what objects exist given universalism] brings with it the added benefit of explaining how it is possible for members of our community to refer successfully so much of the time without having to be lucky. [Hawthorne 2006: vii]

Thus finishes the exposition of the arguments from elegance. In each case, you might have problems with the arguments. Charitably set them aside in order to concentrate on my response: that the perdurantist-universalist, at least, cannot rely upon these motivations, as perdurantist-universalism has an unwanted, *prima facie* commitment to law breaking objects and any attempt to escape that commitment undermines each of the arguments from elegance.

3. Superluminal Objects

Lay out the alleged commitment first. Hudson presents the argument for superluminal objects existing given perdurantism, universalism and a relatively innocuous assumption about motion [Hudson 2002]. The assumption about motion is:

Sufficiency for Motion (SFM): It is sufficient for an object to be in motion during an interval T that (i) it occupies one region of space at the start of the interval, and another disjoint region of space at the end and (ii) every region of space that it occupies at one instant is in almost exactly the same place as the region it occupies at the next instant.

Hudson further needs it to be possible that there exist a cone shaped object, call it Cone, that (i) exactly occupies a continuous three dimensional region of space R and (ii) for every two dimensional sub-region of R , there is an object that exactly occupies that region. Hudson thinks it intuitively plausible that there could be an object that satisfies (i), and then relies upon the Doctrine of Arbitrary Undetached Parts (DAUP) to satisfy (ii).⁵ Whilst this would do the trick, DAUP is somewhat contentious and there's no need to endorse a principle as strong as that. Both conjuncts can be satisfied if the perdurantist-universalist believes only that there is a cone-shaped region, R , such that every point-sized sub-region of R could be occupied by a point particle.⁶ If that were possible, it would be possible for every two dimensional sub-region of R to be full of point particles. As we have already assumed universalism, those point particles would compose a two dimensional object that exactly occupies that region (thus meeting the second conjunct). Further, the point particles in R would compose an object that exactly occupied R (so that's the first conjunct met as well). So (*pace* Hudson's original assessment) we need not rely upon a contentious premise like DAUP when we can instead rely upon a very plausible belief about the possible locations of point particles.

⁵ DAUP is the thesis that if x exactly occupies region R then every occupiable sub-region of R is exactly occupied by a proper part of x . Because of the 'occupiable' constraint Hudson would also need to be liberal about what regions were receptacles i.e. accept that all sub-regions of the region that the Cone occupies are occupiable (or at least be liberal about *most* regions being receptacles) – but he accepts that as well [Hudson 2005: 47-56].

⁶ So, even taking this route, we will have to be relatively liberal about receptacles and permit (at least some) 0-dimensional regions to be occupiable.

So, assume there could be an object such as Cone. Stipulate that Cone is 2 light seconds in height (so it is an enormous cone).⁷ Cone exists (at least) during an interval, T (say, one second). Of Cone's parts there are (by stipulation) non-denumerably many cross-sectional parts, one for every cross-sectional slice of R . Call the set of these cross-sectional parts the Slice Set. As an extended interval, T has a non-denumerable number of instants. Call the set of these instants the T -set. The cardinality of the Slice Set and the T -set are the same, so we can put their members in one-to-one correspondence. Pair them off such that the Slice with the largest diameter is assigned to the earliest instant of T , and for any two slices, if the first slice is larger than the second slice, then the first slice is assigned to an earlier instant than the second slice. Given this method of assignment, the bottom slice is assigned to the first instant, the next slice up is assigned to the next instant, the next slice after that is assigned to the next instant, and so on until we get to the tip of Cone, which is assigned to the last instant of T .⁸

Given perdurantism each of the Slices has a non-denumerable number of instantaneous temporal parts, one for every instant of T . Call these the t -parts of the slices, where a t -part is the instantaneous temporal part of the slice that exists at t . There is then a set, the Quick Set, with the following membership: for every instant t from the T -set, the t -part of the slice assigned to t is a member of the Quick Set. Given universalism the members of the Quick Set compose an object. Call that object Quick.

So Quick is a two dimensional object that, at the first instant of T , exactly occupies the two-dimensional cross section at the bottom of Cone. Over the course of T , Quick occupies each two-dimensional cross-sectional region from the bottom of Cone to the disjoint region at the tip of Cone. At each instant, the region Quick occupies is almost in exactly the same place as the region it previously occupied. So, given SFM, Quick is moving. Moving fast. Moving very, very fast. In fact, Quick manages to travel two light-seconds in one second – Quick is superluminal! But people often think that the following is a consequence of Special Relativity:

Speed Constraint: There exist no objects that travel faster than the speed of light.

So we end up with a contradiction, and one of the principles must go. Whilst some, like Balashov [2003a, 2003b], think universalism is the culprit we are here assuming universalism to be true by hypothesis (ditto for perdurantism). So it must be Speed Constraint or SFM that has to go.

⁷ The next two paragraphs are almost verbatim of what Hudson says.

⁸ I've taken some poetic license with that last sentence, as in a continuous spacetime there won't be any 'next slice up'. I hope it nevertheless serves as an adequate demonstration.

4. Denying Speed Constraint

Start by trying to deny Speed Constraint. First, let us dispatch an irrelevant reason for thinking Speed Constraint is false: that it doesn't follow from Special Relativity. There may be many things that travel faster than the speed of light without Special Relativity being false, and you might think that Quick should just be added to that list. For instance, relativity admits the possibility of tachyons [Feinberg 1967 *inter alia*] which (were they to exist) are always travelling superluminally. More recently, some have suggested that the speed of light was once faster than it currently is [Magueijo 2003] and so (in a sense) there have existed objects that travel at superluminal speeds. The more outlandish may even mutter about Alcubierre warp drives that would propel spaceships faster than the speed of light [Alcubierre 1994]. None of these examples can save Quick for they all meet some exotic condition that Quick does not. We could construct the Quick Set such that Quick moved from slower than the speed of light to faster (*pace* the laws governing tachyons); Quick can move faster than the contemporary speed of light (*pace* the variable speed of light theorists); Quick can move without spacetime expanding and contracting (*pace* Alcubierre). In lacking these exotic properties, Quick will find no safe haven in such examples even if scientists do, one day, discover exotic objects that break the speed of light.

Indeed, whilst tachyons and warp drives might give us a reason to think Speed Constraint is false, Quick had better not do. If it did, then most of the laws of nature would be refuted by the existence of gerry-mandered objects. Consider these laws: 'No object spontaneously sheds mass' and 'All objects will travel at a constant velocity unless acted upon by an external unbalanced force'. Universalism guarantees the existence of gerry-mandered objects that appear to breach these laws. That object composed out of all of my temporal parts from my birth until now, and all of the temporal parts of some electron from now onwards, is an object that spontaneously goes from having a mass of over 75 kilograms to having a negligible mass. The fusion of all of the temporal parts of Halley's Comet until now and all of the temporal parts of Jupiter from now is an object that has a radical change in its velocity even though no force acts upon it. So for most laws, there exist gerry-mandered objects that apparently breach them. Given that you don't want to give up on all such laws of nature, and Quick is just a special case of the above examples, it is unreasonable to take Quick's existence to refute Speed Constraint. If Speed Constraint is false, it is a principle for physicists to refute, not mereology and metaphysics.

A better option is to say that Speed Constraint is not false, but that it applies only to a restricted domain of material objects. This is Hudson's tactic, saying that laws of nature like Speed Constraint apply only to what he dubs 'proper continuants' [Hudson 2003: 21-22]. To make clear what a proper continuant is, let us first define what it is for a law of nature to 'apply' to an object.

Treat laws of nature as being propositions of the form ‘All F’s are G’s’ (or some variant thereof), whereby laws include a universal generalisation. Define:

Law L applies to x =_{df} x falls within the domain of the universal quantifier within L .

So for a law that says ‘All objects are unable to escape the gravitational pull of black holes once past the event horizon’ there is a universal quantifier present. According to Hudson, we should say that not all objects fall within its domain. You and I fall within its domain, but the gerry-mandered fusion of (i) all the temporal parts (up until this instant) of an alien space wreck that has only just fallen past a black hole’s event horizon and (ii) all of my temporal parts (from this instant onwards) does *not* fall within that domain. In applying to a restricted domain of entities, the law is still true, and that the gerry-mandered spaceship-Nikk fusion ‘escaped’ the black hole moments ago does not undermine it one jot. With that in mind, we can define a working definition of ‘proper continuant’:

x is a proper continuant =_{df} Speed Constraint applies to x .⁹

So Hudson demarcates the world into two groups of objects: the proper continuants and the non-proper continuants. Speed Constraint is restricted to apply only to the proper continuants. But it won’t just be Speed Constraint that is so restricted. As there exist gerry-mandered objects that falsify most laws of nature, we should restrict those laws to applying only to the proper continuants as well. And then how odd it would be for *some* laws to apply to a restricted class of objects whilst other laws applied unrestrictedly, so we should say that *all* laws apply only to proper continuants. So ditch the working definition, and use instead:

x is a proper continuant =_{df} the laws of nature apply to x .

Thus we have Hudson’s response to the problem of Quick’s existence (and a response as to why gerry-mandered objects in general don’t refute the laws of nature).

5. An Ensuing Question

Hudson’s move saves perdurantist-universalism from the fatal cost of affronting contemporary science. However, the introduction of this division of objects undermines the arguments from

⁹ Notice I say ‘applies to’, not ‘obeys’. Perhaps there are some proper continuants that disobey the laws of nature (*a fortiori* Speed Constraint). Here I am thinking of angels and the like (which I don’t think we should rule out by definition). Whilst they disobey the laws of nature (being capable of miraculous acts) I take it that the laws *apply* to them, but that they circumvent the laws (in the same way that legal laws apply to the rich and wealthy, but lamentably they often circumvent those laws – they *apply*, even though they are not *obeyed*). That is why angels etc. would be miraculous were they to exist, whilst gruesome junk like spaceship-Nikk is *not* miraculous. Neither obeys the laws of nature, but they only *apply* to the angels, so only the angels’ disobedience is evidence of a miraculous agent.

elegance. The problem begins because anyone who takes Hudson's tact will have to answer the following:

Proper Continuant Question (PCQ): What are the jointly necessary and sufficient conditions some *ys* that compose an object must meet for it to be the case that they compose a proper continuant?

Generically label the PCQ's answer 'X'. Even though we don't know the exact details of X, we can still tell some details of what any satisfactory answer must be like. X cannot be that the *ys* *always* compose a proper continuant, for then all material objects would be proper continuants. That would include Quick (and comet-Jupiter, and spaceship-Nikk etc.) and that was what we were meant to avoid. Nor can it be that the *ys* *never* compose a proper continuant, for there are obviously at least some material objects (electrons, say) that the laws of nature apply to. Thus X must be such that not all *ys* compose a proper continuant, but that some of them do. It is a *restricted* answer.

An answer to the PCQ will be such that you could use it as an answer to the SCQ. Call Xism the answer to the SCQ you get if you do use X as an answer to the SCQ rather than the PCQ. So if X was that the *ys* must meet condition *F* to be proper continuants, then Xism is the claim that the *ys* must meet condition *F* in order to compose a further object. As with X, even though we don't know the exact details of Xism, we can still say something about it. The first thing to say is that as X must be a restricted answer, Xism will be a restricted composition. With that in mind, we can proceed to demonstrate that, with regards to each of the arguments from §1, Xism is as elegant as universalism. Thus, it will turn out that the arguments from elegance *don't* favour universalism and at best favour a choice between universalism and some restricted composition: namely Xism. The rest of this section demonstrates that Xism is as elegant as universalism with regards to the arguments from simplicity and cultural prejudice. The argument from a healthy ontology is more complex, and is dealt with separately in §5.

Recall the argument from simplicity: that we should believe universalism because it is simple (where a simple answer is one where the conditions are always fulfilled, or are never fulfilled). Xism does not yield a simple answer to the SCQ for it says neither that the conditions are always fulfilled, nor never fulfilled. But on the other hand Xism does have a simple response to the PCQ: that the conditions laid down in the PCQ are *always* met. Xism can say this for, in using X as an answer to the SCQ, it excludes all of the objects that are not proper continuants from even existing. Given Xism, if the *ys* compose, then they *must* compose a proper continuant. Hence, Xists have a simple answer to the PCQ, even though they have a complex answer to the SCQ. Compare this to universalists. They will have a simple answer to the SCQ and a complex answer

to the PCQ (for X is necessarily restricted, and so it's not the case that the conditions always obtain or never obtain). Both universalism and Xism use *exactly the same answers*, one answer for the SCQ and the other for the PCQ, differing only in which answer is used for which question. But that means that the amount of complexity/simplicity in both theories must be the same when you look at the whole theory rather than just in relation to the answer to the SCQ. So no matter how simple a theory endorsing universalism is, there will always be a competing theory endorsing restricted composition which is just as simple.

Next, recall the argument from cultural prejudice. X, as it is an answer to the PCQ, dictates which composite objects the laws of nature apply to. But the laws of physics are no different for me than they were for the Aztecs – the laws of nature, and what objects adhere to those laws, is not a matter of cultural bias. For instance, an object does or does not obey the laws of Newtonian motion; it does or does not obey Planck's Law; it does or does not warp spacetime when it rotates etc. and none of this depends upon what culture you originate from. So the correct answer to the PCQ won't be one that tries to meet culturally dependent desiderata – that is, whatever X turns out to be, it cannot be culturally prejudiced. If X is based on culturally independent desiderata then Xism won't be either. So one of the premises of the argument from cultural prejudice, which says that all restricted compositions try to meet culturally dependent desiderata, is false and the motivation for universalism unsound. In the second variation of the argument, where parity considerations lead one to universalism as islands, cars, mountains etc. are no more special than all of the other gerry-mandered objects that (some merely possible) cultures believe in, the argument is also stopped in its tracks. The universalist gets to be adamant that it is a culturally neutral fact that some objects are special (namely the proper continuants). So the Xist can be just as adamant that their composite objects are such that there *is* some culturally neutral reason to think they are special.

So Xism is not open to charges of cultural prejudice. Certainly it will turn out that Xism entails that certain cultures are *wrong* about what exists (for instance, perhaps Xism entails that there are no yams and only yowanna/taytu pairs, so Western culture is wrong) but that doesn't mean Xism is *prejudiced*. Xism wouldn't be caught in the grip of cultural prejudice anymore than Kantian Deontology is 'biased' against the Aztecs for saying human sacrifice is wrong. Whilst Deontology *correlates* to some cultural beliefs more than another ethical system, correlation alone does not entail prejudice. The same applies here. Xism, were it to be true, may correlate more with one culture's beliefs than another, but that correlation is not evidence of untoward prejudice. The argument from cultural prejudice wasn't that every culture had to be right about what objects existed, but only that we had to have non-culturally prejudiced reasons to say that

they were wrong. So Xism, just like universalism, will be biased to no cultural perspective and the argument from cultural prejudice doesn't favour universalism, instead at best favouring a choice between universalism and Xism.

6. How Healthy Is Xism?

Things are somewhat more complex when we come to the argument from a healthy ontology. Undermining that motivation depends upon whether every object in our folk ontology ('folk objects') must be a proper continuant or not.

5.1 If every folk object must be a proper continuant

It is straightforward if we assume that every object from our folk ontology must, if it exists at all, be a proper continuant. In that case, it turns out that Xism and universalism necessarily have ontologies as healthy/sparse as one another. When the universalist uses *X* as an answer to the PCQ, either all of the objects from our folk ontology will turn out to be proper continuants or not. If it does include them all then, in using the same answer to the SCQ, Xism will clearly include them all also. So Xism and universalism will have equally healthy ontologies – both being as healthy as can be! Alternatively, if *X* didn't ensure that the proper continuants included all of the folk objects then, as we have assumed that a folk object must be a proper continuant if it is to exist at all, those folk objects that *X* doesn't include as proper continuants simply don't exist. So universalism would miss out certain folk objects, and whilst Xism would miss out those objects also, universalism and Xism would nonetheless *have the same folk objects in them*. Their ontologies would be as sparse as one another, and whatever downsides Xism suffers from having a sparse ontology is no reason to prefer universalism for it has exactly the same downsides.

5.2 If folk objects need not be proper continuants

But this all assumes that every folk object must be a proper continuant. It may seem intuitive that statues, restaurants, guns etc. are proper continuants (thinking that statues (etc.) can no more travel faster than the speed of light, or what have you, than anything else) but not everyone believes it is so. Hawthorne writes:

Now one does not have to be a specialist in physics to realize that restaurants and statues are not going to satisfy the dynamical laws that physicists are likely to settle on. Suppose one signs a legal document such that prior to the signing, Johnny's Restaurant is constituted by one building, and then after the signing, it is constituted by another. Numerically different buildings, numerically the same restaurant. The restaurant, it would seem, has moved along a discontinuous

path, has travelled faster than the speed of light, and so on. [Hawthorne 2006: 112-3]

For purpose of argument, assume Hawthorne is right and statues, restaurants, guns etc. aren't proper continuants. So they won't appear in the Xist's ontology, but could well appear in the universalist's (albeit featuring as non-proper continuants). It appears that universalism has a healthier ontology than Xism.

But this appearance is deceiving. Call the objects that such a universalist wants to identify with objects from our folk ontology 'candidate objects'. I contend that either the candidate objects are not objects from our folk ontology, or that they are but that the identification undermines the spirit of the argument from a healthy ontology.

Start by taking some candidate object that appears in the universalist's ontology, but not the Xist's e.g. the object composed of the statue-shaped temporal parts of a lump of clay where that object is the proposed candidate for being a statue (it won't be in the Xist's ontology as here we are now assuming that statues aren't proper continuants). I believe we should deny that this proposed object is, in fact, a statue. Whilst some properties of the candidate object match with those that we think the folk object would have (e.g. with respect to size, shape, colour etc. the candidate object matches our beliefs about what a statue would be like) the candidate object isn't causally efficacious for it is a non-proper continuant. That non-proper continuants are causally inefficacious is easy to demonstrate: if objects cause things to happen then they are the subject of scientific inquiry, and must obey the laws of nature;¹⁰ but (by definition) that'd make them proper continuants; thus the non-proper continuants don't cause things to happen. Since the candidate object isn't causally efficacious then it can't qualify as being a *folk* object as it's got the wrong properties. Even though it's the right shape and size, folk objects are causally efficacious (e.g. guns shoot people and are capable of *causing* harm and injury; spectacles *cause* people to see better; engines *cause* cars to move; a statue that falls over *causes* a sound to be emitted etc.).

So it appears that universalists don't have a healthier ontology than the Xist. Instead they just have scads of candidate objects that are 'a bit like' folk objects in some respects (such as shape and size). But that's not the same as having a healthy ontology; if anything it's worse. Not only does it miss out the folk objects, it populates your ontology with lots of causally inefficacious

¹⁰ There might be exceptions, for instance if some things had causal powers outwith the laws of nature. Perhaps there are such things, for instance angels and the like, but they are miracle workers. So even if you did take this option the candidate object, whilst causally efficacious, would be a miracle worker. As folk objects such as statues, restaurants, guns etc. are clearly *not* miracle-workers, it follows that such candidate objects would, again, not be folk objects.

detritus that corresponds to no part of folk ontology. It doesn't have the objects you want, and too many of the ones you don't. It's not healthy, it's cancerous!

There is an alternative. Maybe those candidate objects *are* folk objects, and we should just revise our intuition that folk objects aren't causally efficacious. I think this is a fine move for the perdurantist to make (and one that, I take it, many would applaud), but it undermines the argument from a healthy ontology. The argument from a healthy ontology is intended to guarantee a pre-theoretically sensible ontology – specifically one where we don't bite awkward bullets about tables, and other folks objects, not existing. But the ontology we end up with now is not one in line with common-sense at all! It is full to the rafters of causally inefficacious detritus. Given *that* ontology, a plethora of common-sense beliefs are all false! Guns *don't* kill people; the engine of my car is *not* what makes my car move; my spectacles do *not* cause me to see better, falling statues do *not* cause sounds to be emitted etc. Whilst one would have guaranteed that the objects exist, meeting some pre-theoretic intuitions, you've wrecked havoc with common-sense by 'discovering' that they're causally inefficacious. It is intolerable to recommend that we don't accept Xism on the grounds that we'd have to revise our beliefs about what folk objects there were given the alternative is radically revising our beliefs concerning their causal roles. The argument from a healthy ontology is intended to *save* common-sense, not *revise* it, so accepting this alternative ends up undermining the argument from a healthy ontology anyhow.

To conclude: If all folk objects must be proper continuants then universalism and Xism are as sparse as one another. If folk objects need not be proper continuants then either there aren't any folk objects according to the universalist (and again Xism and universalism are as sparse as one another) or there are folk objects according to the universalist (and not for the Xist) but it turns out that they don't have the properties we normally ascribe to them. In that last case, the ontology we are left with is revisionary with regards to common sense, and the universalist thus undermines the aims of the argument from a healthy ontology.

That finishes the explanation of how an answer to the PCQ undermines all of the arguments from elegance. In every case, an answer to the PCQ furnishes us with a restricted composition, Xism, that is just as elegant. This is a result of trying to avoid a commitment to superluminal objects by denying Speed Constraint. Before considering what happens if we instead deny the other assumption (SFM), I want to discuss a major problem: that X might qualify as a perfectly reasonable answer to the PCQ but would, for a very specific reason, be disqualified as an answer to the SCQ.

7. The Disqualification Problem

Imagine that you accept universalism and some answer X to the PCQ, where X is an answer such as:

Exemplism: For any ys that compose an object, they compose a proper continuant x iff object x is composed of the ys , and x satisfies some set S of conditions.

Indeed, Hudson uses an answer just like Exemplism to answer the PCQ: that Speed Constraint applies only to those objects capable of propagating causal signals i.e. the ys compose a proper continuant iff they compose an object that is capable of transmitting a causal signal.¹¹ Answers like Exemplism are a fine response to the PCQ, but not to the SCQ. If used as a response to the SCQ, we get:

Trivialism: The ys compose a further object x iff object x is composed of the ys , and x satisfies some set S of conditions.

An answer like Trivialism is trivial! It's as trivial as saying 'The ys compose a further object iff the ys compose an object'. Further adding that the object satisfies certain extra conditions doesn't turn that trivial answer into a non-trivial answer.

This problem can be remedied. If it turns out that X is of the form that Exemplism takes, we need only make a minor modification to get a qualifying answer to the SCQ. Rather than simply taking the answer and slotting it in unaltered as an answer to the SCQ, we add in the clause 'if it were the case that universalism was true' to yield:

*Exemplism**: The ys compose an object x iff if it were the case that universalism was true, then the object composed of the ys would satisfy some set S of conditions.

Unlike Exemplism, I do not believe answers like Exemplism* are problematic. Here are three reasons for thinking they might be, and why those reasons are misleading.

Reason one: You might still think Exemplism* is trivially true. But clearly it isn't. By stipulation we know that, for the universalist, X as answer to the PCQ will always be restricted: so Exemplism* will be such that the conditions that must be met for some ys to compose aren't going to be met by every collection of things. So if Exemplism* was true, not all the objects that the universalist would believe in would exist *a fortiori* universalism would be false. Universalism being false isn't trivial, so Exemplism* isn't trivial either.

Reason two: van Inwagen demands that no mereological term appears in the right hand side of any answer to the SCQ [van Inwagen 1990: 31]. Clearly Exemplism* features such a

¹¹ Other answers could be along the same lines as those suggested by Hawthorne [2006: 111-43]. They, too, would appear to have the same form as Exemplism.

mereological term, and given this condition Exemplism* is disqualified from being an answer to the SCQ. I am guilty as charged, but believe the constraint itself is unjust [see also Hudson 2001: 81, especially n9]. Presumably the constraint was brought in to rule out such trivial answers as:

The *ys* compose a further object iff the *ys* compose an object *x*.

The *ys* compose a further object iff the *ys* are all part of an object, *x*, no two of the *ys* overlap and there is no part of *x* that does not overlap one of the *ys*.

Both are trivially true. It is right and proper that such answers should be ignored on such grounds. But don't say that they're false. The answer might not be a good answer, but that doesn't mean that it's untrue. The above answers are defective in that they are trivial, thus rendering them unfit for purpose – *not* that they are incorrect. Clearly then, the constraint's plausibility only stems from a prohibition on triviality. So even though Exemplism* fails to meet van Inwagen's constraint, it's difficult to see why (given that it's not trivial) this should fault it.

Reason three: If the *ys* don't actually compose, but we consider worlds at which universalism is true then it appears we are considering worlds where the laws of composition are different. As the laws of composition are (allegedly) metaphysically necessary and counterfactual conditions are (allegedly) vacuously true in cases where the antecedent is impossible, *everything* always composes (even when it is metaphysically impossible for those objects to do so!). That would make a mess of Exemplism*. I have three responses. First, composition may be contingent rather than metaphysically necessary [Cameron 2007]. Second, given that we can interpret other counterfactual conditionals with (allegedly) metaphysically impossible antecedents without thinking them vacuously true (such as 'If there were universals corresponding to every general term there would be a non-self exemplification paradox', 'If God did not exist, nothing else would exist either', 'If objects endured then temporary intrinsics would be relations' etc.) there must be some way for me to do likewise with Exemplism*. Whatever that way is, I will rely upon it here. Related to the second reason, the third is that I am not on my own. Others have made exactly this move themselves – utilising theories which rely upon counterfactual conditionals with (supposedly) metaphysically impossible antecedents [Dorr 2005; Merricks 2001; Sider 1999: 339-41]. So my move here is not unprecedented.

So whilst it might be that answer X to the PCQ is of the form of Exemplism, thus disqualifying Xism from being an informative answer to the SCQ, there will be a corresponding answer to the SCQ (of the form Exemplism* takes) that is not defective.

8. Denying Sufficiency for Motion

We have discussed what happens if you try to deny Speed Constraint, but it was not the only assumption. In addition to the assumptions of perdurantism and universalism, SFM was assumed to be true. So the perdurantist-universalist might deny SFM instead of trying to restrict the domain of Speed Constraint.

It is *prima facie* implausible to deny SFM for it is exceedingly intuitive and concurrently quite costly to deny. But, just as with Speed Constraint, we might restrict the domain that SFM applies to. The universalist might say that we are attracted to SFM because it seems to be intuitively true of objects like you and me, cats and dogs, cars and jet planes etc. With that in mind, allow SFM to still apply to those objects, but just as with Speed Constraint we'll restrict it so that Quick and its ilk fall outside of its domain. Thus:

The 'Which Objects Move' Question (WOM): What are the necessary and sufficient conditions for SFM to apply to any given object?

The answer to the WOM must be such that ordinary objects like you and me, cats and dogs, cars and jet planes etc. are included, whilst gerry-mandered objects like Quick are excluded. As SFM is a law of nature the natural answer is that SFM only applies to the proper continuants. So the non-proper continuants can flagrantly breach SFM, in virtue of being objects that laws (such as SFM) do not apply to. Whilst this gets the desired result (you and me, cars and dogs etc. being such that SFM applies to us, whilst excluding Quick and its kin), we would then be obliged to demarcate the objects into the proper/non-proper continuants *a fortiori* answering the PCQ anyhow. So if this natural answer to the WOM is correct, we again must conclude that the perdurantist cannot rely upon the motivations of elegance to support universalism.

For the natural answer to be wrong, there must be an example of a proper continuant that SFM did not apply to, or alternatively an example of a non-proper continuant where it did. SFM, being a law, applies to proper continuants by definition, so the former is ruled out. Meanwhile, if SFM applied to an object the only way for that object to be a non-proper continuant would be for some other laws to fail to apply to it. It seems dubious whether that is possible, for presumably if one law applies to an object, *all* laws apply to that object. So the natural answer looks to be correct, and a restriction of SFM demands an answer to the PCQ that ruins the arguments from elegance just as it does in the case of restricting Speed Constraint.

9. Conclusion

At first glance, perdurantist-universalists are committed to law breaking objects, such as Hudson's superluminal objects. Presumably no perdurantist-universalist will accept such a

commitment. However, as they are committed to the objects they will have to explain why those objects do not, in fact, breach any laws. §4 and §8 looked at two such plausible explanations, and detailed how such explanations undermine some popular motivations for universalism (namely, the arguments from elegance). Thus, if there is no alternative explanation, perdurantist-universalists must rely upon other arguments to motivate universalism.

Before finishing, there are two points to note. First, the perdurantist-universalist may give up on relying on the arguments from elegance, and instead rely solely upon other arguments for universalism (e.g. the argument from vagueness [Sider 2001: 134-9]). But those arguments are themselves contentious [see, for instance, Effingham 2009 and Effingham Forthcoming], and in any case refuting the arguments from elegance would still be a victory, of a battle if not the war, for the proponent of restricted composition. Second, there may be ways other than those presented in §4 and §8 for the perdurantist-universalist to include objects like Quick in their ontology, without admitting that any laws of nature are broken. So the conclusion of this paper can be seen as a challenge to the perdurantist-universalist: can they explain why the objects do not break the laws of physics without that explanation thereby making concessions that allow one to come up with an equally elegant theory that endorses restricted composition. Whilst I think the first bit may be relatively simple (e.g. Hudson's proposed answer to the PCQ) doing so without equipping those who believe in restricted composition with the tools to produce their own elegant theory is (as §5-6 makes clear) far more difficult.¹²

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