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Effingham, Nikk

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Properties are Potatoes?: An essay on ontological parsimony

NIKK EFFINGHAM

29th July 2014

The cost/benefit analysis is standard fare in contemporary ontology: we measure how a theory performs along a variety of dimensions (simplicity, coherence with intuitions etc.) and then – having completed this for all theories currently being evaluated – we opt for the theory that has, overall, the best cost-benefit profile. §1 is a more detailed exposition of this methodology. One of those theoretical dimensions is ontological parsimony, and one common way of achieving it is ‘reduction by identification’ whereby an initial theory that commits to the Xs and the Ys has a more parsimonious rival according to which each X is one of the Ys (e.g. properties are identical to classes, possible worlds identical to disconnected spacetimes, material objects identical to spacetime regions etc.). This chapter argues that a theory achieving such ontological parsimony by this method is never a point in its favour – with the exception that it might, in general, push us towards a one-category ontology. This may be because you give up on ontological parsimony as a virtue or the tenability of making reductions by identification. Alternatively it may be because you agree that it’s a virtue and the reductions are tenable, but that the only thing you can draw from this is that we should endorse a one-category ontology. This chapter argues for the latter, although the other options – ditching either reduction by identification or parsimony as a virtue – are both lessons you may draw instead. As the former conclusion permits ontological parsimony achieved via reduction by identification to play *some* role in ontology (since it forces us towards a one-category ontology) and these options rule out even that role, they are stronger than the paper’s intended conclusion – but in that all options rule out ontological parsimony playing anything other than a very diminished role in theory choice, I’d be happy for you to accept any of them.

I begin by laying out an absurd theory involving arbitrary identifications, ‘Spudism’: that every property is a (different) randomly selected potato (§2). §§3-6 defend Spudism, showing how the tools already deployed to make other, less absurd, identifications plausible can likewise be used to make Spudism plausible. The lesson generalises: if we accept any reductions by identification, nothing should stop us making absurd and arbitrary identifications between whatever things we like. I conclude that if parsimony is so easily achieved it effectively becomes a useless tool for deciding between competing ontological theories (§7).

1. The Standard Methodology

1.1 Strands of Simplicity

A standard understanding of how to practice ontology is to evaluate the available theories along a variety of dimensions and then, having weighed up the costs versus the benefits, settle on the best theory overall [cf Lewis 1973: 88]. Various dimensions have been mooted e.g. the degree that a theory coheres with our intuitions, adherence to the scientific enterprise, and simplicity. The latter, which people broadly agree counts as a virtue, breaks into different strands. We'll consider three (each sub-dividing into 'qualitative' and 'quantitative' variants):

- *Ideological*: A primitive is any n -adic predicate that admits of no analysis within the theory. A theory is quantitatively more ideologically parsimonious than another theory if it has fewer primitives than it (so if one theory takes as primitive set membership and mereological parthood, this is less parsimonious than a theory which only takes mereological parthood as primitive). A theory is qualitatively parsimonious if it has fewer *kinds* of primitive e.g. a theory might take as primitive atemporal mereological parthood (that two-place relation that holds between, say, regions of spacetime) and temporally relativised parthood (that three-place relation that holds between, say, a car, its wheel, and a time) which is two primitives but the same *kind* of primitive. (Cowling [2013] discusses this in more depth.) Note that quantifiers, operators, connectives etc. should also probably be weighed when it comes to ideological complexity, but this paper needs no discussion of such complications so this caricature of ideological simplicity will suffice.
- *Veritaological*: Brute truths (or brute facts) are those truths that aren't explained by any other truth in the theory. Theories will (almost certainly) feature brute truths e.g. the fact that some objects are exactly located at some spacetime regions, or some properties are coexemplified at a certain spacetime region, or some given principle of composition is true etc. Quantitative veritaological simplicity consists in minimising the number of brute truths; qualitative in minimising the kinds. For instance, if there are brute facts about which regions of spacetime are filled with matter then in a continuous spacetime there'll be an infinite number of brute truths, but still only truths of one given kind.
- *Ontological*: It is better for a theory to have fewer things in it. Considered qualitatively, we demand fewer ontological categories e.g. a theory committing only to spacetime regions is more parsimonious – is simpler than – a theory committing to properties, sets, and spacetime regions (as the former has one category, whilst the latter has three). Below I will explain, in more detail, what this amounts to. Considered quantitatively, we simply want fewer things in the theory e.g. a theory committing to n particles is more parsimonious than a theory committing to m particles when $m > n$. (Many believe ontological parsimony is a virtue; notable deployment of parsimony include Lewis [1973: 87], Nolan [1997], and Tallant [2013]).

It's not clear that everyone cares for these dimensions (e.g. Huemer [2009] or Sober [1981]). It's not clear how to weigh them against one another (e.g. do we think qualitative ontological parsimony is more important than quantitative? What costs to ideological parsimony should we shoulder if it avoids such and such costs concerning ontological parsimony? Do we care one jot about quantitative veritaological parsimony? etc.). It's not clear, when it comes to the qualitative

strains of the above, what counts as a different kind (are a unicorn and a person the same kind of thing or are they both material objects? Are ‘universal’ and ‘particular’ ontological categories or are categories more finely grained than this? Etc.). It’s not clear if the above are the only demands – for instance, is there an exotericness requirement such that ‘normal’ entities/primitives/truths are less costly than ‘weird’ entities/primitives/truths (e.g. we might think set membership [Lewis 1991: 29-35] or instantiation [Armstrong 1978: 66; Heil 2003: 131] is a mysterious relation, and that this mysteriousness counts against the theory). Lots of things are unclear about the standard methodology.

1.2 Reduction by Identification

But even in the face of such a murky methodology, some things have wide agreement. One thing that is widely (though not universally) agreed is that we can achieve ontological parsimony (qualitative or quantitative) by deploying ‘reduction by identification’. This involves taking entities from one category and identifying them with entities from another category to produce a theory more parsimonious than one where those entities are distinct. Examples of such ontological reductions by identification include:

- *Material Objects*: Supersubstantialists identify objects with the regions of spacetime they are exactly located at (Sider [2001: 110] explicitly thinks ontological parsimony favours supersubstantialist ontologies). Alternatively we might identify objects with bundles of properties, rather than having an ontology of properties and distinct objects.
- *Properties*: Rather than having an ontology of irreducible properties we might identify them with, e.g., classes of their instances [Lewis 1986a: 50-69; Quine 1940: 120].
- *Possible worlds*: Worlds have been identified with universals [Forrest 1986], states of affairs [Plantinga 1974], sets of propositions [Stalnaker 1976], and spatiotemporal regions [Lewis 1973; 1986a].
- *Propositions*: Propositions have been reduced to sets of possible worlds [Lewis 1986a] and facts [King 2013].
- *Numbers*: Numbers have been identified with sets.
- *Classes*: It has been proposed that classes are properties (or tropes, or entities constructed out of such things) [Bigelow 1990; 1993; Caplan, Tillman, and Reeder 2010; Forrest 2002; Johnston 2006; Jubien 1989; see also Lewis 1991: 56n13]. They have also been identified with states of affairs [Armstrong 1997, 2004].
- *Events*: We might reduce events (like the Boer War) to properties of regions of spacetime [Lewis 1986b] and achieve parsimony that way.
- *Works of music*: We might identify works of music with types [Dodd 2007] or with fusions of their performances [Caplan and Matheson 2006].
- *Organisations*: We might identify organisations and groups (such as Barclays Bank Plc, football clubs, or the Supreme Court) with fusions of their members or, alternatively, sets of their members. (Elsewhere I both provide a roster of the former [2010: 254] and argue for the latter).

In each case it looks as if the identification achieves ontological parsimony. Say a category is ‘ontologically relevant’ if it picks out those categories that are relevant to ontological inquiry. Use **THIS FONT** for the names of categories. **CHICKEN BORN IN THE USA** is a category, but not an

ontologically relevant one, whereas **ABSTRACT SET**, **POSSIBLE WORLD**, **NUMBER**, **MATERIAL OBJECT** etc. are the sorts of categories that are likely to be ontologically relevant. Exactly what categories are ontologically relevant is irrelevant to this paper. In the examples that follow I'll treat categories like **ABSTRACT SET**, **POSSIBLE WORLD**, **NUMBER**, **MATERIAL OBJECT** etc. as ontologically relevant – if you instead think other categories are relevant, e.g. **PARTICULAR** and **UNIVERSAL**, tailor the discussion and examples accordingly. If we start with a theory that has two ontologically relevant categories, C_x and C_y , with entities $x_1, x_2 \dots x_n$ in C_x and $y_1, y_2 \dots y_m$ in C_y , where the x s are distinct from the y s, we can get a more parsimonious theory by identifying each y with one of the x s. Regarding quantitative parsimony: we go from having $n+m$ entities to having n entities and (as $m > 0$) we have achieved fewer entities in our ontology.¹ Qualitative parsimony is more complicated. Qualitative parsimony isn't just a case of having fewer ontologically relevant categories as a reduction by identification will leave you with the same categories. For instance, if you carry out Lewis's reductions of worlds to disconnected spacetimes you still have worlds and spacetimes – so either ways, you commit to the categories **POSSIBLE WORLD** and **SPACETIME REGION**. What we need is the least number of 'basal categories' (you might say instead 'fundamental categories' or some such, but I want to divorce talk of fundamentality and grounding from qualitative ontological parsimony, so use the more neutral term 'basal'). A (rough) definition would be: if all entities from an ontologically relevant category are (in every metaphysically possible world) a member of a different ontologically relevant category, then the former has been reduced to the latter and is non-basal e.g. if **POSSIBLE WORLD** and **SPACETIME REGION** are ontologically relevant categories but every world is a disconnected spacetime then we have reduced worlds to regions and **POSSIBLE WORLD** is not basal (and **SPACETIME REGION** will be basal just as long as it is not itself also reduced).² Returning to the generic example, identifying the y s from C_y with x s from C_x therefore makes for a qualitatively parsimonious theory.

Reduction by identification is just one way we might achieve ontological parsimony. Two other ways are extant. We might achieve parsimony via elimination. A theory that commits to, e.g., properties and objects is less parsimonious than a nominalist theory which eliminates all properties, leaving us with simply the objects. Or we might buy into 'reduction by grounding' whereby there are grounding relations (or relations of ontological dependence or some such) and all entities that are grounded are not to be considered when it comes to concerns of parsimony (see, *inter alia*, Baron [Forthcoming] and Schaffer [2009: 361]). For example, a theory that commits to fundamental properties and objects would be less parsimonious than one that has objects grounded in bundles of properties. In general, we will ignore these alternatives as this paper only concerns the tenability of reduction by identification.³

¹ Complications arise if we consider ontologies with an infinite number of entities e.g. comparing an ontology with an infinite number of statues and an infinite number of distinct lumps of clay to an (intuitively more parsimonious) ontology consisting of just an infinite number of statues, each of which is identical to one of an infinite number of lumps of clay. Let us set aside this complication as tangential to the overall argumentative line of this chapter.

² This is only a rough and ready definition. For instance, if there are only two categories and every member of C_x is a member of C_y and vice versa, what I've just said makes both basal but we might want but one to be basal. As with any analysis, we could extend and refine it further – but it will be guide enough for what comes in the sequel.

³ I'm not suspicious of parsimony by elimination. I am suspicious of reduction by grounding. The idea that grounded entities are 'nothing over and above' the entities they are grounded in seems as unmotivated as claiming

2. Spudism

Consider the following, absurd, reduction: every property is a potato. *Red* is the potato I ate last night; *blue* is the one you ate the night before; *charge* is a potato from the 18th century that has long ago rotted away; *pain* is the first potato that Sir Francis Drake ever ate etc. Call this theory ‘Spudism’. Spudism may be absurd, and might face insuperable problems, but be clear that it is nonetheless more parsimonious than a theory where, e.g., properties are *sui generis* universals. Where that latter theory has the basal categories **MATERIAL OBJECT** and **PROPERTY**, Spudism would only have **MATERIAL OBJECT** as basal, for every property is now a material object. Where we once had some objects, $x_1 \dots x_m$, and some distinct properties, $y_1 \dots y_n$, giving us $m+n$ things, each y is now one of the x s and there are only n things; $n < m+n$ so the theory is quantitatively parsimonious. Spudism may be implausible – and it may be wrong – but it is comparatively parsimonious to the theory where properties are *sui generis* and, if we could only cast our *ceteris paribus* clause widely enough, we would prefer Spudism to that theory for, *ceteris paribus*, we should prefer more parsimonious theories to more profligate rivals.

‘But things are not equal!’ everyone shall cry. If they are not equal Spudism must come with some cost that weighs against it. We can’t just stare incredulously at Spudism (for no incredulous stare is itself a cost [cf Lewis 1986a: 133-35]) so any incredulity about Spudism must find its source in a reasoned complaint that will show Spudism has a theoretical cost that outweighs its parsimonious benefits. Two reasons seem like obvious candidates for being what might drive us away from Spudism:

- Spudism is absurd because potatoes and properties have different properties, and so (from Leibniz’s Law) cannot be identical. §3 deals with this.
- Spudism is arbitrary. I’ve plucked from thin air the identification with potatoes (why not with carrots? Or atoms of Betelgeuse? Or non-repeating rational numbers ending in a ‘4’? Or false propositions?) and also because the individual identifications of which potato each property gets identified with is also arbitrary. §5 deals with this worry.

I think these two motivations are the main reasons one would think Spudism was absurd. However, we’ll canvass other objections – objections I suspect one would have thought we never needed to rely upon given the *prima facie* absurdity of Spudism. They are that:

- Spudism isn’t ideologically parsimonious, and so fails to guarantee the sorts of benefits we want from an ontological reduction. §4 deals with this
- There aren’t enough potatoes given the number of properties there are, which would mean two distinct properties would end up being erroneously identified with the same spud. §6 deals with this objection.

that an entity that supervenes on another entity is nothing over and above the entities it supervenes on (Armstrong [1991: 192; 1997: 12] claims such a principle is true; Daly [2012], Melia [2005], and Schulte [2014] all fail to see the motivation for it). Why believe it? Certainly not everyone does [Audi 2012]! We might say it has something to do with the fundamental entities ‘explaining’ the grounded entities, but then this is less about the theoretical dimension of ontological parsimony and everything to do with explanatory power (and, in not being about parsimony, is undeserving of the phrase ‘nothing over and above’).

3. Property Problems

The first problem for Spudism is that there appear to be properties that potatoes have (or don't have) which properties don't have (or have). Similarly for them standing in different relations. Consider:

- *Azure* is beautiful, but Spudism may identify it with a potato that is quite unlovely.
- Potatoes are concrete whilst properties are abstract.
- They stand in different intentional relations. I might have a favourite property, but not a favourite potato.
- *Spin-up* was discovered by two scientists in the 1920s, but they presumably didn't simultaneously discover a potato ('Why, I say Gerlach, as we conducted our experiment I found this never seen before potato under the table!').
- Potatoes aren't the relata of 'purely metaphysical' relations e.g. *charge* is instantiated by electrons, but no electron instantiates a potato.
- They have different modal properties. If the evolution of the planet had gone slightly differently potatoes would never have existed, but *spin-up* and *charge* would nonetheless still have existed.
- They have different persistence profiles. Whatever potato I identify with *spin-up* won't last forever, but *spin-up* will always be there.

The objection will be that as potatoes do (or do not) have the example property, whilst properties don't (or do) then no property can be a potato. The generic form of the objection is that the potato is F, the property Spudism identifies with the potato is $\sim F$ and so Spudism entails a contradiction. For each instance of this generic argument form, there are two ways to avoid it: the revisionary strategy and the conciliatory strategy. In both cases the strategies have already been developed and deployed in the case of non-absurd reductions by identification – all Spudism needs to do is tweak these extant strategies to meet its own ends.

3.1 Revisionary Strategy

We might revise our belief that the potato/property is (or isn't) F. Spudists should say that potatoes *are* instantiated by some things, that properties *are* concrete, and that I *do* like that potato identical to my favourite property. This revisionary strategy has already been deployed in previously mooted ontological reductions. Consider: no work of music occurs; the region of spacetime to my left doesn't pay taxes nor love me; Barclays Bank Plc doesn't exert a gravitational force; that the world could have been such that no clowns exist doesn't have a size measured in light years. Each is false given the example reductions by identification covered in §1.2: if we believe works of music are fusions of events, then works of music will occur; given supersubstantialism, some regions pay taxes and love me; if organisations are fusions of their members, Barclays Bank Plc is a gerrymandered object with a mass; if possible worlds are Lewisian then most ways the world could be have a size (except those where, e.g., only disembodied minds exist). Those who engage in ontological reductions in general should therefore not pause to think that, e.g., potatoes are instantiated. Or consider the example concerning the abstract/concrete status of properties and potatoes. It's not unreasonable to revise what we think is abstract and what we think is concrete. Perhaps this is because we think the divide is a shoddy one [Wilson 2011]; perhaps because things can be *both* abstract and

concrete [Turner 2010: 30#55]; perhaps because one doubts that our intuitions about what things are abstract and concrete are as solid as we'd like them to be (for instance Black [1971: 617] and Williams [1953: 10] both think we could be mistaken when we think sets are abstract – we can easily imagine that readiness to accept that revision about the metaphysical status of sets translating to a readiness to accept it about properties or, indeed, any other entity). Finally, in the same way that Lois Lane might think she doesn't love Clark Kent but reality conspires otherwise, reality might conspire to make it the case that, just as I am very fond of *charge*, I am very fond of some potato.

So if we already accept that reduction by identification is plausible (which we must charitably grant since denying it makes for a stronger conclusion than even this chapter argues for) you should accept that we can use the revisionary strategy. And if you accept that we can use the revisionary strategy you should accept that some of Spudism's property problems go away.

3.2 Conciliatory Strategy

But not all of them go away. To see why, examine why the revisionary strategy might have footholds on the alleged problem cases. The problematic sentences avoided by the revisionary strategy consist of a predicate ('__ pays taxes', '__has a mass' etc.) and a subject (a region, Barclays Bank Plc etc.) such that the predicate is never, in normal everyday life, applied to the subject. I dare say only a philosopher has ever wondered whether space pays taxes or what the gravitational attractive force of Barclays Bank is! Intuitions about such weird scenarios aren't compelling, so it's easy to see why revisions are acceptable (indeed, in a sense nothing is being 'revised' *per se* as you've never considered the belief that gets the allegedly counterintuitive change).

But problem cases remain that aren't like this i.e. are such that the predicate is used in normal, everyday life in a way that rallies against the suggested ontological reduction. Imagine there are three potatoes: two King Edwards (*a* and *b*) and one Austrian Crescent (*c*), so *a* and *b* resemble one another more than they do *c* (i.e. *a*, *b*, and *c* are, in order, the relata of the (three place) predicate '__ resembles __ more than it does __'). But, given Spudism, the first King Edward is, e.g., the property *crimson*, the second King Edward the property *cyan*, and the Austrian Crescent potato is the property *scarlet*. As crimson is more similar to scarlet than it is cyan, *a* and *c* are more similar to one another than they are to *b*. But it can't both be true that *a* is more similar to *b* than it is to *c* and that *a* is more similar to *c* than it is to *b*! A second problem along similar lines: *spin-up* wasn't discovered until the 1920s, but if I identify it with a potato that grew in a cave and was never found then it was never discovered.

In both cases the relevant predicates ('__ resembles __ more than it does __' or '__ was discovered by __ in the year __') are predicated of their subjects (colours, physical properties) frequently outside the philosophy room in a way that we do not predicate '__ pays taxes' of spatiotemporal regions. It seems wrong, then, to use the revisionary strategy and revise our beliefs about the resemblance of potatoes or the resemblance of colours (or a property/potato having been discovered or not). A possible way out would be to stipulate that the potatoes and properties match-up in just such a way that the predications always align. Whilst that might make sense with colour resemblance (such that *crimson* and *scarlet* are always identified with King Edward potatoes that resemble one another more than the Austrian Crescent that is identified

with *cyan*) it clearly won't work with the discovery of *spin-up* as it's false that Gerlach and Stern – the discovering physicists in question – simultaneously found a potato at the same time they made their discovery. I won't, then, pursue this bankrupt line of argument.

We must instead pursue a new, conciliatory, strategy: it's acceptable (somehow, someway) for sentences of the form '*a* is *F*' and '*a* is \sim *F*' to both be true. We'll set aside dialetheism for two alternative solutions – both of which are, again, already used by those who use reductions by identification.

The Context Shift Solution

The first solution is that the apparently contradictory predications are made in different contexts. Resemblance makes for a good case study. Imagine a gallery has on display a giant 8ft tall papier-mâché model of the pen knife that Abraham Lincoln had in his pocket the night he was assassinated. In one context – such as the context that the artist or the commissioner of the piece might find themselves in – it's true to say that the artwork resembles the knife. But imagine that during the opening night of the exhibition, during which both the model and the original knife are on display, a bomb is discovered. Taking the original knife, I set to defusing the bomb. Halfway through the process I realise the need for another knife – or knife-like object – to complete defusing the device. Where I then to point at Lincoln's pen knife and say 'I need something that resembles this' I would be gravely disappointed if you waddled over carrying the 8ft tall papier-mâché knife! In the bomb defusing context the model does *not* resemble the pen knife. Hence the three-place resemblance predicate '__ resembles __ more than __' is context dependent. So we could treat the resemblance of properties/potatoes as context dependent, such that when we use certain subject terms to refer to the entities ('*Crimson*', '*Scarlet*', '*Cyan*') a sentence featuring the predicate is to be evaluated one way whereas when the subject terms are different ('Potato *a*', 'Potato *c*', 'Potato *b*') the sentence is evaluated differently even though the subject terms refer to the same entities (as *Crimson* = *a*, *Scarlet* = *c*, and *Cyan* = *b*). In such cases we say the predicate is 'Abelardian' [Noonan 1991, 1993]. Conciliation has been achieved.

Abelardian predicates can also help with reconciling apparently conflicting modal predications if we embrace counterpart theory (which is unsurprising given that the counterpart relation is a resemblance relation). Those who believe constitution is identity – who, e.g., identify statues with the lumps of clay that constitute them – make use of just this feature. The counterpart theorist has it that the statue cannot survive being crushed but the lump can (even though the two are numerically identical). In a context where we are considering the object before us as a statue (where we use, e.g., the subject term 'Goliath' to refer to it) we are concerned with what 'statue-counterparts' it has at other worlds – of which there are none which are a squashed lump of clay. When we are in a context whereby we consider the object as a lump (and, e.g., refer to it as 'Lumpl') we are concerned instead with what 'lump-counterparts' it has at other worlds – of which there are many which are squashed lumps of clay. Thus it is that in one context the object before us can survive being squashed, whilst in another it cannot. Similarly, then, we might say the same of the potatoes/properties. Considered as a property, the King Edward that is *spin-up* has counterparts at many worlds (and all worlds if properties exist necessarily, whether instantiated or not), whether that counterpart is another potato, the set of all things that spin up, or a Platonic universal. Considered as a potato, however, the King Edward has counterparts at quite different worlds i.e. only those at which tokens of the type *solanum tuberosum* appear.

Nor are Abelardian predicates the only way for context shifts to solve the problem. Consider existential claims being read restrictedly or unrestrictedly e.g. mereological universalists accepting that we can truly deny the existence of trout-turkeys because, unbeknownst to us, when we say nothing has both a trout and a turkey as a part we are restricting our quantifier to exclude gerrymandered objects like trout-turkeys (in just the same way that the ‘All’ in ‘All the beer is in the fridge’ can vary its domain dependent upon context) [Goodman 1966: 51; Jubien 1993: 4-5; Lewis 1986*a*: 213]. Or consider the eternalist who says most people are correct to say dinosaurs don’t exist because, usually without noticing, we restrict our quantifiers to those things that exist at the present moment. And it works the other way around whereby we unknowingly unrestrict rather than restrict: one might say abstracta now exist, even though no abstracta exactly occupy any sub-region of the hyperplane that is the present moment, because (rather than restricting our existential claim to what things occupy the hyperplane) we unrestrict to quantify over everything, which includes the unlocated abstracta. So it is with Spudism. When I stand next to the decayed mulch that was once the King Edward identified with *spin-up*, I can truly say that *spin-up* exists, for in that context I quantify unrestrictedly. I can also truly say that the potato does not exist for, in that context, I quantify restrictedly so that the relevant domain only includes those entities that exactly occupy some portion of the hyperplane that is the present moment – and that doesn’t include the potato.

The Analogical Predication Solution

Context shift is one solution; an alternative is to deploy ‘analogical predication’. To get a grip on it we’ll use the example of works of music.⁴ Take the (true) sentence ‘Red Red Meat’s song *Stained and Lit* lasts five minutes’. Problematically, no matter what realist theory we accept, no work of music appears to last five minutes – at least, not in the same way that, e.g., a song can last five minutes. Consider: if works of music are abstract *sui generis* entities, then – in being outside space and time – *Stained and Lit* doesn’t ‘last’ any length of time; if they’re fusions of scores then as the scores of the song have been in existence for longer than five minutes, the song would last too long; if works are fusions of performances then *Stained and Lit* starts at some point in the early 21st century and will last as long as mankind has a copy of it and plays it (maybe, then, tens of thousands of years); and so on and so forth. Whatever we identify works with, *Stained and Lit* doubtlessly won’t last five minutes. What the realist needs are *two* predicates: one, the literal non-analogical predicate, applies to the performance; the other, non-literal, predicate – which is an analogue of the former – applies to the work of music [Dodd 2007: 46; Wolsterstoff 1980]. So *Stained and Lit* doesn’t literally last five minutes (for only its performances do that) but it does analogically last five minutes.

We can use analogical predication in Spudism’s case: take *Azure* and the predicates ‘__ is aesthetically pleasing’ and ‘__ is unlovely’. Assume that the nobbled potato I identify *Azure* with is quite unlovely – it is literally unlovely. This is consistent with it being aesthetically pleasing, as long as we read that predication as being analogical: *Azure* is (analogically) aesthetically pleasing and not (analogically) unlovely, whilst it is (literally) unlovely and not (literally) aesthetically pleasing (as it’s an ugly looking potato). Again, this sort of move is going to be made by anyone who engages in reduction by identification for if we were, say, a class nominalist then, as classes

⁴ Indeed, it’s from that literature that I take the term ‘analogical predication’.

exist outside space and time, they have no aesthetic features at all – not in the same way that a breath-taking landscape or a painting by Caravaggio has aesthetic features. Indeed, even a realist who takes properties to be *sui generis* will likely have to say the same (at least if they locate the *sui generis* properties outside spacetime). So, as its competitors have to accept some such machinery, Spudism doesn't come off worse for wear if it likewise uses the same sort of moves to resolve its own property problems. This isn't to say analogous predication doesn't have problems (see, for instance, Kleinschmidt and Ross [2013]) but only that it's as well off as the theories it competes against which accept the existence of properties.

3.3 Extending the sketch

The above is just a sketch of how to tackle property problems but it should be easy to see how to extend it to other examples. Note, also, that there's no reason not to swap the strategies around (even amongst the examples already given). The predicate '___ resembles ___ more than it does ___' need not receive the context-shift treatment, for we could just as easily give it the analogical predicate treatment i.e. potatoes literally resemble one another and different pluralities of potatoes analogically resemble one another. Or we might be revisionary, instead of conciliatory, about modal profiles and hold that all things necessarily exist (*à la* Williamson [1998]) so that potatoes do necessarily exist. So bear in mind that the above is just a sample of how we might approach the different problems that arise.

One specific extension worthy of note is to use the strategies with regards to ontological dependence as ontological dependence also *prima facie* poses a property problem. Potatoes ontologically depend on their atoms and don't depend on, e.g., azure coloured cars, but we tend to think that either properties depend on their instances or vice versa – either ways, the humble potato identified with *Azure* will either partially depend on an azure coloured car (which isn't right!) or the car will partially depend on the potato (and that's not right either!). There's no reason why the above strategies can't be deployed to help with ontological dependence. We could revise our beliefs about what things depend on what other things (which, if we take seriously enterprises like Schaffer's priority monism [2010], is something we might already find appealing for priority monism engages in just such revision). Alternatively we could pursue conciliatory avenues. Perhaps ontological dependence talk is (like causal dependence is oft thought to be) context-dependent. Or maybe there are literal and analogical senses in which one thing might depend on another. I've never seen such ideas extended to the relation of ontological dependence, but it would be interesting to see them worked out in full.

4. The Ideology Difficulty

Another problem for Spudism – another possible cost outweighing its parsimonious benefits – is that it provides no ideological simplicity, whereas we tend to find successful reductions by identification do just that. Consider, e.g.:

- If worlds are certain regions (say, disconnected spacetimes), such that anything which is possible takes place at such a region, we can allegedly analyse modal primitives in terms of what goes on at those regions [Lewis 1986a: 5-20].
- If propositions are sets of possible worlds such that $\langle P \rangle$ is the set of worlds at which P is the case, we can, e.g., analyse ' $\langle P \rangle$ is actually true' as 'The actual world is a member of $\langle P \rangle$ '.

- If sets are states of affairs we can analyse set-membership in terms of (mereological and non-mereological) parthood: ‘ x is a member of y ’ is analysed as ‘ y is mereologically composed of states of affairs non-mereologically composed of individuals and unit-making properties the individuals instantiate, and one of which has x as a non-mereological part’ [Armstrong 1997: 185-95; 2004: 112-24].

If identifications were arbitrary, then these analyses would not work and ideological savings would not be made. If a world was any old object (e.g. my foot), or a proposition were some random set of worlds (e.g. $\langle \text{David Cameron is Prime Minister} \rangle = \{x: x \text{ is a world at which salami is sentient}\}$), or sets were any old state of affairs (e.g. $\{\text{Angela Merkel}\}$ is the state of affairs $[[\text{the best selling single of all time is Bing Crosby's } \textit{White Christmas}]]$) etc. those analyses clearly would not work and will not earn any ideological coin. Similarly, Spudism will provide us with no ideological parsimony and so we might want to discard it for that reason.

Yet this worry is misplaced. Even if Spudism offers no benefit with regards to ideological parsimony, the lack of a benefit is not the same as the presence of a cost. Whilst there may be other theories that provide ideological simplicity in a way that Spudism cannot, that’s not – by itself – a reason to think no-one could ever accept Spudism. To demonstrate this, compare Spudism to a realist theory of universals where instantiation is taken as a primitive (*à la* Armstrong [1989: 108]). The mere fact that such a theory does this does not mean it is inherently unacceptable – similarly, then, for Spudism which will also have to take instantiation to be a primitive. Whilst it fails to garner a benefit, that’s not the same as incurring a cost.

One may complain that this is enough to rule out Spudism anyhow. One may concede that whilst we cannot rule out Spudism at the outset – that is, that we cannot simply not bother to consider it on the grounds of its obvious absurdity – it is enough that there is always going to be a more sensible theory that we should prefer on the basis of the cost/benefit analysis. So the mere fact that there are theories like class nominalism (which achieves both ontological simplicity in reducing properties to classes and ideological simplicity in analysing instantiation in terms of membership) means that Spudism is ruled out. To an extent, this objection is correct: there may well be theories that are just as parsimonious but that have additional theoretical benefits that make them superior to Spudism. But it doesn’t avoid the overall moral that we’re trying to chase. Spudism is just an example absurd theory and we can serve up another just as easily. Even if you prefer class nominalism to Spudism we can run similar absurd identifications elsewhere. Are works of music carrots? Are events identical to atoms of Betelgeuse? Is each material object a non-repeating rational number ending in 4? The only way for there not to be a theory with arbitrary identifications that was superior to whatever theory you currently believe would be if you start with an ontology with only one basal category (for given such an ontology it’s impossible – using reduction by identification – to achieve a more parsimonious rival theory). If you instead start with a theory with multiple basal categories, and don’t believe that one is reduced to another, a Spudist-style arbitrary reduction between entities from one category to another will be parsimoniously superior and, as you began thinking that one category was *not* reduced to the other, no complaint along these lines will be able to gain ground against that arbitrary identification. The idea that we are pressed towards a one-category ontology is one I will pick up again near the end of the chapter.

5. Arbitrariness Anxieties

Spudism has been picked from off of a rack with an infinite number of equally dumb sounding identifications – I could've identified properties with thumbs, or with first kisses, or with the natural numbers (and so on). Each would be as effective at guaranteeing parsimony as Spudism so my chosen selection is arbitrary. Further, the *specific* identifications are arbitrary. For instance, *crimson* might be a potato from the 1800s rather than a King Edward in your pantry – it's arbitrary to pick one rather than the other. With no motivation for one option than another – for one dumb identification rather than one amongst its equally dumb brethren – the whole affair seems outrageously capricious.

You might demand a *principle of identification* in order to take any reduction by identification seriously. Principles of identification feature in other ontological reductions. Works of music aren't identified with any old event, instead being the fusion of every performance (principle of identification: work of music *m* is identical to the fusion of all performances of *m*); supersubstantivalism doesn't identify me with the region of spacetime occupied by the moon, instead identifying me with the region I exactly occupy (principle of identification: object *o* is identical to the region of spacetime exactly occupied by *o*); when propositions are reduced to worlds, $\langle A \rangle$ is reduced to the set of all A-worlds; Armstrong offers a principle of identification for which states of affairs are which class etc. (And, of course, in each case the principle of identification plays a role in achieving ideological parsimony as well.) Nothing of the sort is true when it comes to Spudism.

Worries about arbitrary identifications have cropped up previously in metaphysics. Benacerraf [1965] and Armstrong [1986: 87] both worry about identifying numbers with sets as it's arbitrary which identificatory strategy we settle upon e.g. we may accept that zero is the null set but do we accept von Neumann's identification whereby every ordinal $n = \{ m: 0 \leq m < n \}$ or Zermelo's identification whereby every ordinal $n = \{ n - 1 \}$? Moore [1999] advances the same worries against identifying propositions with anything other than a *sui generis* entity (see also Armour-Garb and Woodbridge [2012], King [2013], and Jubien [2001]). But I don't think such arbitrariness is a worry as every theory seems equally arbitrary when it comes to identifications. Shift to the oft-used metaphor of God creating the universe. Imagine God instructs his Property Angel to make some of the potatoes he created into properties, and also instructs the angel to make sure they have the correct features *qua* property e.g. that the potato they identify with *blue* is instantiated by all blue things (etc.).



=

Red



=

Blue

Figure 1.1 Spudist Identifications



=

Red



=

Blue

Figure 1.2 *Sui Generis* Properties

Figure 1 Different Identifications

The Property Angel looks askance at some (arbitrarily selected) potatoes and shrugs his shoulders. ‘Lord,’ he says, ‘This is crackers. I could make any given potato into a property, and make it the case that certain coloured objects instantiate it, but I could also make that same potato into a totally different property, such that certain other things instantiate it. Should this potato be *red* or *blue*? Should it be *spin-up* or *spin-down*?’ Such options are depicted in figure 1.1. ‘Lord,’ he complains, ‘it’s against union rules to carry out tasks without clear instructions, so your reductive workforce is on strike until you resolve this.’ And so God cannot make the potatoes into properties without some regimented identification scheme. This last bit – that we cannot have arbitrary reductive identifications because of the Angelic Host’s collective bargaining power against the Almighty – is, of course, totally metaphorical. But it will be a nice placeholder for whatever reason it is that one might think that arbitrariness is a problem. It is irrelevant what the placeholder is a substitution for, since such arbitrariness is unavoidable even if you think that properties are not potatoes but are *sui generis* entities in a basal category of their own. Given they are *sui generis*, God makes some *sui generis* entities and, again, turns to his Property Angel, instructing him to make those *sui generis* entities into properties. But just because the things that the Property Angel is to turn into properties are *sui generis* does not solve the Property Angel’s qualms. The only difference is that – as they’re *sui generis* – they’re ‘featureless blips’, lacking in any interesting detail or feature that might help with the identification. So whilst potatoes don’t have any detail or feature that would guide the Property Angel in making a given potato one property rather than another, the featureless blips simply don’t have *any details or features whatsoever*. So, again, when the Property Angel has to turn the *sui generis* blips into properties, he’s faced with the same problem. Is a randomly selected featureless blip to be the property *red*? Or is it to be the property *blue*? There is nothing to tell between them! Indeed, the arbitrariness he faces appears to be exactly the same (just compare figures 1.1 and 1.2) for the only difference is that potatoes have additional intrinsic properties (having a certain mass, shape, or nutritional value) and those extra features are irrelevant when it came to ontological identifications – that fact was what caused the Property Angel a problem in the first place! If they’re irrelevant, the two situations are saliently similar and it is only as arbitrary for the Angel to identify potatoes with properties (and, thus, make it the case that Spudism is true) as it is to identify blips with properties (and, thus, make it the case that realism with no reduction is true).

The complaint will be that the metaphor is misleading somehow. God, we might (metaphorically) think, can make *sui generis* properties ‘ready-made’, bringing into existence *red* or

blue with no need for any angel to do any work. God would, by divine fiat, bring the properties into existence, and that fiat would simultaneously fix, e.g., all the patterns of instantiation between the properties and their bearers. Now there's no need to pay an uppity Property Angel who'll only complain about the arbitrariness of the task. (This reply is exactly that which Moore [1999: 256] gives when defending his theory of *sui generis* propositions.) But if God can do this, then why cannot God do the same for potatoes? Why can God not conjure up potatoes that come not only with a raft of potato-esque intrinsic features (being of a certain mass, shape, and nutritional value) but also with features a property should have (e.g. standing in certain instantiation relations etc.). It seems just the same, and if it's just the same then the arbitrariness difficulty is just as problematic for the realist as it is for the Spudist (and if it's a problem for both theories then when we come to the cost-benefit analysis, and compare only the two theories – which is what we're imagining we're doing! – then it's a problem for neither theory).

Exactly how this metaphorical story is to be parsed back into the literal language of metaphysics is a tricky question, but the idea is clear enough: should you think there is a reason that the *sui generis* of properties means that they are not being *arbitrarily* identified with featureless blips, that reason will cut both ways and the Spudist can ask why that reason does not apply to their potatoes also being properties.

One might think that this cuts against both Spudism and properties being *sui generis*. So will go the objection, we should instead endorse some other principled reduction such as class nominalism. That principled reduction is to be preferred to the arbitrary theories of both Spudism and properties being *sui generis*. But Spudism is only a stand-in absurd reduction. Just as with the objection discussed in §4, whilst resorting to class nominalism gets us out of this specific objection, it won't generalise for all mooted reductions. The general moral is something like this: imagine you start by having n basal categories $C_1, C_2 \dots C_n$. If we reduce one category, C_m , to another in an absurd fashion we then have $n-1$ basal categories and that resulting theory is more parsimonious than the theory with n . However, it's true that it's not as good as a theory according to which C_m is non-arbitrarily reduced to some other category. But we can just redux the absurd reductions! Now start with $n-1$ basal categories, and accept that C_m is non-arbitrarily reduced to some other category; nothing stops us selecting a totally new category and running an arbitrary reduction on *that* category instead. Spudism, for instance, might fall in the face of class nominalism, but we might then arbitrarily identify events with numbers, or material objects with propositions, or propositions with point sized regions etc. So we've still not escaped the general moral of the paper.

Here things start to get interesting. The key issues are: if there are n basal categories (and $n > 1$) we can produce a theory involving absurd reductions that's more parsimonious and has $n-1$ basal categories according to it. It will lose out to a theory which instead carries out a principled reductive enterprise, and leaves us with $n-1$ basal categories but in a less arbitrary manner. But this means that, one way or another, we can *always* reduce n categories to $n-1$ categories when $n > 1$. If the reduction, at every stage, is principled, there'll no longer be any room for absurd reductions *but whatever route we take we end up with a one-category ontology*. That sounds like an impressive result that I'll take up discussion of in §7. Before that there's one remaining obstacle to Spudism (and all arbitrary reductions) that requires discussion.

6. Cardinality Criticisms

Perhaps properties are abundant. If they are there'd be more properties than potatoes and, as we'd then have to identify distinct properties with the same potato, we'd have a clear problem for Spudism. (Lewis raises exactly this objection against Shalkowski's arbitrary identification of possible worlds with bottlecaps [Shalkowski 1994: 679].) Again: this objection is a problem for some absurd reductions but not all, so the overall lesson of this chapter is unaffected. If only the things we were arbitrarily identifying properties with were numerous enough, there'd be no problem. If properties appear to be infinitely numerous we just need to make arbitrary identifications with things that are likewise numerous such as classes or spacetime points etc.

Indeed: take whatever category it is that you think has the highest cardinality (e.g. classes or abundant properties if you're fond of such things; perhaps points if you're more nominalistically minded). Of any other ontologically relevant categories there are we can make absurd identifications between entities from those categories and entities from the category with highest cardinality. The idea that everything is an arbitrarily selected abundant property (I'm *charge*, you're *being thought about on a Monday*, Obama is *being a dog or a cat* etc.) or an arbitrarily selected class (I'm \emptyset , you're $\{\emptyset, \{\{\{\{\emptyset\}\}\}\}$, Obama is the powerset of you etc.) is just as absurd as Spudism; such theories can be defended in just the way that we've defended Spudism; such theories are immune to the cardinality criticism; such theories are ontologically parsimonious one-category ontologies. So, as Spudism is just the stand-in for any arbitrary reduction we care to make, the cardinality criticism isn't a problem.

We should conclude that for any initial theory that has multiple basal categories a rival theory can be constructed which arbitrarily identifies entities from the categories without the highest cardinality with entities from the category with the highest (and arbitrarily select a category if multiple categories have the highest cardinality). That theory will be more parsimonious than the initial theory and, if we take seriously the lessons of §§3-5, won't have any outweighing costs. And it will be a one-category ontology.

Even if we add that there might be a *better* theory – one that has but one category but has every entity identified with members of that category using a principled reduction by identification that is non-arbitrary and/or yields ideological benefits – the upshot is nevertheless the same: we arrive at a single category ontology.⁵

7. Conclusion

I've introduced Spudism and argued that, if we take on board the tools already used by those who make use of reduction by identification, it is defensible. Further, what flaws befall it aren't flaws that apply to every arbitrary reduction. Thus a one-category theory with arbitrary identifications will be superior to a multiple category theory (although not necessarily superior to

⁵ Note that even the theory that has arbitrary identifications will provide at least one benefit concerning ideological parsimony. As an example take an ontology with the basal categories **CLASS**, **MATERIAL OBJECT**, and **PROPERTY**. Previously you'd take, as primitive, '___ is a class', '___ is a material object', and '___ is a property' to distinguish between entities of the different categories. Once we reduce everything to classes, though, we need no longer do that as 'x is a class' can be analysed as 'x exists' since *everything* is a class. One primitive can be peeled away from our ideology given the one-category ontology.

a one-category theory that uses principled, non-arbitrary, identifications). So, no matter what, if we buy into reduction by identification we should eventually end up with a one-category ontology. That is no small conclusion for whilst there are some who endorse exactly that sort of ontology (e.g. Paul [2012] thinks everything is a property, Armstrong thinks everything is a state of affair, and Pythagoreans think everything is a mathematical object⁶) a lot of ontologies don't end up as single category ontologies – and certainly the idea that we *must* be driven towards such a thing is an unusual one.

This upshot, though, is not the only interesting one, for the role of ontological parsimony in deciding which ontological theory to endorse is now severely diminished. If we accept that reduction by identification is an acceptable tool of metaphysics, then – when we concentrate only on trying to guarantee ontological parsimony – all we can draw from this is that we should endorse a one-category ontology with the category with the largest cardinality being that single basal category. Exactly which one-category ontology we should endorse is to be determined by some dimension other than ontological parsimony. Certainly the sorts of live debates one might have thought ontological parsimony was to play a role in will no longer take place. For example: imagine our initial ontology features **SPATIOTEMPORAL REGIONS**, **CLASSES** and **POSSIBLE WORLDS**. A Lewisian moots a rival ontology that reduces (by identification) the worlds to a type of region – namely a disconnected spatiotemporal region – in an effort to achieve qualitative ontological parsimony (even though, of course, it means introducing scads of other spacetimes at which every possibility plays out). [Lewis 1986*a*] (There are other reasons to endorse genuine modal realism, but let's assume that our imaginary Lewisian is fixated only on ontological parsimony.) This is no longer any motivation to endorse that Lewisian ontology, for it is easy enough to conjure up a rival ontology according to which, e.g., every region and every world is an (arbitrarily selected) class. Along the dimension only of ontological parsimony, that latter rival ontology is superior (and avoids an infinite number of disconnected spacetimes at which every possibility plays out!). So there was never any reason for ontological parsimony to favour the Lewisian ontology. And this applies to any theory: as we can so easily lever in arbitrary identifications in order to achieve the maximal level of parsimony that one can achieve (via reduction by identification alone), we must accept that reduction by identification (at least in so far as it achieves ontological parsimony) is now a useless tool for deciding between live metaphysical theories. Similarly for all other example reductions from §1.2: as we can have arbitrary identifications, ontological parsimony no longer favours any other reduction of possible worlds; reducing organisations to sets or fusions; supersubstantivalism; reducing numbers to sets; reducing works of music to event fusions etc. In each case a rival theory can easily be produced, involving arbitrary identifications, that beats (or at least equals) its competitor. So past the fact that we should settle on a one-category ontology, ontological parsimony is now by the by when it comes to determining which theory is true.

Before finishing, three points remain to be made.

Point One: Ontological Parsimony by other means: I have argued only for dulling the edge of reduction by identification, not against ontological parsimony in general. For instance, if you achieve

⁶ Pythagoreans include Quine [1976, 1995] (the most prominent) as well as Berry [1955], Dipert [1997], Grandy [1969], Myhill [1955], and Tegmark [2008].

parsimony by eliminating entire categories of entities (e.g. paraphrasing away commitment to properties (*à la* Jackson [1977], eliminating possible worlds by being a modalist [Forbes 1989], or – at its most extreme – eliminating everything [Hawthorne and Cortens 1995; Turner 2011])⁷ then that’s still a viable tool for helping decide which theory is true. Similarly, one might take this to be a reason to try and achieve ontological parsimony using reduction by grounding, rather than reduction by identification (although see #3 for why I am suspicious of just such a manoeuvre).

Point Two: Reduction by Identification still sees service: Reduction by identification is still a tool that might have a purpose – just not a purpose concerning ontological parsimony. For instance, it might be used to achieve ideological parsimony and eliminate: modal primitives by identifying worlds with disconnected spacetimes; constitution relations by making constitution identity; mathematical relations by analysing them as set theoretical relations holding between classes etc. That was the moral of §4.

In light of this, we might recast every effort we previously thought as favouring a reductive theory on the grounds of ontological parsimony as being, instead, a case of it being favoured because of some alternative theoretical dimension (like ideological simplicity). We might even go as far as saying that ontological parsimony was mistakenly thought to be a virtue in the first place, instead being only the secondary side effect of achieving some other theoretical quality. These are all legitimate conclusions one might reach. Each variant ditches ontological parsimony, so endorses a conclusion stronger than that which I argue for in this chapter (namely that we should stop thinking reduction by identification helps decide matters ontological, with the possible exception of us being pushed towards a one-category ontology). As it endorses a stronger conclusion than the one I seek, I’ve no problem with anyone taking such an option.

Point three: A reductio? Similarly we might take the above as a *reductio* either of any reduction by identification (say, because we suspect that the various strategies from §3 don’t work) or as a *reductio* of ontological parsimony being a virtue in the first place. Again, either option is stronger than my intended conclusion. Just as all roads lead to Rome, all avenues of defense lead – one way or another – to us coming to give up on caring about reduction by identification’s alleged ability to guarantee ontological parsimony. The only addendum is whether or not you think we should be pushed towards a one-category ontology: those who think reductions by identification are plausible and that ontological parsimony is a virtue should say ‘yes’; those who think that some part of that approach is flawed should say ‘no’. Either ways, most live debates in ontology should be blinded to any claims concerning ontological parsimony.⁸

⁷ Ontological nihilists would be the exception to the demand that parsimony favours a one-category ontology for, of course, they have zero.

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