Is it identity all the way down? From supersubstantivalism to composition as identity and back again

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Abstract:

We argue that, insofar as one accepts either supersubstantivalism or strong composition as identity for the usual reasons, one has (defeasible) reasons to accept the other as well. Thus, all else being equal, one ought to find the package that combines both views—the Identity Package—more attractive than any rival package that includes one, but not the other, of either supersubstantivalism or composition as identity.

Keywords:

substantivalism; supersubstantivalism; composition as identity; composition; spacetime

# 1. Introduction

Supersubstantivalism, as we shall understand the view, is the conjunction of two theses: (i) Space-time exists, and is not derivative upon spatio-temporal relations between material objects, and (ii) Material objects are identical to regions of space-time (specifically, the regions that they are exactly located[[1]](#footnote-2) at). Supersubstantivalism is naturally contrasted with relationism, which denies (i), and traditional substantivalism, which takes material objects to be distinct from space-time regions, and therefore denies (ii).[[2]](#footnote-3) [[3]](#footnote-4)

The version of supersubstantivalism in which we are interested is one according to which every material object is identical with some region of space-time.[[4]](#footnote-5) We will not assume that the converse holds: that every region of space-time is identical with some material object. [[5]](#footnote-6)

Composition as identity, as we shall understand the view, is the thesis that wholes are numerically identical to their parts, collectively.[[6]](#footnote-7) Thus, we will use the term ‘composition as identity’ to refer to what others call *strong composition as identity*.[[7]](#footnote-8) As the name suggests, there are other variants of composition as identity. *Weak composition as identity* says that composition is *like* identity. *Moderate composition as identity* says that composition is non-numerical identity (Cotnoir 2013). Our decision to focus only on strong composition as identity is motivated by the fact that the supersubstantivalism is a thesis about the *numerical* identity of material objects and regions of spacetime. We leave it open that the arguments given in this paper may apply to other versions of composition as identity. In fact, we suspect that Cotnoir’s (2013) thesis that composition is an instance of a general form of identity of which numerical identity is another instance[[8]](#footnote-9) may also be amenable to the same treatment as we give strong composition as identity. However, questions have been raised about the extent to which Cotnoir’s general identity can be truly be considered an identity relation (Hawley 2013; Carrara & Lando 2016), which in turn raise questions about the extent to which our arguments apply to Cotnoir’s version of composition as identity. We cannot hope to settle these questions here, and therefore restrict ourselves to discussion of strong composition as identity.

Strong composition as identity— henceforth just ‘composition as identity’—requires that identity can hold between one thing (the composite object) and many (its proper parts). Exactly how to spell out the view is a tricky issue which we cannot hope to solve here. We will simply take it for granted that such a view can be made sense of. We further suppose that composition as identity requires a commitment to the indiscernibility of identicals, which states that objects which are identical have the same properties.[[9]](#footnote-10) Although composition as identity *seems* to lead to violations of this principle, we think proponents of composition as identity ought to maintain that in fact it does not. We return to this issue in section 3. We also take it that composition as identity implies that the name for a composite object and the name for its parts (at a time t) are co-referential (at t). Again, not all versions of composition as identity in the literature have this feature.[[10]](#footnote-11) Finally, composition as identity, as we will understand it, carries a commitment to there being different ways of ‘carving up’ reality. On each way of carving things up – on each ‘count’ – we get a different answer to the question, ‘How many (material) objects are there?’ Thus, on one way of carving up reality, there might be one thing – a chair – whereas on another there might be many things – some particles arranged chair-wise. On the opposing view, which is the standard view in metaphysics, this is not the case: reality comes ‘pre-carved’ as it were, and there is only one correct count. As we will see (section 3), these commitments lead to others: defenders of composition as identity seem committed to particular views on persistence, *de re* modal properties, and plural logic.

Since there are three different views one might have about the nature of space-time (substantivalism, supersubstantivalism, and relationism) and two about the nature of composition (composition as identity, the standard view about composition[[11]](#footnote-12)) there are six possible packages. We set aside consideration of packages that combine relationism with any view about composition since a full consideration of relationism’s costs and benefits is beyond the scope of this paper. We call the remaining packages *realist packages* since all include a commitment to space-time. There are four realist packages:

(a) The *Identity Package,* which combines supersubstantivalism with composition as identity.

(b) *The Substantival Package*, which combines traditional substantivalism with composition as identity.

(c) *The Supersubstantival Package*, which combines supersubstantivalism with the standard view about composition.

(d) *The Standard Package*, which combines traditional substantivalism with the standard view about composition.

We think the Identity Package is attractive, but here we restrict ourselves to arguing that if one accepts either member of the Identity Package (supersubstantivalism or composition as identity) for any of the usual reasons, then one has the same (defeasible) reasons to also accept the other member. The Substantival and Supersubstantival packages are inherently unstable in virtue of the fact that the strongest and most common reasons for accepting either member of those packages are also reasons for rejectingthe other member. Thus, there are good (albeit defeasible) reasons to prefer the Identity Package to both the Substantival and the Supersubstantival Package. So our claim is a modest one: insofar as one takes certain sorts of (usual) reasons to be reasons for accepting either member of the Identity package, one ought take these same reasons to be reasons for a accepting the other member of the package. This of course leaves it open that there might be *other* strong countervailing reasons to reject either member of the Identity Package, and thus, all things considered, good reasons to prefer the Substantival or Supersubstantival packages.

Remember, it is not our aim to argue for either composition as identity or supersubstantivalism. Our aim is to show that *given* that one accepts one of these two views for the usual reasons, one has (defeasible) reasons to accept the other. We offer two arguments to this conclusion: the Argument from Virtue (section 2) and the Argument from Fewer Tools (section 3).

# 2. The Argument from Virtue

We argue for the following claim:

There is reason[[12]](#footnote-13) to prefer the Identity Package to either the Substantival Package or the Supersubstantival Package.

Our first argument for this conclusion is the Argument from Virtue. The basic idea is simple. Both members of the Identity Package – i.e., composition as identity and supersubstantivalism – share important features. Both can claim an advantage in parsimony. Both can claim an advantage in explanatory power. Thus, if one takes these to be reasons to prefer one view, then one ought to take them to be reasons to prefer the other as well. (Whether one *ought* to think either has these advantages is not something we will address, though in fact we do think so. Similarly, we will not try to argue that one ought to think that parsimony and explanatory power are reasons to think a theory is true, though we do think so.) So insofar as appeals to certain theoretical virtues gives one (defeasible) reason to accept one member of the Identity Package, it also gives one (equally defeasible) reason to adopt the other member of the package. Again, this leaves open that there might be other (not usual) reasons that tell against one, or both, members of the package.

In order to make the argument more precise we will appeal to some further principles. The first we call VIRTUE.

VIRTUE: Insofar as one finds certain features of a theory T1 to be theoretically virtuous, one ought also to find the same (or very similar) features of another theory T2 to be theoretically virtuous.

VIRTUE is plausible. The only way that VIRTUE could be false is if being a feature of a *particular theory* were relevant to whether that feature is virtuous or not. But that would be very strange. Why should a feature be virtuous when attached to one theory, but not another?

VIRTUE leaves entirely open *which* features of a view one finds virtuous. It simply tells us that *if* one is motivated to accept one member of the Identity Package in part because, say, that view is parsimonious, then one ought also to see the parsimony of the other member of that package as speaking in its favour. Note that VIRTUE does *not* say that if a theory, T1, is taken to have virtue V, and some other theory, T2, is also taken to have virtue V, then one has reason to endorse both T1 and T2. It could be that T1 and T2 are competing theories, or that we get no more of V by endorsing both than by endorsing either alone. Cases in which one gets more of a virtue by accepting more of the theories in some set are cases in which that virtue is *additive* with respect to the theories in that set. For instance, parsimony is additive with respect to theories T1 and T2 iff accepting both T1 and T2 results in a greater degree of parsimony than accepting either T1 or T2 singly. We think it plausible that if some virtue V is additive with respect to theories T1 and T2, then insofar as one has a reason to accept T1, one thereby has a reason to accept T2. We call this ADDITIVE VIRTUE.

ADDITIVE VIRTUE: If one takes the fact that T1 has feature F to be a virtue of T1 (and thus a reason to accept T1), and if F is additive with respect to the set of theories {T1, T2}, then one ought to take feature F to be a virtue of T2 (and thus a reason to accept T2) if T2 has F.

Here is an assumption that ADDITIVE VIRTUE makes: if one takes the fact that a theory has feature F to be a virtue of that theory, then one has a reason to accept that theory over competitor theories that lacks feature F. So if one thinks that parsimony is a virtue, and one thinks that theory T is more parsimonious than its competitors, then one has a reason to accept T. This might seem controversial. One might think T’s being more parsimonious than its competitors is only a reason to accept T if everything else is equal between T and its competitors. This last claim seems exactly right if one is thinking of a reason, in this context, as an all things considered reason. For clearly the fact that T is more parsimonious than its competitors does not give us an all things considered reason to prefer T to its competitors unless everything else is equal. It is important to bear in mind, however, that in this paper we are not talking about all things considered reasons; we are talking about reasons which can be defeated by countervailing reasons. We think it plausible that the fact that T is more parsimonious than its competitors does provide *a* reason to prefer T over its competitors: it is just that that reason might be countervailed by lots of other reasons to prefer one of its competitors. That is why even if what we say in this paper is right, it does not licence the conclusion that we have an all things considered reason to prefer the Identity Package over any of the other packages: we are only arguing that any of the usual sorts of reasons that people cite for accepting one of the members of that package is *a* reason to also prefer the other member of the package.

Bearing all this in mind, here is our first argument:

### Argument from Virtue

1. ADDITIVE VIRTUE: If one takes the fact that T1 has feature F to be a virtue of T1 (and thus a reason to accept T1), and if F is additive with respect to the set of theories {T1, T2}, then one ought to take feature F to be a virtue of T2 (and thus a reason to accept T2) if T2 has feature F.
2. Features of one member of the Identity Package that are typically taken to be virtuous are also features of the other member of the Identity Package.
3. At least some of those virtues are additive with respect to the set of views {supersubstantivalism, composition as identity}.
4. Insofar as one accepts one member of the Identity Package in virtue of it having features that are typically taken to be virtuous, one has (defeasible) reasons to accept the other member of the Identity Package [(1), (2), (3)].
5. Defenders of the Substantival Package accept one member of the Identity Package at because it has features that are typically taken to be virtuous.
6. Defenders of the Supersubstantival Package accept one member of the Identity Package because it has features that are typically taken to be virtuous.
7. Defenders of either the Substantival Package or the Supersubstantival Package have (defeasible) reasons to accept both members of the Identity Package [(4), (5), (6)] and therefore to accept the Identity Package.

We take premise (1) to be independently plausible, and (5) and (6) to be obviously true. Since (4) follows from (1), (2), and (3), and (7) follows from (4), (5), and (6), only premises (2) and (3) are in need of defence. It is to this task that we now turn.

## 2.1 Defending premises (2) and (3)

According to premise (2) of the Argument from Virtue, the features of supersubstantivalism which are typically taken to be virtuous by its proponents are also features of composition as identity and vice versa.

There are two key motivations for endorsing supersubstantivalism over traditional substantivalism.[[13]](#footnote-14) The first are considerations from parsimony. Supersubstantivalism is more ontologically[[14]](#footnote-15) parsimonious that traditional substantivalism, both in terms of the number of things it posits (quantitative parsimony) and in terms of the number of types of things it posits (qualitative parsimony).[[15]](#footnote-16) Where traditional substantivalism posits n space-time regions and a further m material objects, supersubstantivalism posits only the n space-time regions. And where substantivalism says that there are two kinds of substances—space-time and material objects—supersubstantivalism says there is only one. In addition, the substantivalist needs to posit the existence of location relations: relations that link space-time regions and objects. The supersubstantivalist needs only identity (and parthood); for she can say that for an object to be exactly located at a region is for it to be identical to that region. Thus, supersubstantivalism posits one fewer kind of relation as well as one fewer kind of substance: hence there are two respects in which it is qualitatively more parsimonious than substantivalism.

Second are considerations of explanatory power. The substantivalist posits two kinds of things—objects and space-time regions—and so faces the challenge of explaining the necessary connections between them. It seems to be impossible for material objects to lack locations in space-time, for example, or for two material objects to occupy the same location.[[16]](#footnote-17) Substantivalists face the challenge of explaining wherein such necessary connections lie. Supersubstantivalists, on the other hand, can easily explain why it is impossible for material objects to lack locations in space-time or to (exactly) occupy the same locations as one another. To be exactly located at a space-time region is to be identical to it, and since material objects are space-time regions it is impossible for them to lack exact locations in space-time. And, since it is impossible for two distinct material objects to be identical to the same space-time region (given the transitivity of identity), two distinct material objects cannot be exactly located at the same space-time region either.[[17]](#footnote-18)

Many substantivalists also think at least some of the mereological structure of objects matches that of the space-time regions said objects occupy.[[18]](#footnote-19) For example, some think that, necessarily, an object’s parts are located at subregions of the region it occupies. Insofar as one thinks that there is some such mirroring of mereological structure, one is committed to some principles of mereological harmony. If so, it seems that the substantivalist has to explain why such harmony principles hold true. The supersubstantivalist, on the other hand, has an easy explanation for the mereological harmony between the material objects and their locations in space-time: they are one and the same.[[19]](#footnote-20) [[20]](#footnote-21) For example, in order to explain why an object’s parts go where it goes, the supersubstantivalist can maintain that the sub-region relation is just the parthood relation. That entails that if x and y are both regions, then x is a sub-region of y iff x is a part of y. Since, according to supersubstantivalism all objects are identical to their exact locations, P1…Pn are identical to their exact locations, and W is identical to its exact location. Thus, if P1...Pn compose W, then the exact locations of P1…Pn compose the exact location of W. (By Leibniz’s Law, whatever relations P1…Pn stand in to W, P1…Pn’s exact locations stand in to W’s exact location. After all, P1…Pn just are P1…Pn’s exact locations, and W just is W’s exact location.)[[21]](#footnote-22)

To summarise, two core features motivating supersubstantivalism are its *parsimony* and its *explanatory power*.[[22]](#footnote-23) Now consider composition as identity. Composition as identity is motivated by the same considerations.[[23]](#footnote-24) Start with ontological parsimony. Composition as identity certainly has an advantage over the standard view in terms of quantitative parsimony. Where the standard view posits bothcomposite objects and theirparts as distinct things, composition as identity identifies the former with pluralities of the latter and so does not include both in its tally of what exists. Given some plausible assumptions, composition as identity is also more qualitatively parsimonious than the standard view. Both the standard view and composition as identity posit the same types of things, but composition as identity identifies some of these types with one another and so posits fewer types of thing overall. To see this, consider what both views say about a sparse world in which all that exists are some atoms arranged chair-wise and the chair that they compose. (For simplicity, let’s ignore any other objects composed by the atoms.) Both views ought to agree about what types of thing exist: e.g., *atom, atoms arranged chair-wise, chair*. Unlike defenders of the standard view, however, defenders of composition as identity can identify chairs with atoms arranged chair-wise. Composition as identity does not entail that this is so, but it is a natural extension of the view. After all, what else is a chair, under composition as identity, if not some atoms arranged chair-wise? If chairs just are atoms arranged chair-wise, then plausibly, the types *atoms arranged chair-wise* and *chair* are identical. Thus, given the plausible assumption that, under composition as identity, chairs are atoms arranged chair-wise, composition as identity posits just two types where the standard view posits three.

Now of course one could deny that *atoms arranged chair-wise* is a genuine type, and hence deny that that type is identical with the type *chair*. But if one accepts the claim defended in the previous paragraph, then one must therefore be committed to denying that there is any type, *chair*. For a chair just is some atoms arranged chair-wise. If the defender of composition as identity goes this route, then she posits very many fewer types than does the standard theorist. We doubt, however, that she will wish to do so; instead, we think she will want to identify certain types with others. In either case, however, the standard view posits a greater number of types than does composition as identity.[[24]](#footnote-25)

Composition as identity also posits fewer types of relation, and is thus more qualitatively parsimonious for this reason as well. In addition to the relation of identity, the standard view posits a further relation of composition. Indeed, if wholes are distinct from their parts, then composition is plausibly some sort of ‘generative’, or ‘building’ relation as Bennett (2017) calls it. It takes in some plurality of objects, and spits out a whole, distinct from that plurality. Even if the standard theorist does not think that composition is a building relation, she certainly thinks it is distinct from the identity relation. If composition is identity, however, the composition relation is not a building relation; indeed, it is not any kind of relation in addition to the identity relation.[[25]](#footnote-26) Since identity is a posit of every theory, including the standard view, the standard view posits more types of relation than does composition as identity. Hence, composition as identity is more qualitatively parsimonious.

 Like supersubstantivalism, composition as identity is also motivated by certain explanatory considerations: namely its ability to explain certain necessary connections. If wholes are distinct from their parts, taken together, then various questions call out for answers. Why must an object’s proper parts go where it does? And why is it that, of necessity, the properties of a whole are inherited from the properties of its parts (taken together)? If wholes are distinct from their parts, then the presence of these necessary connections seems mysterious. The defender of composition as identity has a ready explanation, since for her the necessary connections are trivial: they hold between a thing and itself. Composition as identity (together with Leibniz’s Law) entails that, whatever properties a composite object has, those same properties are had by its parts (collectively) as well. The reason why the properties of a whole are inherited from the properties of its parts, taken together, for example, is that the whole just is those parts, taken together.

One might object that the ability to explain why composite objects share certain properties with their parts cannot plausibly be taken as a virtue of composition as identity since the same reasoning leads to the wrong results in many other cases.[[26]](#footnote-27) Consider the atoms that compose a chair, for example. The atoms are microscopic and thus invisible to the naked eye, and yet the chair is not. So it cannot just generally be that composites inherit the properties of their parts. Hence it cannot be a virtue of composition as identity that it says that they do. Notably, however, the explanations we are alluding to are not ones on which composites inherit the properties of *each* of their parts individually. That would, indeed, give us the wrong results. Composition as identity (or at least the version we are considering) states that the chair is identical to the atoms *collectively* – it does not say that the chair is identical to any one of the atoms. Thus, composition as identity and Leibniz’s Law imply only that the chair must have the same properties as the atoms have collectively. Since the atoms are only microscopic and invisible *individually*, composition as identity does not wrongly imply that the chair is microscopic or invisible. [[27]](#footnote-28) Caution must be exercised. We ought not say that the chair is red (for instance) because each of its parts is individually red. We ought to say that it is red because its parts *collectively* are red*.* This, in fact, leaves open that the parts are not individually red at all, though in many cases they will be.

So far, then, we have argued that the features that supersubstantivalists find to be virtuous (parsimony—in particularly *ontological* parsimony—and explanatory power) are also features of composition as identity, and *vice versa*. If we are right, then premise (2) of the Argument from Virtue is true.

We now turn to premise (3) of that argument, which states that at least some of the shared virtuous features of one member of the identity package are additive with respect to the set of views {supersubstantivalism, composition as identity}.

Consider explanatory power with respect to necessary connections. In particular, consider the claim that both supersubstantivalism and composition as identity have the explanatory virtue that they do not need to posit, and thus explain, necessary connections between distinct existences (substances and objects, objects and their proper parts, respectively). Is that virtue additive? In many cases, yes.

Take the following explanatory virtue of composition as identity: it can explain why there are necessary connections between the collective properties of the parts of an object, and the properties of the whole. Why is it that if the only two proper parts of Freddie are (collectively) uniformly red, that Freddie is uniformly red? Because Freddie is identical to those parts, collectively. Supersubstantivalism cannot explain this necessary connection. Just because Freddie is identical to some region, R, and Freddie’s two proper parts (P1 and P2) are each identical to some regions R1 and R2, respectively, which are proper parts of R, it does not follow that if the parts are red, then so is Freddie. After all, if composition is not identity then Freddie (and hence R) is distinct from R1 and R2 collectively. Thus the identification of Freddie with R does nothing to explain why, if R1 and R2 are each red, then R (and hence Freddie) must also be red.

That’s not to say that there is no explanation. The supersubstantivalist might suggest that there is some intimate connection between Freddie and R1 and R2: perhaps Freddie is grounded by R1 and R2; and this suffices to explain why, if the former are both red, then so is Freddie. The point is just that by adding composition as identity to supersubstantivalism one gains the ability to explain more necessary connections, and so that virtue is additive across the two views. This is just one example of additivity. Clearly, the two views are also additive with respect to ontological parsimony since the two views are parsimonious with respect to different entities. Composition as identity identifies wholes with parts, and thus posits fewer material objects and fewer types of material object than the standard view. Supersubstantivalism reduces the number of things and types even further by identifying material objects with space-time regions. Hence, adding either view to the other results in greater ontological parsimony.

Premise (3) of the Argument from Virtue is true. Given that premise (2) is true, and the others either follow or are independently plausible, it follows that anyone who accepts one member of the Identity Package for any of the usual reasons, also has a reason to accept the other member. Thus, unless one holds one member of the package for reasons which are atypical, one has a defeasiblereason to prefer the Identity Package over either of the ‘mixed’ packages: the Substantival Package and the Supersubstantival Package. Furthermore, anyone who takes parsimony and explanatory power (at least with regard to harmony principles) to be strong (defeasible) reasons to accept one member of the Identity Package has strong (though defeasible) reasons to accept the other member too.[[28]](#footnote-29)

# 3. The Argument from Fewer Tools

The Argument from Fewer Tools is another argument for the same conclusion, most effective when combined with the Argument from Virtue. It appeals to a principle we will call the *Parsimony of Tools principle*. Philosophical problems require solutions. Where a solution involves some ontological or ideological posit, we will say that the solution requires a philosophical tool. The Parsimony of Tools principle says that the fewer tools one needs the better.

Parsimony of Tools: The fewer philosophical tools a theory needs, the better.

So far we have simply made the conditional claim that *insofar* as one takes a certain form of parsimony to be a virtue *vis à vis* one philosophical theory, one should take the same form of parsimony to be a virtue *vis à vis* some other philosophical theory. Here, however, we take a stand. The Parsimony of Tools principle is true, or so we say. If a theory requires fewer tools than its competitors then this is a reason to prefer that theory to its competitors. Of course, its needing fewer tools is only a *defeasible* reason to prefer that theory to its competitors, since countervailing reasons might show that all things considered, one of the competitor theories is preferable. To put it another way, that a theory requires fewer tools than its competitors is only an all things considered reason to prefer it to those competitors if everything else is equal. In what follows we cannot hope to argue that everything else is equal between the various members of the competing packages. Instead, we aim to argue that the fact that the Identity Package requires fewer tools than any of the other packages gives us a defeasible reason to prefer that package to its competitors.

Here is that argument:

### Argument from Fewer Tools

1. Parsimony of Tools: The fewer philosophical tools a theory needs, the better.
2. The Identity Package requires fewer tools than either the Substantival Package or the Supersubstantival Package.
3. So there is a (defeasible) reason to prefer the Identity Package to either the Substantival Package or the Supersubstantival Package.

(I) is independently plausible so we reserve our attention to arguing for (II). Why think (II) is true? Consider the well-known Principle of Uniform Solution: if two paradoxes are of the same kind, then they should have the same kind of solution.[[29]](#footnote-30) Consider a generalised version of this principle (what we will call the *Generalised Principle of Uniform Solution*): if two philosophical problems are of the same kind, then they should have the same kind of (philosophical) solution. As we will see, the reason the Identity Package requires fewer tools than its two rivals is that each member of the package has the same kinds of philosophical problems. Our defence of (II) begins by showing that the standard problems for one member of the Identity Package are of the same kind as the standard problems for the other member of the package. We then show that insofar as one uses a particular tool to solve a problem for one member of the package, that tool is effective in solving the same kind of problem for the other member of the package. By the Generalised Principle of Uniform Solution, then, one ought to use the same tool to fix those problems. We then argue that if one accepts either member of the Identity Package, then accepting the other member requires no additional tools. Of course, we cannot show that there is no *possible* problem that one member of the package faces that requires a tool not already required by the other member of the package; for we cannot anticipate every possible problem. Thus, our conclusion is provisional: given the problems known to attend either member of the package, if one accepts either member of the Identity Package, then accepting the other member requires no further tools.

Finally, we show that if, instead, one accepts either the Substantival or Supersubstantival Package then one needs the same tools as if one accepts the Identity Package, plus some additional tools. We will get to this final step of our defence of (II) in section 3.2. First, however, in 3.1 we proceed through the initial three steps.

## 3.1 The Common Problems

In what follows we argue that for each common problem facing one member of the Identity Package, there is a common problem of the same kind facing the other member. We then go on to show that a single tool can be used to fix both problems, and hence, by the Generalised Principle of Uniform Solution, we should use that tool.

## 3.1.1 Mismatching Temporal Properties

Here is a problem for composition as identity: some composite objects are composed of different parts at different times. Suppose x exists at time t and at time t\*. Suppose, for reductio, that x is identical to its parts, the Ps; and suppose x at t and the Ps at t share all and only the same properties. But now consider t\*. At t\*, the Ps are (collectively) entirely red. At t\*, x is not entirely red. Why so? Because at t\* x is, in part, composed of things that are not amongst the Ps: x gains and loses parts and some of the Ps have been replaced. Thus the Ps, at t\*, have a collective property, being entirely red, that x lacks. Therefore x is not identical to the Ps.[[30]](#footnote-31)

There is a problem of the same kind that faces supersubstantivalism. Some material objects exist at more than one time. No material object’s exact location exists at more than one time. So no persisting object is identical to its exact location. In both cases the general form of the argument is as follows:

1. x is identical with y [for reductio].[[31]](#footnote-32)
2. x exists at t and at t\*.
3. y’s properties at t\* are different from x’s properties at t\*.
4. If x and y are identical then x and y share all the same properties [Leibniz’s Law].
5. Therefore, x and y and not identical.

In both cases, x is a material object. In the argument against supersubstantivalism y is a region which is x’s exact location. Since exact locations do not exist at more than one time (or so the argument goes), if y exists at t, then it fails to exist at t\*. So y’s properties at t\* are different from x’s properties at t\*, since x, but not y, exists at t\*. In the argument against composition as identity, y is some plurality of parts. y’s properties at t\* are different from x’s properties at t\* because at t\* x is not composed of y (it has gained or lost some parts). Therefore, y has some different properties from x at t\*.

In each case the problem is of the same kind; so we would expect the same tool to fix both problems. And it does. That tool is perdurantism.[[32]](#footnote-33) According to the supersubstantivalist, persisting objects are composed of numerically distinct temporal parts. Each temporal part is identical to a region; but no two temporal parts are identical to the same region. The temporal part of x that exists at t and only t (x-at-t) is identical to some region, R, and the temporal part of x that exists at t\*, and only at t\* (x-at-t\*) is identical to some region R\*, and R and R\* (and x-at t and x-at t\*) are distinct. Then x is identical to the fusion of each temporal part, and identical to the fusion of the regions: thus x is identical to some four-dimensional space-time region. With this in hand, the supersubstantivalist can solve the problem by suggesting that it confuses x with x’s temporal parts. It is not x which is identical to R, but x’s temporal part at t. Like R, this temporal part does not exist at more than one time, and so there is no violation of Leibniz’s Law. The four-dimensional space-time region which is x’s exact location, on the other hand, does exist at more than one time, just as x does. Again, there is no violation of Leibniz’s Law.

Similarly, according to the defender of composition as identity, persisting objects perdure. A temporal part of an object x— x-at-t—is identical to some collection of parts (the Zs at t) while some other temporal part of x—x-at-t\*—is identical to some collection of parts (the Ys at t\*) even though the Zs at t are not identical with the Ys at t\* (or, to be more careful, x-at-t is identical to the t-parts of the Zs and *mutatis mutandis* for x-at-t\*). The defender of composition as identity can thus solve the problem by noting, like the supersubstantivalist, that it confuses x with x’s temporal parts. It is not x which is identical to the Zs (or the Ys), but the temporal part of x which exists at t which is identical to the t-parts of the Zs. There is no contradiction in saying that x is not entirely red at t\* while the t\*-parts of the Zs are, collectively, entirely red, at t\*, since the temporal part of x which exists at t\* is identical with the t\*-parts of the Ys, and not with the t\*-parts of the Zs, and the Zs are not identical to the Ys.

Given that both problems are of the same kind, we should solve them in the same way; so both the supersubstantivalist and the defender of composition as identity should endorse perdurantism.[[33]](#footnote-34) Thus, with respect to this problem, once one accepts *either* member of the Identity Package accepting the other incurs no further cost in tools.[[34]](#footnote-35)

## 3.1.2 Mismatching Modal Properties

Here is a problem for supersubstantivalism. Objects and space-time regions have different modal properties. Many objects are such that they could have been located elsewhere. The chair I am currently looking at could have been located 3 feet to the left. It is not true of any region, however, that it could have been located elsewhere than where it is.[[35]](#footnote-36) Therefore, by Leibniz’s Law, objects are not identical to space-time regions. There is a problem of the same kind facing composition as identity. Objects have different modal properties than their parts taken collectively. At least some objects are such that they could have been composed of different parts. But no objects are such that they could have been identical to different objects (as composition as identity seems to entail).[[36]](#footnote-37) Many objects are such that they could not survive being hit with a sledgehammer. But the atoms that compose these objects can (collectively) survive being hit by a sledgehammer. So the plurality of atoms has a modal property that the object lacks. Thus, by Leibniz’s Law, composite objects are not identical to their parts, taken collectively.

Here is the general form of the problem:

1. x is identical with y [for reductio].
2. x has modal property M.
3. y lacks modal property M.
4. If x and y are identical then x and y share all the same properties [Leibniz’s Law].
5. Therefore, x and y and not identical.

Here again, same kind of problem, same kind of tool. In this case the tool is counterpart theory.[[37]](#footnote-38) Objects’ de re modal properties are had in virtue of their counterpart relations. Some ways of picking out an object create a context in which some counterpart relations are more salient than others. So, notes the supersubstantivalist, picking out x by the use of the term ‘dog’ creates a context in which the relevant counterpart relation picks out counterparts that are similar to x in dog-like ways: it picks out dog counterparts. Picking out x by the use of the term ‘space-time region’ creates a context in which the relevant counterpart relation picks out counterparts that are similar to x in space-time region-like ways: it picks out space-time region counterparts. In the former context, it is true of x that it could have been located elsewhere than it is, since there are dog counterparts of x in other possible worlds which are located elsewhere. In the latter context, it is not true of x that it could have been located elsewhere, since x has no space-time region counterparts which are located elsewhere. These facts, of course, are perfectly compatible with one another; there is no violation of Leibniz’s Law on this account.

Likewise, the defender of composition as identity notes that picking out x by the use of ‘table’ creates a context in which the relevant counterpart relation picks out counterparts that are similar to x in table-like ways: it picks out table counterparts. Picking out x by the use of the term ‘the atoms’ creates a context in which the relevant counterpart relation picks out counterparts that are similar to x with respect to being atoms (arranged in any way – not just table-wise). In the former context, it is true that x cannot survive being hit by a sledgehammer (let us suppose) since there are no table counterparts of x in other possible worlds which survive being hit by a sledgehammer. In the latter context, x can survive being hit by a sledgehammer, since there are atoms counterparts of x in other possible worlds which survive being hit. This response also respects Leibniz’s Law.

Once again we find a pair of problems of the same kind, and note that they can (and should) be fixed with the same tool.

## 3.1.3 Clashes with Commonsense

Here is another problem for supersubstantivalism. Material objects are, intuitively very different to space-time regions. Some material objects bark, some are smelly. Space-time regions don’t bark, and aren’t smelly. So space-time regions are not material objects.[[38]](#footnote-39) A composite object may be statue-shaped, or tall, or smelly, but atoms arranged in a certain way are not statue-shaped, tall, or smelly. So composite objects are not identical to atoms arranged in a certain way. Here is the general form of the argument:

1. Some Fs have property P.
2. No Gs have property P.
3. If all Fs are Gs, then every F shares all of its properties with some G [Leibniz’s Law].
4. Therefore, no F is identical with any G.

Since it’s the same kind of problem, we aim to find a single tool that will fix both forms of the problem. And we can: deny the relevant intuition (cf. Schaffer 2009, p. 144). While it sounds odd to say that some space-time regions bark, or that some atoms are, collectively, statue-shaped, we ought not be misled by language. There seems no reason to suppose that collections of things cannot have properties: that atoms taken *collectively* cannot be tall, statue-shaped or smelly, even if no atom is any of those things. Likewise, if space-time regions are real, and they instantiate properties, then there is little reason to suppose that they can’t bark or be smelly.

There are similar problems of intuition that don’t have analogues for both views. For instance, supersubstantivalism faces the following objection: material objects are concrete, but space-time regions don’t seem to be.[[39]](#footnote-40) There is no analogue of this for composition as identity. No doubt there are others like this too. However, we don’t foresee any problems arising from clashes with commonsense which can’t be blocked by reasonably denying the intuitions in question. So these objections don’t require any additional tools.

## 3.1.4 Emergent Properties

Here is a problem for composition as identity. There are, or could be, strongly emergent properties – roughly, properties of an object which go beyond, or aren’t reducible to, the properties of their individual parts or the relations between them. Consider the property of consciousness. Perhaps you think that this property is not reducible to the properties of individual atoms or the relations between them. If composition as identity is true, however, and everything is composed of atoms, then everything is identical to collections of atoms and there would seem to be no appropriate bearer for such strongly emergent properties.[[40]](#footnote-41) Panpsychism aside, atoms are not conscious and (it would seem) cannot be. Thus, if strongly emergent properties are possible, composition as identity is false. The same kind of problem arises for supersubstantivalism. Material objects have (or could have) properties that aren’t reducible to the properties of space-time regions. Perhaps consciousness is an example here too. If supersubstantivalism were true, there would be no appropriate bearer for such properties. After all, according to supersubstantivalism, material objects are space-time regions and so all of their properties must be reducible to properties of space-time regions. Therefore, supersubstantivalism is false.

Here is the form of the problem:

1. Material objects have, or could have, properties that aren’t reducible to the properties of their individual parts/the properties of space-time regions.
2. Given composition as identity/supersubstantivalism there is, and can be, nothing to bear such properties.
3. If there is, or can be, such properties, then there is, or can be, something to bear those properties.
4. Therefore, composition as identity/supersubstantivalism is false.

The solution? The defender of composition as identity can say that pluralities of atoms can have irreducibly plural properties, and that these are the emergent properties.[[41]](#footnote-42) That is, she can say that atoms, taken collectively, can be conscious, even if consciousness is not reducible to the properties of the individual atoms or their arrangement. Although consciousness is not reducible to the *individual* properties of atoms, it is reducible to the collective properties of atoms, and so strongly emergent. Alternatively, she can say that the properties in question aren’t strongly emergent, and instead that the atoms are, collectively, conscious, because consciousness is reducible to the properties of the individual atoms. The supersubstantivalist can say much the same. She can either deny that the properties in question are not reducible to the properties of space-time regions, or she can deny that there is, or can be, nothing to bear such properties under her view. Here, in fact, the second response amounts to the same thing as the first; for if there is something to bear the properties in question it is a space-time region, and so its properties are reducible to the properties of a space-time region.

At this point one might object that on one way of solving this problem, composition as identity makes use of irreducibly plural properties whereas supersubstantivalism does not, and so the two views do not, or at least need not, make use of the same tools in solving this problem after all. While it is true that the supersubstantivalist does not need irreducibly plural properties to solve this problem, we think she does, however, need them more generally, since any theory on which composition occurs implies the existence of irreducibly plural properties. The property of composing something seems, after all, to be irreducibly plural (except in the trivial case where something composes itself). Take, for example, some atoms which compose a chair. It is not the case that any one of those atoms composes the chair – they do so collectively. In other words, composition is a many-one relation, and the property of composing something is (except in the trivial case) a property had by many things, not one. As such, it seems to be irreducibly plural.

So far we have shown that for a range of problems faced by one member of the Identity Package, the same kinds of problems arise for the other member of the package, and we have shown that in each case, there is a unified solution: a single tool that will solve both problems. Still, that does not show that accepting both members of the Identity Package commits one to no more tools than accepting either member, alone, and falls well short of showing that the Identity Package requires fewer tools than its two rivals. In what follows, we first defend the weaker claim: that accepting both members of the Identity Package commits one to no more tools than accepting either member, alone. We cannot, as noted previously, show that there is no possible problem that would require one member of the package to invest in a tool the other member did not require. We can show that, of the problems that have so far been found, none require the implementation of some new tool to which the other member of the package was not already committed.

## 3.1.5 Other Problems, Other Tools?

One candidate to be a problem for one member of the Identity Package (composition as identity) that has no analogue for the other member (supersubstantivalism) is the counting problem. If that problem requires tools that the supersubstantivalist does not already need, then adopting both members will be more costly than adopting just one, and that might result in the Identity Package needing more tools than rival packages. In what follows we suggest that the defender of composition as identity can solve this problem using the tools she already has. To see how, let’s first see what the problem is.

A composite object is one thing, whereas its proper parts are many things; therefore, the former is not identical with the latter.

1. A composite object is one thing.
2. A plurality of parts is many things.
3. One thing is not many things.
4. Therefore, no composite object is identical with any plurality of parts.

One response, due to Wallace (2011b) is to appeal to ‘plural counting’. The idea is to treat different answers to the question, ‘How many objects are there?’ as corresponding to different domains. On one way of counting (on one ‘count’) there is one thing, and on another way of counting there are, say, five things. We avoid the contradiction by relativising each answer to a different domain; in particular, Wallace suggests that we count distinct variables in the singular/plural hybrid identity statements. So, for instance, suppose that the Xs = y, where the Xs are x1, x2, x3 and x4. Then, the proposal is that we count variables on either side of the identity predicate (but not both). The domain is the domain on one, and only one, side of the identity sign. Thus on one count we get the answer ‘4’ and on the other we get the answer ‘1’. And either count is correct.[[42]](#footnote-43)

Relativising counts to domains seems like an ideological cost that the supersubstantivalist does not incur: she thinks there is a single domain, and a single count of that domain. As we see it, however, talk of domains is misleading. Consider the domain of all objects. Suppose that the domain contains x and y, each of which are simples. Does the domain contain z? Yes, assuming that z is just x and y, collectively. The defender of composition as identity does not dispute that there is single unrestricted domain of (material) objects. She thinks there is a single domain in which the names, ‘z’, ‘x’, and ‘y’, all map to objects under some appropriate mapping of names to objects. It is just that we cannot count the objects by counting the names, because then we would come up with a count of three; and that would be to over count, given that ‘z’ is just a name for x and y together. When we ask about a count on a domain, we are asking about the ways in which names for the things in that domain map to the natural numbers.

As we see it Wallace’s solution amounts to noting that there are different, equally good, ways of mapping names to numbers. Notice we want to say something like: ‘each simple in the domain must be mapped to a number once, and only once.’ It can be mapped to a number by being picked out by a singular name for that simple—‘Fred’—and that name mapped to a number, or it can be picked out by being a member of a collection of simples, picked out by a plural name—‘the Berts’—that is mapped to a number. But it can only be mapped once: if it’s mapped by being one of the simples named by ‘the Berts’, then it cannot be mapped a second time, by being picked out by ‘Fred’. But mapping the Berts to a number, and mapping Fred to a number, are equally good mappings between numbers and names. Under one set of mapping relations we will get one count on a domain; under a different set of mapping relations, we will get a different count on a domain. It’s the same domain though; it is just that the count we get is sensitive to which way we map names to numbers.

Notice that no special tools are required to see what is going on here. It’s always been the case that we need to be able to talk about different interpretations into a domain. The only difference is that if composition is identity, there is no unique correct interpretation and mapping that yields a single correct count on any domain. Moreover, while the supersubstantivalist need not accept that there is no unique correct mapping that yields a single count on a domain, she will accept that there are multiple correct mappings of names of objects onto the natural numbers. She will concede that there are many ways of counting, say, ships, or persons. Here is why. Suppose on Wednesday a ship undergoes fission. Suppose it is Wednesday afternoon, after the fission, and we ask how many ships there were on the sea on Tuesday. We have seen that one natural answer is ‘1’. But, as Viebahn (2013) points out, ‘2’ might also be a good answer if what we are asking is how many of the present ships were on the sea on Tuesday.[[43]](#footnote-44) Since we have already seen that supersubstantivalists are committed to perdurantism, and since perdurantists typically allow flexible counting when it comes to things like ships, the supersubstantivalist also admits flexible counting with respect to some mappings of names of things in the domain, to the natural numbers. The defender of composition as identity simply takes this flexibility one step further: in addition to holding that there is no unique fact of the matter as to how many ships there are in the domain, because there are multiple equally good mappings that produce a different ship-count, she will also hold that there is unique fact of the matter as to how many *objects* are in the domain, because there are multiple equally good mappings that produce different object-counts. That incurs no additional ideological cost beyond that already paid by the supersubstantivalist.

## 3.2 A Smaller Toolbox

So far we have argued that, given the problems we know about, accepting both members of the identity package commits one to no more tools than accepting either member, singly. Now we need to show that the Identity Package requires fewer tools than its rivals. That requires showing that both the Substantival and the Supersubstantival Packages require not only the *same* tools as the Identity Package, but some more besides. It should be obvious that both packages require *at least* the same number of tools as the Identity Package since both packages include one member of the Identity Package. So all we need show is that each of those packages also requires additional tools.

Let us consider each package in turn. Suppose one accepts the Supersubstantival package. Then one accepts a standard view about composition. Here is a problem for the Supersubstantival Package:

1. Wholes are numerically distinct from their parts, collectively [assumption of the standard view of composition].
2. Necessarily, if there are atoms arranged chair-wise, then there is a chair composed of those atoms.
3. There are necessary connections between some wholes and their parts [(2)].
4. Therefore, there are necessary connections between numerically distinct existences [(1), (2), (3)].

By modifying premise (2), the argument can be run for any number of composite objects. (Some will also find it compelling in the other direction: Necessarily, if a chair exists, then some atoms arranged chair-wise exist.) Premise (2) can also be modified to take into account other necessary connections between parts and wholes. It seems impossible for an object to weigh x kilograms, and for its proper parts to collectively weigh some other amount. It seems impossible for an object to be entirely red, and yet its proper parts to be (collectively) entirely blue. More examples are easy enough to come by. Each leads to a different formulation of the objection.

Accepting necessary connections between numericallydistinct existences comes at a price. If x and y are numerically distinct, then why can’t x exist without y, or have certain properties without y having certain properties? Some explanation for the presence of said necessary connections is required. Proponents of the standard view of composition seem to think that the necessary connections between parts and wholes are not so mysterious. After all, parts and wholes are related far more closely than mereologically distinct objects. Some even go so far as to say that wholes are ‘nothing over and above’ their parts. But it is not clear what is meant by that in the context in which wholes are not identical to their parts, collectively. What *is* the connection supposed to be? We are owed an answer. One possibility, given recent literature, is that it is a relation of ground. The parts ground the whole (or *vice versa*).[[44]](#footnote-45) Grounding is typically thought to be a relation of necessity: where one has the grounds then, of necessity, one has the grounded because the grounds *give rise to* the grounded. This explains why there is a necessary connection between wholes and their parts, and between the properties of parts and the wholes those parts compose. Indeed, we can think of no other plausible candidate. Thus the tool we think the defender of the Supersubstantival package needs is grounding. Whatever one thinks of grounding it is clear that it is an additional tool one needs if one rejects the Identity Package in favour of the Supersubstantival package.[[45]](#footnote-46)

Suppose, then, one instead endorses the Substantival Package. This means endorsing traditional substantivalism. As before, we already know that that package will need all of the same tools as the Identity Package. Does it need additional tools? Yes. Consider the following problem for the Substantival Package:

### The Problem of Co-location

1. Material objects and space-time regions are distinct [assumption of substantivalism].
2. Necessarily, any material object which has parts occupies a space-time region which has parts.
3. Therefore there are necessary connections between the distinct existences.

As before, there are numerous variants of the argument, some stronger than others. There are many other harmony principles besides (2), which we can change to any of the following.

(2\*) Necessarily, a material object has the same shape as the space-time region it occupies.

(2\*\*) Necessarily, a material object occupies some space-time region.

The substantivalist needs to explain why there exist necessary connections between these distinct existences. Which story she tells will depend on the argument. As a response to an argument making use of premise (2\*\*) she might say that it’s simply analytic that material objects are located at some space-time region: otherwise they would be abstract. In response to arguments making use of premises (2) or (2\*), she will likely appeal to location relations. As we have seen, the substantivalist already needs to posit location relations. But simply having location relations will not allow her to explain why objects have the same shape as the regions they occupy, nor why regions and objects share (at least some) mereological structure. In order to explain *these* necessary connections the defender of the Substantival Package needs to posit some more ideology. What are her options? She could respond to the objection from mereological structure by stipulating that, of necessity, certain principles of mereological harmony obtain.[[46]](#footnote-47) It is worth noting that such principles, if true, seem to be part of what makes it true that the necessary connections between objects and space-time obtain. But it is not clear that they *explain* the connections since it is not clear why these principles obtain. What is their status? If they are substantive metaphysical principles, then at least some of them must be primitive. Alternatively, perhaps some of them are analytic, and fall out of what we mean by ‘object’, ‘location’ and ‘space-time region’. It remains to be shown that that is indeed the case. At any rate, the point here is just that some new tool is required.

It is also far from clear that an appeal to mereological harmony principles will aid the substantivalist in responding to the objection from co-location framed in terms of (2\*). For suppose that one accepts the largest suite of harmony principles: one holds that the mereological structure of any space-time region is mirrored by the object that occupies that region and *vice versa*. Even if that is so, it does not guarantee that objects have the same shape as the regions they occupy. It just tells us that the parts of an object correspond to the parts of the region and *vice versa*. We need a further principle which tells us that something’s shape is determined by the distribution of its parts (or some such) to infer from the fact that because the object has a part wherever the region does, it follows that they share the same shape. (Notice that if one thinks that objects can be multi-located, some care would need to be taken in spelling out this principle.) Again, one might suggest that grounding could be employed here. Perhaps space-time regions are fundamental, and objects are derivative upon those regions, explaining why they share the same shape. It is not entirely clear to what extent this vindicates substantivalism rather than supersubstantivalism, but even if it does, the point remains that additional tools (i.e. grounding) are required.[[47]](#footnote-48)

One might object that the two rival packages need more tools than the Identity Package only if the additional tools that they need are not already needed elsewhere by those who adopt the Identity Package. If, for instance, everyone must posit grounding relations in order to meet other metaphysical challenges, then it will be no cost to the two rival packages if they need to posit grounding relations to do the work just adumbrated. *Mutatis mutandis* for any other tool that the rival packages need, that the Identity Package does not. Evaluating whether we all need to posit relations of ground (or, indeed, some other tool that the rival packages might use to do the work just mentioned) is beyond the scope of this paper. Notably, though, while defenders of grounding think there are independent reasons to accept such a relation, not everyone agrees.[[48]](#footnote-49) So for many, there is a cost here: this package requires more tools than we would otherwise need. Insofar as one would not otherwise need the additional tools required by the rival packages, which are not required by the Identity Package, then premise (II) is true, and the Fewer Tools argument is sound. Moreover, the fact that we have shown that the rival packages require more tools than the Identity Package *on its own* requires puts the burden on defenders of those views to show that we are, indeed, all already committed to these additional tools so that they are not really ‘additions’ to ontology at all.

# Conclusion

That concludes our defence of the Argument from Virtue and the Argument from Fewer Tools, and thus our defence of the claim that there are (defeasible) reasons to prefer the Identity Package to either the Substantival or Supersubstantival Packages. Of course, this doesn't show that there is an all things considered reason to prefer the Identity Package to either of its rival packages. Perhaps there are other reasons, not considered here, that countervail the reasons we set forth. Moreover, this still leaves one realist package unaccounted for: the Standard Package. That is work for another day. But we hope to have provided some motivation for both sides of the debate (those in favour of, and those against the Identity Package) to investigate further.**[[49]](#footnote-50)**

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1. An object’s exact location is its shadow in space, so to speak, and has the same size and shape as the object. For more on exact location see Gilmore (2018). [↑](#footnote-ref-2)
2. There is no agreed way to define these views. (Schaffer (2009) requires that space-time be fundamentalgiven substantivalism (and supersubstantivalism) and non-fundamental given relationism.) But we see no reason why either view should rule out that, for instance, space-time is emergent from some more fundamental quantum reality. [↑](#footnote-ref-3)
3. Note that supersubstantivalism and what we are calling ‘traditional substantivalism’ are both kinds of substantivalism, which is simply the view that space-time exists and is not derivative upon spatio-temporal relations between material objects (i.e. (i)). One might also call these *monistic substantivalism* and *dualistic substantivalism* respectively, as in Schaffer (2009). [↑](#footnote-ref-4)
4. We take both extended regions of space-time and space-time points to be regions of space-time. [↑](#footnote-ref-5)
5. Such a view is defended by Schaffer (2009). [↑](#footnote-ref-6)
6. For introductory overviews of composition as identity see Wallace (2001a, 2001b), Cotnoir (2014). See also Baxter (1988a, 1988b) and Lewis (1991), though note that neither seems in the end to endorse the kind of view under discussion in this paper. (Baxter rejects the indiscernibility of identicals, and Lewis wavers on whether composition is identity or merely analogous to identity.) Wallace (2011a, 2011b) and Bohn (2009, 2014) defend strong versions of composition as identity more in line with the one discussed in this paper. [↑](#footnote-ref-7)
7. See e.g., Yi (1999), Sider (2007), Cotnoir (2014). [↑](#footnote-ref-8)
8. Contoir’s view is thus a version of moderate composition as identity. [↑](#footnote-ref-9)
9. See Sider (2007) for an argument to this end. [↑](#footnote-ref-10)
10. See Carrara and Lando (2016) for discussion. [↑](#footnote-ref-11)
11. The standard view being that composition is not identity. We set aside other versions of composition as identity, in particular, moderate composition as identity. The question of where they fit into the picture is an interesting one, but not one we can answer here. [↑](#footnote-ref-12)
12. Remember, we are not arguing that one has all things considered reason: only that insofar as one takes certain reasons to be reasons in favour of one member of the package, then one should take those to also be reasons in favour of the other member of the package, and hence one has reason (albeit defeasible) to accept the package. [↑](#footnote-ref-13)
13. See Schaffer (2009) for a detailed discussion of these motivations. [↑](#footnote-ref-14)
14. We focus on ontological parsimony throughout the paper, although similar points may apply with respect to ideological parsimony (i.e., parsimony with regard to the number of primitive concepts in one’s theory). We do this for the sake of brevity and also because it is ontological parsimony which defenders of supersubstantivalism have generally appealed to in defence of their theory. [↑](#footnote-ref-15)
15. It is, of course, controversial whether arguments from parsimony (and, in particular, from quantitative parsimony) are strong arguments. For our purposes, what matters is not that these are good arguments, but that, insofar as one thinks they are, one ought to also think analogous arguments for composition as identity are good. [↑](#footnote-ref-16)
16. Schaffer (2009). This last claim is controversial: one might think that statues and lumps occupy the same location (throughout their existence). If so, then supersubstantivalism will be faced with a problem. We discuss this later in the paper. [↑](#footnote-ref-17)
17. See Schaffer (2009), pp. 138-142. [↑](#footnote-ref-18)
18. See e.g., Uzquiano (2011). [↑](#footnote-ref-19)
19. One might object that there is no explanatory power here, since identities do no explanatory work: there is just parsimony. We think this is a mistake. Discovering that Clark Kent is Superman does a lot of work in explaining why one guy frequently turns up where the other guy is, and why Clark Kent wears Lycra under his ordinary clothes and so on. It explains why what we thought were two things go around together: because there is really just one thing. [↑](#footnote-ref-20)
20. It should be noted that, in guaranteeing mereological harmony, supersubstantivalism also guarantees that there can be no mereological *dis*harmony where one might think there could be (e.g., complex objects located in simple regions, or simple objects located in complex regions), so some may find the supersubstantivalist’s argument here unpersuasive. [↑](#footnote-ref-21)
21. As with arguments from parsimony, not everyone will be swayed by arguments from explanatory power like the one given here. Our aim, however, is not to argue for supersubstantivalism (or for composition as identity); our aim is to lay out the common arguments for each and to show that, insofar as one finds the arguments for one compelling, one ought to take oneself to have (defeasible) reasons to believe the other as well. [↑](#footnote-ref-22)
22. This is not to say that substantivalism has no advantages over supersubstantivalism. Our argument is only that these features are often taken to be reasons to favour supersubstantivalism. [↑](#footnote-ref-23)
23. See Sider (2007). [↑](#footnote-ref-24)
24. Note that we don’t wish to claim that this argument applies to all types of composite object. There may well be cases involving emergence where composition as identity posits just the same number of types as the standard views. Take consciousness as an example. Proponents of the standard view will likely want to say that consciousness is a property had by composite objects and not the atoms that compose them. Proponents of composition as identity, on the other hand, seem committed to saying that it is a property had by the atoms collectively (cf. Bohn, 2012). Thus, in this case composition as identity posits a type – *collectively* *conscious atoms* – which the standard view does not, losing its advantage in qualitative parsimony. [↑](#footnote-ref-25)
25. It is sometimes suggested that the standard view of composition is ontologically parsimonious in just the same way, taking commitment to composite objects to be no additional ontological cost (e.g., Lewis 1991 on one reading). If such arguments were correct, then composition as identity would be no more ontologically parsimonious. But how could that be? If composite objects are not identical to their proper parts then they are an addition to being, plain and simple, and thus positing them must incur *some* cost in (quantitative) ontological parsimony (cf. Van Inwagen 1994). [↑](#footnote-ref-26)
26. Thanks to an anonymous referee for raising this objection. [↑](#footnote-ref-27)
27. Our response here (and the example) is borrowed from Wallace (2011a), pp. 811-12. [↑](#footnote-ref-28)
28. It is worth briefly addressing a worry raised by two anonymous referees. Most theories – including theories in quite different domains – share some feature or other. Doesn’t our argument therefore entail that, for most pairs of theories – including pairs which are quite unrelated to one another – if one has reason to accept one of the pair, one has reason to accept the other as well? And isn’t that an undesirable result? We think there *are* defeasible reasons to accept both members of such pairs of theories. Note, however, that in these cases the vast majority of features of one theory that are typically taken to be virtuous are *not* also features of the other. In the case of supersubstantivalism and composition as identity things are quite different. The features of one which are typically taken to be virtuous *are* also features of the other [premise (2) of the Argument from Virtue]. The overall weight of reasons in favour of accepting both views in this case is high. Proponents of supersubstantivalism take the virtuous features of their view to (collectively) provide decisive reasons to accept it, for example, and thus (we think) ought also take the same (collective) features to provide powerful reasons to accept composition as identity. Not so for theories which have little in common. In most cases the few features such theories share will, on balance, not weigh greatly in their favour. Most features of a theory, after all, do not, on their own, tell strongly in its favour. The Argument from Virtue is also not intended to stand alone; it is best combined with the Argument from Fewer Tools to which we now turn. [↑](#footnote-ref-29)
29. Priest (1994). Thanks to Al Wilson for suggesting this connection. [↑](#footnote-ref-30)
30. For discussion of similar arguments see e.g., Wallace (2011b, p. 822), Merricks (1999). [↑](#footnote-ref-31)
31. When applied to composition as identity the argument requires plural variables. [↑](#footnote-ref-32)
32. Stage theory will also do the same job. See Sider (2001) and Hawley (2004). [↑](#footnote-ref-33)
33. Or stage theory. [↑](#footnote-ref-34)
34. One might think that, with respect to this problem, the Identity Package does no better than the Supersubstantival Package, since if one accepts a standard view of composition and thinks that composition is unrestricted, then one will need to appeal to perdurantism to explain how objects change their parts over time. That may be. Our goal in this section is merely to argue that once one has accepted one member of the Identity Package, accepting the other member requires no further tools. We discuss whether accepting one of the mixed packages requires fewer, or more, tools in section 3.2. [↑](#footnote-ref-35)
35. Cf. Schaffer (2009), pp. 144-145. [↑](#footnote-ref-36)
36. See Merricks (1999). [↑](#footnote-ref-37)
37. See Lewis (1971). [↑](#footnote-ref-38)
38. See Sider (2001, p. 111) and Schaffer (2009, p. 144) for arguments along these lines. Neither endorses the argument. [↑](#footnote-ref-39)
39. Thanks to Al Wilson for raising this objection. [↑](#footnote-ref-40)
40. Here we draw upon Caves’ (2018) presentation of the argument (which he calls the ‘*No Bearers’ argument*). Although Caves is discussing mereological nihilism, much the same argument applies to composition as identity. See Bailey (2011), and McDaniel (2008) for similar arguments in that context. [↑](#footnote-ref-41)
41. Cf. Bohn (2012). [↑](#footnote-ref-42)
42. Though depending on the context of inquiry, some answers to the question ‘how many’ may be better than others. [↑](#footnote-ref-43)
43. Viebahn (2013) offers a flexible semantics for stage theory. [↑](#footnote-ref-44)
44. See Cameron (2014). [↑](#footnote-ref-45)
45. Grounding arguably does a worse job than identity when it comes to explaining necessary connections. Why do the grounding facts obtain? Why do atoms arranged chair-wise ground chairs? (See Cameron (2016) for a response.) [↑](#footnote-ref-46)
46. She could deny (2) and any similar premises. But that would require denying that there is any harmony at all between objects and regions. That is an extreme view, and one that, as far as we know, is only defended by Saucedo (2011). [↑](#footnote-ref-47)
47. Though another alternative is to argue that shapes are extrinsic (see McDaniel (2003), Skow (2007), Kleinschmidt (2015) for related discussion). [↑](#footnote-ref-48)
48. See e.g., Daly (2012), Wilson (2014), Miller & Norton (2017), Duncan, Miller & Norton (2018). [↑](#footnote-ref-49)
49. Thanks to Antony Eagle, Dana Goswick, Dan Marshall, Mike Raven, Al Wilson, several anonymous referees, and an audience at the *Metaphysics of Time and Space-time* Alghero (2016) for helpful comments on earlier drafts of this paper. [↑](#footnote-ref-50)