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Atoms as Universals

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Atomic objects and realism about universals

This chapter explores how atomism – the view that there are fundamental indivisible objects – can be combined with a realist ontology of universals. We propose and develop a new theory that views an atom as an instance of a simple universal (such as *being an electron*) rather than a bundle of multiple universals. According to this theory, which we shall call the Simple View, atoms are simple in the strongest sense because they lack inherent qualitative complexity as well as spatial complexity. This theory is motivated, in part, by what is known as the Axiom of Difference. After introducing the Simple View, we address what is arguably its most serious objection, which is that the theory faces difficulties in accommodating talk of 'fine-grained' attributes, such *being unit negatively charged* or *having a certain mass*. We conclude by exploring some possible solutions to this problem. Although the Simple View is not endorsed here, we hope to show that this previously unexplored theory is a live contender that is worthy of discussion in future debates about atomism, not least because it provides a very parsimonious ontology.

Atomism is the view that there is a fundamental level of reality containing indivisible objects. Science may not yet have discovered the genuine atoms – perhaps subatomic particles or strings have an inner mereological complexity that is yet to be discovered. Nonetheless, if atomism is correct, then matter is not infinitely divisible. The world contains simples out of which every other object is composed.

Atomism has a long history, going back to the ancient period and the metaphysics of Leucippus and Democritus. Different versions of atomism differ in important details on questions about the metaphysical nature of atoms. For example, if atoms have no spatial parts, are they immutable or is it possible for an atom to take on new qualitative properties? Does atomism entail that motion is discrete rather than continuous? Is it coherent to say that indivisible atoms are extended? Even though atoms are indivisible, do they have complexity of some other metaphysical kind, such as qualitative complexity? Indeed, most of these questions are addressed in this collection of papers.

The last question listed earlier, which will be the focus of this chapter, is particularly fundamental because it concerns the intrinsic natures of atoms. A qualitatively complex atom would be one that has distinct properties (universals) as constituents and consideration of such complexity can lead to other atomist theories, such as logical atomism that is briefly summarized further. The aim of this chapter, though, is to present a new theory that many would regard as radical, one which says that indivisible atoms completely lack inherent qualitative structure. This proposal will be developed within a realist property ontology of universals. If the proposal is correct, then atoms are simple in the strongest sense.

In the next two sections we will begin to show that if universals are the fundamental metaphysical constituents of reality, then there are good reasons for taking atoms to be both qualitatively and spatially simple. The implications of this conclusion for the theory of universals will then be explored. Before proceeding, though, it will be helpful to see which forms of atomism draw the opposite conclusion and maintain that atoms are qualitative complex rather than simple.

One way of establishing that atoms are qualitatively – even if not spatially – complex is to pair atomism with a so-called 'factualist' ontology, rather than a 'thingist' ontology.[1] The factualist ontology was made popular through the work of Russell (1956) and Wittgenstein (1922) in the early part of the twentieth century. Roughly, the factualist approach says that objects have an inner metaphysical-cum-logical complexity. This complexity has a proposition-like structure: the fundamental ontological units consist of particulars instantiating some monadic universal (property) or of multiple particulars standing in relations. Property universals, unlike particulars, can be instantiated in more than one place at the same time. Although facts are in some sense made up of particulars and universals, facts are still the fundamental units given that (plausibly) particulars cannot exist without instantiating some universals. Nonetheless, the instantiation of these properties gives rise to an inherent qualitative complexity, especially given that objects tend to instantiate multiple properties. This factualist approach continued to be popular in the second half of the twentieth century through influential philosophers such as D. M. Armstrong (1997), who refers to facts as 'states of affairs'.

Another way to believe in inherent qualitative structure is to keep properties (of a certain sort) in the ontology but reject the idea that particularity is a fundamental metaphysical concept. The most common version of this universals-only ontology is known as the bundle theory, according to which fundamental objects are bundles of universals such as mass, charge or spin.[2] This approach provides an alternative to factualism, which (arguably) takes the categories of particulars and properties to be equally fundamental. As we shall see further, this approach is attractive in many ways but faces a problem acknowledged by Hochberg (1965), based on what he calls the Axiom of Difference. Importantly, we shall see that the Axiom of Difference puts pressure on universals ontologists to accept that instances of fundamental universals are simple in both the *spatial and qualitative sense*, which gives rise to a particularly strong form of atomism. On this view, atoms – conceived as instances of universals – are as simple as a concrete entity can be. I call this the Simple View of universals. This theory is unexplored in the literature on fundamental ontology and the aim of this chapter is to fill this gap and provide a platform for future work. Although I shall not go as far as to endorse the Simple View here, I shall offer some speculations about how it could overcome what is one of its most serious objections.

The chapter is structured as follows. As a way into the Simple View, I start in the second section by considering the bundle theory of universals in more detail and some of the problems that it faces. The Simple View will then be offered in the third section as a theory which is in the spirit of the bundle theory but which avoids certain problems concerning indiscernible objects. This theory pairs atomism with the view that atoms lack an inherent qualitative structure. Again, atoms on this theory are conceived as instances of simple universals. In the fourth section, I outline further benefits of the Simple View before introducing the main challenge facing the theory, which is to explain how atoms that are simple in the aforementioned senses could differ in their attributes. In the fifth section, I offer some speculations on how this problem might be overcome.

The ontology of universals

2.1 The bundle theory of universals

Given that we are assuming that universals form the fundamental ontological category, a useful starting point for this discussion will be the bundle theory of universals, which was developed in the twentieth century by philosophers such as Russell in later work (1959, Ch. 14), Hochberg (1964, 1965) and more recently O'Leary-Hawthorne (1995) and Curtis (2012). According to realists about universals, properties are entities in their own right and are identical in all their instances.[3] According to the bundle theory of universals, objects are constituted by *nothing more* than the universals they instantiate. No bare particularity is added as a further ingredient. Objects are nothing more than a combination of universals standing in certain structural relations or ties, sometimes called 'compresence' relations.

What benefits does the bundle theory bring for realists about universals? A common line of defence is to point out that opposing theories, such as factualism, typically involve the obscure notion of *bare particularity*, or what some call 'substance'. The bare particular or substance is what instantiates the universals, while at the same time serving as the ground for an object's individuation. In his later work, Russell raises the following complaint:

> Substance, when taken seriously, is a concept impossible to free from difficulties. A substance is supposed to be the subject of properties, and to be something distinct from all its properties. But when we take away the properties, and try to imagine the substance by itself, we find that there is nothing left. (1945, 211)

For the purposes of this chapter, we need not assess the strength of this objection. My aim is merely to indicate why some have taken the 'properties-only' ontology to be attractive, as well as parsimonious. For our purposes, what is important is to consider an objection facing the bundle theory, which I shall use as a way of motivating a new 'universals-only' theory. As explained earlier, this theory views universal instantiations, such as 'being an electron', as atoms that lack inherent qualitative structure. On this view, these universal instances are simple in the strongest sense and one advantage of this theory is that it does away with the need for bundling relations, which many also take to be problematic.

2.2 Bundle theory and the problem of indiscernibles

The problem of indiscernibles is one of the most pressing problems facing the bundle theory of universals. The problem is relatively easy to state. To use a famous example from Black (1952), consider a symmetrical world containing two indiscernible globes. Given that the globes have all the same properties (including their relational properties), they must be constituted by the very same universals. But if an object *just is* a bundle of universals, then the 'two' globes ought to be the one and the same object. And yet, it seems that there are two different globes in the world we have stipulated. Thus, this thought experiment seems to provide a counterexample to the bundle theory of universals. Moreover, although globes are complex, non-fundamental objects, the same thought experiment be run with whatever fundamental objects there are or might be.

The bundle theorist has two main ways of responding. The first option is to simply bite the bullet and accept that Black's world contains just one object. But if the bundle theorists do that, they owe us an explanation for why there appears to be two objects when there is just one.[4] Alternatively, the bundle theorist can develop the theory in such a way that it allows the possibility of two indiscernible objects. I take it that this second option is to be preferred, all else being equal, given that it preserves the strong intuition that there could be two indiscernible objects. An early advocate of this second strategy was Hochberg (1964, 1965), who we shall now discuss. I shall then use some of his comments about the indiscernibility debate to motivate the new atomistic theory sketched earlier.

Put simply, Hochberg argues that proponents of the bundle theory can accommodate the existence of two indiscernible objects in the following way. They can claim that two indiscernible objects are simply two distinct *instances* of the same bundle of universals. That is to say that although constituted by the same bundle, each instance is *simply* numerically different, even though their constituent universals are identical (1964, 84–6, 1965, 87–95). To help us to get a grip on this kind of view, it will be helpful to quote Rodriguez-Pereyra at length, since his more recent version of bundle theory appears to be what Hochberg might have had in mind:

> I suggest the bundle theorist should tell the following story . . . Unlike the bundle itself, an instance of a bundle cannot be in more than one place at once. So a bundle that is in more than one place at once has more than one instance, one in each place in which it is. These instances are not identical to each other, since they are in different places at once and they cannot be in more than one place at the same time. Thus *this* bundle of universals wholly located *here* is the same bundle as *that* bundle of universals wholly located *there*, but *this* instance *here* of the bundle in question is not the same as *that* instance *there* of the same bundle. (2004, 78)

One initial critical response is likely to be that the concept of an 'instance' is itself bound up so closely with the concept of particularity that Hochberg and Rodriguez-Pereyra are simply smuggling in the old notion of bare particularity or substance. Is this fair? I do not think so. Note, first, that few bundle theorists deny that we should accommodate talk of particularity. Rather, the debate concerns how particularity enters into the picture and whether it is fundamental or non-fundamental. And as we have described it, Hochberg's view of particularity is certainly different to the orthodox bare particular theory in this regard, *contra* Shorter's worries (1964). On the bare particular view, two distinct but indiscernible objects are distinct in virtue of having different constituent bare particulars. Those two constituent bare particulars are said to 'differ simply'; a brute numerical difference which grounds the difference between each of the objects that have these respective bare particulars as constituents. On my interpretation of Hochberg's view, in contrast, objects do not inherit their numerical identity from a constituent bare particular. Rather, numerical identity attaches to the bundle directly, rather than via a constituent bare particular. Supporters of Hochberg can then argue that this is perfectly coherent: different instances of a bundle differ 'simply' in the same way that, on opposing theories, bare particulars differ simply. Both views invoke brute differences, it's just that these brute differences arise in different places. Unlike the bare particular theorist, the bundle theorist locates the source of the distinctness of things in the 'simple differences' of objects *qua* entities constituted by bundles of universals.

Unfortunately, as Hochberg acknowledges, opponents are likely to want to block his moves on the grounds that they violate the 'axiom of difference' (1965, 89). This axiom says the following:

Axiom of Difference: Only simple entities can differ simply.

Given that bundles of universals are qualitatively complex, in virtue of containing multiple universals, the Axiom of Difference implies that instances of such bundles cannot differ simply. What, though, does simplicity mean in this context? As Hochberg understands the axiom, simple entities are those that do not have proper parts: they are *mereologically simple.* As Hochberg puts it, the Axiom of Difference is based on the idea that 'two wholes, to be two, must differ in a part' (1965, 91). The worry then is that because Black-type globes are mereologically complex objects, they cannot differ simply in the way that the bundle theorist requires. Indeed, the globes are complex in more than one sense. They have spatial parts, and according to the bundle theory, the globes are constituted by multiple universals, which means they also have qualitative parts. The globes therefore fail the simplicity test twice over. In short, what the axiom implies is that in order to distinguish the two globes, further discriminating constituents or parts of the globes are needed, such as bare particulars. And given the Axiom of Difference, this explanation of distinctness can only be delivered by the bare particulars if they themselves are simple entities.

3. The Axiom of Difference and a new proposal

Where does the universals-only ontologist go from here? There are two main options. Perhaps the most obvious option for the bundle theorist is to reject the Axiom of Difference. This is the option that Hochberg pursues (1965, 87–95). But there is another option for the universals-only ontologist, which has received little attention as far as I know. The option is to accept the Axiom of Difference and to try to respect it. My aim in the rest of this chapter is to give this strategy a shot by developing a new version of atomism. I do not have a deep argument to offer for the Axiom of Difference but I feel its intuitive pull. As Lewis (1986) urges, composition is, first and foremost, a mereological notion. And it is widely accepted that, for example, no two sets are composed of the very same parts (1965, 37). So, I think that abandoning the Axiom of Difference is a theoretical cost. Moreover, even if the Axiom of Difference is not sacrosanct, it is surely a worthwhile philosophical exercise to consider whether and how the Axiom of Difference could be accommodated within the ontology of universals. This exercise should be of particular interest to atomists because, as we will see, the Axiom of Difference pushes advocates of the 'universals-only' approach towards a strongly atomistic conception of reality.

Given what was said earlier, it seems clear what a universals-only theorist would have to do to accommodate the Axiom: they would have to say that instances of universals lack parts in both a spatial and qualitative sense.[5] If instances of universals are to lack spatial parts, they must be atoms in the sense defined at the start of the chapter. On this theory then, there would be no universals corresponding to complex objects such as 'being human' or 'being a planet'. Rather, humans and planets would be mereological sums of fundamental universal instances. The only genuine non-relational universals would be those corresponding to kind terms in our most fundamental science – which may, given what we currently know, turn out to be universals like *being an electron* or *being a proton*. Thus we are left with what is known as a 'sparse' conception of kind universals.[6] Secondly, unlike the orthodox bundle theory, the atomic universal instances would have to be qualitatively simple in order to respect certain readings of the Axiom of Difference. That is to say, the spatially simple instantiations cannot themselves have inherent qualitative parts: if the instances of universals are to differ simply, they cannot be conceived as bundles of further constituent universals. I shall explore this theory of universals in more detail further but for now we may formulate the theory as follows. I call it the Simple View:

> *Simple View*: All objects are either instances of single non-relational universals that are *simple* (spatially and qualitatively) or mereological sums of objects that are simple (spatially and qualitatively).

Let us now say more about the Simple View. According to this theory, an object is identified with an instance of a single universal that is simple in the sense that it has neither spatial nor qualitative parts (in line with the Axiom of Difference). Given this simplicity, we can maintain that instances of a given universal can *differ* simply, in the sense to be clarified further. Although these universals have no inner complexity, they nevertheless determine the various qualitative profiles of their instances (more on this later). A helpful way of thinking about the sorts of universals that the Simple View requires is to think of them as what are traditionally called 'substantial universals', such as electronhood and protonhood. An electron, for example, would on the Simple View be seen simply as an *electronhood instance*. Note, though, that the term 'substantial universal' is slightly misleading here, given that we are eliminating bare substance from the picture ('kind universal' is perhaps better). On this view, an electron is not composed of a bare particular plus multiple constituent universals, as on most factualist views, but is instead constituted by a universal *simpliciter*: it is simply an electronhood instance. The important point to emphasize here is that this universal is not to be reduced to the more fine-grained properties that we would normally associate with an electron, such as negative unit charge, ½ spin and so on. An atomic object's 'kind essence', for want of a better term, is unstructured and qualitatively simple on this view. But of course, we need to tell a story about how talk of these more fine-grained properties arises. Indeed, the main problem facing the Simple View is precisely that of explaining how an object can at once be simple while also providing truthmakers for our more fine-grained property ascriptions. This is a problem I will address in the fifth section.

First, though, let us briefly set aside another worry. One's immediate reaction might be that, on the Simple View, an electron is just a trope by another name (i.e. a wholly particularized entity, rather than something constituted by a universal). I agree that universal instances look a lot like tropes on this view, but the important difference is that proponents of the Simple View take seriously the idea that (say) electronhood really is a *repeatable*. Indeed, it is this repeatability which allows one and the same universal to be instantiated more than once. That is to say, it is a primitive fact that a universal can occur in more than one place at the same time. Different instances of universals are observable when universals spread themselves around, so to speak. In the case of complex indiscernible objects such as globes, these will be distinguished by being mereologically composed of different instances of the relevant fundamental universals,[7] and in the case of indiscernible atoms, these are manifestations of simple universals.

To further clarify, one way of understanding this position is that it offers a sort of compromise between the two strategies outlined earlier for dealing with Black's indiscernible objects. The bundle theorists' bullet-biting response, recall, is to accept that there is just one object present in Black's thought experiment, while the more ambitious response (from Rodriguez-Pereyra and others) is to preserve the intuition that there are two distinct objects, even though those objects are constituted by the same universals. According to the Simple View, there is something correct in both strategies. In one sense, indiscernible objects are one and the same because they are one and the same universal. On the other hand, when universals have more than one instance, they typically occupy more than one spatiotemporal location – and one can observe the existence of the universal in one place without knowing that it also exists elsewhere. When we focus on a specific manifestation of the universal in this way, we can say we are observing a specific *instance* of it. Thus, in Black's thought experiment it is also correct on the Simple View to accept that there are two or more instances of the relevant universal. If it is asked how it is that one and the same universal can manifest in more than one place, the answer is simply that this is a primitive fact about universals. If one finds an apparent contradiction in the idea that one and the same universal has *different* instances, one must bear in mind that universals are not particulars. Again, universals are *repeatables* and it is this repeatability which allows distinguishable occurrences of one and the same thing.

Some advantages and problems for the Simple View

What then are the advantages that the Simple View has over the bundle theory? Although I think an exploration of the Simple View is valuable in itself (an exercise, so to speak, in how the world might be), this exercise would be less interesting if there were no obvious theoretical advantages of the view.

One of the challenges facing the bundle theory is that we need a transparent account of what holds the component universals together. Why do some universals bundle together rather than others? The mere existence of a set of universals alone surely does not dictate which bundles there are, so it seems we need something extra to tie the bundles together. We mentioned such ties earlier. These are typically called 'compresence' relations, although Hochberg prefers to call them 'structural' or 'ontological' ties. But at this point, the bundle theory faces a dilemma. If the ties are themselves relational universals, then we become susceptible to the infamous Bradlean regress problem. If the ties are themselves genuine parts of the bundle, what ties *them* to the bundle? At this point, it seems we need to invoke further ties, ad infinitum. The second option is to deny that the structural ties are genuine entities. But then it seems these ties are asked to perform an impossible role. They must at once structurally tie universals together without being genuine relations and, correlatively, they must make a difference to the bundle without being an addition of being. For this reason, many have complained that such ties are obscure. Hochberg accepts that, in the light of the Bradlean regress problem, the bundle theorist must accept the second option (1964, 82), but he does not offer much in the way of illumination regarding these structural ties, other than describing them as a kind of ontological glue (1964, 84). Of course, if we opt instead for the Simple View, we avoid the problem of compresence, since there are no complex universal bundles to tie together in the first place.

More generally, the Simple View is about as ontologically and ideologically economical as one can get. Atomic objects are not only spatially but also metaphysically simple, in the sense that they have no inherent qualitative or propositional complexity. Moreover, only one ontological category – of universals – is needed for this analysis of objects.

Unfortunately, though, the parsimony of the Simple View may also come at a cost, one which we must now discuss. This is what I take to be the greatest challenge facing the view. Given that it has such sparse metaphysical resources, one might question whether it can give an adequate explanation for the full range of truths about objects. If fundamental objects are instances of structurally simple 'kind' universals, in what sense can we ground talk of 'fine-grained' sparse properties, like charge, mass and spin? Such properties are often called the *attributes* of an object, as opposed to natural kinds (e.g. Lowe 2006). To be sure, a proponent of the Simple View can insist that an electron is the way it is in virtue of being an electronhood instance. But how, exactly, can we ground the specific truth that a particular electron is unit negatively charged or that it has ½ spin? Because instances of electronhood are utterly simple on the view we are considering, it is hard to see wherein the specific property of, say, negative charge lies. This worry cannot be dismissed because, importantly, fine-grained attributes help to fix the causal profiles of objects, on which scientific enquiry is based. If electronhood is simple and unstructured, what explains why Ernie the Electron has the disposition to accelerate rather than the disposition to explode? The challenge, in short, is to explain how an atomic object could at once have a simple nature and yet be multifaceted. In the next section I will conclude the chapter with some speculations about possible solutions.

How can an atom at once have a simple nature and yet be multifaceted?

My aim in the final main section is to show that there are at least two solutions to the problem outlined earlier. One of these solutions sits well with a broadly dispositional theory of attributes, according to which the identity conditions for attributes are based on the causal profiles associated with those properties. In other words, on the dispositional approach the attributes are specified in terms of what their possessors would do in various counterfactual scenarios, such as giving rise to certain gravitational behaviours in the case of mass. In contrast, the opposing categoricalist theory of attributes denies that attributes have a dispositional essence. Rather, they take attributes to be primitive self-contained qualities that can be associated with different causal profiles in different possible worlds, depending on the laws of nature in those worlds. My aim is to show that there are theories of attributes in both the dispositionalist and categoricalist camps that can accommodate talk of fine-grained properties within the Simple View. Moreover, they can do so without reducing attributes to mere concepts that creatures like us happen to impose on things. For the purpose of this chapter, I shall not attempt to decide which solution is more attractive, as doing so would require a more detailed comparative analysis. However, by showing that there are potential solutions to the problem, I hope to show that the Simple View is at least a live contender in debates about the nature of atoms. There may also be other versions of the Simple View that I do not consider here and I welcome further work on this issue.

Let us start with a dispositional solution. One way to accommodate the idea that atoms are simple, yet have a diverse range of attributes, is to accept a broadly Rylean theory of dispositional properties (Ryle 1949). According to this approach, for an object to have a dispositional property just is for certain subjunctive facts to hold – counterfactuals which specify how the object would behave if certain conditions were to arise. To use a macroscopic example, we might say that a ball is spherical if and only if the following sorts of subjunctive facts hold of it: it would roll if placed on a slope; it would appear a certain way to humans when looked at in certain lighting conditions; it would leave a round indentation when placed on a soft cushion; and so on. In short, these subjunctives would specify the full dispositional profile of an attribute and thereby distinguish that attribute from others. As Whittle (2009) explains, the Rylean approach is particularly amenable to a set-theoretical analysis of attributes: we can say that attributes are sets of objects that share certain subjunctives in common. Such a view can accommodate talk of attributes both at the level of atoms and of spatially complex objects.

Why then does this offer a solution to the problem of ascribing multiple attributes to a simple object? Crucially, there is no reason why a simple object cannot be a member of more than one of the sets just described. According to this theory, attributes are not grounded in inherent qualitative structures of objects but rather the subjunctive facts that hold of the object. Again, there is no obvious reason why a simple object cannot participate in a wide range of subjunctive facts. And according to the Simple View, these complex dispositional profiles will depend on the universal that the object instantiates. For example, electrons but not protons are negatively charged, where negative charge is understood dispositionally, in terms of various subjunctives. Again, at no point in the analysis is there any need to posit inherent qualitative structure within an object.

One objection that this proposal invites is that if instances of universals are simple, then it becomes a mystery as to why different universals confer different dispositional profiles. This, it could be argued, is why inherent qualitative structure is needed, to explain why some atoms have different dispositional profiles. However, the appropriate response to this worry is to say that it begs the question against the Rylean approach. The theory is precisely that dispositions, that is, attributes, are not determined by qualitative structure. The relevant subjunctive facts are primitive and are not analysed in terms of facts about, say, qualitative structure and the laws of nature (see Whittle 2009, 282–3).

Let us now consider a solution to the problem of attributes that is more amenable to the categoricalists' qualitative account of attributes. The solution I have in mind is based on the idea that the qualitative profile of an object is determined by its relation to so-called 'quality space'. Recently Cowling (2014) has offered a detailed metaphysical analysis of attributes which involves a realist commitment to quality space – a view he calls 'locationism'. As we shall see, like Rylean dispositionalism, the quality space theory seems well placed to explain how an object could at once be simple while also giving rise to truthmakers for our fine-grained property ascriptions.[8]

The central thesis of Cowling's theory is that fundamental (or 'sparse') qualities are best thought of as points on a dimension in quality space. This entails that reality contains qualitative dimensions as well as spatiotemporal dimensions. In the same way that spatiotemporal dimensions form a space containing spatiotemporal points, the qualitative dimensions form a space containing quality points. Each dimension represents a specific type of fundamental quality, of which there are several. Reality thus contains an *n*-dimensional quality space, where *n* represents the number of quality types. Furthermore, in the same way that space–time has an intrinsic structure (metrical or topological features), the quality space has an intrinsic structure which, among other things, determines the distances between the various determinate attributes on the various dimensions. On this view, then, having qualities is a matter of occupying points in this quality space. Moreover, it seems the quality space theorist must allow that, unlike spatial points, more than one object can be associated with the same quality point at a given time. This follows simply from the fact that multiple objects can simultaneously have the same qualities.

There are further details about this theory that one could discuss and I direct the reader to Cowling (2014) for further details. What is important for our purposes is to see how this picture might help with the problem outlined in the previous section. To recall, the mystery facing the Simple View concerns how something could at once instantiate a simple universal while also being multifaceted in a way that accommodates talk of fine-grained qualities like charge and mass. On the quality space theory, the answer lies simply in the nature and topology of quality space. On Cowling's view, objects are simple in the sense that they instantiate *one and only one* point in *n*-dimension quality space. The current suggestion, then, is that by associating a simple universal like *being an electron* with a single point on quality space, we can accommodate the Simple View's claim that atomic objects are at once simple yet also qualitatively multifaceted. The solution lies in the fact that, given the topology of an *n*-dimensional space, a single point is able to represent what Cowling (2014, 672) calls the 'entire qualitative profile' of an object.[9] This topology is extrinsic to the object that instantiates the relevant point, and therefore we need not posit inherent qualitative structure in the object. How though can a *single* point correspond to so many different qualitative attributes? The reason is that a single point in an *n*-dimensional quality space can cut across multiple dimensions simultaneously, which is to say that a single point can obtain a value on more than one dimension. Thus, despite being simple, the point can deliver determinate values for all the relevant dimensions, values which objectively ground our 'fine-grained' property ascriptions.

It is worth noting that this theory of qualities may also bring a variety of other benefits. For example, Cowling has suggested that we can illuminate the notion of property (attribute) instantiation within the quality space theory (Cowling 2013, §. 1). Given that this picture associates properties with points on a space, it opens up the possibility of viewing property instantiation as involving the notion of occupation. Speculatively, if we combine this idea with the Simple View, perhaps we could ultimately explain objecthood in the following way: atomic objects arise when space–time points and quality points somehow intersect.

To sum up this section, both Rylean dispositionalism and the quality space theory offer hope that a proponent of the Simple View can explain fine-grained attributes without making them mind-dependent. There may also be other solutions that I have not discussed here. However, I hope to have done enough to show that the Simple View is a live option in debates about the nature of atomic objects and one that deserves further attention.

Conclusion

We have seen that there are two traditional ways for a realist about universals to analyse objects. One is to view them as bare-particulars-instantiating-universals, as advocated by Armstrong (1997). Those opposed to bare particularity have traditionally viewed objects as constituted instead by bundles of universals. But we saw how some comments from Hochberg (1964, 1965) point us in the direction of another alternative for opponents of bare particularity, which requires a commitment to atomism. We called this the Simple View, on which objects are instances of simple universals. The main objection to the view is that it makes a mystery of fine-grained attributes like 'having negative charge'. I have concluded the chapter with a speculative discussion about ways in which this problem could be addressed.

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[1] 'Thingist' ontologies take particulars but not properties to be ontologically fundamental. Thingist ontologies are closely associated with nominalist theories of properties, which deny that objects have inherent qualitative structure. Since the aim of this chapter is to explore how atomism can be combined with realism about universals, I shall not discuss the thingist approach further.

[2] Another kind of bundle theory holds that objects are bundles of tropes rather than universals (e.g. Williams 1953). Unlike universals, tropes are not repeatable, which is to say they can only be instantiated once. Thus, like the factualists, trope theorists arguably take the notion of particularity to be fundamental. For the purposes of this chapter, we need not discuss the trope theory further. See the paper of Simons and Carpenter in this collection for work on trope theory and atomism.

[3] Immanent realists argue that universals exist in so far as they are instantiated. Platonists, in contrast, allow that universals can exist even if they are not instantiated. For the purposes of this chapter, we need not discuss this distinction further.

[4] One way to do this is to say that the imagined world has a space–time with an unusual circular shape, which creates the illusion that there are two indiscernible globes rather that one: we can imagine going from ‘one’ globe to the ‘other’ without realizing that we had in fact travelled round in a circle to one and the same globe.

[5] Another option I can see is for the universals-only theorists to posit haecceities: properties which somehow determine the identity and distinctness of objects. However, I shall not pursue this strategy here. Haecceities seem just as obscure as bare particulars, if not more so. Moreover it is not clear that haecceities deserve to be called universals, given that they cannot be instantiated more than once.

[6] In addition to the non-relational atomic universals, whose instantiations are the world’s fundamental objects, we may also need relational universals in our ontology such as spatial or temporal relations. However, since my main aim is to explore the metaphysics of objects, I shall not discuss the status of relations here. For further discussion, see, for example, Heil (2012, Ch. 7).

[7] See Zhang (2018), who bases a version of the bundle theory of universals on this insight. Like me, Zhang defends the idea that instances of universals differ simply, but retains the idea that these instances form bundles.

[8] In what follows I am heavily indebted to Travis Dumsday, who first introduced me to the quality space theory many years ago during email correspondence about one of his manuscripts. In the manuscript (‘Moderate Locationism and Natural Kind Essentialism’), Dumsday argued that a locationist theory of properties might allow an Aristotelian natural kind essentialist to explain how properties are grounded. My pairing of the Simple View and locationism in what follows has several structural similarities with Dumsday’s proposal. I note though that in recent work, Dumsday (2019, 86) suggests that locationism could be understood as a version of dispositionalism. This issue merits further discussion, but for the purposes of this chapter we will work with Cowling’s original version of the locationist theory.

[9] Cowling accepts that on other versions of locationism, one could associate points with individual (sparse) properties, rather than course-grained (‘complete profile’) properties like electronhood. But for reasons that should now be clear, Cowling’s preferred view fits best with the Simple View.