

COMPOSITE OBJECTS AND THE ABSTRACT/CONCRETE DISTINCTION

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ABSTRACT: In his latest book, *Realistic Rationalism* (Cambridge, MA: MIT Press, 1998), Jerrold J. Katz proposes an ontology designed to handle putative counterexamples to the traditional abstract/concrete distinction. Objects like the equator and impure sets, which appear to have both abstract and concrete components, are problematic for classical Platonism, whose exclusive categories of objects with spatiotemporal location and objects lacking spatial or temporal location leave no room for them. Katz proposes to add a "composite" category to Plato's dualistic ontology, which is supposed to include all those objects with both abstract and concrete components.

But every concrete object stands in an indefinite number of relations to abstract ones. Thus, Katz must offer principled criteria describing just those relations that produce a composite object, lest *all* concrete objects turn out to be composite. The trouble that he has in specifying such a "creative" relationship results from his clinging to the traditional definitions of "abstract" and "concrete." The substance dualism that results renders the articulation of any relations between abstract and concrete difficult, and a category such as Katz's "composite objects" impossible.

I. PRELIMINARY REMARKS

In this essay, I examine Jerrold Katz's latest work in ontology (found in his latest book *Realistic Rationalism*) and in particular, his conception of a category of "composite" objects lying between the traditional categories of

“abstract” and “concrete.”¹ Katz’s work is interesting, not only because he presents a sophisticated and detailed Platonist/Rationalist alternative to the quasi-empiricist naturalism that has so dominated contemporary philosophy, but also because his discussion brings into sharp focus some central issues regarding the viability of substance-dualist ontologies.

As just mentioned, my focus will be on Katz’s expansion of what, for Platonists (or “realists” as Katz alternatively calls them), has been a standard dualistic ontology (SDO), in which reality consists exclusively of two types of objects, *abstract* and *concrete*, to a tripartite ontology, in which reality is taken to contain three types of objects: abstract, concrete, and *composite* objects. Katz, moved by the problems posed for SDO by what seem to be “mixed” objects—things such as the equator and impure sets, for example—attempts to save the abstract/concrete distinction through the addition of composite objects to the set of fundamental metaphysical kinds. A composite object, for Katz, is an object with both abstract and concrete components, standing together in what he calls a “creative” relationship (one in which a new object is created over and above the two components).

My contention in this paper is that such a move cannot work. Since all concrete objects stand in an indefinite number of relations to abstract objects, all the weight of Katz’s ontology rests on whether or not sense can be made of this idea of a creative relationship between abstract and concrete objects, one that will distinguish these relations from all the other relations that the concrete and the abstract bear to one another. But, as I hope to demonstrate, the defining of “creative” relations as relevantly distinct from “uncreative” ones is hopeless. The result is that either all concrete objects are composite or none are, and neither result is good for Katz’s purpose, namely the important task of saving the abstract/concrete distinction from putative counterexamples.

Katz is following a false trail in pursuit of a genuine problem. He makes the mistake of thinking that Platonism’s troubles lie in a dearth of metaphysical kinds; if we just add a third category of object, we can retain the rest of the Platonist ontology. But the truth is that both Katz’s troubles and the troubles of Platonism more generally are the products of the common definitions of “abstract” and “concrete.” So long as these terms are defined in the traditional manner, not only will it be impossible to make moves of the kind that Katz wants to make, but the classic problem of making sense of *any* of the relations between abstract and concrete (of which Katz’s difficulty in cashing out the idea of a creative relation is just one example) will likely remain intractable.² My hope is to continue the pressure on Platonists and other realists of the sort Katz discusses in *RR* on this point, since the naturalists will never leave us alone until this particular area of difficulty is dealt with.³

II. ABSTRACT AND CONCRETE OBJECTS

It will be my aim in this section to look at Katz’s treatment of abstract and “concrete” and to understand his rationale for abandoning SDO.

First, the definitions of “abstract” and “concrete.” Here, Katz’s definitions agree quite closely with the way in which the abstract and concrete have been traditionally understood, although there are a few minor differences:

- (D) An object is abstract just in case it lacks both spatial and temporal location and is homogeneous in this respect. An object is concrete just in case it has spatial or temporal location and is homogeneous in this respect. (*RR*, 124)

Now, let’s compare Katz’s definition with the traditional conception of the abstract/concrete distinction. The following chart, drawn in large part from Plato’s discussions of forms and sensible objects,⁴ summarizes the Platonic conception of the properties of the abstract and the concrete:

Forms	Transcendent ⁵	Immutable	Universal	Perfect
Sensible Objects	Immanent	Mutable	Particular	Imperfect

There are two aspects of the Platonic ontology that Katz wants to immediately reject. The first is the idea that abstract objects are transcendent, that they occupy a “separate world.” To purge the immanent world of abstract objects, to segregate them into a transcendent world of their own is, to Katz, to “turn over” the immanent world to the naturalist. Katz says:

Early in the development of the theory of the Forms, Plato seems to have held a “two world” view. In addition to the world we inhabit together with other spatio-temporally located and causally interrelated things, there is an independent world of nonspatial, atemporal, and causally inert Forms. This view explains the objectivity and autonomy of the concepts examined in dialectic by taking the abstract to be transcendent (dwelling outside our world) and the concrete to be immanent (dwelling in our world). Plato’s account of how we know the forms would seem to commit him to the “two world” view. However, realists in our sense should not subscribe to it. . . .

[T]o subscribe to the transcendence of abstract objects would be to hand our world over to the naturalist without a fight, making realism harder to defend because, in order to argue for the existence of abstract objects, the realist would then have to argue first for the existence of another world. Furthermore, the antirealists can quite reasonably deny the possibility of a world other than ours. They can argue that the world is everything there is viewed as a whole, and since *ex hypothesi* it contains no abstract objects, there are no such objects. (*RR*, 125–6)

The second component of the traditional Platonist ontology that Katz wants to reject is the idea that concrete objects must be corporeal; that is, that included in the concept of immanence is not only the requirement that concrete objects have a temporal existence but also that they have a determinate position in space. This was taken as a basic feature of concrete objects, not only by Plato but by those philosophers who have conceived of concrete objects as inherently *sensible*. Bertrand Russell, for example, says: "We speak of whatever is given in sensation, or is of the same nature as things given in sensation, as a particular."⁶ Elsewhere, focusing more directly on the spatial qualities of particulars, he says:

What makes a particular patch of white particular, whereas whiteness is a universal, is the fact that the particular patch cannot be in two places simultaneously, whereas the whiteness, if it exists at all, exists wherever there are white things.⁷

It is this essential corporeality of concrete objects that Katz rejects in (D). Notice the asymmetry in the definitions of abstract and concrete: while abstract objects have neither spatial nor temporal location, concrete objects have *either* spatial *or* temporal location. Katz's worry is that retaining corporeality as an essential feature of the concrete would exclude Cartesian egos and thoughts from ontology or, worse, would imply that they are actually abstract:

But concrete objects do not have to be bodies. Cartesian egos and thoughts are concrete, because they have temporal position, but they are not bodies, because they have no spatial location. Thus, it would be a mistake to regard corporeality as an inherent feature of concrete objects, even if one is a materialist on the mind/body problem. An ontology that says that all concrete objects are corporeal would preclude concrete objects that are mental in the Cartesian sense, and hence make the classical mind/body problem unstatable. (*RR*, 121)

But despite these differences between (D) and the more traditional conception of the abstract/concrete distinction that we have considered, the two have one common feature: the abstract and the concrete are taken to represent two *fundamentally different* orders of things, metaphysically homogeneous things with incompatible properties. On the incompatibility of the abstract and the concrete, Katz says:

It is implicit in the traditional abstract/concrete distinction that the abstract has no taint of the concrete and the concrete no taint of the abstract. An abstract object can have nothing about it that is spatially or temporally locatable, and a concrete object can have nothing about it that is neither spatially nor temporally locatable. One indication that abstract objects are understood in this way is the (misguided) practice of assigning them to a world separate from the sensible world of concrete objects. (*RR*, 121)

And it is this seemingly obvious difference between the abstract and the

that leads Katz to deny the exhaustiveness of (D) and to expand the traditional dualistic ontology to a tripartite one.

III. FROM A DUALISTIC TO A TRIPARTITE ONTOLOGY

The traditional definitions of "abstract" and "concrete" tell us that the objects that belong to each class have fundamentally different and incompatible properties; concrete objects belong to the four-dimensional space-time world, abstract objects do not. And yet, we know that there are relations between the abstract and the concrete; indeed, every concrete object bears an *indefinite* number of relations to abstract objects: My computer screen (a concrete object) is *red* (an abstract object—a property); it also is related to the *class* "computer screen" (an abstract object); my stapler (a concrete object) sits *between* (an abstract object—a relation) my computer (a concrete object) and a copy of *Realistic Rationalism* (another concrete object); and so on. The apparent incompatibility of the abstract and the concrete, however, has made these relations notoriously difficult to characterize, a point to which I will return later in the discussion.⁸

There are certain objects in which the relations between abstract and concrete seem so intimate that it is difficult to determine to which class, exactly, they belong. Indeed, these objects are raised as possible counterexamples to the traditional definitions of abstract and concrete or at least, those traditional definitions when taken to be a part of SDO.⁹

The first such object that Katz considers is the equator. On the one hand, the equator is a geometric circle, everywhere equidistant from the center, with a diameter that is equal in length to twice the lengths of its radii, etc. This would seem to make the equator an abstract object according to our definition of abstract since geometric circles do not have a spatio-temporal existence. And yet, the equator is a part of the surface of the earth. It didn't exist before the earth was formed and will cease to exist when the earth ceases to exist. It has been crossed by many people, and it lies between the North Pole and the South Pole. These characteristics of the equator would suggest that it is a concrete object, for only an object with spatial and temporal properties can come into existence at a certain time and go out of existence at a later time, be crossed, or lie between two other concrete objects. The equator, then, is neither a concrete object nor an abstract one according to the traditional definition. With Katz,

The equator is a mathematical circle with properties that only an abstract object can have, e.g., having a center equidistant from every point on its circumference. Hence, the equator is an abstract object. But, since the equator did not exist before the earth came into existence and will not exist once it disappears, the equator has a history. Further, during that history, numerous people have crossed it. Hence, the equator is not an abstract object. On the basis of these two conclu-

Another example discussed by Katz is the impure set. The set consisting of my IBM ThinkPad, my stapler, and my copy of *Realistic Rationalism*, for example, as a set, is an abstract object. And yet, if any of these items ceases to exist (as each of them will, some day), the set will cease to exist, for a set cannot exist without its members. This would suggest that the set is a concrete object, for it came into existence at a certain time and will go out of existence at a certain time, and its existence depends upon the existence of other concrete objects. An impure set, then, is neither a concrete object nor an abstract one according to the traditional definition and to (D).

What do we do with these kinds of objects? Since they seem to be fundamentally *heterogeneous* in nature—with both abstract and concrete components—and thus belong in neither the abstract nor the concrete category, what becomes of SDO which divides all of reality into two *homogenous* categories? These examples, indeed, seem to provide grounds for the refutation of traditional Platonism.

Katz's solution is to expand (D) to include a third category of heterogeneous objects, the category of "composite" objects; in short, to reject SDO. Katz tells us: "Nothing requires us to say that the categories Abstract and Concrete are the only basic divisions among objects in the ontological system." (RR, 140) This, then, opens the way for the category of composite objects, which Katz characterizes thus:

I propose a category for objects, which I will call "composite objects," that are heterogeneous in containing both abstract and concrete objects as constituents. A composite object, like other complex objects, is a whole formed from objects in virtue of a relation (or pattern of relations) among them. (RR, 141)

IV. COMPOSITE OBJECTS

Worries about the conceptual viability of the category of composite objects stem from the fact, already mentioned, that *all* physical objects stand in numerous relations to abstract objects. Each of the coins in my pocket is a piece of metal standing in direct relation to a geometric circle. My jersey consists of a mass of cotton cloth, belonging, by virtue of the way it has been cut and shaped, to the class "jersey" and further related to the property, "greenness." My computer screen is a piece of plastic and metal shaped in the form of a rectangle and belonging to the class "computer screen." And so on.

But if every physical object bears numerous relations—indeed, an indefinite number of such relations—to abstract objects, then isn't *every* physical object a composite object? Why is the equator, the combination of a physical location on the earth and a circle, a composite object, but the penny, the combination of a chunk of copper and a circle, not? Why does the combination of my IBM ThinkPad, stapler, copy of *Realistic Rationalism*, and a set produce a composite object (an impure set), while my computer screen, consisting of

plastic and metal arranged and functioning in such a way that makes it a member of the class "computer screen" is not a composite object?

Before I get to Katz's answer to this question, let's look at what the consequences *would* be if, indeed, every physical object turned out to be composite:

First, it would undermine (D) and all the other traditional Platonist definitions of abstract and concrete. For if there are no homogeneously concrete objects but, instead, every physical object is a composite object, consisting of both abstract and concrete components, then our fundamental way of looking at ontology must change. It's not that reality consists of two fundamentally different orders of objects, with incompatible properties, homogeneously abstract and concrete objects that somehow stand in numerous relations to each other. Rather, we would find ourselves with a much more Aristotelian view of the world, in which reality consists entirely of heterogeneous objects analyzable into formal and material components.

Second, and following, if there are no homogeneously concrete objects, then the definition of compositeness is itself undermined.¹¹ For the definition of compositeness is formulated in terms of "abstract" and "concrete" taken with their homogeneous senses. Compositeness, as Katz defines it, relies on there being homogeneously abstract and concrete objects to serve as components. If, however, there are no concrete objects, in the homogeneous sense of concrete, then there can be no combination of abstract and concrete to form composite objects.¹²

But Katz does not agree that there are no homogeneously concrete objects or that all physical objects can be characterized as composite on his account. While he acknowledges that every concrete object bears numerous relations to many different abstract objects, Katz maintains that principled distinctions can be drawn between the *kinds* of relations that obtain between the abstract and the concrete; only *some* relations between abstract and concrete constitute a connection such that a new object (a composite object) is created as a result. Katz refers to these abstract/concrete relations as "creative" relations and contrasts them with the rest of the relations that obtain between abstract and concrete objects, which he calls "uncreative" relations. With Katz:

The relation is "creative," as we shall say, because, when the relation holds among some number of appropriate objects, there is a new object over and above them (with them as its components). When a creative relation holds of abstract and concrete objects, there is a composite object with them as its components. (RR, 140)

The best of intentions can do nothing in the case of uncreative relations. The objects related to an integer under the uncreative relation number of simply instantiate it. [T]he seventeen cherries spilled from a cherry picker's basket are seventeen cherries, pieces of fruit that collectively numbered by the number seventeen. There is no object over and above the number seventeen and the seventeen cherries that is constituted by

the number and the cherries. The difference between creative and uncreative relations is that the content of the former involves the notion of some further object of which the objects satisfying the relation are components, whereas the content of the latter does not. (*RR*, 154)

In the case of the equator, then, or of the impure set consisting of my IBM ThinkPad, my stapler, and my copy of *Realistic Rationalism*, the relations that obtain between abstract and concrete components are creative ones, such that a new object, a composite object, is the result. In the case of my jersey or my computer screen, however, this is not the case.

Is this distinction between creative and uncreative relations of the abstract to the concrete a principled one, one for which we can offer sound criteria of application, or is it arbitrary? My belief is that it is the latter, but first we must look more closely at how Katz distinguishes creative from uncreative relations.

V. ON CREATIVE AND UNCREATIVE RELATIONS

It is essential to the viability of the composite category (as well as to its utility for the purpose to which Katz wishes to put it) that there exist homogeneously concrete objects that can, in combination with homogeneously abstract objects, form composite objects. If, as I have alleged, there are no homogeneously concrete objects—because all physical objects have abstract and concrete components—then there can be no composite objects in Katz's sense and our ontology must differ in a fundamental way from the tripartite one that Katz has proposed.

Whether or not there exist homogeneously concrete objects turns on whether or not compositeness is ubiquitous in all physical things, for if compositeness is ubiquitous in the physical, then there are no homogeneously concrete objects. And given the fact that every physical object stands in numerous relations to abstract objects, the question as to whether compositeness is ubiquitous in physical things turns on whether sense can be made of the idea that certain *but not all* relations between the abstract and the concrete are creative, in that a new object above and beyond the other two (the abstract and the physical) results. Let's see how Katz distinguishes the creative relations that exist between abstract objects and concrete ones from the uncreative ones.

At the center of the question as to whether the relationship between an abstract object and a concrete one is creative or not is whether or not a "new" object is created over and above the abstract and concrete components:

In the case of creative relations, there is a new entity over and above the relation and its relata, while in the case of uncreative relations, there is none. To say that a composite object exists when a creative relation holds of abstract and concrete objects is to say that there is an object with properties they do not have that exists in virtue of the

But this, of course, leaves unaddressed the issue as to what determines whether or not a new object has been created by virtue of the relation in question. Clearly, this cannot be done on an intuitive basis. At times, Katz is simply too breezy on this point, assuming that we share his intuitions about which physical objects represent true composites and which do not (and thus, that we also share his intuitions about which relations between abstract and concrete objects count as creative and which do not):

The relations number of, identity, between, greater than, and inside of are not creative, since, when they hold, there are just the relation, its relata, and the fact that the former holds of the latter. New York's being between Boston and Washington creates no new object with New York, Boston, and Washington as its components. There is just a relational geographical fact. Again, there is a composite object, Susan's rattle, the components of which are the container with some loose hard objects inside and a handle, but there is no composite object composed of Spot's stomach and the dog biscuits inside. (*RR*, 141)

But Katz realizes that we must have *criteria* for determining whether or not relations between abstract and concrete objects are creative or not—and thus, whether or not a new object exists over and above the abstract and concrete object—and cannot simply rely on our intuitions to determine these fundamental ontological facts.¹³ The examples just mentioned, after all, could divide merely according to social, scientific, or linguistic convention rather than reflecting some deeper metaphysical reality; i.e., the reason why we treat the parts of Susan's rattle as combining to form a new object, a rattle, whereas we do not treat the dog biscuits inside Spot's stomach as combining with the stomach to form a new object, Spot's stomach-plus-biscuits, might be due only to the pragmatic usefulness of a "rattle" concept as opposed to the relative pragmatic uselessness of a "stomach-plus-biscuits" concept, rather than because of some underlying metaphysical difference.

We know from Aristotle that without principled criteria (in his case, an account of essences), matters of class (and hence, object) individuation are always relative. If we take stomachs as the relevant class category, then being full is an accidental property and ascribing "fullness" to Spot's stomach yields a contingent truth. If, however, we take full and empty stomachs as being the relevant class categories, then fullness is an essential property of Spot's full stomach and predicating "fullness" of it yields a necessary truth. Without some principled criteria for determining which are "real" as opposed to conventional class categories, the issue as to which class categorizations—and hence, which object individuations—are to be preferred is decidable only on a pragmatic basis. And in the absence of such criteria, the question as to whether either the parts of Susan's rattle, taken together, comprise a new object or whether the contents of Spot's stomach and the stomach, taken together, make up a new object, cannot be answered other than conventionally.¹⁴

The difference among creative and uncreative relationships between abstract and concrete objects is supposed to be a matter of the *intimacy* of the relationship. For the two supposed examples of composite objects that Katz discusses—the equator and the impure set—the creative relations in question are the type/token relation and the containment relation, respectively, and these relations are intimate in a way, yet unspecified, that yields a new object over and beyond the components. The examples that Katz gives of *uncreative* relations—the numbering relation, the “between” relation, the “greater than” relation—are those in which the concrete object in question merely instantiates the relevant universal, and these relations are not intimate, in the yet unspecified sense, such that they yield a new object over and above the components.

What is supposed to characterize the intimacy that we’ve been talking about is the *copossession* and *transmission* of properties. In the case of a creative relation like the type-token relation, the token possesses certain properties by virtue of belonging to the type, properties that the type itself possesses and which it “lends” to the token. This, for example, is what would distinguish the equator from my green jersey. In the first case, the composite object, the equator, possesses the property of circularity by being related to the geometric circle that itself possesses that property and has “transmitted” it to the composite object. In the second case, while the jersey is green by virtue of its relation to green-ness, green-ness is not itself green. Katz’s discussion here relies on remarks from Richard Wollheim’s *Art and Its Objects*:

Now there would seem to be two differences in respect to transmitted properties which distinguish universals from types. First, there is likely to be a far larger range of transmitted properties in the case of types than with universals. The second difference is this: that in the case of universals no property that an instance of a certain universal has necessarily, i.e., in virtue of being an instance of that universal, can be transmitted to the universal. In the case of types, on the other hand, all and only those properties that a token of a type has necessarily, i.e., that it has in virtue of being a token of that type, will be transmitted to that type. Examples would be: Redness . . . may be exhilarating, and if it is, it is so for the same reason that its instances are, i.e., the property is transmitted. But redness cannot be red or coloured, which its instances are necessarily.¹⁵

However, it is not at all clear that this mode of differentiating creative from uncreative relations on the basis of the transmission of properties will work (at least not if the type/token relation is taken as paradigmatic of creative relations), for it is not at all clear that there is always “copossession” of properties between tokens and types.

Consider, for example, the mental state token of hunger that is currently in my head. It plays a positive causal role in my eating behavior (I eat because of it), and this causal role is a property that the mental state token has by virtue of the mental state type to which it belongs (as evinced by the fact that it

“satiated”); and yet the mental state type has no causal efficacy; as an abstract object, how could it have any causal properties whatsoever? So here is a property that a token has by virtue of belonging to a type, and yet it is a property that has not been transmitted to the token from the type.

This point is worth taking a moment to discuss. Take the following folk-psychological law (where “x” is restricted to the domain of persons):

- (Ψ) (x) (If x is hungry, and x wants to eat, and x believes there is food in the refrigerator, then, *ceteris paribus*, x will take some food from the refrigerator and eat it.)

Now mental-mental/mental-behavioral *causal chains* clearly involve *tokens* in both their antecedents and consequents. (Ψ), when satisfied by an individual, say John, involves something like the following causal chain between the neurological events in John’s head and between those events and his bodily movements (let “→” connote [a causes b]):

- (C) ((Hunger_{token} → Desire-for-food_{token}) + belief-that-there-is-food-in-refrigerator_{token}) → taking food-from-refrigerator-and-eating-it-behavior_{token}.

Second, according to the functionalist theory of the mind,¹⁶ we individuate the concrete neurological objects in the heads of human beings in terms of their causal roles; where they stand in mental-mental/mental-behavioral causal chains like (C). It is these causal roles, then, that lead us to identify certain neurological events as belonging to one mental state type and others as belonging to another mental state type.

Thus, and concluding, it is correct to say that it is by virtue of falling under a particular mental state type—in this case the mental state type of being hungry—that a particular neurological event in my head has the causal role it has. If it belonged to a different mental state type—say, being satiated—it would figure into entirely different causal chains from (C). But the mental state type itself causes nothing and figures into no causal chains; that is, the type does not have this particular property that its token possesses by virtue of falling under it, and thus is not in a position to transmit it to the token.¹⁷

In a similar vein, the machine on the first floor of the Public Affairs Building at SMSU dispenses sodas because its machinery is configured in such a way that it belongs to the type “soda machine.” This is evinced by the fact that if the machinery were configured such that it belonged to a different type of machine, say “mail sorter,” it would perform a very different task. Yet the functional type “soda machine” dispenses nothing. After all, as an atemporal, nonspatial universal how *could* it dispense anything?¹⁸

So it is not at all clear that we can distinguish the type/token relation from the instantiation relation (and thus give a genuine instance of the distinction between a creative and a creative relation) on the grounds that in the case of the type/token relation there is copossession of properties whereas in the case of instantiation there is not, for it is not at obvious that there is always

suppose, argue that none of the examples I've given are, in reality, examples of the type-token relation, and insist, on this ground, that copossession of properties is a distinguishing feature of creative relations. But if we eliminate such examples it is not clear that there are *any* type/token relations left, at least not if they must always, as a condition of their creativity, involve the copossession of properties.

I am actually not sure just what Katz means when he says that concrete objects become tokens of types when the type "transmits" its properties to the concrete object. This occurred to me as I read Katz's further explanation as to what distinguishes the type/token relation from the instantiation relation. According to Katz, in the case of the type/token relation, while the composite object that results from the relation to the abstract object in question has the transmitted property, the concrete object that existed prior to the tokening did not possess that transmitted property. That is, the tokening does not occur because the concrete object *already* had the property in question, but rather the property in question is one that belongs to the composite object *by virtue of* the tokening. (RR, 155) In line with this, the part of the surface of the earth (the concrete object) did not become a token of a type until it "merged" with the geometric circle (the abstract object), after which it then became a composite object, the equator, which, I guess, is supposed to be a token circle.

But this just seems to be an incorrect account of tokening. It is because the particular neurological object in my head (the concrete object) has the causal role that it does that it counts as a token of the mental state type "being hungry." It is because the hunk of metal and machinery (the concrete object) dispenses sodas that it is a token of the type "soda machine."¹⁹ The reason the part of the surface of the earth counts as a token of the type "circle" is because of the shape that it already has as a concrete object. If the earth, for example, was square-shaped, it would be a token of a different type. The same goes for geometric figures that I might draw on the blackboard.

Katz offers no treatment of the intimacy of the other creative relation he discusses—the "contained-in" relation—and we see, of course, how a treatment like the one just mentioned could not work, for in the containment relation there is clearly no copossession of properties. The impure set consisting of my IBM ThinkPad, my stapler, and my copy of *Realistic Rationalism* exists because some number of concrete objects have a particular property vis à vis a set; namely the contained-in property. But, of course, the set itself does not have that property. Indeed, Katz offers no criterion at all for distinguishing the contained-in relation—which is creative—from, say, the "between" relation, which is not. And so we are left relying solely on the intuition that in the former case a new object is created as a result of the relation, while in the latter case, no new object results as of the relation obtaining. It seems, then, that we cannot determine whether or not a new object has been created on the basis of any *principled* distinction that separates creative from uncreative relations. There seems, then, to be no relevantly principled way of distinguishing

some relations between concrete and abstract from others such that we can block the charge that all physical objects can be construed as composite.

Before moving on, I should add that even if we *could* draw such a principled distinction between creative and uncreative relations—the type-token relation and the instantiation relation, for instance—I am not sure that this would help Katz with regard to the larger dialectical picture that is emerging. For even if "type" is taken in Katz's narrower sense, *every* physical object is a token of indefinitely many types, and thus, every physical object is a composite object according to Katz's definition of compositeness and given his assertion that the type-token relation is a paradigmatic example of a creative relation. Thus, if my larger point is correct—that if there are no homogeneously concrete objects then Katz's ontology caves in on itself—it is irrelevant whether or not a principled distinction between the type/token relation and the instantiation relation can be drawn. Grant Katz the distinction; the type/token relation is creative while the instantiation relation is not. But every physical object is a token of any number of different types, at different levels of description, and so it still turns out that every concrete object can be construed as composite.²⁰

VI. COMPOSITE OBJECTS AND RELATIVE PREDICATION

Ordinarily, the way that we tell whether or not a new object has been created as a result of the assimilation of several components is through *predication*. Can we predicate properties of the supposed new whole that could not be predicated of its components? And are there predicates that apply uniquely to the components that, once assimilated into the new object, cannot be predicated of the new object? Consider the baking of a cake. We have distinct ingredients: flour, sugar, eggs, chocolate, and yeast. We then mix these ingredients together in the prescribed way and put the mixture in the oven. At the end of this process we have a cake. What determines whether a new object has been created over and above the ingredients? First, there should be properties unique to the ingredients that can no longer be predicated of the new object, for example:

- (1) Has a powdery consistency
- (2) Have several discernible yolks
- (3) Is granulated

Second, there should be properties that apply only to the new whole and cannot be predicated of any of the individual ingredients, for example:

- (4) Has a fluffy layer interspersed by a creamy chocolate layer
- (5) Can be easily sliced with a knife

If we do not have both kinds of properties as the result of our process, in what sense have we created a new whole out of the ingredients? We would simply have flour, eggs, sugar, etc., in separate piles in a bowl.

The test, then, as to whether in Katz's purported cases of composite objects we have new objects over and above their abstract and concrete components, is whether or not we have a similar distribution of properties; some that can no longer be predicated of the whole, because they belong uniquely to the components and cease to exist once assimilated, and others that can only be predicated of the whole and not of the components, as a result of the assimilation.

Once this becomes our test, we quickly see that none of the examples of supposed composite objects that Katz offers us represent truly new objects. For every predication that we make of the purported composite object must be made relative to one of its components or else we violate the principle of bivalence. Take, for example, the equator. Each of the following properties is predicable only of the abstract component, the circle:

- (6) Is everywhere equidistant from the center
- (7) Has a diameter equal to twice its radius
- (8) Has a circumference of ΠD

Because no physical object is a geometric circle. Similarly, the following properties apply only to the concrete component, the part of the surface of the earth:

- (9) Has been crossed many times
- (10) Will cease to exist when the earth does
- (11) Lies between the North Pole and the South Pole

Because, obviously, a geometric circle cannot be crossed, cannot lie between anything, and exists eternally. To deny this relativity of predication would force us to say that the equator both has and has not been crossed many times, both is and is not every equidistant from the center, both does and does not exist between the North and South Pole, and so on.

Katz actually *accepts* this necessary relativity of predication:

Once . . . the equator is taken to be a composite object, predicates of both kinds can apply to the equator. When we say that the equator is a circle or has existed a long time or has been crossed frequently, we are making a relational predication. We are ascribing a property to a composite object relative to its abstract or concrete components. In the case of the former predications, what we are saying absolutely is that the abstract object component of the equator is a circle, and in the case of the latter predications, what we are saying absolutely is that the concrete object component of the equator has existed for a long time or has been crossed frequently. (*RR*, 150–1)

Indeed, Katz takes such relativity as “characteristic of composite objects” (*RR*, 161). But Katz denies that this relativity of predication is true of *all* the predications we can make of composite objects. And here, on this crucial issue, Katz makes an important mistake; in a footnote, he says:

To say that properties like being everywhere equidistant from its center and having existed for a long time apply absolutely only to the abstract and concrete components of a composite object is not to say that there are no properties that apply absolutely to composite objects. “Is an object,” “is heterogeneous,” “is structured,” and “has components,” apply absolutely because there is no abstractness or concreteness condition for their application. (*RR*, 152 n. 14)

But these examples of properties that purportedly show us that we truly have a new object over and above the components beg the question. Our arguments and observations demonstrate that Katz's cases do *not* represent genuinely new objects; they show that we do not have anything more than abstract and concrete objects, existing separately; they deny the idea that we have any new object that possesses a structure. To say then that the *evidence* that we have a new object is that we can predicate “is an object,” “is heterogeneous,” “is structured,” and “has components” is completely unresponsive to the allegation that no new object has been created, with structure or without, and to the demand for *substantive* evidence that such a new object exists. It is, so to speak, to put the cart before the horse. We are looking for criteria that will *allow* us to predicate “is an object,” “has components,” etc., of the purported composite object. These properties, then, cannot themselves serve as those criteria.

If I were to point to the flour, sugar, eggs, chocolate, and yeast in separate piles at the bottom of the bowl and assert that there is a new object formed by their association, you might respond that there are actually only separate ingredients in the bowl and would cite, as evidence, the fact that the properties unique to the ingredients remain intact and no new properties predicable uniquely of the purported new object have been created. Katz's remarks concerning the unique properties of composite objects would be analogous to my responding to your charge that there is no new object in the case of the cake ingredients sitting in separate piles at the bottom of a bowl by saying, “Oh, of course there is a new object; and do you know how I can tell? Because I can predicate ‘is an object’ and ‘has components’ of it.”

For talk of a new object to make sense with regard to the combining of components, then, the properties that uniquely belonged to the components of the object must no longer be predicable of the new object, and there must be properties of the new object—genuine, substantive properties—that are not predicable of any of its components. Katz's so-called composite objects, because of the necessary relativity of predication to each of their components and the lack of any genuine properties of their own, are like the cake ingredients sitting in separate piles in the bowl, rather than like the cake. In no plausible sense is there a new object that results from the combining of abstract and concrete objects.

VII. SOME FINAL THOUGHTS ON SUBSTANCE DUALISM

Katz introduces composite objects in order to save the abstract/concrete distinction. With counterexamples like the equator and impure sets threatening SDO, Katz, rather than abandoning (D), adds a third category of objects, the composite category. But, as we have seen, this category cannot be sustained, at least not as Katz has conceived it. This result should not surprise us. For the problem, really, is not with composite objects. Instead, the trouble is with definitions of “abstract” and “concrete” like those found in (D).

Recall the two parts of our argument: First, on Katz’s definition of compositeness, every physical object can be characterized as composite, because no real sense can be made of the distinction between creative and uncreative relations. Without a principled delineation of these two types of relations, since all physical things stand in numerous relations to abstract objects, there is no principled reason for saying that some of these relations result in composite objects being created, while others do not. Second, when we think more seriously about what exactly is *meant* by a composite object (namely a *new whole* that results from the combining or assimilating of two or more components, some abstract and some concrete), we realize that really, *no* object on Katz’s account turns out to be genuinely composite, since the abstract and concrete components Katz talks about never genuinely assimilate, as is evinced by the necessary relativity of predication for the properties of such objects.

This last problem helps us to realize that what lurks beneath the surface is the substance dualism that results from (D) and other traditional definitions of the abstract and concrete. We understand that there are an indefinite number of relations that hold between the abstract and the concrete—that concrete objects are, in all cases, importantly and inextricably tied up with abstract objects—and yet, given how we have traditionally thought of the abstract and the concrete, it is hard to see how such a relationship could be possible. For “abstract” and “concrete” have been defined in such a way as to seemingly preclude *any* sort of relationship between the two, at least as far as we understand the concept of a relationship. The problems that Katz’s composite objects face, then, are only symptoms of this larger, more important problem, and it is not one that can ever be solved by a proliferation of more ontological categories. Instead, it must be solved by a reconceptualization of the ontological categories that we already have.

Traditional Platonism as well as Katz’s (D) define abstract objects in terms of what they are *not*; that is, as the negation of their physical counterparts. Review, again, the chart in section II: physical objects have a spatiotemporal existence, abstract objects do not; physical objects can be seen, touched, tasted, felt, smelled, and heard, abstract objects cannot; physical objects undergo change, abstract objects do not; and so on.²¹ Now before we even get to the problem of substance interaction, there is a general problem with this

side of the divide. If something is defined solely in negative terms, one has never really explained what, precisely, that something *is*. And when no positive definition is offered for a class of objects, philosophers rightly become suspicious as to whether such objects exist at all. This calls to mind a wonderful example, attributed by Arthur Collins to Rohit Parikh:

Suppose we introduce someone to the game of chess and explain that this piece is the king, and this one the queen, and those are pawns. Then we are asked: are the king and queen then married? Do they have children? Are they benevolent monarchs? And the answers are “No,” “No” and “No.” But no one should conclude that they are then unmarried, childless and malevolent . . . When we say that numbers are not physical objects, not locatable in space, not corruptible, not contingent, and so forth, we are not entitled to suppose that we have delineated another kind of object that is merely different. A questioner is quite entitled to ask “Well, then, what features do they have?” and this is because, so far, no features have yet been ascribed to them.²²

Now, to be fair, the defining of “abstract” in terms of a set of negations of the properties of concrete objects is faithful to our intuitions concerning the nature of the abstract. But defining abstract objects in this manner—as the “anticoncrete,” so to speak—is what establishes the substance dualism that is so devastating for the theory of abstract objects. For with a substance dualism like this one—grounded, as it is in the fundamental *opposition* of the two substances in question—the issue of the *interrelationship* of abstract and concrete objects instantly arises, and we are led to ask Aristotle’s obvious and important question: “[O]ne might discuss the question what on earth the Forms contribute to sensible things.”²³

It was this incompatibility of substances that drove Plato to describe the relations between abstract and concrete objects in terms that clearly cannot be taken literally. We are told on various occasions that physical objects imitate, partake of, participate in, share in, copy, or resemble, the Forms. That these are only metaphors for the actual relations that exist between Forms and sensible objects should be obvious, since every one of them has an implicitly (if not explicitly) spatial connotation. Imitation, for instance, depends on the imitated object possessing physically tangible contours that can be reproduced: I can imitate someone’s face, for example, by moving and shaping my own in a way that reproduces his (such that one might recognize me as looking like him); I can imitate someone’s voice by moving my vocal cords in such a way as to produce sounds resembling those that he makes (such that someone listening might mistake my voice for his). But it is very difficult to see how an object which, by definition, has no appearance or any otherwise reproducible, tangible contours can, in any literal way, be imitated. The same point holds, of course, for “copy” and “resemble.”

Partaking requires that the object partaken of has physically separable parts that can be shared amongst several people. You can partake of my family’s

Thanksgiving dinner, because that dinner consists of physically realized courses, *food* that can be divided and shared. I can partake of my little cousin's fun, because his fun consists in physically realized activities—say, playing ball or cops and robbers—that I can do with him. But how can an object which, again, by definition has no physically separable parts (indeed, which has no physical parts at all) be, in any literal sense, partaken of?²⁴

The problem of the interrelationship between abstract and concrete objects was recognized by Plato and is one of the main subjects of the *Parmenides*. The primary concern of Parmenides in his attack on Socrates and his theory of the Forms has to do with the “oneness” of Forms, but just a quick look at the arguments reveals that the substance interaction problem we have been discussing is also present. Socrates has asserted that sensible objects “participate” or “share” in Forms, and Parmenides presses him as to what exactly he means. There are two possible senses that these terms could have; both violate in some way the oneness of the Forms, and at least one suggests a problem pertaining to substance interaction. We *could* mean that when a beautiful thing shares in, say, the Form of Beauty, it gets the whole of the Form in the sharing. But then, since there are many beautiful sensible objects, the Form is certainly not one, since, being as a whole in many things it is, in a sense, “separated from itself” many times over. Or we might mean that each beautiful object, in sharing in the Form of Beauty, gets a piece or a portion of Beauty. But this then means that the Form is divisible and, more importantly, is spread out, all over the place, in pieces. In what sense, then, is the Form “one”? And how can something that has no physical existence be cut or divided into pieces?²⁵

Socrates' next attempt to characterize the relationship between Forms and sensible objects is through the idea of a model or a pattern; the Form is the model and the various sensible objects imitate or copy it, much like a group of painters in a figure class might sit around a nude model and each paint a copy of her body. Now from this idea Parmenides generates a vicious regress (the famous “likeness regress”), but the substance interaction problem here is equally problematic and obvious. As just discussed, in what literal sense can a physical thing copy or imitate something that has no appearance or physically tangible contours? In both of these groups of arguments, Socrates admits to being unable to characterize, in any rigorous and explanatory sense, the relationship between sensible objects and Forms. This, then, leads Parmenides to conclude that there simply is *no* relationship between Forms and sensible objects.²⁶

A current favorite term for describing some of the relations that obtain between concrete and abstract objects is “instantiation.” Concrete objects instantiate universals; my jersey, for example, instantiates both greenness and the form of a jersey. But to say that *p* instantiates *F*-ness is simply to say that *p* is an instance of *F*-ness; this tells us nothing of *what it is* for *p* to be an instance of *F*-ness, which, of course, is what we are asking (“What is the

that it is an instance of?”) Too, often, unfortunately, when we ask this question, we get answers like this one offered by Armstrong: “[Instantiation is a] fundamental tie between a particular and a property.”²⁷

Indeed, when pressed, Armstrong claims that there is no need to offer an account of instantiation: “I do not think that characterizing the nature of the tie should detain us. . . . [I]t is perfectly reasonable for an upholder of universals to claim that instantiation is a primitive that cannot be explicated by any analysis, definition, or metaphor.” This strikes me as a decidedly unsatisfactory way or responding to a significant and venerable philosophical problem, one that seems, indeed, to lie at the very core of a metaphysics that is realist about abstract objects.²⁸

This basic problem of offering an account of the relationship between abstract and concrete objects is also at the bottom of the two-world/one-world dispute. Early in *RR*, remember, Katz disassociates himself from Plato's two-worldism, claiming that construing abstract objects as transcendent “turns the immanent world over to the naturalist.” Katz's assertion is that there is only one universe, the physical universe, and that abstract objects are “in” it. But, what does it mean to say that an abstract object is “in” a spatial domain, given that abstract objects have no spatial existence according to (D)?²⁹

It is, indeed, precisely this point that led Plato to his doctrine of transcendence in the first place.³⁰ But the problem follows abstract objects to the transcendent world as well. How do we define such a world and the things that exist there, all the while avoiding the use of descriptive predicates with spatial or temporal connotations? This difficulty in turn, motivates the kind of negation/opposition-grounded definition of abstract objects found both in Plato and in (D). We should realize by now that we are in the same position that some poor dog might find himself in, chasing our tails as we are, ‘round and ‘round in circles. The problem that lies at the bottom of this pile of problems, then, is *the nature of the very existence of abstract objects*. For it is the way that abstract objects are traditionally taken to exist that leads to the negation/opposition-grounded SDO, and it is this that then leads us to the substance-interaction problems, two-worldism, and then back again.

To say that something exists, after all, is not to say very much. We want to ask *how* and *in what way* does the object in question exist? We know how to give this further articulation in the case of concrete objects, but with abstract objects we suddenly become tongue-tied and find ourselves falling back on a metaphorical use of spatiotemporal terminology.

Some have thought that this apparently inarticulable existence of abstract objects might be the result of an ambiguity in the meaning of the word “exist” and, thus, soluble through the introduction of more terminology. This strategy of dealing with the strange existence of abstract objects is reflected in Russell's famous distinction between “exist” and “subsist”:

We shall find it convenient only to speak of things existing when they are in time, that is to say, when we can point to some time at which they exist

universals do not exist in this sense; we shall say that they *subsist* or *have being*, where “being” is opposed to “existence” as being timeless.³¹

But this, of course, is merely to label a problem rather than solve it. It tells us nothing about the nature of an abstract object’s existence, but simply offers a name for that existence. What we need is an account of the nature of subsistence (which is, inconveniently, never offered), and some eighty-plus years of time passing since Russell has not seen much more offered than yet more terminology. Armstrong for example, tells us that:

To talk of locating universals in space-time . . . emerges as a crude way of speaking. Space-time is not a box into which universals are put. Universals are constituents of states of affairs. Space-time is a conjunction of states of affairs. In that sense universals are “in” space-time. But they are in it as helping to constitute it.³²

I must admit to finding Armstrong’s disparagement of the box metaphor odd. Given that this is exactly how we ordinarily think of the relationship of concrete objects to the physical space in which they are located, this disparagement makes me wonder whether all this fancy talk about being “constituents of states of affairs” is just a more roundabout way of making Russell’s “subsistence” move; concrete objects “exist,” as it were, in the “box of space,” but abstract objects “consist” as parts of various “states of affairs.” If this is Armstrong’s strategy, then I would merely repeat the criticism of Russell: “Fine, what does it mean for an abstract object to ‘consist as a part of a state of affairs’?” And when we do hear more about states of affairs, we realize that none of this will help us anyway, since Armstrong describes states of affairs as compounds consisting of particulars, the universals they instantiate, and the instantiation relation itself.³³ Yet we have no account of that instantiation relation other than that it is supposed to be “primitive.” Not exactly circular, but none too helpful either.

Both Russell’s and Armstrong’s moves bring to mind Quine’s accusation that many philosophers have “united in ruining the good old word ‘exist.’”³⁴ What we are trying to do is understand the nature of the existence of abstract objects and *then* to understand how those abstract objects relate to, interact with, or “are a part of” the concrete objects that make up the physical universe. These are not questions that will be answered in the philosophy of language, through manipulations of the word “exists,” or through the invention of new words like “subsist,” or phrases such as “don’t exist in but are rather constituents of.”

Defining abstract objects as “anticoncrete”—as Platonisms and other realisms from Plato’s to Katz’s have done—thus sets into motion a swarm of interrelated problems and difficulties. It establishes an opposition- and negation-based substance dualism, an ontological gulf made all the more wide by the two-world doctrine that so many Platonists are driven to in their frustration at trying to characterize the nature of abstract existence. Those, like Katz, who try to resist the two-world view find little relief in one-worldism,

is established and firmly entrenched, the substance interaction problems emerge and we find ourselves embroiled with the tangled and seemingly insoluble question of just how abstract and concrete interrelate: How could a concrete object token a type? How is it possible for a physical thing to instantiate a universal?

Katz’s problem in defining composite objects is thus an important instance of one of the most classic problems of metaphysics, that of characterizing the relationship between the abstract and the concrete, in a substantive, nonmetaphorical way. Far from providing a solution to the metaphysical problems faced by traditional Platonism, then, Katz’s composite objects are instead emblematic of those problems, and, for that matter, of the problems faced by all of the other substance dualisms (Cartesian dualism most famously) that have emerged throughout the history of philosophy.³⁵

ENDNOTES

I want to thank Joseph Biehl, William James Earle, David Shein, and Jim Swindler for their helpful input and advice on this essay.

¹Jerrold J. Katz, *Realistic Rationalism* (Cambridge, MA: MIT Press, 1998). Hereafter, I will refer to *Realistic Rationalism* with the abbreviation “RR.”

²This problem is discussed in the Platonic corpus itself, particularly in *Parmenides* where the relation of “participation” between sensible objects and forms is pressed most forcefully. Of course, the issue is also raised in Aristotle’s *Metaphysics*.

³In more recent times, Platonists and other Realists have waged the battle against naturalism most vigorously in the epistemological realm, particularly around the issue of the possibility of a priori knowledge. Katz’s own work in RR, as well as a recent book by Lawrence BonJour (*In Defense of Pure Reason* [New York: Cambridge University Press, 1998]) have taken important steps in this direction. But it seems to me that the epistemological difficulties faced by Platonism rest upon this more fundamental metaphysical issue of abstract/concrete relations, and it is one that Platonists ought not neglect.

⁴Of course, Plato’s views do not remain constant throughout the dialogues; the view characterized here reflects the early-middle Plato (e.g., the Plato of the *Phaedo* and *Republic*) and is consistent with the “Platonism” that is generally discussed in philosophy courses and texts, and, most importantly, with the kind of theory advanced by Katz. As we will discuss later, significant objections to this conception of the abstract and the concrete are also found in the Platonic dialogues, most notably in *Parmenides*.

⁵Philosophers often describe abstract objects as atemporal and as having no spatial location, while concrete objects are taken to have both spatial and temporal location. I take “transcendent” and “immanent” to cover each of these pairs, respectively. If something is transcendent, then it has neither spatial nor temporal location; if an object is immanent it has spatial and temporal location.

⁶Bertrand Russell, “The World of Universals,” in *The Problems of Philosophy* (Oxford: Oxford University Press, 1959), 93.

⁷Bertrand Russell, "On the Relations of Universals and Particulars," in *Logic and Knowledge: Essays 1901–1950*, ed. Robert C. Marsh (New York: Capricorn Books, 1971), 121. In *Universals: An Opinionated Introduction* (Boulder: Westview Press, 1989), D. M. Armstrong also talks this way, universals being "repeatables" (meaning: they can be in more than one place at one time) in contrast with particulars, which are not (10). Of course, for Armstrong, not all abstract objects are universals—for example he treats natural classes as particulars—but this does not fundamentally affect our discussion here, since Armstrong's view entails that *concrete* objects are inherently nonrepeatable in nature (cannot be in more than one place at the same time), and this indicates corporeality.

⁸Socrates, in the Platonic dialogues, famously talks of sensible objects "imitating," "partaking," "sharing in," and "copying" the forms. That these relations between abstract and concrete are strictly metaphorical becomes obvious when we realize the inherently spatial connotation of each of these terms. More on this in the final section of this essay.

⁹See Bob Hale, *Abstract Objects* (Oxford: Basil Blackwell, 1987), for a discussion concerning the ontological status of objects that seem to be both abstract and concrete in nature.

¹⁰The equator is commonly described as an "imaginary line," but Frege disputes this analysis—at least if by "imaginary" is meant "fictional"—on the grounds that an imaginary line would be a psychological object, not an objective feature of the earth's surface. See *The Foundations of Arithmetic*, trans. J. L. Austin (Oxford: Basil Blackwell, 1953), 35.

¹¹Jim Swindler has pointed out with regard to both this and the previous point that the acceptability of a definition is not dependent on existence conditions; that a word's definition and whether or not it applies or is satisfied are separate issues. But this strikes me as overly sophisticated and not particularly relevant. First, while it may be true that the fact that a term is never—and, really *could never be*—satisfied doesn't technically undermine its definition, one wonders what would be the *point* of having such a term? Second, in the current case, it matters very much to Katz that "composite" be satisfied; that nothing does or ever would satisfy it defeats the very point for which it was introduced in the first place.

¹²It is important to emphasize that Katz does *not* view composite objects as merely a subset of the concrete. Katz is committed to the existence of three *distinct* classes of things, two classes of which are metaphysically homogeneous—the abstract and the concrete—and one of which is metaphysically heterogeneous—the composite. In the case of the equator, then, there are *literally* three objects involved: (1) the part of the surface of the earth (a concrete object); (2) the geometric circle (an abstract object); (3) the equator (a composite object, the result of the assimilation of (1) and (2)).

¹³Although, at one point, Katz does say, "The distinction between creative and uncreative relations, like any metaphysical distinction, gets tricky when we try to spell it out." (*RR*, 141) This, as we shall soon see, is an understatement of the difficulties that face his account of creative relations.

¹⁴Katz's argument here lacks any account of kinds, which would seem indispensable. See, especially, Aristotle's discussion of the musical vs. the unmusical man in his *On Generation and Corruption*, Bk. 1 319b5–30. (All future Aristotle quotations taken from Richard McKeon, ed., *The Basic Works of Aristotle* (New York: Random House, 1941).

¹⁵Richard Wollheim, *Art and Its Objects* (New York: Harper & Row), 67 [Katz's ellipses].

¹⁶I assume it is irrelevant to the point being made here that many now think Functionalism an inadequate theory of mental states.

¹⁷Of course, the dependence goes both ways. It is because concrete objects have the features that they do that they are "gathered" under types; and it is by virtue of the types to which they belong that they have the features that they do.

¹⁸Examples such as these abound: an individual human being is a token of the type "human being," and his humanity is a function of this relationship, but the type is not itself human.

¹⁹Indeed this is how psychological functionalism solves the problem of the multiple realizability of mental states; it is because the chemical event occurring in the octopus's brain plays the same cause/effect role in mental-mental/ mental-behavioral chains as the chemical event occurring in my brain that both count as tokens of the same mental state type, despite the fact that they are not the same type of chemicals.

²⁰Armstrong (*Universals: An Opinionated Introduction*, 6–7) says:

Type Identity exhibits an important relativity. Consider [the following] display:

THE A

Are the two tokens of the same type? They are not the same word. But if you take as your type just being a word, then they are of the same type. If you take as your type grammatical article, then they are of the same type (the first is the definite, the second the indefinite, article). And there are many other types of a more general sort, relative to which they are tokens of the same type. [author's brackets]

²¹Jim Swindler has objected that the repeatability of forms constitutes a positive aspect of their definition, and that therefore it is untrue that abstract objects can only be defined in negative terms. I would allege that the repeatability of forms is a second-order property, derivative of their corporeal, atemporal nature. It is, after all, because concrete objects are realized spatio-temporally that they are *not* repeatable.

²²Arthur W. Collins, "On the Question 'Do Numbers Exist?'" *The Philosophical Quarterly* 48 (1998): 30–1.

²³*Metaphysics*, A9 991a9–10.

²⁴Aristotle, of course, dismissed these relations along similar lines: "But, further, all other things cannot come from the Forms in any of the usual senses of 'from.' And to say that they are patterns and the other things share in them is to use empty words and poetical metaphors." *Metaphysics* A9 991a20.

²⁵Plato, *Parmenides*, 131a–e. The latter option is offered when Socrates argues that the Form is like a sail that can be spread over many different objects at the same time.

²⁶*Parmenides*, 133b–134. Ryle, of course, comes to a similar conclusion, arguing that, surface grammar notwithstanding, predicative statements do not describe relations between concrete objects and Forms. See Gilbert Ryle, "Plato's 'Parmenides,'" in *Collected Papers: Volume 1* (New York: Barnes & Noble, 1971), 10. The difference between what Ryle is arguing, however, and what we have been discussing is that our problem is fundamentally *metaphysical* in nature—objects consisting of opposite substance-types cannot interrelate—while Ryle's point is primarily *linguistic*—abstract nouns are not proper names, and thus, cannot stand as relata in what are only apparently relational propositions.

²⁷See Armstrong, *Universals*, 94.

²⁸The question of the nature of the instantiation relation is the most significant subject of *Parmenides* (certainly, it is the most significant subject that the dialogue addresses for us today), and it has not been treated as primitive for the long history during which it has been

discussed. On this point, see Ryle, "Plato's 'Parmenides,'" 5–6. Interestingly, Armstrong, in an earlier piece, claims that the characterization of the relationship between particulars and universals is the most important task facing those who are realists about universals. See his "Against Ostrich Nominalism: A Reply to Michael Devitt," reprinted in D. H. Mellor and Alex Oliver, *Properties* (New York: Oxford University Press, 1997), 101–11. Here he argues that the problem is worse for a Platonist who holds a view in which there are "bare particulars" and "uninstantiated universals" (a position that Katz sometimes sounds guilty of) than for a realist who treats the "two factors" as being more intimately connected as parts of "states of affairs," but if I am correct that the problem with abstract objects is one of substance interrelation, then it is unobvious how any realist who defines abstract objects in the manner of (D) is better off than any other.

²⁹A related concept, more suited to abstract objects, might be the relation "member of," as in [x is a member of set y]. But such a relation does not have a similar enough connotation to serve in the manner just mentioned, namely for the purpose of characterizing an abstract object's existence "in" or "as a part of" the physical universe.

³⁰Katz's dismissal of the doctrine of transcendence thus fails to appreciate precisely what motivates it; namely that it is *meaningless* to assert that nonspatial, atemporal objects are "in" or "a part of" the physical universe.

³¹Russell, "The World of Universals," 99–100 [author's emphasis].

³²Armstrong, *Universals*, 99.

³³*Ibid.*, chap. 5.

³⁴W. V. Quine, "On What There Is," in *From a Logical Point of View*, 2d ed. (Cambridge, MA: Harvard University Press, 1980), 3.

³⁵Interestingly, early on in *RR*, Katz argues, rather quickly, that "not all dualisms are the same," suggesting that the dualism entailed by an abstract/concrete distinction à la (D) does not face the sort of interaction problems faced by Cartesian dualism:

The dualism of the abstract and the concrete differs from the dualism of the mental and the physical in one critical respect. Both of them posit domains of causally incommensurable objects, to be sure, but the former pays no price for its ontological bifurcation, because, unlike Cartesianism, realism is under no pressure to explain how ontologically incommensurable objects can causally interact with one another. Descartes's substance dualism is under such pressure because our experience is replete with clear signs of what appear to be causal interactions between the mental and the physical. But, in the case of realism, there are no signs of causal interaction between the abstract and the concrete. (*RR*, 60)

I must say that I find this remark bizarre, given the history of the critical discussion of Platonism. I would think that Platonism's interaction problems—and hence, the analogy with Cartesian dualism—are quite clear: In the case of Cartesian dualism, the problem manifests itself in the dualist's inability to explain how it is that the mind, a physical substance, has causal efficacy over the body, a physical substance. In the case of Platonic dualism, the problem is how a nonspatial, atemporal abstract object can affect, in any way, the properties of a material object. With composite objects, this question comes down to the following: "How can an abstract object 'combine' or 'assimilate' with a concrete one to form a composite object?"