Defending Coincidence: An Explanation of a Sort

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Abstract

Can different material objects have the same parts at *all* times at which they exist? This paper defends the possibility of such coincidence against the main argument to the contrary, the 'Indiscernibility Argument'. According to this argument, the modal supervenes on the non-modal, since, after all, the non-modal is what *grounds* the modal; hence, it would be utterly mysterious if two objects sharing all parts had different essential properties. The weakness of the argument becomes apparent once we understand *how* the modal is grounded in the non-modal. By extending the ideas of combinatorialism so that we recombine haecceities as well as fundamental properties, we see how modal properties can be grounded in non-modal properties in a way that allows coincidence and yet also explains why there are differences in the modal properties of coinciding objects. Despite this, some de re modal facts are not grounded in the non-modal but instead are brute. However, although we cannot explain why a particular object has the basic modal properties it has, we can explain a closely related, semantic fact and, comparing the facts we can't explain to more familiar brute facts, we understand why there should be no better explanation. As a result, we can see how coincidence is, after all, possible.

The possibility of two material objects being composed of the same parts at a time has worried many a metaphysician.[1] Are the body and the person, the statue and the lump of clay, or the ship and the collection of planks *two* distinct things occupying exactly the same space at a time?[2] This, the easier question, I set aside. The harder question is whether two material objects can be composed of the same parts *at all times*, differing not temporally but only modally. Answering the harder question means venturing into the shadowy realm of de re modality but promises, in the end, to illuminate both modality and material constitution.

Consider Gibbard's case of a statue formed by joining two half-statues and later destroyed by being smashed into pieces. According to Gibbard, Goliath, the statue formed by this process, and Lumpl, the piece of clay of which Goliath is constituted, are identical.

> They began at the same time, and on any usual account, they had the same shape, location, color, and so forth at each instant in their history; everything that happened to one happened to the other; and the act that destroyed the one destroyed the other. If the statue is an entity over and above the piece of clay in that shape, then statues seem to take on a ghostly air.[3]

Pluralists, let's call them, hold that multiple objects *can* have the same parts at all times, and a fortiori *can* occupy the same space at all times; most believe having the same parts at all

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[1] By 'two objects being composed of the same parts' I mean two objects being *completely* composed of one set of parts, where some thing O is completely composed of a set of parts A iff 1) every member of A is a part of O, 2) every part of O overlaps some member of A, and 3) everything that overlaps O overlaps some member of A. Thus, I am not concerned whether one object has a part P that is not a part of the other object though P is entirely composed of parts of the other object, e.g. Goliath's nose that is not a part of Lumpl. See Baker's *Persons and Bodies*, p. 181.

[2] Traditionally the problem has been seen as how objects could occupy the same space at the same time or, worse, at all times. In "Material Coincidence and the Indiscernibility Problem," Olson recasts the debate in terms of 'material coincidence', asking how objects could be composed of the same *matter* at the same time. (And, of course, we can extend this idea by asking how objects could be composed of the same matter at *all* times.) I think Olson is quite right to reject the original formulation of the issue, for surely spatial and spatio-temporal coincidence are metaphysically possible. As Sider points out (*Four-Dimensionalism*, p. 141), we can conceive of a type of matter that doesn't interact with most matter in the usual way, so that an object made up this foreign matter can pass right through an object made up of our more familiar matter, the two objects coinciding at a time or, even, at all times. But I think Olson doesn't go quite far enough, for the possibility of dualism shows us that things can be made up of matter *and* non-material substance, and thus we can easily conceive of two things materially coinciding in virtue of one consisting of a certain quantity of matter and the other consisting of that matter together with some non-material parts. Thus, a more accurate description of the problem is simply how multiple things could be composed of the same parts.

[3] "Contingent Identity," p. 191.

times — what I will call simply coincidence — is not only possible but in fact common.[4] Pluralists rely upon a simple argument in their favor. Goliath could not have survived flattening, but Lumpl could have. Although Goliath and Lumpl do not differ spatially or temporally, they do have different modal properties; hence, by Leibniz's Law we conclude that they are distinct.

Monists, on the other hand, think multiple objects *cannot* have the same parts at all times; that is, they think coincidence is *impossible*. Driven by thoughts like Gibbard's, they have marshaled an 'Indiscernibility Argument' to charge that any differences between the two would be mysterious.[5] Gibbard and Lewis have argued that the identity of Lumpl and Goliath does not, despite appearances, conflict with Leibniz's Law.[6] I will not discuss their arguments *supporting* monist accounts, i.e., supporting contingent identity or counterpart theory. My concern is instead the Indiscernibility Argument that monists are wielding *against* the view that Lumpl and Goliath are *distinct*. Of the many reasons for thinking the statue and the lump of clay can't be distinct, this argument seems to have emerged as *the* challenge for pluralists. This Indiscernibility Argument, in various guises, has been supported by Heller, Zimmerman, Burke, van Inwagen, Sosa, Olson, and Bennett, to name a few.[7]

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[4] The terminology, 'monism' and 'pluralism', is Kit Fine's (in conversation).

[5] Olson calls this 'the Indiscernibility Problem'; thus, I call the associated argument 'the Indiscernibility Argument'. See "Material Coincidence and the Indiscernibility Problem."

[6] See Gibbard's "Contingent Identity" and Lewis's "Counterpart Theory and Quantified Modal Logic." See also Ray's "*De Re* Modality: Lessons From Quine."

[7] See Burke's "Copper Statues and Pieces of Copper"; Burke's "Cohabitation, Stuff and Intermittent Existence"; Rea's "Supervenience and Co-Location" (which presents and then attacks a supervenience argument); Zimmerman's "Theories of Masses"; van Inwagen's *Material Beings*, p.290n45; Sosa's "Subjects Among Other Things," pp. 78-82; Heller's *The Ontology of Physical Objects*, pp. 30-32; Olson's "Material Coincidence and the Indiscernibility Problem"; and Bennett's "On Differing Modally". See also Levey, "Coincidence and Principles of Composition". More recently, Wasserman's "The Standard Objection to the Standard Account" develops a response to the Indiscernibility Argument that is similar in an important respect to my own approach in that he appeals to certain brute facts, defending the claim that we should expect this bruteness. While our accounts are similar in this way, Wasserman is giving an explanation of how two objects can coincide *at a time* and remains a defender of the Indiscernibility Argument in that he considers the coincidence of multiple objects *at all times*, the possibility I am defending, as mysterious,

The general argument, here in Burke's words, begins with an explanatory challenge:[8]

> In virtue of what does the object identified under 'statue' *satisfy* 'statue'? In virtue of what does the object identified under 'piece of copper' *satisfy* 'piece of copper'? Given the qualitative identity of these objects, what explains their alleged difference in sort?[9]

Burke rejects the idea that an object's sort is a basic property it has. This would mean, claims Zimmerman, there could be two worlds in all ways physically identical except that one contains a human body and the other does not.[10] The challenge, then, is simply to explain an object's sort in a way that allows coincidence.[11]

One point that needs clarification is what pluralists mean — or at least what *I* mean — in saying that the statue and the lump of clay are 'distinct'. Common sense insists that there is *one* thing on the mantle and that the lump of clay *is* a statue. It may therefore seem that pluralists are contradicting common sense. However, pluralists recognize that the statue and the lump bear a very close relation — viz., they are identical in all ways non-modal. Hence, many pluralists have argued, in various ways, that the relation between the statue and the lump recognized by

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[8] A temporal version of the indiscernibility problem asks how two things can coincide at a time, given that they are alike in all ways at that time. The modal version of the problem, which will be my concern, asks how two things can compositionally coincide at all times. These two versions are often not carefully distinguished; in addition, different philosophers employ different senses of 'coincide'.

[9] "Copper Statues and Pieces of Copper," pp. 14-15.

[10] "Theories of Masses," p. 87. As we will soon see, I think being brute means no such thing.

[11] I have followed common usage in calling one of the two coinciding objects 'the statue' and calling the other 'the lump of clay' and saying that the problem for pluralists is in accounting for their differences in sort. Yet even if there are two coincident objects one might quite reasonably object that at any time when a statue is made of clay it too belongs to the sort *lump of clay* and that from the time when a lump of clay has been intentionally fashioned into a human figure until when it is smashed, it too belongs to the sort *statue*. Thus, continues the objection, the problem is not in accounting for the *sort* of an object but in accounting for its *essential sort*, since Goliath is essentially a statue and Lumpl is essentially a lump of clay, though contingently they may belong to many other sorts. (I owe this point to Tim Maudlin. Rea comments on this ambiguity in "Constitution and Kind Membership," pp. 171-2.) One might reply that since we speak of 'the statue' and thereby refer to *only one* of the two objects, being of a particular sort is already an essential property. I will not take a position on this issue, for my focus is on attributions of *essentially* satisfying the conditions associated with a sort, whether we call this 'belonging to a sort' or 'essentially belonging to a sort'. For simplicity I will often call this, e.g., 'being a statue', though one who views sorthood as contingent can substitute 'being essentially a statue' where it matters.

common sense is not identity but something weaker.[12] Call this weaker relation 'sameness',
where x and y are 'the same' at t iff their non-modal properties intrinsic to t are identical.[13]

I will not review the arguments others have given for this distinction, but let me give one
datum to help motivate the view for those unfamiliar with it. Consider a person who believes the
mantle holds a statue made of clay, a person who would say that the lump of clay 'is' a statue
and that there is only 'one' object on the mantle. Let's tell her that the statue was created just
this morning and before that the lump of clay was sitting in the garage for a week. Even though
we have thereby made clear that the statue and the lump of clay have different temporal
properties, she is not at all motivated to abandon her view that there is 'one' object or that the
lump of clay 'is' a statue. Next let's tell her that the lump of clay is painted entirely white and
the statue is unpainted. This time she *will* find an inconsistency among her beliefs and, perhaps,
will conclude that there must, after all, be 'two' separate items. Why do differences in temporal
properties leave her unmoved yet differences in current qualitative properties spur her to revise
her beliefs? Simply because what she means in this context by 'one' and 'is' is not that the lump
of clay *couldn't be* other than a statue or that at one time it *was*n't other than a statue, but merely
that it *is* not, i.e. *currently* is not, other than a statue. That is, many of our quantifying
expressions such as 'is', 'one', 'two', 'the same', and plurals are based upon sameness, a weaker
relation than absolute identity. Hence, the claim of pluralism need not be seen as contradicting
common sense.

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[12] See, e.g., White, "Identity, Modal Individuation, and Matter in Aristotle"; Rea, "Sameness without Identity";
Wiggins, *Sameness and Substance*; Johnston, "Constitution is not Identity"; Thomson, "The Statue and the Clay";
Baker, "Why Constitution is not Identity"; Perry, "The Same F," pp. 198-199; Lewis, *On the Plurality of Worlds*, p.
218; Lewis, "Survival and Identity," p. 63; and Robinson, "Can Amoebae Divide Without Multiplying?"

[13] Just as a property p is intrinsic to an individual i iff (roughly) i's instantiating p does not entail anything about
objects wholly distinct from i, so too a property p is intrinsic to a time t iff any individual's instantiating p at t does
not entail anything about how things are at times other than t. What I am calling 'properties intrinsic to a time' or
'temporally intrinsic properties', Simons calls "time-blinkered properties" (*Parts*, p. 229); Chisholm calls these
properties "rooted outside the times at which they are had" (*Person and Object*, ch. 3).

The Indiscernibility Problem

Finally, let's turn to the Indiscernibility Argument itself. Heller, who provides one of the clearest early expositions, holds that there are objects that have the same parts *at a time* but not objects, like Lumpl and Goliath, that have the same parts *throughout their lives*.[14] If there are such objects, he argues, they would have to have the same non-modal properties, and yet if they belong to different sorts, then they would have different modal properties. Yet this is impossible, he claims, because "There must be some non-modal basis for the modal differences between the lump of clay and the statue."[15] Thus the Indiscernibility Argument:

> An object's non-modal properties determine its modal properties.
>
> <u>Objects that have identical parts have identical non-modal properties.</u>
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> ∴ Objects that have identical parts have identical modal properties.

And this conclusion directly rules out cases like Lumpl and Goliath, as well as undermining the thought that there are *any* cases in which things have the same parts.

The Indiscernibility Argument relies upon the intuitively appealing claim that the modal is grounded in the non-modal — that is, that modal properties are determined by non-modal properties. Heller assumes this means that any differences in the modal properties of Lumpl and Goliath must be rooted in differences in their non-modal properties. However, Sider and Rea have both suggested that the modal being grounded in the non-modal does not necessarily mean that *an object's* modal properties must be a function of *its* non-modal properties, i.e. mean that

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[14] See "Temporal Parts of Four Dimensional Objects" and *The Ontology of Physical Objects*. This statement is ambiguous. Taken as a piece of four-dimensionalist talk employing an untensed notion of parthood it is trivially true since the lump of clay has temporal parts that are not parts of the statue. However, I intend this statement to be tensed predications of parthood, saying, e.g., that this atom or that chunk of clay (both of which the four-dimensionalist would see as time worms) are *currently* parts of both the statue and the lump of clay but yesterday they were parts of the lump of clay and *not* of the statue (since the statue didn't exist then). This claim thus requires the concept of something being a part of another *at a time*. This should be as unproblematic for the four-dimensionalist as being tall or being heavy at a time: x is a part of y at t iff the time slice of x at t is a part of the time slice of y at t.

[15] *The Ontology of Physical Objects*, p. 31.

the modal *strongly locally* supervenes on the non-modal.[16] Perhaps, they suggest, it only requires that the distribution of modal properties throughout a *world* be a function of the distribution of non-modal properties throughout *that world*, i.e. that the modal *weakly globally* supervenes on the non-modal. This would allow the actual world to contain two coincident objects with the same non-modal properties and different modal properties as long as *any* world which matches the actual world in its distribution of objects and non-modal properties also contains two objects which match the two actual objects both in their non-modal and modal properties. However, while this weaker supervenience relation captures a way in which the modal could be a function of the non-modal that is consistent with coincidence, and thus would 'allow' the statue and the lump of clay to have different modal properties, this leaves us without an *explanation* of the difference, for the problem still remains of how the non-modal properties could determine that the statue has certain modal properties while *those same* non-modal properties determine that the lump has *different* modal properties.[17] So far, then, all agree that the modal is grounded in the non-modal, but monists have made a persuasive case that the

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[16]The idea originates in Zimmerman, "Theories of Masses and Problems of Constitution," p. 88 (Zimmerman credits an anonymous referee with this point). Rea supports the idea in "Supervenience and Co-Location." Sider pursues the point in "Global Supervenience and Identity across Times and Worlds," §§ 1 & 3.

A set of properties A *strongly locally supervenes* on a set B $=_{df}$ there is a function f which, for any possible individual, maps that individual's B properties to its A properties. Following Sider and McLaughlin, worlds W and V are X-isomorphic $=_{df}$ there is a one-to-one mapping of the individuals of W to the individuals of V such that an individual is mapped to another only if they have exactly the same X properties (and/or relations). Then, A *weakly globally supervenes* on B $=_{df}$ for any pair of worlds which are B-isomorphic, there is a mapping of the individuals of one world to the other in virtue of which they are both A-isomorphic and B-isomorphic. This is a somewhat stronger definition of weak global supervenience than the one proposed by Sider and by McLaughlin, though I think it is perhaps more intuitive. Others have also suggested this same version, which is defended by Shagrir in "Global Supervenience, Coincident Entities and Anti-Individualism." See Sider's "Global Supervenience and Identity across Times and Worlds" for a full discussion of the relevant supervenience relations. Also see McLaughlin, "Supervenience, Vagueness, and Determination," §3.

[17] This, very roughly, is the objection that Zimmerman raises in "Theories of Masses and Problems of Constitution" and that Olson pursues in "Material Coincidence and the Indiscernibility Problem."

stronger sort of grounding is necessary while pluralists have given little reason to think that the weaker sort of grounding is sufficient.[18]

Shagrir, however, presses the Indiscernibility Argument further, arguing that weak global supervenience isn't "an adequate notion of dependence" and, moreover, that we can't save coincidence by appealing to some other sort of supervenience relation since "every notion of supervenience that allows these scenarios is not an adequate notion of dependence."[19] We can skirt the issue of what Shagrir means by 'an adequate notion of dependence' and instead focus on the more direct argument that 1) if objects coincide in the way suggested by pluralists, then the modal does not object-covary with the non-modal; 2) if A doesn't object-covary with the B, then A does not depend upon B, and, therefore, 3) since the modal *does* depend upon the non-modal, objects do not coincide.[20] A 'object-covarying' with B means that for any object x, the

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[18]I say 'little' because I think Sider's sketching "a clear picture of how facts about GROUND and BASE could 'functionally determine' facts of persistence and de re modality via weak global supervenience principles" gives us some reason to think that a weaker supervenience relation *is* sufficient. (See "Global Supervenience and Identity across Times and Worlds," §§ 1 & 3) Rea, in "Supervenience and Co-Location" attempts to explain how supervenience allows for coincidence. I believe Rea's explanation fails, but I will not defend this claim in this paper. Olson's "Material Coincidence and the Indiscernibility Problem", on the other hand, has given a rather compelling case that strong supervenience is required; my differences with Olson will become evident later in the paper.

[19] "Global Supervenience, Coincident Entities and Anti-Individualism," p. 186. Shagrir claims a supervenience relation "is an adequate notion of dependence iff for any families of properties A and B, if A ... supervenes on B, then it is possible for the A-properties to be dependent on and be determined by the B-properties" (p. 179). One set of properties supervening on another does not *entail* that the former set depends on the latter, as he notes, for even with the strongest sort of supervenience, A can supervene on B without depending upon it. Supervenience relations are therefore not intended to capture the fact that the one relatum depends on the other; they are only supposed to say *something* to delimit how the two co-vary. But, then, what motivates Shagrir's adequacy requirement? I can understand calling a relation R 'inadequate as a notion of dependence' if for *any* sets of properties A and B, A bearing R to B entails that A does *not* depend upon B, but any set of properties that strongly locally supervenes on another will also weakly globally supervene on them, so this isn't Shagrir's worry. If modal properties depend upon non-modal properties and also weakly globally supervene upon them, I don't understand why it would matter if between some *other* sets of properties there is weak global supervenience without dependence or without the 'possibility' of dependence.

[20] This is not exactly Shagrir's argument, but is adapted from his argument as a more direct attack against coincidence.

A-properties of x are a function of the B-properties of x and its worldmates.[21] The second step is key, so let's examine why, according to Shagrir, dependence entails object-covariation:

> If A is dependent on B, then the instantiation of any A-property is entailed by the instantiation of B-properties. But since A-properties are instantiated by *objects*, the instantiation of an A-property by an object must be entailed by the B-properties of this object and its worldmates.[22]

Notice, however, that if pluralism is correct, on *one* reading the instantiation of a modal property by an object *is* entailed by the non-modal properties of this object and its worldmates. According to pluralism, for any object O and for any set of modal properties M which it instantiates, the instantiation of the non-modal properties of O and its worldmates *does* entail that there is *an* object instantiating M, but the instantiation of the non-modal properties of O and its worldmates *does not* entail that *O itself* instantiates M. The latter entailment is necessary for object-covariation, but since a pluralist account can guarantee the former entailment, we need a reason to think this isn't sufficient for dependence. Unfortunately, Shagrir gives no such reason. Thus, Shagrir has shown *neither* that dependence requires object-covariation *nor* that pluralists must give up on the idea that the modal depends upon the non-modal.

Nonetheless, I think Shagrir's argument helps to highlight what seems to be missing on the pluralist's story. The pluralist can say that some sorts of modal facts, e.g. that there is *an* object with such-and-such modal properties, *do* obtain merely in virtue of the non-modal, but there are other sorts of modal facts, e.g. that it is *Goliath* that has such-and-such modal properties, that *do not*. Look where we may, whether to Goliath or Goliath's worldmates or the world containing Goliath, we find no non-modal properties that will tell us that it is Goliath rather than one of the coincident objects that has the modal properties that Goliath has. The

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[21] According to Shagrir's definition of 'object-covary', we can specify the B properties that x itself has by saying that *x* has them, but for all other objects we must specify their B-properties by *quantifying* over those objects, i.e., saying that *there exists* an object that has such-and-such B-properties. Nothing in this paper should turn on this requirement. (See "Global Supervenience, Coincident Entities and Anti-Individualism," p. 180.)

[22] "Global Supervenience, Coincident Entities and Anti-Individualism," p. 180.

Indiscernibility Problem is thus the challenge for pluralists to explain specifically *de re* modal facts.

Before proceeding with the challenge, notice that our discussion so far shows just how novel and important weak global supervenience is. Supervenience relations are our attempts to partially characterize dependency relations. If A depends upon B, yet we don't understand the dependency itself well enough to describe it, then we can use supervenience relations to help delimit the relation between A and B. Typically, A depending solely on B means that A strongly locally supervenes on B. I have argued elsewhere that when A depends upon B but the relation between A and B can only be captured by the weaker relations of strong global or weak local supervenience, this is because A does not depend solely upon B but also on some other set of properties F and, therefore, that A strongly locally supervenes upon B $\cup$ F but not upon F, and A claims are more fully explained in terms of both B and F properties.[23] What the pluralist is claiming, though, is that the modal depends *only* upon the non-modal and *not* on some other set of properties and yet the modal does *not* strongly locally supervene upon the non-modal. Weak global supervenience is therefore quite novel, for it is not merely giving a partial characterization of the same old kind of dependency between sets of properties that can, in the end, be better spelled out using strong local supervenience; rather, if pluralism is correct, then the way in which the modal depends upon the non-modal is introducing something new that can only be captured with a weaker relation such as weak global supervenience. Considering the growing skepticism over the usefulness of the myriad different supervenience relations that have been defined, this warrants high praise indeed for such an unassuming supervenience relation.[24]

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[23] See [edited for blind review].

[24] As examples of this skepticism, Lewis says we have "an unlovely proliferation of non-equivalent definitions," Schiffer claims they only help "to add mystery to mystery, to cover one obscurantist move with another," and Melnyk calls supervenience downright "suspicious." (See, respectively, *On the Plurality*, p. 14; *The Remnants of Meaning*, p. 153-154; and "Physicalism: From Supervenience to Elimination," p. 579.)

Of course, all of this depends upon the pluralist story making sense. But does it? If de re modal facts are not determined by the non-modal, whence do they come? Defending pluralism, I will argue that basic de re modal facts are brute, though I hope to motivate the view that, once we understand *how* the non-modal determines the de dicto modal, this de re bruteness is nothing new and can, in some sense, even be explained. First, though, I make a short detour to argue that the Indiscernibility Problem poses a problem for monists as well.

The Modal Grounding Requirement is both Metaphysical *and* Epistemic

Heller argues that statues and lumps of clay do not really exist. And this means that statues and lumps of clay don't have any — and, a fortiori, don't have *different* — modal properties. There is only one sort of object, he claims, and objects of this sort never spatio-temporally coincide. Burke and Rea both claim that Lumpl, like Goliath, could not survive flattening. Other monists endorse similar, though often less radical, denials of common sense. It may seem that by denying these problematic modal properties monists thereby satisfy, or bypass, the explanatory burdens stemming from the modal grounding intuition. However, the puzzle we are examining has both a metaphysical and an epistemic guise, and these monist accounts at best avoid the mystery as seen in its metaphysical guise.

Just as we need to know how there could be objects identical in all ways non-modal yet differing in many ways modal, so too must we understand how people can reason *as if* there are such objects. We blithely make different modal claims about statues and lumps of clay, all despite their shared non-modal basis. If I tell Julia that I have a statue in my car, she infers that it could not survive flattening. We need to explain inferences of this sort even if I have lied to her and there in fact is no statue in my car. Similarly, even if there are no statues or lumps of clay, or even if objects don't have the modal properties we thought they had, we still need to

explain our everyday inferences from the non-modal to the modal.[25] Assuming that the modal is grounded in the non-modal — and, moreover, that this is our intuitive view — how are such inferences possible? Thus, even monists owe us an explanation. Moreover, it seems that the explanation of how we *infer* different modal properties from a common non-modal basis will likely serve to explain how objects in fact *have* different modal properties grounded in a common non-modal basis.

By denying spatio-temporally coinciding objects or claiming that we are mistaken about their modal properties, monists do not thereby satisfy the challenge set down in the Indiscernibility Argument. They still have some explaining to do, and the only suggestion so far is that we infer a thing's modal properties from its non-modal properties together with its nature, sort, or definition. By 'nature, sort, or definition' I am gesturing at the vague idea that the concept of an object's sort somehow gets into the picture. The great promise of such an approach is that an appeal to conceptually necessary truths allows for an easy solution to the epistemic version of the problem. Of course, such an approach incurs the burden of somehow avoiding the traditional conceptualist or conventionalist view that objects exist *in virtue of* our concepts or conventions. If successful, though, an explanation of this sort would seem to resolve *both* the metaphysical *and* the epistemic puzzles at one go. This explanation, however, must begin with an examination of our theory of modality, and hence it is to this I now turn.

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[25] Heller spends considerable time in *The Ontology of Physical Objects* explaining our ordinary beliefs about objects, beliefs which he sees as mistaken. He appeals to convention to explain the acceptability of our talk and how we reason about what we mistakenly take to be objects. Thus, Heller *does* provide the sort of explanation I am demanding. However, if he adequately explains how we can infer different modal properties of objects that spatio-temporally coincide, prima facie he has met his own challenge on behalf of pluralists and explained how the modal *can* be grounded in the non-modal while still allowing coincidence. Heller has an argument based upon arbitrariness intended to show that these believed objects cannot in fact be objects, but this is an *independent* argument, whereas my concern here is only with the Indiscernibility Argument.

On the Centrality of Combinatorialism

A theory of modality needs some way to say what is possible, i.e., to specify all of the myriad different ways the world could be. I know of only one way to do the job: a combinatorial principle. Combinatorial theories of possibility say that possible worlds are recombinations of the elements of the actual world. Take space-time and assign the fundamental properties to every point in the space and you have one possible world. All other combinations of assignments give you the other possible worlds. The underlying idea is that each instantiation of a fundamental property is a distinct existence, and since there are no necessary connections between distinct things, any combination of fundamental property instantiations throughout space-time is a way the world could be. This is, of course, to run roughshod over many issues that a theory of modality needs to address in formulating a recombination principle, but for our purposes, this bare sketch will do.

Combinatorialism is probably the leading theory of modality. But what I have described is common to *all* the major theories of modality. Linguistic ersatzism says that possible worlds are described by maximal *consistent* sets of sentences. But 'consistency' is spelled out partly in terms of a recombination rule saying that each *combination* of fundamental property instantiations throughout the different space-time points is consistent. Other forms of what Lewis calls ersatzism represent possibilities in other ways, but it seems that these would have to employ a similar combinatorial principle in order to represent the plenitude of possibilities. You might think that Lewis's own theory, modal realism, can get by without such a principle, for if there are real worlds 'out there' which are the truth-makers for our modal claims, then whatever worlds there happen to be would underwrite whichever of our modal claims happen to be true. But for Lewis a major desideratum of a theory of modality is that it should, in the main, match what we think intuitively about which of our modal claims are true, and for this reason a combinatorial principle lies center stage. Finally, for similar reasons even modal fictionalism

employs a combinatorial principle.[26]   There will no doubt be concerns over the proper formulation of this principle, but *some* sort of combinatorialism, it seems, is essential.

One advantage of a combinatorial principle is that it need not be seen as merely *describing* which worlds there are; instead, we can see it as *explaining* why these are the worlds. According to Lewis's modal realism, if there are truly worlds 'out there' which serve as truth-makers for modal claims, then we are left without an explanation of why these worlds happen to fit the space defined by the combinatorial principle. But if we take the combinatorial principle to be part of the *meaning* of 'possible', then we have both 1) an explanation of our epistemic access to the number and sorts of worlds there are and 2) the basis for understanding the ontological grounding of these worlds. The first is rather easy to see; the second is a concern of this paper.

Recombining Haecceities

Assuming we specify worlds as combinations of fundamental properties (or as combinations of larger sorts of things composed of fundamental properties), then we have what we need for de dicto modal claims. Any qualitatively described scenario is possible iff that scenario fits a possible world.[27]   But we need something more to get an analysis of de re modality. One solution is counterpart theory. S possibly Φ's iff there is a possible world containing *an individual similar to S* that Φ's, where the similarity metric is provided by context. The alternative solution I wish to consider countenances trans-world identity, saying that S is itself a constituent of many worlds, and thus S possibly Φ's iff S Φ's *at some world*. What this solution requires, however, are worlds described not merely qualitatively, but also in terms that identify the individuals of the worlds. A world that we know to contain an individual winning the election is not enough; we need to know whether that individual is Nixon or Humphrey or you or me. But how are we to determine which worlds have which individuals?

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[26] See, e.g., Rosen's "Modal Fictionalism," p. 333.

[27] Different theories of modality will spell out what it is for a scenario to 'fit' a world in different ways.

According to Kripke, there really is no problem, for we can simply stipulate which individuals are at a world.

> ... there seems to be no less objection to *stipulating* that we are speaking of certain *people* than there can be objection to stipulating that we are speaking of certain *qualities*. Advocates of the other view take speaking of certain qualities as unobjectionable. They do not say, "How do we know that this quality (in another possible world) is that of redness?" But they do find speaking of certain *people* objectionable. But I see no more reason to object in the one case than in the other.[28]

As Salmon points out, Kripke's 'stipulations' are often misunderstood.[29] The point is not that we somehow bring worlds or features of worlds into existence through our stipulations. Rather, such worlds must exist prior to any stipulation and by stipulating that the world contains a tall beggar, I am merely specifying *which* world I am talking about, viz., one in which there exists a tall beggar. Do stipulations somehow settle which worlds there are? Certainly not! We still need to justify the claim that there is, e.g., a world containing a tall beggar. But the point I take from Kripke is that if there is a world containing a tall beggar, and if there is a world in which *I* am a tall beggar, then just as we can stipulate that we're talking about a world containing a tall beggar, so too can we stipulate that we're talking about a world in which *I* am a tall beggar. Therefore, the *epistemic* problem of knowing which individual at a world is you or me or Nixon is really no problem at all.

But it seems there's still the *metaphysical* problem of what could *make* one possible individual Nixon and yet make some other, qualitatively indiscernible individual Humphrey. Following Kripke, though, we can again insist that the case involving properties is no different than the case involving individuals. Most agree that there is nothing impossible about a world having the same laws as ours but containing only two endlessly circling particles with a certain mass and charge. But what makes it the case that the particles have the masses and charges that are specified rather than any other combination of mass and charge that would, using our laws, account for them circling with the same period? In other words, even though the properties of an

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[28] Kripke, "Identity and Necessity," p. 148.

[29] "Trans-World Identification and Stipulation."

individual at another world cannot be determined from its interactions with other individuals, we don't ask what makes it the case that an individual has the *properties* we say it has. Yet we *do* ask what makes some *thing* in some world Nixon, especially when he's qualitatively identical to the actual Humphrey. Why can't that which guarantees that a property at some world is the property of having a charge of -1 or the property of being a tall beggar also guarantee that an individual at some world is *me*? In fact, combinatorialism seems to give us just this. The trick to getting de re modality is simply to see a recombination principle as also operating over the individuals themselves rather than merely over fundamental properties or individual types. In other words, we'll recombine identities or haecceities.

A combination of fundamental properties specifies a world qualitatively, but on the view we're currently exploring, there can be many worlds qualitatively alike yet differing in their haecceities. Hence, a qualitative description of a world is only a partial description of it, since it allows us to identify where and when individuals appear but not to say *which* individuals they are. A full description of a world, then, merely adds the assignment of a haecceity to each individual of that world. A world containing two qualitatively identical beggars can be a world in which you are the one on the left and I the one on the right, where you are the right one and I the left one, where I am the left one and Nixon is the right one, or where Nixon is the left one and the right one is a stranger.[30] In short, all combinations are possible. Being a possibility *just is*, we might say, being a combination of things.

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[30] Since we're recombining actual properties and haecceities, how are we to get alien properties and individuals? In my sketch of a modal theory I will side-step this thorny issue. There are, however, some natural ways to accommodate aliens. Rather than describing world w by saying some individual in it is you or me — i.e., that its haecceity is identical to yours or mine — we simply say that the individual is one that is not you, not me, not Nixon, etc. — in short, not any actual individual. Similarly, if we accept the property of being a property as legitimate, we can simply specify that something instantiates it but does not instantiate the quiddity of being identical to any actual property. Multiple alien individuals or properties can be accommodated by specifying that the nth alien has the property of not being identical to all previously specified aliens. Since we need to specify the cross-world identities and non-identities of aliens, we can either have one description that specifies all worlds, saying which individuals are identical to which (see Sider, "The Ersatz Pluriverse") or, to avoid cardinality problems, we can specify separate mappings between each pair of worlds (see Hazen, "Counterpart-Theoretic Semantics for Modal Logic").

Well, perhaps not all combinations are possible. We need rules to regulate which combinations we will countenance. When recombining fundamental properties, certain conceptually necessary rules govern their combinatorics. If property P is instantiated at a particular space-time point, then of course not-P cannot also be instantiated there. More generally, determinates of a determinable preclude other determinates of that same determinable. If there is a charge of -1 at a particular point, then there can't also be a charge of +2 at that point. Part of what it *means* to have a particular charge at a particular spatio-temporal location is to not have some other charge.

In a similar way, we can specify rules governing the instantiation of haecceities at a world. A haecceity is the property of being some particular individual. Part of what we mean by 'an individual' is that there is not more than one of that individual at the world. So a haecceity cannot be assigned to multiple individuals at a world. We can assign the same haecceity to this *and* to that, but we thereby specify that this *is* that. Similarly, since a haecceity is the property of being an individual, this haecceity and that one cannot be assigned to the same individual lest we say that this haecceity *is* that haecceity. These are our first two rules. Furthermore, what about the intuition that Nixon couldn't have been a fried egg? It seems we need a third rule to respect a thing's sort — i.e., a thing's *essential* sort. Simply put, the haecceity of something that is essentially an F cannot be assigned to any individual that is not an F.[31] Goliath's haecceity, e.g., cannot be assigned in some world to a flattened piece of clay, a tire iron, or a toenail. Again, this rule is motivated in a simple way by our concept of the particular object as being essentially of some sort F.

Here, then, is the process for constructing all possible worlds:

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[31] An alternative scheme might recombine haecceities and yet dispense with this rule, countenancing no coincident objects but making sense of talk of what is impossible for a given object by restricting accessibility relations in accordance with the contextually specified sort. I consider this, like counterpart theory, a viable strategy but will not develop this view or say anything against it since my concern is solely with the Indiscernibility Argument.

1. A qualitatively discernible world (q-world) is an assignment of actual properties to the points in a space-time. Rule: At every point in the space-time every determinable property must have exactly one value (a binary property is taken to be a determinable with two possible values).

2. For any region R of space-time at a q-world and any sort F that R satisfies at that q-world, we recognize a q-world individual that is essentially F.[32]

3. A possible world is a q-world together with an assignment of actual individuals to the q-world individuals of that q-world. Rules: No assignment can assign an individual to multiple q-world individuals, multiple individuals cannot be assigned to a q-world individual, and no individual that is essentially an F can be assigned to an individual that is not an F.

A modal theory that follows this general outline — call it a trans-world theory — is designed to recognize coincident objects.[33] The non-modal properties of the statue/lump qualify as belonging to both a statue and a lump of clay. Two objects are therefore recognized as existing, the statue extended in modal space such that it always retains its form, the lump extended so that it always remains a single piece of clay.

What this means, though, is that we now have at least the start of an explanation of how it could be that an object's modal properties are not a function of *its* non-modal properties but, instead, that the existence and modal properties of the collection of all objects at a world are a function of the distribution of that *world's* non-modal properties. That is, we can now justify the

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[32] The identity conditions for each sort specify when an object of that sort is constituted by an arrangement of fundamental properties. Could an arrangement of fundamental properties constitute two coincident objects of the same sort? I think Fine convincingly argues that they can ("A Counter-example to Locke's Thesis"). Thus, I am simplifying when I suggest that if a region satisfies a sort there is *one* object of that sort at that location. Rather, the identity conditions for a sort dictate, given the non-modal properties at a region, *how many* objects of that sort are there and what their essential properties are, or, in other words, how many haecceities of objects are there of that sort and how they are assigned across worlds.

[33] Though a trans-world theory doesn't *necessarily* mean a theory countenancing coincident objects, I will only be speaking of a pluralist trans-world theory.

claim that the modal does not strongly locally supervene on the non-modal but only weakly globally supervenes. For in the process of constructing worlds we did not first recognize the non-modal properties that make something an object of a certain sort and then use those non-modal properties to determine how *that object* would be extended in modal space; rather, we used the non-modal properties of a region to determine which objects *there are* at that region and how *they* would be extended in modal space.

Too Many Sorts?

Using the concept of a statue, we know that the instantiation of certain non-modal properties at a region means that there will be something that is essentially a statue there. But this raises the question of what all the legitimate (essential) sorts are. Perhaps there are some natural limits. Consider shmatues, objects much like statues but that cannot survive being placed on the right end of a mantle. Are there such strange sorts?[34] If there are, then coincident with Goliath is a shmatue that has cross-world identities that correspond one-to-one with those of Goliath *except* where Goliath is cross-world identical to a statue sitting on the right side of a mantle. Whether or not shmatues exist, we needn't worry that *Goliath* might have such strange cross-world identities since the name 'Goliath' is understood to refer to a statue and *ipso facto* the name picks out the object that fits the modal profile of statues.

One might think it unlikely that such strange beasts exist, since this would mean the world contains so many more objects than intuition dictates. But, again, notice that as counted (at a time) by sameness, there would be no more objects than intuition requires. Moreover, such an explosion of objects does not violate Ockham's Razor since this multiplicity supervenes upon the same supervenience base, viz., the actual arrangement of fundamental non-modal properties.[35] Instead, then, one might happily endorse the existence of shmatues since any

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[34] Cf. Sosa, "Existential Relativity."

[35] I am invoking Armstrong's free lunch argument. See *A World of States of Affairs*, pp. 12-13.

restriction of sorts would require an arbitrary limitation. However, if there *is* a limitation on the kinds of sorts that exist, then there will be a corresponding limitation to the cross-world identities we countenance when building worlds. Whatever it is that might explain the former would explain the latter — whether it is *our* concepts or conventions, the *world's* Aristotelian essences, or *God's* holy sparks. Thus, the issue of whether there is a proliferation of sorts is *independent* of the issue of coincidence and should not count against our explanation of coincidence.[36]

Comparing Explanations: Counterpart Theory vs. Trans-World Theory

A more serious worry is that the process of constructing worlds that I have described is circular or does nothing to resolve the mystery of indiscernibility. One might think the process is circular because it extends an object in modal space based upon its sort and yet what seems to determine that the object is a statue rather than a lump of clay is its extension in modal space. One might think the process is mysterious because when we use certain non-modal properties to recognize that there are both a statue and a lump of clay, what could make one of them, rather than the other, the right one to extend in modal space as a statue? Aren't we back to the Indiscernibility Problem with which we began?

To address these worries, let's compare trans-world theory with counterpart theory.[37] According to trans-world theory, both a statue and a lump occupy the same region of space-time and both are composed of the same matter; therefore both have the same non-modal properties, and, hence, for many modal properties, such as *being able to survive flattening*, whether some particular object has it or not is *not* solely a function of its non-modal properties. Instead, the

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[36] This having been said, there are imaginable ways in which the two issues *could* be related. For example, if there is something that explains why statues are legitimate sorts but not shmatues, this same thing might also explain what makes statues more special than lumps of clay and thus remove a mystery I will later lay at the feet of many monist accounts.

[37] I'll be talking in terms of a standard sort of counterpart theory, ignoring such possibilities as one that countenances coincident entities.

non-modal properties of that region *together with* the identity conditions for statues explain why *there is* an object there with the modal properties of a statue.

For counterpart theory we get a different picture. Lumpl and Goliath are identical, the counterpart theorist insists, and they therefore have the same modal properties. They — or rather it — *does* have the property of being able to survive flattening qua lump, and it *does not* have the property of being able to survive flattening qua statue. It bears different counterpart relations with different classes of objects, and the sort under which it is conceived merely picks which class is of concern. Thus, all modal properties *are* determined by the object's non-modal properties and the modal *does* strongly supervene on the non-modal.

It may therefore seem that counterpart theory differs markedly from trans-world theory. Modal properties strongly supervene on non-modal properties according to the former, while they don't according to the latter. Notice, however, that on *both* theories, the non-modal properties of an object do not determine whether the *predicate* 'can survive flattening' applies to it, for in both cases one also needs to know what the relevant sort is.

One reason for thinking that the modal is grounded in the non-modal stems from the thought that the non-modal facts about an object are all the facts the world ultimately supplies about it, so if we aren't going to appeal to some kind of other-worldly realm, any other facts must be determined in some way by the non-modal facts. Is this, then, a problem for the counterpart theorist since he insists that the non-modal facts about an object do not determine whether the modal predicate 'can survive flattening' applies to it? No, for according to counterpart theory an object's sort is not any fact *about it*; rather, the non-modal properties of an object determine the many sorts under which the object falls and the speaker merely *specifies* one of these sorts and thereby *selects* the sub-class of modal facts she wishes to consider. Lumpl/Goliath can be considered as belonging to the sort 'statue' or to the sort 'lump of clay', and when we specify the sort we thereby specify which property we're talking about when we use the predicate 'being able to survive flattening', i.e. whether we're talking about being able to survive flattening qua statue or being able to survive flattening qua lump.

The counterpart theorist therefore has a nice explanation of *why* we appeal to something over and above an object's non-modal properties to explain whether a modal predicate applies to it and *why* this doesn't conflict with the modal grounding intuition. But is the story that much different for the trans-world theorist? She too says that the non-modal properties of an object do not determine whether 'can survive flattening' applies to it, that the sort is also needed. And, as with counterpart theory, the non-modal properties determine the range of sorts which can be specified by the speaker. True, the trans-world theorist says there are different objects all with the same non-modal basis, so it may seem there must be an other-worldly fact that determines which one of them is, e.g., the statue rather than the lump of clay. But *we don't latch onto the statue rather than the lump of clay in the way we latch onto the statue rather than its pedestal, i.e., in virtue of their different non-modal properties. Instead, we latch onto the statue rather than the lump of clay simply by latching onto the statue/lump and* stipulating *that we're talking about the statue*, exactly as we did with counterpart theory.[38]

In either case, to evaluate whether a modal predicate, such as 'can survive flattening' applies to an object, we first use the term referring to the object to pick out the object as it is non-modally (call this a 'world-bound object'), we then use the contextually supplied sort to recognize ties from the world-bound object at this world to the appropriate class of world-bound objects at other worlds, and, finally, we see if these fit the modal predicate, e.g. if any of them survives flattening. The world-bound object at this world, the sort-determined ties between this-worldly objects and other-worldly objects, and the modal predicate are the three components required on either theory to determine whether a modal property applies to an object, but trans-

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[38] Does trans-world theory therefore place counter-intuitive requirements on a theory of reference? Quite the contrary. Even with causal theories of reference, the speaker's *intentions* are key. Alice's reference to a ship requires a causal chain connecting Alice back to the very ship to which she refers, e.g. her seeing the ship when she was a child. But since a speaker is connected with only a portion of the referent, e.g. maybe Alice only saw the painted hull, we already require one's intentions to determine the spatio-temporal extension of the intended referent, e.g. to discriminate the ship from the hull of the ship or from the coat of paint covering the hull. Thus, it is quite natural to require that one's intentions also determine the modal extension of the intended referent, e.g. discriminating the collection of atoms making up the ship from the ship itself.

world theory calls the combination of the first two components an object (thus, the cross-world 'ties' are *identity* relations) and calls the third component a modal property, while counterpart theory calls the first component an object (thus, these cross-world 'ties' are *counterpart* relations) and calls the combination of the second and third a modal property. Since both theories go through the same kind of process in evaluating a modal claim, it is hard to see how one could involve some circularity or some appeal to mystery that the other didn't.[39] In short, the difference between the two theories is not as deep as it first seems.

The moral I want to draw is that trans-world theory shows how one *can* have a pluralist account with an underlying theory of modality that coherently *explains* why each object has the sort it has. Goliath is a statue because it has all of the non-modal and modal properties of statues; Lumpl, though alike in all non-modal ways, is not a statue since it is not necessarily of a statue shape. Let's re-examine our challenge:

> In virtue of what does *Goliath* have these modal properties but not *Lumpl*, given that they have identical non-modal properties and given that the modal is grounded in the non-modal? We can explain what makes Lucky Charm a gelding and Cheerio a stallion since Lucky Charm is castrated whereas Cheerio is not. The one has a subvening property the other lacks and this *explains* why one has a supervening property the other lacks. You've told a story according to which the subvening properties of Goliath, in virtue of satisfying the identity conditions for statues, explain why *there exists* some object at a certain location that is essentially a statue and is necessarily of a certain form. But unlike the

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[39] "In virtue of what does the statue, rather than the lump of clay, satisfy 'statue'?" comes the challenge for pluralists. But there is a parallel question for counterpart theorists: "In virtue of what does the collection of Goliath and all of its statue counterparts, rather than the collection of Goliath and all of its lump counterparts, satisfy 'the collection of things necessary for evaluating modal claims about statues?" The answer in the latter case is easy: "In virtue of the fact that it is the collection that one gets by collecting together what is there non-modally with objects at other worlds that are crafted by someone to represent something and always retain their form!" But why isn't the parallel answer just as unproblematic? "In virtue of fact that it is the object constructed by extending what is there non-modally to things at other worlds that are crafted by someone to represent something and always retain their form!"

story with Lucky Charm and Cheerio, you haven't given an explanation of why it is

Goliath, rather than any of the other coincident objects, that has these properties!

We can now see that this challenge mistakenly assumes that coincident entities differ as objects individuated non-modally do. The person who knows only that *there exists* a gelding in the stable and doesn't know that it's *this* horse, viz. Lucky Charm, rather than any of the other horses there that's the gelding lacks knowledge, but the person who knows only that *there exists* a statue at a certain location doesn't similarly lack knowledge about which of the many coincident objects it is. For all there is to being Goliath, over and above having the non-modal properties of the other coincident objects, is being essentially a statue. Before we apply the concepts of the supervening properties, we can individuate horses, saying that *this* is Lucky Charm, whereas *that* is Cheerio, but if we omit their modal properties, Goliath *just is* Lumpl — that is, individuated non-modally, there is only one object. Thus, we don't *first* have two objects with there being some fact of the matter about which is which and *then* their non-modal properties determine their modal properties. Rather, non-modally we only have one object, and by applying our modal concepts, seeing things as extended in modal space, we thereby recognize a plurality differing only in their modal properties.

An Explanation of a Sort

I have been defending pluralism against the Indiscernibility Argument, and thus my points have so far been largely negative. Since the challenge has been to account for an object's sort, I will now bring my positive account to center stage. I believe an object's sort is explained by its more fundamental modal properties and these other modal properties are metaphysically brute. Because this flies in the face of conventional wisdom, especially since I think we *can* explain — after a fashion — why something has such a brute property, some defense is required.

Let's distinguish two different sorts of explanation. First, there are run-of-the-mill causal explanations: Sam is a dentist now because of the favorable impression her dentist made upon her. The favorable impression made upon her explains her being a dentist now because it was in

virtue of this impression, together with other sundry states of affairs and the laws of nature, that she is now a dentist. Causal explanations are given only for contingent facts simply because they rely upon prior states of affairs and upon the laws of nature, which might have been different.

Second, there are what I will call constitutive explanations. This is a gumbo because it contains okra. It is in virtue of containing okra, along with being a soup, that this is a gumbo. Being a gumbo *just is* being a soup thickened with okra; containing okra is part of what it takes to be a gumbo, and therefore we explain this soup's being a gumbo in terms of its containing okra rather than vice versa.[40]

The explanatory challenge presented to pluralists is to account for the sort of an object. For example, why is Goliath a statue — i.e., *necessarily* a statue? There is no causal explanation of this fact, since Goliath could not have been other than a statue. There is, however, a constitutive explanation. Goliath is necessarily a statue, or Goliath satisfies 'statue' at all times and worlds, because at all worlds at which Goliath exists, it came into existence through someone intentionally forming some material to represent something and it went out of existence when it lost this form; this, inter alia, is just what it is to be a statue.[41] In general this suggests that we can explain any complex modal property using a constitutive explanation.

Thus, an object's essential sort is to be explained by its more fundamental modal properties. The difficulty with this approach is supposed to be that we then have no way of explaining basic modal properties. And yet it seems that if the modal is to be grounded in the

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[40] Perhaps the reason for the order of explanation lies in the fact that its containing okra is conceptually prior to its being a gumbo, but whatever the reason, the explanatory relation is asymmetric with the part explaining the whole.

[41] I will suppose, for the sake of simplicity, that there are simple and determinate conditions for being a statue, conditions captured with our concept of being a statue. Of course, in actuality the conditions for being a statue are neither simple nor determinate. This paper presupposes that issues of indeterminacy are independent of the explanation of an object's sort and an object's more basic modal properties. I do not believe this presupposition commits me to a principled analytic-synthetic distinction, but I will not defend this claim here.

non-modal, then these modal properties should be determined by, and therefore be explained by, the non-modal properties.

It is important at this point to distinguish two types of modal properties. On the one hand there are *nomologically* possible or necessary properties, e.g. being fragile, being poisonous, and so forth. If one uses modal properties such as fragility to guide one's thinking, one will naturally think that the modal *does* strongly locally supervene on the non-modal, for these modal properties *are* directly determined by, and explained by, the non-modal properties of the object — or rather are determined by them together with the laws of nature.[42] This object is fragile and that one is not, we say, because the former has molecular structure S1 while the latter has molecular structure S2. Thus, the distribution of non-modal properties, together with the laws, determine whether there will be a shattering and, hence, determines whether the object that shatters is fragile. However, not all modal properties are like fragility, for what has not been determined in this case is whether the fragile thing *would survive*. If it is a quantity of glass, it would; if a vase, it would not. It is modal properties like these that are our concern, properties like being able to survive being shattered or like being able to be a fried egg. These properties ride on the essential nature of objects, and for these I say that complex ones, such as an object's sort, are explained by the more basic modal properties, such as necessarily being a single connected piece of matter, and the basic modal properties are simply brute.[43]

Why then does Lumpl, a lump of clay, have the property of necessarily consisting of clay, and why does Lumpl have the property of necessarily consisting of a single connected quantity of matter? Intuitively one wants to say, "Because Lumpl is a *lump of clay* and that's

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[42] Note that the relation between fragility and non-modal properties is only a nomological supervenience relation (one that holds at all worlds with our laws), while we have been considering metaphysical supervenience relations.

[43] Heller's "Temporal Overlap is Not Coincidence," p. 368, says, "They have all of the same forces working on them and they have exactly the same inner structure. There is nothing in virtue of which one should survive a change that the other does not survive." The appeal to inner structure and, especially, to forces, suggests that Heller is thinking of modal properties underwritten by the laws and thinking that the explanation of these sorts of properties is the sort of explanation we should expect of all modal properties.

just what it is to be a lump of clay!" And, in fact, I think there is something right about this explanation, viz., that the reason the *name* 'Lumpl' refers to a single connected quantity of matter in all worlds is because 'Lumpl' is intended to, and thereby does, refer to a lump of clay, and a lump of clay *just is* that which necessarily consists of a single connected quantity of clay.

It may seem that I am offering a circular explanation, that I am explaining Lumpl's sort by its modal properties and explaining its modal properties by its sort. But we can see this isn't quite right once we examine more closely what is doing the explaining and what is being explained, for the explanans of its sort is *not* part of the explanandum of its modal properties and the explanans of its basic modal properties is *not* part of the explanandum of its sort. Consider the "explanation of Lumpl's sort". In this case the explanans is something about Lumpl itself, viz., *its* basic modal properties, and the explanandum is likewise something about Lumpl itself, viz. *its* essential sort. But contrast this with our "explanation of Lumpl's basic modal properties". In this case the explanans is *not* any property of Lumpl itself but is instead the sort intended by those using the name 'Lumpl', for that determines which of the many coincident objects 'Lumpl' will refer to, e.g., whether it will refer to that which is necessarily a connected quantity of matter or to that which necessarily has a certain form.[44] Similarly, in this case the explanandum is not something about Lumpl, for we are explaining why *our name 'Lumpl'* picks out an object with certain modal properties rather than why *Lumpl itself* has certain modal properties. It is acceptable, I believe, to say that we are "explaining Lumpl's basic modal properties", but only in the derivative sense in which we are actually explaining a semantic fact.

To support this point, let's consider as an analogy the explanation of the *contingent* sort and the *non*-modal properties of an object. I have just poured out a large collection of marbles on my floor, so let's consider *this* small cluster of marbles that I will call 'Bob' — and accompanying my utterance of 'this' I circle five of the marbles. What explains why Bob, at

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[44] The point is not, of course, restricted to names but holds for referring terms in general.

least at this world, satisfies the sortal 'cluster of marbles'? Well, there is the question of why the *name* 'Bob' *refers* to a cluster of marbles. The answer to this is easy: because when I named it I *stated* that the name would refer to a cluster of marbles. But instead of this explanation of a semantic fact, let's focus on Bob itself, i.e. on that very cluster of marbles. What is it about *it* that makes it, at least at this world, a cluster of marbles? Well, simply the fact that it consists of marbles and that the marbles composing it are gathered together. These are more basic non-modals fact about *it* that explain its non-modal sort.

Next let's consider what explains Bob's basic non-modal facts. What explains why Bob consists of marbles or why Bob includes *this* marble, e.g., but not *that* marble. As before, there are two questions this might be expressing. We *can* explain what more fully would be expressed as why the name 'Bob' refers to something that consists of marbles or why 'Bob' refers to something that includes this marble but not that one, for, again, when I assigned the name 'Bob' I stipulated it was to refer to a 'cluster of marbles' and I made a gesture circling five marbles that included this marble but not that one. In this way we might be said, in a loose sense, to 'explain an object's properties' by the sort that the person naming the object intended, but this does not make for a circular explanation since this is explaining a semantic fact. If instead we're concerned with the individual, Bob, independently of how we refer to it, and if we're asking what explains why *that individual* contains this marble but not that one, all we can say is that this is a brute fact, just as there is no explanation of why the set (3, 5, 8) contains 3 instead of 4. It just does.

The answer, then, is no different when explaining basic modal properties. Why does Lumpl consist of clay at all worlds? It just does. Just as some clusters of marbles contain this marble and some don't, so too do some objects consist of clay at no worlds, some consist of clay at some worlds, and Lumpl is one of those that consist of clay at all worlds. It did before we picked it out with the name 'Lumpl', but since we intended to refer to a lump of clay when applying the name 'Lumpl', we thereby selected that object that *does* consist of clay at all worlds. It may seem quite peculiar that it consists of clay at absolutely all worlds, and thus it

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may appear that this demands some sort of explanation, but the reason we have such a special object to consider is not because of some fact that *made* it peculiar, but rather because there is every sort of object around us and we have merely *selected* that which is so peculiar. If I name the group of all prime numbers 'Tina', we don't need to explain what brought it about that Tina is so special. Tina always was and always will be special. In general in our daily living we only refer to objects that are special in this way.

In summary, the essential sort of a thing is to be explained by its more fundamental modal properties, and the fundamental modal properties of a thing are simply brute. We may feel that the fundamental modal properties of a thing are to be explained by its sort, but this intuition confuses the explanation of a *semantic* fact, viz. why our *name* of the thing *refers* to something having those fundamental essential properties, with the explanation of why *the thing itself* has those properties.

Objection 1: Supervenience without Explanation?

I have offered one explanation of the differences in sort between the statue and the lump of clay. What makes one object a statue and the other a lump of clay, I have suggested, are their modal properties. However, there are some natural objections to this view.

First, note that supervenience relations cry out for explanatory relations; where we find the former we expect to find the latter. If A supervenes on B, then we should be able to explain A in terms of B.[45] The mental supervenes on the physical, say many, and we therefore search for an explanatory account of the mental in terms of the physical. More generally, non-fundamental non-modal properties supervene on fundamental non-modal properties, and thus we explain the former in terms of the latter. Because fundamental non-modal properties are the supervenience

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[45] Not always, of course. Supervenience means that one thing is a function of the other, but not necessarily that the one thing obtains *in virtue of* the other. Thus, there are many trivial cases where A supervenes on B even though B does not explain A. For example, the mental supervenes on the mental and triangularity supervenes on trilaterality, even though in neither case does the latter explain the former.

base, these are also metaphysically brute, coming at the end of the explanatory chain. But perhaps some think this raises an objection, for since I've agreed that the modal supervenes on the non-modal, why do I say that Lumpl's basic modal properties are brute rather than being explained in terms of the non-modal?

In fact, though, the explanatory relations *do* match the supervenience relations in this case. Remember that the modal weakly globally supervenes on the non-modal and thus we can explain why *there exists* something that is essentially a lump of clay at this place and time by the distribution of fundamental non-modal properties, just as even the monist can explain why there exists something that is contingently a collection of marbles by the distribution of fundamental non-modal properties. But the purported problem comes with *de re* modal facts: how do we explain why *Lumpl* has certain basic modal properties? This, though, is no different than explaining why some particular thing has basic non-modal properties. Just as there is no explanation of why at this world Bob includes this marble rather than that marble, so too is there no explanation of why at all other worlds Lumpl includes only quantities of clay. We can pick out various objects occupying various regions with our words, but then to ask why the object we've picked out with an expression occupies one region rather than another is a confusion. Part of what we mean by 'Bob', and hence part of what it is to be Bob, is to be something that includes this marble. Likewise, part of what we mean by 'Lumpl', and hence part of what it is to be Lumpl, is to consist of clay at all worlds.

Objection 2: Common Sense Determination of an Object

A second objection is that when we consider some object, such as *this thing here*, what makes this a tree is just the way it is, not the way it was, will be, or could have been. Just by examining the bark, the leaves, the sap, etc. we can determine whether something is a tree. Thus, why should we appeal to something's modal properties?

According to the pluralist, this objection rides on the same conflation of sameness and absolute identity that we have seen before. The objection gets its intuitive appeal by focusing on

an object, e.g. *a* tree. But what is being considered is 'an object' as individuated at some time by its temporally intrinsic non-modal properties. Individuated in this way, there is only a single thing standing here in the field, just as highways 47 and 128 are 'the same road' if individuated by their spatially local properties, all despite the fact that the two diverge north of here. Further, by examining only 'its' non-modal properties, we can know that "it is a tree," but only in the sense that it is *contingently* a tree, and our question has been what makes something *essentially* a tree. If we're individuating things by their temporally extrinsic and modal properties, then there are a multitude of coincident objects standing right here, and the only way to prise apart one from another is by appeal to their temporal and modal properties. So the natural thought, that we need not appeal to modal properties to explain something's sort, comes from our pre-theoretic way of individuating things by sameness and talking about something's contingent sort. We say there is one thing here, and it is a tree, because we are individuating by temporally intrinsic properties and supplying the most pragmatically useful answer as to its sort, i.e. what, given the context, we might call its 'dominant kind'.[46]

A Problem for Monism?

Finally, the explanatory challenge can be turned against many a monist.[47] According to the monist, there is only one object on the mantle that is currently a statue, viz. Goliath, so the expression 'the statue on the mantle' is not selecting from among many coincident individuals that which is essentially a statue. Rather, the expression selects that which is *currently* a statue just as 'the lump of clay over there' picks out that which is currently a lump of clay, in both cases the object being the same one, namely, Goliath (or, namely, Lumpl). We then have the

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[46] I am gesturing at the 'Dominant Kinds' account offered by Burke and Rea, suggesting that the intuition underlying such an account relies upon our consideration of objects as individuated by sameness and classified pragmatically. See Burke's "Preserving the Principle of One Object to a Place" and Rea's "Constitution and Kind Membership."

[47] More specifically, it can be turned against monists who hold that when there are non-modal properties that make something contingently of sort X and contingently of sort Y, then there is only one object there and it is essentially of one of these sorts but not the other. Thus, this line of reasoning will not count against the counterpart theorist.

question of what makes that thing *essentially* a statue, or, on other accounts, essentially a lump of clay, essentially a collection of atoms, or essentially a four-dimensional hunk of matter. Monists offer various metaphysically necessary principles dictating that when an object has such-and-such non-modal properties, it has this-and-that modal properties. The challenge to date has been to construct such principles in a way that generalizes nicely to handle all cases. A more fundamental difficulty, however, is to explain *why* these principles hold, or, in other words, to explain what is *special* about the one sort compared to the other such that when the object contingently belongs to both sorts it only has the first sort essentially. This specialness is utterly mysterious.

Counterpart theory and trans-world theory both deny that there are sorts that are metaphysically special in this way. According to both theories the predicate 'could not survive flattening' and the predicate 'could not survive a loss of material' can *both* be correctly applied to an object on the mantle, though the former predicate requires the contextually understood sort to be a statue and the latter predicate requires the contextually understood sort to be a lump of clay. Thus, there is no need to explain why Goliath's non-modal properties determine that Goliath is essentially a statue rather than essentially of any other sort, for Goliath's modal properties are explained by *both* its non-modal properties *and* its sort. Instead the pluralist must explain the plenitude of objects, but, as suggested earlier, this can be done with a theory of modality that constructs possible worlds using recombinations of fundamental properties *and* haecceities.

Conclusion

The case for monism begins with the natural belief that only one object sits on the mantle, that the lump of clay *is* a statue. Once we distinguish the temporally and modally relative relation of sameness from the relation of absolute identity, we see that these beliefs offer no evidence for the *absolute identity* of the statue and the lump of clay. Monists, however, have not been dissuaded. Impressed by the close relation between the statue and the lump of clay,

many have pursued the monist intuition by challenging pluralists to *explain* the difference between the statue and the lump of clay. What, they ask, could possibly *ground* their modal differences, since the statue and the lump have no non-modal differences? The modal, they insist, must strongly locally supervene upon the non-modal. But this is simply mistaken. Once we understand *how* the modal is determined by the non-modal, we see that an object's non-modal properties do not determine *its* essential properties; rather, a world's non-modal properties determine the objects that exist at that world and what their modal properties are, and because the term used to refer to an object is associated with a sort, it selects among the various coincident objects and thereby selects the object with the desired modal properties. Thus we can explain an object's sort by its basic modal properties, and we can explain why the term for an object refers to something with certain basic modal properties by the sort associated with that term, but these modal properties are metaphysically brute. Being brute, however, does not leave us with a mystery. The reason why an object has the basic modal properties it has is of a feather with the reason why a collection has the members it has. It simply does. That's what we *mean* by talking of that object or that collection. Thus, the only thing that needs explaining is the semantic fact of why the *term* refers to something that has these basic modal properties, and for this we do have a ready explanation.

Monists have insisted that the modal differences between objects would be inexplicable without underlying non-modal differences. But we can explain complex modal properties by more basic ones. More importantly, by sketching what a theory of modality countenancing trans-world individuals would look like and by comparing the explanation of why particular individuals have basic modal properties with why they have basic non-modal properties, we can see that the most basic modal properties need no explanation of their own. In short, we have an explanation of a sort, which should be explanation enough.[48]

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