

Sortals, Identity, and Modality: The Metaphysical Significance of the Modal Kant-Sellars Thesis

I. Sortals and Identity

Frege explicated the distinction between predicates, such as ‘red,’ or ‘heavy,’ which are characterized semantically by their associated circumstances and consequences of application, and sortalizing predicates or kind-terms, such as ‘dog,’ or ‘electron,’ which in addition have associated practices of identifying and individuating the things to which they apply. Sortals are expressions for which the question can arise whether or not the things they apply to are the *same* K: the same dog, the same electron (direction, shape, number)—perhaps in different circumstances (such as times) or differently specified. Quine calls sortal expressions “count nouns,” because their associated criteria of identity and individuation make it possible to count them: to say (or ask) *how many* Ks there are in some collection.¹

¹ The two principal species of kind-terms are distinguished in that things to which sortals apply can be counted (a sense has been given to questions of the form “How many?”) while things that fall under mass nouns can be measured (a sense has been given to questions of the form “How much?”). Mass nouns are sortalized by introducing units of measurement: one can count *liters* of water and *grams* of gold. Those quantity expressions give sense to questions such as: “Is this the same *volume* or *mass* of water as that is of gold?” They are introduced by abstraction, but the equivalence relations that serve as abstractors are embedded in and defined in terms of much richer structures, generated by *asymmetric*, transitive (only the details of implementation depend on whether they are reflexive or irreflexive) *comparative* relations exhibiting distinctive kinds of higher-level symmetry. In the case of volume, mass, and utility (the measure of preference) these include additivity and the existence of a zero.

Philosophical confusions have resulted from the existence in natural languages of pseudosortals, such as ‘object’, ‘thing’, and ‘item’. These expressions occupy the grammatical places held by genuine sortals, but do *not* have associated criteria of identity, which are semantically essential to real sortals. For this reason, they do not semantically support counting. There is no definite answer to the question “How many things are on my desk?”. Are all the parts of things also things—even spatiotemporal parts of indivisible particles (if such there be)? Are shadows (and their parts) things? Sometimes these pseudosortals function as anaphoric prosortals: “There are books, and papers, and the remains of today’s lunch on my desk, and all those things need to be cleared away.” Sometimes they are just sortal placeholders, where the specific sortal they are to be taken to stand in for are to be gathered from the context: “What a nice skirt! Oh, that old thing?” But sometimes they stand for an attempt to quantify over all possible genuine sortals—as an otherwise uncontexted request to enumerate the things on the desk would be. Sortally unrestricted quantification (of the sort Frege is supposed to have introduced) runs the risk of having to be understood this way—though it is better to think of the domains of quantification as specified in a semantic metalanguage, using genuine sortals providing criteria of identity that do permit counting. (Of course, one can *stipulate* a meaning for ‘object’: by ‘object’ I shall mean fundamental physical particle, and all mereological sums of them. One must keep in mind, however, that one thereby

The process of introducing units of measurement for mass nouns that gives sense to questions such as “Is this the same volume of water as that?” should not be confused with the only superficially similar process of sortalizing predicate adjectives (though abstraction is involved in both). One can indeed introduce sortals that give sense to questions such as “Is this the same hue or shade of red as that?”, when the latter is *not* based on the introduction of a space of measures (the color-sphere articulated by the three dimensions of hue, saturation, and intensity, each defined by its own sort of asymmetric comparison of more and less) but just on the basis of a (supposed) equivalence relation of a kind of indistinguishability. (‘Supposed’ because transitivity notoriously fails for indistinguishability of shade; so much the worse for the rough-and-ready notion of a shade of color.)

runs the risk—as I’ll argue below—of ruling out as objects the things falling under practically all other sortals.)

A question of long-standing interest is how we should understand the relations between the two central aspects of the use of sortal expressions: their criteria of application and their criteria of identity.² On one view, these can vary independently, in the sense that two sortals can have different criteria of application and the same criteria of identity, or the same criteria of application and different criteria of identity. Examples of the former case are not far to seek. Phase sortals, such as ‘kitten,’ ‘tadpole,’ and ‘child’ are applicable only to proper subsets of what ‘cat,’ ‘frog,’ and ‘human’ are applicable to. But they are individuated and counted the same way. Two different children are two different humans, and two different humans who are children are two different children. The other sort of case is more contentious and difficult to illustrate. A principle candidate example is ‘passenger’ and ‘person riding in a vehicle’ (or something similar—the details of the criteria of application are not the point here). Passengers are important to airlines, and they count them. USAirways says that in 2010 it flew 59,809,367 passengers. It did not fly that many different people. When I flew from Pittsburgh to San Francisco, I got counted as a different passenger than I did when I flew back. But it was only one person getting counted as two passengers in those two plane-trips.

Impressed by examples such as these (and others that individuate down rather than up, such as ‘surpersons’ which are people, but such that two people with the same

² I will use the traditional vocabulary of “criteria”, subject to the proviso that there is no implication that the criteria are explicit, that there must be storable principles in the vicinity. Talk of “criteria of identity” is talk about aspects of the practice of using count nouns.

surname are the same surperson), Geach argued that identity itself must be understood as sortally relative.³ This view has been widely, and I think convincingly, objected to as mislocating the sortal-relativity.⁴ The idea is that the criteria of identity should be associated with the terms related by identity locutions, rather than those locutions. I agree that the most interesting issues concern the relations between the way identity claims interact with the constellation of criteria of identity, sortals semantically governed by them, and terms that fall under those sortals. I think that putting the issue of the supposed sortal-relativity of identity at center stage has in many ways bent this discussion out of shape. It has in any case become clear that the need to relativize identity does not follow from the claim that prompted it. This is the claim that there can be individuals *a* and *b* that are Fs and are the *same* F, but are also Gs, and are *different* Gs. Here F and G might be ‘person’ and ‘passenger’ or ‘surperson’ and ‘person.’ It is this claim on which I want to focus. It is accepted by many (such as Gupta and Gibbard) who reject the conclusion Geach draws from it.⁵ Can the same thing (I’ll use the pseudosortal here so as not to prejudge important issues) fall under two sortals used according to divergent criteria of identity?

Let us look at the question more closely. Geach’s view can usefully be codified in the form of two claims:⁶

³ Geach, P.T. “Identity” *Review of Metaphysics* 1967 21:3-12, reprinted in Geach, P.T. *Logic Matters* [Blackwells Publishers, 1972]. Also Geach, P.T. “Ontological Relativity and Relative Identity” in Munitz, M. (ed.) *Logic and Ontology* [New York University Press, 1973].

⁴ For instance, Perry, J. “The Same F” *The Philosophical Review* 1970 64: 181-200. Gupta, A. *The Logic of Common Nouns* [Yale University Press, 1980].

⁵ Gupta *ibid.* Gibbard, A. “Contingent Identity” *Journal of Philosophical Logic* 1975 4:2 pp. 187-221.

⁶ The names are due to Wiggins, D. *Identity and Spatio-Temporal Continuity* [Blackwell Publishing, 1967], Wiggins D. *Sameness and Substance* [Blackwell Publishing Co. 1980]. I follow E. Zemach’s [Phil. Studies 26 (1974) pp. 207-218.] formGibbard ulation here.

D) ‘ $a = b$ ’ is an incomplete expression. One should, in order to complete it, say the same *what* a and b are. A full identity statement is always of the form ‘ $a =_F b$ ’ (read: a is the same F as b ’).

R) It is possible for a to be the same F as b , while not being the same G as b .

(This would be put by Geach, in accordance with (D), as $a =_F b$ and Ga and Gb and $a \neq_G b$.)

As just indicated, I take the upshot of the (extensive) literature in this area to be that (R) has emerged as the fundamental issue, with (D) taking its place as one optional diagnosis and analysis of how (R) could be true. The key issue here is that for (R) to be true, a and b must be terms that can fall under two sortals whose criteria of identity diverge. On this account, what we could call “strong cross-sortal identities” must be intelligible, and some of them must be true. The qualification ‘strong’ indicates that the sortals in question are associated with different criteria of identity.

The criteria of identity are what are used to count F ’s and G ’s. If the criteria of identity are the same, only weak cross-sortal identities are underwritten. Thus the inference:

- 1) All kittens are cats,
- 2) There are at least 10 million kittens in the U.S.,

therefore

- 3) There are at least 10 million cats in the U.S.,

is a good one. The difference between ‘kitten’ and ‘cat’ is one of criteria of application: everything ‘kitten’ applies to, ‘cat’ applies to, but not *vice versa*. But they have the same criteria of identity. If a and b are the same kitten (different kittens) then a and b are the

same cat (different cats). And if a and b are the same cat (different cats), and they are kittens, then they are the same kitten (different kittens. Identities of the form

This kitten = This cat

where both expressions refer to a , are *weak* cross-sortal identities. That is why the inference goes through.

4) All passengers are people,

5) USAirways flew at least 59 million passengers last year,

therefore

6) USAirways flew at least 59 million people last year,

is not a good one. As with ‘kitten’ and ‘cat’, the criteria of application of ‘passenger’ apply to only a subset of things the criteria of application of ‘person’ do. But if a and b are the same person and they are both passengers, it does not follow that they are the same passenger. Identities of the form

7) This passenger = This person

are *strong* cross-sortal identities. That is why the inference does not go through.

The principal difficulty with embracing (R) is that it stands in tension with the principle of the indiscernibility of identicals: the claim

LL) If $a = b$, then for all properties P , Pa iff Pb .⁷

⁷ The designation ‘LL’ reflects the fact that the indiscernibility of identicals is one half—the more plausible half—of Leibniz’s Law. The other half, the identity of indiscernibles, is plausible only in the context of strong auxiliary hypotheses concerning the expressive power of the language in which the properties are specified.

Let us name the passenger who is Bob flying from Pittsburgh to San Francisco on that day “Procyon,” and the passenger who is Bob flying back from San Francisco to Pittsburgh on the next day “Lotor.” Then consider the property

P₁) ...would still have existed if Bob had never flown from Pittsburgh to San Francisco.

Bob has that property. Procyon does not (assuming “this passenger”, used to fix the reference of the name, individuates at least as finely as “this person traveling on this itinerary”).⁸ Indeed, the property

P₂) ... = Lotor

is a property that, on the assumption of the intelligibility and possible truth of strong cross-sortal identities, Bob has and Procyon does not. These observations bring that assumption into conflict with the indiscernibility of identicals, (LL).

Are weak cross-sortal identities any better off? Supposing that kittens must be cats younger than one year, doesn't

P₃) ...would still exist after one year of life

distinguish this cat, whom we have named Archie, from this kitten, whom we have named Paws? No. On the supposition that kitten-cat identities are only weakly cross-sortal, that is, that ‘kitten’ and ‘cat’ have the same criteria of identity and only different (nested) criteria of application, when I say “I hereby name this kitten (=this young cat) ‘Paws’,” I am naming the *cat*, who is now young. The fact that the reference-fixing

⁸ Not all such subjunctive or counterfactuals involving Procyon are false. Procyon *would* still have existed if Bob's flight from Pittsburgh to San Francisco had taken off 10 minutes later than it actually did. Other issues, such as what to say in case that flight had been cancelled and Bob rebooked on another airline, are less clear—but matter only to airlines.

designation quickly fails to be true of him does not alter the reference that was fixed—no more in this case than for any other name. (Other adjectivally restricted sortals, such as “red car”, work the same way: the restriction applies to the criteria of application, while the criteria of identity go with the unrestricted sortal. If I painted this red car green it would be the same car, even though it would no longer be a red car.)

It will be helpful at this point to consider another sort of example, adapted from Gibbard.⁹ Suppose a mold is made in the shape of a giant man, and in it plasticine clay is mixed up from calcium carbonate, petroleum jelly, and stearic acid. A lump of plasticine clay in the shape of a giant man results. At this point someone introduces the name ‘Goliath’ to refer to the resulting statue, and also introduces the name ‘Lumpl’ to refer to the lump of modeling clay. Some time later, both are incinerated and destroyed. We are to think of the two, the statue and the lump of clay, as having come into existence simultaneously, and going out of existence simultaneously. Should we say that they are not only spatio-temporally coincident, but identical: that Goliath = Lumpl? If so, that is a strong cross-sortal identity. For ‘statue’ and ‘lump of clay’ have quite different criteria of identity. That difference manifests itself in the subjunctive-dispositional properties that distinguish them. Lumpl, but not Goliath, has the property:

P₄) ...would not have been destroyed had it been reshaped into a sphere.

Lumps can survive radical reshaping, but statues cannot.

Because by definition the sortals involved in strong cross-sortal identities are associated with different criteria of identity, the items identified will always be

⁹ Op.cit.

distinguished by their possession of different subjunctive-dispositional properties: those that express the different conditions under which they would remain Ks, or would remain the same K. Another way of putting that point is that strong cross-sortal identities are always *contingent* identities. Even if Lump1 and Goliath are identical, they might not have been. For instance had Lump1 been reshaped into a sphere, it would not then have been identical to the statue Goliath. Assertions of strong cross-sortal identities violate the indiscernibility of identicals—but in a distinctive way. We could say that the lump of clay Lump1 and the statue Goliath, or the passenger Procyon and the person Bob, during their coincidence share all their *actual* properties, differing only in some of their *modal* properties.

Notice that Kripke rejects this possibility. If the terms involved in an identity claim are modally rigid designators, as he takes names to be (we could just stipulate that the names we have introduced in these examples are abbreviations of descriptions that have been modally rigidified by applying Kaplan's 'dthat' operator, and so pick out the same things in all worlds), then if the identity claim is true, it is necessarily true. Identity claims can be contingently true only if they are read *de dicto*: Barack Obama is the 44th U.S. President. He might not have been (that identity is only contingently true), in the sense that the *dictum* "Barack Obama is the 44th U.S. President," might not have been true. But read *de re*, we use the description "the 44th U.S. President" to pick out a person in *this* world, and then follow *him* through other worlds. In effect, my argument above was that, so long as they are read *de re*, cross-sortal identities involving terms falling under phase sortals (and indeed any members of the genus of adjectivally restricted

sortals of which they are a species) and terms falling under the sortals of which they pick out phases are not merely contingently true. On Kripke's understanding, the use of names and demonstratives ("this very man") enforces the *de re* reading. Although he does not draw explicitly this conclusion, ruling out contingent *de re* identity has the consequence of ruling out the truth of *any* strong cross-sortal identity claims.

Who is right: Gibbard, who thinks that "Lumpl = Goliath" is true, or Kripke, who claims it cannot be? Gibbard constructs his example using proper names for the clay and the statue, rather than just descriptions, to show that Kripke is wrong at least in thinking that understanding proper names as modally rigid (so forcing *de re* readings of the identity claims) by itself settles the issue. We have put ourselves in a position to see that what is really at issue is the intelligibility and truth of strong cross-sortal *de re* identities. What matters is the sortals, not the modal rigidity of the expressions that fall under them. If true, those strong cross-sortal *de re* identities can be true only contingently. The intelligibility of such identities depends, in turn, on restricting the principle of the indiscernibility of identicals so that it does not apply to subjunctive-dispositional properties. For such properties will always distinguish the terms of strong cross-sortal identities.

II. Empirical Descriptive Vocabulary and Subjunctive Dispositional Vocabulary

We have reached the crux of the issue. In order to be entitled to assert strong cross-sortal identities, one must distinguish between subjunctive-dispositional properties—those having to do with what *would* be the case *if*...—and some base of nonmodal properties. For one must exclude the former from the scope of the indiscernibility of identicals, arguing that that principle applies only to properties that do *not* depend on what *would* happen if.... The question I want to raise is whether such a distinction can be made out.

Of course, the idea of restricting the applicability of Leibniz's Law to a privileged subset of properties is an old one. The question of how to make sense of the possibility of the persistence of objects through change is a special case of understanding criteria of identity—where the index of variation is time, rather than possible world. Aristotle responds by distinguishing essential from accidental properties. In effect, he suggests that identicals need only be indiscernible with respect to essential properties. The dog barking now can be the same dog as the silent dog earlier, if whether it is barking or silent is not essential to its being the dog that it is.

Thought of in the most general terms, the question is whether there is, and whether there must be, a distinction between properties P for which the inference

LL1) For Ks a and b , if Pa and $\sim Pb$, then a and b are not the same K ,

does hold, and those for which it does *not*.¹⁰ (LL1) follows from (LL). We can call the claim that there can be no properties for which (LL) does not hold “identity absolutism.”

Notice that it does *not* follow from (LL1) *failing* to hold of some kind K and property P that possession of P is *accidental* to being the same K, in the sense that whether or not one possesses that property makes no difference to being the same K. For if, as we should, we take seriously the nonmonotonicity of the material inferences involved, it could be that although (LL1) is true for K and P₁, it is not true for K and the conjunctive property P₁&P₂. That failure of (LL1) is compatible in turn with (LL1) holding for K and P₁&P₂&P₃, failing again for P₁&P₂&P₃&P₄, and so on in a never-ending oscillating hierarchy. For this reason, the presence of a distinction for kind K between properties for which (LL1) holds and those for which it does not does not have the consequence that there are properties which are accidental to being the same K in the stronger sense. Making that inference is not taking seriously the nonmonotonicity of material inference.

For the temporal case, perdurantism (which sees objects as having temporal parts analogous to their spatial parts) and endurantism (which sees objects as fully present at all times at which they exist, and relativizes property-possession to times) in their original, classic forms as Lewis formulated them are contrasting ways of retaining the

¹⁰ A different set of properties would support the inference from *b*'s not having P to *b*'s not being a K (some K or other) at all.

unrestricted applicability of the indiscernibility of identicals (as, not surprisingly, is Lewis's own counterpart theory for the modal case).¹¹

I am not going to attempt to assess or adjudicate the comparative merits of the grand strategies of holding onto the indiscernibility of identicals in unrestricted form and restricting it somehow. On the one hand, treating LL as *defining* identity provides a particularly clear concept to work with, one that yields the right answers in a number of puzzle cases. On the other hand, *some* restrictions on LL seem evidently to be in order. Intentional properties, regarding what people believe or how their other intentional states (such as desires, hopes, and so on) can be specified, are cardinal examples. This point is enforced by considering Church-style iterations of them. “No-one has ever doubted that everyone who believes that $\lceil Pa \rceil$ believes that $\lceil Qa \rceil$ ” is a context that will distinguish almost any lexically distinct substituends for P and Q . In effect, what such contexts do is enforce *de dicto* readings of the corresponding identities.¹² What I am arguing for is only that there are no contingently true *de re* identities. My reasons are quite different from Kripke's.

What I am going to argue for is what might be called “*modal* identity absolutism.” This is the claim that we should understand the indiscernibility of identicals as including within its scope *modal* properties, both implicit and explicit. What I want to contest is

¹¹ David Lewis 1976, “Survival and Identity”, in Amelie Rorty (ed.) *The Identities of Persons*, Berkeley, CA: University of California Press, 117–40. Reprinted with significant postscripts in Lewis's *Philosophical Papers* volume I, Oxford: Oxford University Press.

¹² The detailed account of how *de dicto* and *de re* ascriptions of propositional attitude work that I offer in Chapter Eight of *Making It Explicit* provides the theoretical tools for explicating the connection between *de dicto* readings and propositional attitude ascribing locutions that this claim relies on.

the viability of any version of the non-absolutist strategy that relies on distinguishing modal, subjunctive, or dispositional properties as a special class for which Leibniz's Law does *not* hold. There is an important distinction between property-specifying (predicative) vocabulary that is *explicitly* modal and vocabulary that is not explicitly modal. By "explicitly modal" vocabulary I mean vocabulary such as modal operators ('possible', 'necessary', 'contingent'...), the use of subjunctive mood ('could', 'would', 'might'...), and dispositional terms ('fragile', 'rigid', 'irascible'), which would be explicated by appeal to subjunctives and modal vocabulary ("fragile things are those which would shatter if lightly struck," "irascible people are those who would become angry if provoked").¹³ One key point I want to make is that even vocabulary that is *not* explicitly modal—in particular, ordinary empirical descriptive (OED) vocabulary such as 'mass', 'cat', 'copper', and 'red'—must be understood as *implicitly* modal. By "implicitly modal vocabulary" I mean vocabulary whose applicability entails the truth of some modal, subjunctive, or dispositional claims.

We can start by considering a particularly clear case. The concept of (Newtonian) mass essentially, and not just accidentally, is articulated by necessary connections to the concepts force and acceleration. Describing an object as having a non-zero mass commits one to the claim that (under suitable background conditions) it *would* accelerate if a non-zero force *were* applied to it, and that if it *had* accelerated, a force *would* have been applied to it. To have a non-zero mass *is, inter alia*, to be disposed to accelerate if and only if a non-zero force is applied. Applying this bit of OED vocabulary to

¹³ I have argued in Chapter Four that some important kinds of modal vocabulary can be introduced—its use specified—entirely in terms of the use of vocabulary that is not explicitly modal.

something in *this* world entails claims about what *would* happen in other worlds. If those subjunctive-dispositional claims are not true, neither is the claim about the possession of mass in this world.

In much the same way, describing a coin as *copper* commits one to claims about what *would* happen *were* one to heat it to 1085° C (it would melt), and what *would* happen *were* one to rub it with a sharp diamond (it would be scratched), and a myriad of other such subjunctive-dispositional claims. Nor is being implicitly modal in the sense of having subjunctive-dispositional necessary conditions a special feature of scientific or theoretical concepts. Cat and red also have such consequences of application. To be a cat is essentially, and not just accidentally, to be something that *would* die if deprived of oxygen, food, or water for long enough, if struck by lightning, if crushed by having a large lump of clay dropped on it, and so on. Red things *would* reflect light at around 7000 angstroms *if* suitably illuminated.

This thought is a core insight of Kant's, and forms the basis of his response to Hume. As he might have put it, lawful connections are already implicit in the use of ordinary empirical descriptive concepts. That is why we cannot be in the predicament Hume thought we were in: understanding those concepts perfectly well, but having thereby no rational grip at all on what is made explicit by modal or dispositional concepts, no understanding of subjunctive (including counterfactual) inferences. Sellars codified the point in a slogan he used as the title of one of his essays: "Concepts as involving Laws, and Inconceivable without them." I call the claim that *every* empirical,

descriptive concept has subjunctive-dispositional consequences, which accordingly serve as necessary conditions of its correct applicability, the “Kant-Sellars thesis about modality.”

III. Modal Identity Absolutism and its Consequences

The next claim I want to make is that the modal Kant-Sellars thesis is incompatible with restricting the applicability of Leibniz’s Law to non-modal properties, in a sense that restricts the indiscernibility required for identity to properties that are *not* dispositional or subjunctively committive. The reason is straightforward: since all empirical descriptive predicates have subjunctive-dispositional consequences, indiscernibility with respect to empirical descriptive properties requires indiscernibility with respect to all the subjunctive-dispositional properties they entail.¹⁴ We *have* to take SD properties into account when assessing the indiscernibility of two putatively identical things, because their applicability is a necessary condition of the applicability of ordinary empirical descriptive vocabulary. So if, as everyone surely must admit, identity requires indiscernibility with respect to OED vocabulary, then according to the modal KS thesis, it requires also indiscernibility with respect to SD vocabulary.¹⁵

¹⁴ Is this perhaps an antecedently specifiable proper subset of subjunctive-dispositional properties generally? No. For any particular SD predicate, it is possible to construct a non-dispositional predicate whose correct applicability entails the correct applicability of the given dispositional one.

¹⁵ As I said of this argument in Chapter One: I think this is a strong argument. But it does not rule out in principle the possibility of partitioning modally involved predicates into two classes X and Y, insisting that only those from class X are referentially transparent (indiscernible with respect to identity, within the scope of the intersubstitution license made by identity claims), and then claiming further that some strongly cross-sortal identities come out true because the predicates/properties that modally distinguish the sortals includes

If that is all right, then there can be no true strongly cross-sortal identities. For such identities by definition relate terms falling under sortals associated with *different* criteria of identity. The difference in criteria of identity ensures that the putatively identical items will have different subjunctive, counterfactual, and dispositional properties. For they will remain the *same* K (or indeed, a K at all), under different circumstances. Thus, if the clay were *were* reshaped into a sphere, the statue Goliath, but not the lump of clay Lumpl, would be destroyed. If, as the modal Kant-Sellars thesis tells us, we cannot exclude such properties from the scope of Leibniz's Law in assessing identities, on the principle that it does not apply to subjunctive-dispositional properties, then we must conclude that in the actual world in which, by hypothesis, they coincide spatio-temporally, Goliath is not identical to Lumpl. If we call whatever intimate relation they *do* stand in "material constitution" of the statue by the clay, then we must conclude that (as the slogan has it) "Material constitution is not identity."

Nor can any sur-person be a person. Geach emphasizes that the criteria of application of 'person' and 'surperson' are the same: surpersons *are* persons. Only the criteria of identity are different (Gupta agrees). So something, say, me, *is* both this person and this surperson. That is a strongly cross-sortal identity. Because of the difference in criteria of identity, the person and the surperson have different subjunctive properties. If I, Bob, a person, *were* to legally change my last name, I *would* still be the same person, but *would* no longer be the same surperson as my father. If I became

only those from class Y. All I can do is point out how demanding the criteria of adequacy are for such an attempted partition, downstream of the modal Kant-Sellars thesis.

single-named, hence not surnamed (as is a fashion among some celebrities), I would no longer be *any* surperson, never mind the same one. But I would still be a person, and the same one. So Bob the person has the property **would survive loss of surname**, which Bob the surperson does not have. The strongly cross-sortal identity is at most contingently true. Contingent identities are intelligibly true only if the scope of Leibniz's law is restricted so as not to rule out discernibility of identicals by subjunctive-dispositional properties. But the modal Kant-Sellars thesis tells us that requires a discrimination that cannot be made, since even paradigmatically "non-modal" properties are *implicitly* modal, in the sense their instantiation entails the instantiation of *explicitly* subjunctive properties.

The same reasoning underwrites the conclusion that no passenger is identical with any person. As counterintuitive as it might sound, passengers are not people (which fact may serve as a backhanded justification, at least conceptually, for the way airlines treat their passengers). The passenger, Procyon, and the person could be at most contingently identical, since if Bob *had* missed the plane, he *would* not have been identical to *that* passenger, Procyon. But he would still have been identical with the person, Bob. Property (P1) above discriminates Bob from the passenger Procyon. The modal KS thesis prohibits us from excluding such properties from the scope of the indiscernibility of identicals, so the person and the passenger cannot be identical. I suppose that passengers are something like *roles* that persons can play: a distinctive sort of thing that can be true of them.

The modal Kant-Sellars thesis commits us to modal identity absolutism. This is the claim that the set of properties with respect to which identicals must be indiscernible must include explicitly modal (subjunctive, including counterfactual, and dispositional) properties if it includes ordinary empirical descriptive properties. That is because the modal KS thesis tells us that ordinary empirical descriptive vocabulary is *implicitly* modal, in the sense that it *entails* the truth of claims formulated in SD vocabulary. Modal identity absolutism in turn entails that the only identities that can be contingently true are identities read *de dicto*. (We can force the *de re* reading by using proper names, demonstratives, or other rigid designators, or by using rigidifying operators such as Kaplan's 'dthat'.) Because strongly cross-sortal identities (whose terms can, in all the controversial cases, be rigidified) by definition relate terms falling under sortals with different criteria of identity, they could only be true contingently, and are accordingly ruled out by modal identity absolutism.

This line of argument also has significant consequences for a certain kind of project in reconstructive metaphysics. A tempting strategy, adopted by Lewis, is to turn sortal placeholders such as 'object' into genuine individuating sortals by stipulating a class of base sortals and extending it mereologically.¹⁶ So one might take as the base sortals some collection of kinds of subatomic particles—perhaps with the idea that they play a privileged role in explanations in fundamental physics. One stipulates that all of these (everything that falls under those base sortals) count as objects. Then, in the recursion clause, one stipulates that the class of objects is to be the smallest set that comprises all these basic objects, and all of their mereological sums or fusions. These are

¹⁶ [ref.] to Lewis.

then taken to be all the objects there are or can be. The base sortals specify how to identify and individuate the mereological ur-elements, and mereological theory then tells us how to identify and individuate their sums. This procedure provides a clear and definite sense to the term ‘object’—we might call them “mereological objects” on that base—turning it into (replacing it with) a genuine individuating sortal with criteria of identity as well as criteria of application. It then becomes possible for the first time to be entitled to talk about possible worlds as though they were relational structures of the model-theoretic sort. For now it makes sense to think of them as having *domains*: the set of all objects in that world.

So far, so good. The argument that leads from the KS-thesis about modality, through Leibniz’s Law, to a modal identity absolutism that denies the truth of any strongly cross-sortal identities entails that *whatever* the mereological base is (so long as it is a proper subset of the sortals in play in natural language), almost *no* identities between mereological objects and ordinary objects will turn out to be true. The domains of possible worlds construed according to this mereological strategy will not include *any* of the ordinary or scientific kinds of things we think of our world as comprising. Persons are not mereological sums of subatomic particles, nor are cats, coins, rocks, trees, clouds, molecules, genes, viruses, cells, most kinds of artifacts.... For all these kinds of things have criteria of identity that are radically different from those of mereological sums of particles. They are accordingly subjects of quite different subjunctive-dispositional properties. Mereological sums are not altered by disruptions of spatio-temporal contiguity: the sum is the same mereological sum no matter *where* its parts are. That is

not true of *any* of the kinds on the list of ordinary thing-kinds I offered above. Again, all of those ordinary and scientific kinds of things would retain their identity upon *some* substitutions of parts for similar parts. I would not be a different person had I had only one radish in last night's salad, instead of two. Corresponding claims hold for all kinds of living things, and for artifacts. Perhaps we should not say that something would have been the same molecule if one of its electrons had been swapped for a different one, but things of almost every kind that are made of molecules would survive substitution of one of its molecules for another of the same kind. Mereological sums do not.

One might think of fundamental ontology as a discipline that is constitutionally committed to biting bullets of this sort. One decides on a privileged vocabulary (for instance, a set of base sortals and the mereological apparatus for elaborating them), Ramsifies theories in any further target vocabulary, and looks for the "closest realizers" specifiable in that privileged vocabulary of the functional roles that result from the Ramsification. The modal identity absolutism that we have seen is a consequence of the modal Kant-Sellars thesis need have no quarrel with such a procedure. Its strictures extend only to forbidding confusing the relation between such realizers and the things falling under the target sortals that got Ramsified with *identity*. (The case is analogous to that of material constitution, the clay being a kind of realizer of the statue.) Ontological reduction to a privileged vocabulary construed in terms of identities relating items governed by sortals of the base and target vocabularies will almost always be strongly cross-sortal, hence ruled out by modal identity absolutism.

The modal Kant-Sellars thesis reveals a pragmatically mediated semantic dependence of predicates Quine taught us to think of as *extensional* on predicates he taught us to think of as *intensional*. For the claim is that *all* extensional empirical predicates have subjunctive-dispositional, hence intensional, consequences, which accordingly provide necessary conditions for the applicability of the extensional predicates. The underlying pragmatic dependence is that an essential aspect of *grasping*, *understanding*, or mastering the *use* of OED vocabulary is grasping, understanding, or mastering subjunctive and counterfactual reasoning in which that vocabulary occurs. To know what cats or copper are requires knowing at least something about how they *would* behave under various circumstances: what follows from being a cat or made of copper, when that claim is conjoined with various auxiliary hypotheses, independently of whether one takes those auxiliary hypotheses to be true.

This much is not news to proponents of intensional semantics. What is grasped or understood when one knows how to use a predicate must include at least its intension. (“At least” because The fact that *intentional* predicates *do* fail the indiscernibility of identicals shows that there is *more* to what is cognitively *grasped* in deploying vocabulary than just the *intension*.) But taking seriously the pragmatically mediated semantic dependencies between vocabularies asserted by the modal KS thesis does oblige us to distinguish between two concepts of extensional predicate that the tradition for which Quine speaks runs together. The first is the idea that a sentential context, a

(possibly complex) predicate P is extensional just in case all that matters to its applicability is the identity of the object to which it is applied, regardless of *how* it is referred to. It is the requirement that:

EXT1) P is extensional₁ iff if Pt and $t=t'$, then Pt' .

This is just the condition that P falls within the scope of the indiscernibility of identicals. The other idea of extensionality is that predicates are extensional if their applicability depends only on what is true at a single index, paradigmatically a possible world, and not at all on what happens at other values of that index. So, the thought is, we only need to look at *this* world to tell whether something is a cat or has a mass of 5 kilograms, but we need to look at other possible worlds to tell whether it is fragile or water-soluble.

EXT2) P is extensional₂ iff whether Pt is true at world w depends only on the facts at w . Differences in the facts at any other world w' are irrelevant to whether Pt is true at w .

This is the sense of 'extensional' that matters for the contrast with *intensional* predicates, whose applicability at any given index can depend on the whole *function* from indices to extensions.

Although Quine would not have countenanced the way I have articulated the second sense, he clearly thought that (EXT1) and (EXT2) amount to the same condition—that they are at least extensionally equivalent (in the sense of EXT1). For his reason for rejecting appeal to predicates that are *not* extensional₂ is that they are not extensional₁. He takes extensionality₁ ("referential transparency") to be the hallmark of

comprehensibility.¹⁷ The good thought that Leibniz's Law provides our best grip on the notion of identity is a good reason for such an attitude. We can see, however, that in the context of the modal Kant-Sellars thesis, subjunctive-dispositional vocabulary is extensional₁ without being for that reason extensional₂. The modal KS thesis shows that the idea, at the core of Quine's thought, of a purely extensional₂ language that is autonomous—that is, that could be a language-game one played though one played no other—is an ultimately incoherent fantasy. It does not follow that the idea of an autonomous language that is extensional₁ is incoherent. Nor does the modal KS thesis in principle threaten the semantic strategy of defining intensions in terms of extensions, as functions from indices to extensions. One must just deploy this fundamental conceptual machinery of intensional semantics in the context of a full appreciation of the *pragmatic* dependence of the use of vocabulary that is extensional₁ on what is made explicit by the use of vocabulary that is *not* extensional₂.

One might, of course, consider these radical conclusions as a *reductio ad absurdam* of the line of argument that leads to them—so arguing by *modus tollens* rather than *modus ponens*. As far as I can see, to do so requires rejecting the modal Kant-Sellars thesis. That is the principal piece I have added to the puzzle about sortals and identity as classically conceived, to yield the modal identity absolutism that in turn commits one to the potentially objectionably radical conclusions. But I take the KS-thesis to codify a deep insight about how what is made explicit by alethic modal vocabulary is implicit in and fundamental to the use of any autonomous vocabulary

¹⁷ “I find extensionality necessary, indeed, though not sufficient, for my full understanding of a theory.” W.V.O. Quine, *From Stimulus to Science*, [Harvard University Press, 1995], p. 90.

whatsoever. Offering any empirical description, attributing any empirical property, involves commitments as to what *would* happen to what is so described under various circumstances: what would be true of it *if* various other claims *were* true. What distinguishes description from mere labeling is precisely that *circumstances* of appropriate application are paired with *consequences* of such application. Thus describing something places it in a space of implications, which inferentially articulate the content of the description. And those inferences always include subjunctive ones: inferences that involve collateral premises or auxiliary hypotheses not drawn exclusively from one's current commitments. One who understood *none* of the subjunctive implications one was committing oneself to by applying the terms 'mass' or 'cat' could not count as grasping the concepts they express. If that is right, though, one cannot consistently restrict the properties with respect to which identicals must be indiscernible to properties that are "nonmodal" in the sense that their possession has no consequences for how things are in possible worlds other than the one in which they are exhibited. For there are no such properties. Perhaps we could introduce predicates stipulated to behave like this—and in that way, quite unlike those of our actual languages-in-use. Even so, there could be no autonomous language—one that could be used though no other was—whose use consisted *only* in applying predicates expressing such properties.