

EVENTS, SORTALS, AND THE MIND–BODY PROBLEM\*

**ABSTRACT.** In recent decades, a view of identity I call Sortalism has gained popularity. According to this view, if *a* is identical to *b*, then there is some sortal *S* such that *a* is the same *S* as *b*. Sortalism has typically been discussed with respect to the identity of objects. I argue that the motivations for Sortalism about object-identity apply equally well to event-identity. But Sortalism about event-identity poses a serious threat to the view that mental events are token identical to physical events: A particular mental event *m* is identical with a particular physical event *p* only if there is a sortal *S* such that *m* and *p* are both *S*s. If there is no such sortal, the doctrine of token-identity is not true. I argue here that we have no good reason for thinking that there is any such sortal.

1. INTRODUCTION

Philosophers of Mind have long been concerned with the tenability of various forms of mind–body identity theory. It has seemed to some that unless some form of identity theory can be established, our ordinary ways of thinking about ourselves and our place in the world must be radically revised. With type- or property-identity theories long out of favor, however, the last best hope for identity theory is token-identity theory, to which much attention has been devoted over the last several decades. Even if mental properties are not identical to physical properties, the thought goes, one may still maintain that particular mental events are identical to particular physical events.

Despite the attention the doctrine of token-identity has received, its proponents and opponents alike have often failed to be properly circumspect in their treatment of identity-claims. A case in point: In recent decades, a view of identity – a view that I will call Sortalism – has gained popularity. We can loosely formulate this view as follows: According to Sortalists, if *a* is identical to *b*, then there is some sortal *S* such that *a* is the same *S* as *b*. I would exaggerate if I said that Sortalism has garnered a consensus among those who concern themselves with identity. Still, it is striking that so little effort has been made to understand how this view of identity challenges the doctrine of token-identity. If Sortalism is true, a

particular mental event *m* is identical with a particular physical event *p* only if there is a sortal *S* such that *m* and *p* are both *S*s. If there is no such sortal, the doctrine of token-identity is not true. And yet, as I will argue here, we have no good reason for thinking that there is any such sortal.<sup>1</sup>

In what follows, I flesh out this challenge to the doctrine of token-identity. I will begin, in section I, by laying out the case for Sortalism about object-identity. In Section 3, I will show that although events are ontologically distinctive in various ways, the same considerations that make Sortalism plausible about object-identity also make Sortalism plausible about event-identity. In Section 4, I will articulate more fully the challenge that Sortalism about event-identity poses for the doctrine of token-identity. There is, I will argue, only one plausible way of meeting this challenge: namely, by accepting the view that mental properties stand to physical properties as determinables to determinates. I will then consider Stephen Yablo's important argument for this view. In Section 5, I will refute his argument and show that its failure results from the fact that Yablo does not properly appreciate certain distinctive and essential features of event-sortals. Physical properties do not determine mental properties. The Sortalist challenge to the doctrine of token-identity thus stands.

## 2. SORTALISM ABOUT OBJECT-IDENTITY

Objects and events have at least this much in common:

*Particularity:* Objects<sup>2</sup> and events<sup>3</sup> are particulars.

*Countability:* Objects and events are countable.

*Spatiotemporality:* Objects and events occupy space and time.<sup>4</sup>

To these platitudes, I think we ought to add another:

*Sortability:* Objects and events fall into sorts or kinds.

In this section, I will make my way towards Sortalism about object-identity by first considering the significance of Sortability about objects: What does it mean to say that objects fall into kinds? In order to answer this question, it will help to distinguish between classes of properties and to make parallel distinctions between classes of general terms. Strawson distinguishes between material or stuff (e.g., **gold, water**), sortals, (e.g., **chair, dog**), and qualities (e.g., **red, anger**).<sup>5</sup> Here, we will be concerned with the distinction between sortals and qualities.

An intuitive way of pointing out the difference between sortals and qualities is to point out that sortals, but not qualities, answer a certain kind of what-question. If I say that I have something that I want you to see, the question “What?” asked in response often has a straightforward answer – for example, “a rocking chair” or “a beagle”. If I respond to the what-question by saying “a red thing” or “something heavy”, I characterize the object or event, but I do not answer the what-question. To give these responses to the what-question is to avoid answering it. **Red** and **being heavy** are not sorts of things (i.e., sortals), but rather qualities of things (i.e., qualities).

Following Dummett (albeit loosely), we can explain this intuitive difference in terms of the difference between *principles of identity* and *principles of instantiation*. The principle of identity for a property determines the conditions under which a particular instantiating the property persists. As Gupta puts it, “the principle of identity for ‘river’ is the rule in virtue of which an object at a time (and a world) is the same river as an object at another time (or world).”<sup>6</sup> The river we now call “The Mississippi” is the same river that Mark Twain called “The Mississippi” in virtue of such facts as the following: The earlier river runs through roughly the same places, is fed from roughly the same sources, empties into the same ocean as the current river, has done so continuously since the time of *Huckleberry Finn*, and so on. The principle of instantiation for **river** is the rule in virtue of which an object at a time instantiates the sortal **river**. The Mississippi instantiates this sortal because it is a large, natural stream of water that empties into an ocean.

There are principles of instantiation for both sortals and qualities. But there are no principles of identity for qualities, only principles of instantiation. To say, for example, that **cat** *determines* the identity conditions for its instances, is to say that it follows from something’s being a cat that it can persist through specific changes but not others. It does not, however, follow from something’s being red that it can persist through specific changes but not others. **Red** determines the conditions under which an object is red, but not the conditions under which an object at a time is the same red thing as an object at another time. To say that objects are sortable or that objects fall into sorts is thus to say that every object must instantiate a property that determines the conditions under which it persists.<sup>7</sup>

Now, let’s move from Sortability to Sortalism. My goal is not to provide Sortalism about object-identity with an adequate defense, but rather to lay out the basic case for the view in just enough detail so as

to permit us to consider in Section 3 whether there is an analogous case to be made for claims about event-identity.

We can motivate Sortalism about object-identity by considering what can be said in favor of the view that there are no principles of identity for objects *as such*, that **object** is not a sortal. Wiggins puts the basic Sortalist insight this way: “If a is the same as b, then it must also hold that a is the same *something* as b.”<sup>8</sup> Or, if a is the same as b, there must be an answer to the “same what?” question. To say that **object** is not a true sortal is to say that it is not a proper answer to the “same what?” question. In saying that a is an object, we do not say *what* a is. Wiggins thus distinguishes “dummy sortals”, such as **object** and **thing** on the one hand, and genuine sortals such as **dog** and **table**. Terms for dummy sortals share the grammar of terms for true sortals (e.g., they are modified by articles and quantifiers), but are not associated with a principle of identity.<sup>9</sup>

One compelling argument that can be advanced in support of the view that **object** is a dummy sortal is the one that supports the view that constitution is not identity.<sup>10</sup> That argument, stripped of its bells and whistles, is this. The collection of molecules of which a goat is composed and the goat itself have differing properties – the collection, for example, might have no future while the goat does.<sup>11</sup> These differences highlight differences in the sorts of object that goats and collections of molecules are. What matters to the survival of a collection of molecules is different from what matters to the survival of a goat, i.e., the principle of identity for collections of molecules is different from the principle of identity for goats. Simply being an object does not settle an object’s identity conditions. This kind of argument thus points towards the conclusion that there are no principles of identity for objects as such, and thus that **object** is not a true sortal.<sup>12</sup>

Since it is in virtue of some principle of identity that object a at a time is identical to object b at some other time, and since **object** does not supply one, a determinate sortal is required.<sup>13</sup> Thus, to use Wiggins’ language, if a is the same as b, then it must be the same *something* as b, where *something* is a quantifier ranging over determinate sortals.<sup>14</sup> We can formulate Sortalism, then, in terms of a simple principle:

The Sortal Dependence of Object-Identity (SDO):<sup>15</sup> For any objects, a and b, a is identical to b if and only if there is some object-sortal F such that

- (a) There is a principle of identity for Fs.
- (b) a and b are Fs
- (c) According to the principle of identity for Fs, a is the same F as b.<sup>16</sup>

There is one other feature of object-sortals I will consider, a feature we will find in event-sortals as well. Object-sortals fall into *hierarchies*, a notion that I will explicate in terms of the foregoing distinction between principles of identity and instantiation. An example of a sortal hierarchy is: **animal**, **mammal**, **feline**, **lion**. These sortals are related such that a particular lion, Leo, is always also a feline, a mammal and an animal. And Leo survives so long as he is the same lion, feline, mammal and animal that he used to be.<sup>17</sup> Leo thus satisfies at different stages of its life the principle of identity associated with each of these hierarchical sortals.

But these are not four different requirements – they are one. The point is not just that the principle of identity associated with each of these sortals cannot disagree (on pain of widespread indeterminacy of identity-claims), but also that what makes young Leo the same lion as old Leo is just what makes young Leo the same animal as old Leo. (One might say that it is *by* persisting as the same lion that Leo persists as the same animal.) The difference between **lion** and sortals higher-up on the relevant hierarchy is that it is, so to speak, harder to be a lion than to be a mammal or an animal, i.e., one must satisfy the principles of instantiation for **animal**, for **mammal** – and then some. The difference between **lion** and **tiger** is not a difference in their principles of identity, but rather a difference in their principles of instantiation.<sup>18</sup>

Before moving on to our discussion of events, let us settle on some terminology for different types of sortal. If a sortal is such that the same object cannot at one time instantiate it, and at another time not instantiate it, I will call it (following Wiggins) a *substance sortal*. **Lion**, **mammal**, and **animal** are substance sortals. (The hierarchies we just spoke of are hierarchies of substance sortals – as opposed to phase sortals, to be discussed presently.) A sortal of maximum generality that is associated with a single principle of identity would be an *ultimate substance sortal*. Though the existence of ultimate substance sortals is a matter of some dispute,<sup>19</sup> some sortals (e.g., **animal**, **set**, and **artifact**) are more plausible ultimate-substance-sortal-candidates than others (e.g., **lion** and **mammal**).

It is very natural to think of substance sortals as essential properties of the particulars that subsume them. That is how, for example, Wiggins thinks of them.<sup>20</sup> But, as Penelope Mackie has argued, one can consistently hold both of the following: First, it is

true that “an individual cannot change its principle of identity over time, nor can it have two different principles of identity simultaneously.” Second, it is false that “if an individual *x* has a principle of identity *P*, then *x* could not have existed without having *P*.”<sup>21</sup> The argument of this paper requires only the first principle. As such, I will simply leave it an open question here whether object and event sortals are essential to the particular objects and events they subsume. What is crucial is just that an individual instantiating a substance sortal necessarily always instantiates that sortal. Principles of identity, as I conceive them here, determine *intra*world identity conditions, but need not also determine *trans*world identity conditions.

Besides substance sortals, there are also *phase sortals*. Syntactically, names for phase sortals can either be simple expressions (e.g., boy, soldier) or complex expressions made up of modified sortal-terms (skinny beagle, new car). In one respect phase-sortals are like non-ultimate substance sortals: they strengthen the principles of instantiation of the underlying ultimate sortals. (It is harder to be a skinny beagle than to be a beagle, a dog or an animal.) But they are also importantly different. The difference between substance and phase sortals is this: a boy can survive without being the boy he was; a skinny beagle can survive as a fat beagle. But a man cannot survive without being the man he was; a car cannot survive as a grasshopper. Thus, from the fact that an object instantiates a phase sortal at a given time, and that it exists at a later time, it does not follow that the object will instantiate the phase sortal at that later time. As we shall see in Section 3, a plausible case can be made for the thesis that there are no phase sortals for events. Although this reveals a significant difference between events and objects, it is not, I will argue, a reason to refrain from extending Sortalism from objects to events.

In Section 3, I will argue that we should extend Sortalism from objects to events. There are, as has already been noted, several important disanalogies. But just as in the case of objects, we can make a distinction between event sortals and event qualities. And **event** does not supply a principle of identity for particular events – it, like **object**, is a dummy sortal. Most importantly, the truth of event-identity claims, no less than the truth of object-identity claims, requires the existence of a (genuine) covering sortal. Finally, just as there are hierarchies of object sortals, there are also hierarchies of event-sortals.

## 3. SORTALISM ABOUT EVENT-IDENTITY

I will argue in this section that the picture of object-identity sketched in the previous section can also be applied to event-identity. I will then show, in Section 4, how the constraints imposed by the resulting conception of events pose formidable obstacles for advocates of token-identity.

As above, one can make a distinction between event-sortals and event-qualities. On the one hand, one can say of an event that it was an explosion, a game, or a walk to the Sydney Opera House. On the other, we can say of an event that it was surprising, or exciting, or brisk. In the first sort of case, we say what an event was; in the second sort of case, we do not. In the case of predications of the second sort, we do not associate with the event a principle of identity, only a principle of instantiation. **Surprising** determines the conditions under which it is true to say that there is a surprising event, but not the conditions under which surprising event *a* at a time is the same event as surprising event *b* at another time. **Crime**,<sup>22</sup> however, determines both the conditions under which it is true to say that a crime occurred, and the conditions under which it is true to say that crime *a* was the same crime as crime *b*. To say that events are sortable is thus to say that every event must instantiate a sortal property *P* that determines the conditions under which an event *e* is the same *P* as event *f*.<sup>23</sup>

In Section 2, we motivated Sortalism about object-identity by focusing on the fact that different sorts of objects (**goat, collection of goat-composing molecules**) have different principles of identity. Just as in the case objects, we can motivate Sortalism about event-identity by asking whether there are principles of identity for events *as such*. According to the view of events that parallels that of objects in the previous section, the answer to this question is “no”; and we must therefore distinguish between dummy sortals such as **event** and **happening** on the one hand and genuine event sortals such as **crime** and **game** on the other hand. Dummy sortals for events share the grammar of terms for true sortals but are not associated with a principle of identity.

Even someone who is sympathetic towards Sortalism about object-identity might be skeptical about Sortalism towards event-identity. For one might think that the notion of a principle of identity does not so much as get a grip in the case of an event. After all, the principle of identity associated with a particular object determines

(among other things) the conditions under which it *persists*. And arguments in favor of Sortalism about object-identity depend on our intuitions about the differing conditions under which different sorts of objects persist. The notion of a principle of identity and the justification for Sortalism thus seem tied to the notion of persistence.

But there are many who would argue that the notion of persistence does not so much as get a grip on events, that they are not the right sorts of things to persist. This point is controversial. Before I begin to articulate it, let me be clear about what is and what is not at stake. The view of events according to which they do *not* persist portrays events and objects as being fundamentally different. As such, this view of events would appear to pose the greatest threat to the analogy between objects and events, and hence the greatest threat to extending Sortalism about objects to Sortalism about events. The more object-like events are, the easier it will be to make my case, since there will be less distance to travel from the sortal-dependence of object-identity to the sortal-dependence of event-identity. Objections to the view that events are radically unlike objects are thus not objections to the larger aims of this paper. Nonetheless, it *is* important for the larger aims of the paper that Sortalism about events does not depend on the *falsity* of the plausible view that events do not persist. Hence, I will argue as if this potentially threatening view of events were true. To do that, however, I must now sketch it in its broad outlines.

To say that objects, but not events, persist is to say in part that objects, but not events, are *fully present* over any portion of the time during which they exist. Thus, if Jones crossed the street yesterday, the entire walk was not present as he crossed. For the entire walk consists in part of the beginning and in part of the end of the walk. And the end of the walk is not present at the beginning of the walk. To say that events do not persist is thus to elaborate the notion that events have temporal parts.

Consider a related point. Dretske argues that events do not, strictly speaking, move.<sup>24</sup> Movement requires something to be at one location and then at another. If a car is first in the garage and later in the swamp, then it will be correct still later to say that it was in the garage, and also correct to say that it was in the swamp. But in the case of a race that began on land but finished in water, it is correct to say neither that it took place on land nor that it took place in water. Rather, it took place partly on land and partly on water. (Some of the parts of the race took place in water; some of



its other parts took place on land.) The *contestants* moved from land to water; the *race* did not move; it is not the sort of thing that moves. An event does not move because in considering the location of the whole event, we must include the locations of *all* of its parts.<sup>25</sup> (Again, this is just another way of saying that events, but not objects, have temporal parts. I assume here that objects do not, as some have argued, have temporal parts. Even if objects did have temporal parts, however, I do not believe this would fundamentally alter the argument here. The justification for the Sortal Dependence of Object-Identity would then be the same as the justification for the Sortal Dependence of Event-Identity, to be discussed presently.) The *whole race* does not exist first on land, later in water. For an event is complete only when it is over: Until I have reached the Sydney Opera House, it is false to say “I’ve walked to the Sydney Opera House” (if, of course, I’ve never walked there before).<sup>26</sup> There is no token walk to the Sydney Opera House<sup>27</sup> until I have finished it.<sup>28</sup> Hence, objects, but not events, are fully present over any portion of the entire time during which they exist. As odd as it may sound, an event is *never* fully present.<sup>29</sup> Either it has not yet occurred, or it is over.

Whatever the tie that binds an enduring object together over successive phases of its existence, then, it must be fundamentally different than the tie that binds an event together over successive phases of its occurrence. The phases of objects and events are phases of different kinds.<sup>30</sup>

Nonetheless, I do think that the notion of a principle of identity, or in any case an analogous notion, gets a grip in the case of events. Nothing in the difference between objects and events just sketched relieves the need for a principle of identity over time. In the case of both objects and events, a sortal is a property in virtue of which it is correct to say that a particular object or event *m* at one time is the same as a particular object or event *n* at another time; the principle of identity associated with a particular sort is that in virtue of which an object or event has the unity it does over time.

This point is born out by consideration of the question of whether Sortalism about event-identity can be sustained by the same kinds of considerations that sustain Sortalism about object-identity. As we saw in section I above, the view that objects *as such* do not have a principle of identity (and thus that **object** is not itself a proper sortal) is supported by the fact that different kinds of objects are associated with divergent principles of identity. What one kind of object (say, a

collection of molecules) can survive (say, arbitrary rearrangement of its parts), another kind of object (say, a painting) cannot. If an analogous view is true of events, one would expect support from analogous considerations.

Are there analogous considerations? I think so, though they are easy to overlook – in part because they are too obvious to merit attention. In the object case, there is a pair of sortal-concepts (e.g., “goat”, “collection of goat-composing molecules” that pick out objects occupying the same place at the same time. The fact that they occupy the same place at the same time makes it tempting to identify them, a temptation that can be resisted by considering their differing properties – later they do not occupy the same place at the same time. The possibility of such a divergence becomes clear when we reflect on their divergent principles of identity, typically through the use of thought-experiments.

If anything, the need for principles of identity in the case of events is even more apparent than in the case of objects. For in the latter case, there remains a strong temptation to identify objects that reside at the same place at the same time. But there is very little temptation to do so in the former case.<sup>31</sup> Consider, for example, the relationship between the second set of a tennis match – say, the men’s singles finals at the 2001 U.S. Open—and the match itself. There was some interval on that night through which both events were occurring<sup>32</sup> and occupying the same space. Here, two events simultaneously occupy the same place. Just as in the case of objects, the explanation of their non-identity involves a difference in their principles of identity. Their different principles of identity determine the following facts: The second set is a *part* of the entire match. The second set begins with the first game after the end of the first set, and ends when one player has won six games (unless his opponent has won five games, in which case there is a tie-breaker). The match begins with the first game of the first set, and ends when one player has won three sets.<sup>33</sup>

If sortals play a similar role in event identification and differentiation as they do in object identification and differentiation, then one would expect to find event-analogues to the hierarchies of object sortals we saw in Section 2. And, that is what one finds – though, as we shall see presently, hierarchies of event-sortals contain no phase sortals.

Sample hierarchies include **crime**, **felony**, and **murder**, and **walk to the Sydney opera house**, **brisk walk to the Sydney opera house**, **brisk daytime walk to the Sydney opera house**. These event sortals are related

in such a way that a particular murder *m* is always also a crime, and if *m* is the same crime as *n*, then, necessarily, it is the same murder as *n*. As in the case of **animal** and **cat**, the principles of identity associated with **crime** and **murder** are the same. What makes the firing of the first and the third shots by Oswald parts of the same murder is also what makes them parts of the same crime. After all, this crime *was* a murder. The difference between **murder** and **crime** is a difference in their principles of instantiation: to be a murder, an event has to be a crime and then some. But to be the same murder as... , one only has to be the same crime as.... Conversely, to be the same crime as... , one only has to be the same murder (or kidnapping or assault... ).<sup>34</sup>

Is there a distinction to be made between substance and phase event-sortals? One might think so. In support of an affirmative answer, consider the following examples. A football game might be close for three quarters but turn into a rout in the fourth. There is a close game, and later a drubbing – the game continues, but not as close. There is a raucous, outdoor party (a “rager”, as some say). It begins to rain; people move indoors; many leave. Now there is a tame, indoor party (a “snoozer”) – the party continues, but indoors, and not as raucous. Should we think of the rager and the snoozer as we think of Lincoln the boy and Lincoln the man?

No. For the phases of events are the parts of the events, whereas the phases of objects are not. And that is why the concepts we use to refer to the phases of objects pick out the objects themselves, whereas the concepts we use to refer to the phases of events pick out their parts. So, whereas the adolescent is the person, the first inning is not the game. The party in the above example is neither a rager nor a snoozer. For if a certain party *p* is a rager, and *p* is identical to *q*, then *q* must also be a rager. If *p* begins loud and raucous and later becomes quiet and dull, then although a rager appeared to be in the offing, no rager materialized. The *whole party* was not first a rager, then a snoozer. For the whole party (considered as an event, with a temporal beginning, middle, and end) did not yet exist when it was a rager. Thus the whole party does not change from rager to snoozer.

We can still make sense of a sentence that appears to ascribe change to an event, e.g., “The party used to be a rager, but now it is a snoozer.” It means that the first *portion* of the party was a rager, and the remaining portion a snoozer. But now we are no longer classifying the same event under two sortals. “Snoozer” and “rager” are thus not phase sortals, but rather contradictory substance sortals. Either they refer to parts of the party, or one or both misde-

scribes the whole party. Thus, “the boy became a man” has to be analyzed rather differently than “the rager became a snoozer”, for there are no phase sortals for events. (We will return to this point in Section 5.) In the first case, then, a particular changes, first exemplifying one, then another phase-sortal. In the second case, a particular is divided into two parts that exemplify contradictory substance sortals.

But this difference between objects and events – that there are phase sortals for the former, but not the latter – is no reason to refrain from extending Sortalism from objects to events. Sortalism is plausible in both cases because questions about the identity of an object *o* or event *e* at one time with an object *p* or event *f* at another time are not determined by a principle of identity for objects simpliciter or for events simpliciter. As we have seen, there are no such principles of identities. In both cases, there will be a multitude of sortals that cover any given identity; but these sortals will always be members of the same hierarchy, i.e., they will share a principle of identity. That event sortals, like object sortals, form hierarchies will prove an important element of the arguments of Sections 4 and 5.

I believe that further support for the view that there is no principle of identity for events *as such* can be found in the generally accepted view that there are no principles of individuation for events *as such*. There is a determinate answer to the question “how many?” asked in relation to events only where an event sortal is in play. Thus “how many firings of Coach Knight took place in 2000?” has a determinate answer, but “how many events occurred in 2000?” does not.<sup>35</sup> On the plausible assumption that there can be no facts about the identity of Xs where there are no facts about the individuation of Xs, this consideration by itself might be decisive.<sup>36</sup>

Thus, I think we should accept

The Sortal Dependence of Event-Identity (SDE): For any events, *a* and *b*, *a* is identical to *b* if and only if there is some event-sortal *F* such that

- (a) there is a principle of identity for Fs.
- (b) *a* and *b* are Fs
- (c) According to the principle of identity for Fs *a* is the same *F* as *b*.

According to this view of events, then, there are two kinds of explanation for the non-identity of event *e* and event *f*. First, *e* and *f* might be non-identical because they do not share a sortal, and thus have different identity-conditions. Second, *e* and *f* might share a

sortal, but fail to be unified in the right way by the identity-conditions associated with events of that type. (We could, of course, make the analogous point for objects.) The second set of a tennis match and the match itself are non-identical for the first kind of reason, the first and second set of a particular match are non-identical for the second kind of reason.<sup>37</sup>

In what remains, I would like to consider the significance of this view of events for the doctrine of token-identity. SDE poses a challenge to the doctrine; for it is not obvious that there is any sortal that subsumes both mental and physical events. In considering the most plausible ways for proponents of the doctrine to meet this challenge, we will be led, in Section 4, to consider Yablo's argument that mental event-types stand to physical event-types in the relation of determinable to determinate. In Section 5, I will show how his argument founders because it ignores the distinction between sortals and qualities.

#### 4. DETERMINABLES AND DETERMINATES

According to the doctrine of token-identity, for any token mental event  $m$ , there is some token physical event  $p$  to which it is identical. And according to SDE, if  $m$  is identical to  $p$ , then there is some event substance sortal  $K$  such that  $m$  is the same  $K$  as  $p$ . If  $m$  and  $p$  are the same event, then  $m$  and  $p$  must be of a kind. But is there any such kind?

Mental events are, in the first instance, subsumed by mental event sortals. An individual panic attack, for example, is subsumed by the mental event sortal, **panic attack**. Panic attacks are characterized by an abrupt onset of feelings of terror and impending doom in an individual subject. These feelings continue uninterrupted in the subject until the panic attack subsides, typically after a few minutes. The principle of identity for panic attacks determines answers to question such as "Is panic attack  $p$  (at time  $t_1$ ) identical to panic attack  $q$  (at time  $t_2$ )?" For an affirmative answer to be justified, it must be true both that  $p$  is a panic attack, and  $q$  is a panic attack. If  $p = q$ , then it must be true that the same individual suffers from  $p$  and  $q$ , and that  $p$  and  $q$  are not temporally discontinuous. If there is a significant stretch of time in between  $t_1$  and  $t_2$  during which the subject experiences feelings of peacefulness and contentment, then  $p$  is not the same panic attack as  $q$ . My discussion of

this one example can hardly be considered proof of the general claim that token mental events are subsumed by mental sortals, but I believe further reflection on specific cases does lend substantial credence to the general claim.

Similarly, physical events are, in the first instance, subsumed by physical event sortals. An individual heart attack, for example, is subsumed by the physical event sortal, **heart attack**. Heart attacks occur when a narrow or blocked blood vessel severely diminishes the oxygen supply to one or more regions of the heart. The principle of identity for heart attacks determines answers to questions such as “Is heart attack *h* (at time  $t_1$ ) identical to heart attack *i* (at time  $t_2$ )?” For an affirmative answer to be justified, it must be true both that *h* is a heart attack and *i* is a heart attack. If  $h = i$ , then it must be true that the same individual heart figures in *h* and *i*, and that there is no period in between  $t_1$  and  $t_2$  during which a normal level of oxygen supply to the relevant regions is restored. Once again, I believe that further reflection on specific cases of physical events lends credence to the general claim that token physical events are subsumed by physical event sortals.

Let us suppose *m* is of mental sort *M*, and *p* is of physical sort *P*, and *m* is identical to *p*. How must *M* and *P* be related if SDE is to be satisfied?<sup>38</sup>

Consider a parallel example involving objects. Let us say an object *o* is of sort *O* and an object *n* is of sort *N*, and  $o = n$ . How must *O* and *N* be related if SDO is to be satisfied? (Since there are no phase sortals for events, we must restrict our attention to substance sortals.) Since *o* is an *O* throughout its existence and *n* is an *N* throughout its existence (given that *O* and *N* are substance sortals), then *O* and *N* must have the same principle of identity – it is impossible that *O* and *N* deliver different verdicts as to the survival of *o* and *n*. As such they must fall on the same hierarchy of object sortals. As there are only three kinds of relation that a pair of substance sortals on the same hierarchy can have to one another, the possibilities for *O* and *N* are as follows: (A) *O* stands to *N* as **feline** stands to **cat** (identity); (B) *O* stands to *N* as **lion** to **feline** (determinate to determinable); (C) *O* stands to *N* as **feline** to **lion** (determinate to determinable).

Returning to the case of events above, then, there are three ways the doctrine of token-identity can be saved from the threat posed by SDE. In the case of every token-identity claim between mental and physical events, there must be sortals *M* and *P* such that either (A) *M*

and P are the same sortal; (B) M is a determinate of the determinable P; or (C) P is a determinate of the determinable M. If m is the same as p, then, according to SDE, there must be some answer to the “same what?” question, where the answer provides a true event sortal. (A)–(C) provide for such answer. In each case: m is the same M as p, and also the same P as p.

The difficulty for the advocate of token-identity is to give some reason for thinking that, in general, (A), (B) or (C) obtains. My focus in what remains is (C), for (C) is the best option for the token-identity theorist to pursue. Let me briefly say why: (A) would involve accepting the doctrine of type-identity. The whole point of offering the doctrine of token-identity was to put forward a version of physicalism that did not require identities between mental and physical types – and this is just what mental and physical sortals are. If we used (A) to save the doctrine of token-identity, we would, in effect, be using the doctrine of type-identity to save the doctrine of token-identity. But if we thought the doctrine of type-identity were true, we never would have begun considering the doctrine of token-identity in the first place.

And if (B) were the case, then a particular mental sortal M could not be instantiated unless some specific physical sortal P were instantiated. (For the same reason that there can be no cat unless there is an animal.) But this would contravene the widely held view that mental kinds are multiply realizable by physical kinds.

Let us now consider (C) in detail. In “Mental Causation”, Yablo makes the following bold claim: “[M]ental properties stand to their physical realizations in the relation that rectangularity bears to squareness, or that colors bear to their shades.”<sup>39</sup> On his view, then, “mental/physical relations are a species of determinable/determinate relations.”<sup>40</sup>

I should emphasize that Yablo himself does *not* use this view of the relation between mental and physical properties to argue for the doctrine of token-identity. My objections to his proposal are thus *not* directed at Yablo’s view of mental events, but rather are directed just to the determinable-determinate thesis, and to the use to which a defender of the doctrine of token-identity might put that thesis.

At the core of Yablo’s argument is his “guiding principle (S) for property determination:”<sup>41</sup>

(S) P determines Q only if:

- (i) necessarily, for all x, if x has P then x has Q; and
- (ii) possibly, for some x, x has Q, but lacks P.<sup>42</sup>

(S) precisifies the following idea: If P is a determinate of Q, then to be P is to be Q, not *simpliciter*, but in a specific way.<sup>43</sup> We can illustrate this idea by considering a couple of examples. I will take as paradigmatic instances of the determinable/determinate relation **red/scarlet** and **animal/cat**. Intuitively, to be scarlet is to be red, not *simpliciter*, but in a specific way. To be a cat is to be an animal, not *simpliciter*, but in a specific way. And in accordance with (S): (i) Necessarily for all x, if x is scarlet (or: if x is a cat), then x is red (or: x is an animal). (ii) Possibly, for some x, x is red (or: x is an animal), but x is not scarlet (or: x is not a cat).

Yablo goes on to show how closely the determinate-determinable relation mirrors the “reigning orthodoxy about mind-body relations.”<sup>44</sup> According to this orthodoxy, my mental states at a given time supervene on my physical states at that time, though someone might have just my mental states without having just my physical states. Yablo characterizes these two aspects of the orthodoxy as follows:

*Supervenience*: Necessarily, for every x (at time t and place p), and every mental property M of x (at t and p), x has some physical property P (at t and p) such that necessarily, everything that has P (at a time and place) has M (at that time and place).<sup>45</sup>

*Multiple Realizability*: Necessarily for every mental property M, and every physical property P which necessitates M, possibly something possesses M but not P.<sup>46</sup>

But Supervenience and Multiple Realizability together “make it a matter of necessity that something has a mental property iff it has a physical property by which that mental property is asymmetrically necessitated.”<sup>47</sup> And it is easy to see that this means that for every mental property there is some physical property such that the schema (S) is satisfied. Supervenience insures that (i) is satisfied; Multiple Realizability insures that (ii) is satisfied. “This calls out for explanation,” says Yablo, “and the one that comes first to mind is that mental/physical relations are a species of determinable/determinate.”<sup>48</sup>

Let us now see how this reconciliation might be effected. Remember first, the

*Proposal*: For every mental event m, it is the same as some physical event p.

*Challenge* (from SDE): If the proposal is correct, m must be the same something as p, where *something* is an event type (e.g., game).



If Yablo's contention is correct, then for every mental property *M*, there are some physical properties that determine it; let us call them  $P_1, P_2, \dots, P_n$ ; and these are the various properties on which *M* supervenes. As we just saw, *M* stands to these physical properties as **animal** does to **cat**, **dog**, etc.

The solution to the problem outlined in Section 3 then goes like this: According to the standard view of token-identity, the physical event to which a given mental event *m* is identical is that physical event on whose physical properties *m*'s mental properties supervene.<sup>49</sup> In the case of an *M*-instance, *m*, the physical event that fits the bill, *p*, will, according to Yablo, be an instance of the physical type that determines *M* on this occasion. Thus, we have on behalf of the advocate of the doctrine of token-identity a

*Response:* Where *m* is of mental type *M*, *p* is of physical type *P*, and *P* determines *M*, there are sortals that subsumes *p* and *m*: *P* and *M*. *M* subsumes *m* (by hypothesis), and *P* also subsumes *m* (since *M* subsumes *m*, and *P* is a determiner of *M*). *P* subsumes *p* (by hypothesis) and *M* also subsumes *p* (since *P* subsumes *p*, and *P* is a determiner of *M*).

This is just (C): Every mental event sortal stands to some physical event sortals as determinable to determinate.

##### 5. SORTAL DETERMINABLES AND DETERMINATES

Yablo's argument, and the use I have just made of it in the Response, turns, first, on mental and physical sortals in general satisfying (S), and second, on (S) being a good formulation of a guiding principle for the determinable/determinate relation. In this section, I will offer reasons for thinking that neither of these requirements are satisfied.

In my characterization of Supervenience, I have added spatial and temporal parameters to Yablo's original formulation:

*Supervenience:* Necessarily, for every *x* (at time *t* and place *p*), and every mental property *M* of *x* (at *t* and *p*), *x* has some physical property *P* (at *t* and *p*) such that necessarily, everything that has *P* (at a time and place) has *M* (at that time and place.)

I did so not because Yablo is committed to construing Supervenience in this way,<sup>50</sup> but rather because, if Supervenience is to be of use to the advocate of token-identity, Supervenience *must* be

constrained by spatio-temporal coincidence. For the advocate of the doctrine of token-identity argues, in his response to SDE, that mental events are *identical* to the physical events on which they supervene. If these physical events are spatio-temporally disparate from the mental events themselves, then this proposal runs afoul of Leibniz's law.

The Yablo-inspired defense of the doctrine of token-identity thus depends upon the tenability of the thought that either no mental event has wide content or every mental event with wide content has a suitable surrogate mental event with narrow content. (This is *not*, I should add, to say that Yablo's defense of mental causation (or anything else *he* does with the determinable–determinate thesis) depends on the falsity of psychological externalism.)<sup>51</sup> The proponent of the doctrine of token-identity also might make a tactical retreat by limiting the scope of the doctrine to those mental events with narrow or no content. These options strike me as rather bleak, but I do not want to rest my case against token-identity on any view about the width of mental states. Putting this difficulty aside, then, let us move to our second requirement: Is (S) a good formulation of a guiding principle for the determinable/determinate relation?

For Yablo, (S) is a *necessary* condition that a pair of properties instantiating the determinable/determinate relation must meet. His reasons for not treating (S) as a sufficient condition need not concern us here.<sup>52</sup> But to these reasons, I would add the following: (S) is designed as a schema for what we called qualities above; and (S) cannot be smoothly extended to accommodate distinctive features of sortals.<sup>53</sup> Yablo uses the relationship between **red** and **scarlet** to illustrate the alleged relation between mental and physical properties. But the mental events most frequently invoked in psychological explanations and in the literature in the philosophy of mind are sortals: e.g., head-aches, hallucinations, realizations, and decisions. And similarly for the physical event-types whose tokens are most often invoked as candidates for identification with token mental events: “the firing of the **XYX** neurons”. The proper analogue (if Yablo is right) for the relation between mental and physical events is thus not **red/scarlet**, but **animal/cat**. While Yablo focuses exclusively on qualities, he ought to have focused on sortals.

But to show that a pair of sortals stands in the relation of determinate to determinable, the determinate sortal must supervene on the determinable sortal. A pair of sortals must thus satisfy

*Sortal Supervenience (SS)*: Necessarily, for every instance of mental sortal M (at time t and place p), there is an instance of some physical sortal P (at t and p) such that necessarily, where- and whenever there are Ps there are Ms.<sup>54</sup>

As we saw in Section 4, **cat** and **animal** satisfy a parallel principle. In the case of every instance of the sortal **animal**, there is some instance of a species sortal – **cat**, in this case – such that, necessarily, where- and whenever there are cats there are animals.

But the “reigning orthodoxy” in philosophy of mind does not countenance Sortal Supervenience. Supervenience says that the physical facts about an object determine the mental facts about an object. But this does not entail that there are types of physical events whose occurrence necessitates the occurrence of specific types of mental event. The supervenience-base of a mental event might involve the occurrence of physical events under certain physical conditions, with non-sortal physical properties, and/or in the context of a certain physical process. The physical supervenience-base of a mental event sortal need not contain solely physical-event sortals at all. But this is just what (SS) requires.

(S) may be a suitable guide for the determinable/determinate relation between qualities, but it is not a suitable guide for the determinable/determinate relation between sortals. And for the doctrine of token-identity to be true, physical-event sortals must determine mental-event sortals. Hence, to meet the challenge posed by SDE, the doctrine of token-identity must give us a reason for thinking not just that (S) is satisfied, but also that (SS) is satisfied.

And even then her labors are not complete. Even if Sortal Supervenience could somehow be established, there is still reason for doubting that physical event-sortals determine mental-event sortals. For what (S), even augmented with Sortal Supervenience, gives us is a *synchronic* condition of the determinable/determinate relation; but in the case of sortal properties, there is also a *diachronic* condition. We can approach this point by considering again the distinction between two kinds of properties discussed in Section 2. Recall: there are qualities such as **red**, and sortals, such as **animal**. As remarked above, what is distinctive of the former is that in ascribing them to an object or event, we do not say *what the object or event is*. We do not apply concepts that are associated with principles of identity for the objects or events falling under them. Rather, we apply concepts that are associated merely with principles of instantiation.

Given that Yablo focuses on the **red/scarlet** pair, it is not surprising that he formulates only a synchronic condition on the determinable/determinate relation. For **red** and **scarlet** are associated only with a principle of instantiation. But if mental and physical properties are sortals, then they are also associated with principles of identity. And in that case, there will also be diachronic constraints that a pair of properties instantiating the determinable/determinate relation must meet.

Recall that particular cats cannot persist as the animals they are without persisting as the cats they are. For something that is a cat to remain the particular animal it is, it must, at the very least, remain a cat. For a pair of pants to remain the article of clothing it is, it must remain a pair of pants. An analogous point holds true of the relationship between pairs of event-sortals, where one determines the other. For example, for a football game *f* to be the same game as football game *g*, it must also be the same (token) football game as *g*. For a brisk walk to the Sydney Opera House *v* to be the same walk to the Sydney Opera House as *w*, it must at least be the same brisk walk to the Sydney Opera House. In general, for a pair of sortal properties to stand in the determinate/determinable relation, they must satisfy not only (S), but also

(D) Sortal P determines Sortal Q only if, necessarily, for any *x* that is a P, if *x* is the same Q as *y*, then it is also the same P as *y*.<sup>55 56</sup>

Sortal determinables and their determinates quite generally thus satisfy both Yablo's *synchronic* constraint and my *diachronic* constraint as well. But Yablo's arguments in favor of his proposal only address the former. Thus, although Yablo is right that Supervenience and Multiple Realizability together entail that the components of (S) are satisfied by the relationship between certain mental and physical properties, these principles do not show that the relationship between these properties satisfies (D).

Here is why: Let us say over the interval  $t_1$ – $t_5$ , I suffered a hallucination *h* of sort H. Let us say that H supervenes on physical sorts ( $P_1, P_2, \dots, P_5$ ). From Sortal Supervenience, we can conclude the following: At  $t_1$ , a physical event  $p_1$  of sort  $P_1$  was occurring; at  $t_2$ , a physical event  $p_2$  of sort  $P_2$  was occurring, . . . ; and at  $t_5$ , a physical event  $p_5$  of sort  $P_5$  was occurring. But Sortal Supervenience does not require that  $P_1 = P_2, P_2 = P_3$ , etc. Thus, it also does not require that  $P_1 = P_2, P_2 = P_3$ , etc. Sortal Supervenience says only that if an event of type H was occurring, then, necessarily some spatiotemporally

coincident event of the P-family was also occurring, where H supervenes on each member of the P-family. It thus does not entail that for every occurrence of a mental event *m* of sort *M*, there is a physical event *p* of sort *P* such that *M* supervenes on *P* *and*, necessarily, *p*'s duration is just *m*'s duration. It does not, in other words, rule out the possibility that the supervenience base of a mental event shifts over the course of the duration of that mental event.

But this is just what (D) would require of pairs of mental and physical properties that would stand in relation of determinable to determinate. If *P* is a determinate of *M*, then, necessarily, every instance of *P* must occur for just as long as the associated instance of *M*. The point of the preceding paragraph is that Sortal Supervenience does not guarantee this. It says just that the physical happenings at a particular time fix the psychological happenings at that time.

The advocate of token-identity is likely to respond as follows: The physical event to which *h* is identical is just the physical event which is the succession of the events *p*<sub>1</sub>, *p*<sub>2</sub>, *p*<sub>3</sub>, *p*<sub>4</sub> and *p*<sub>5</sub>. Let us call this succession *p*!. *H*'s supervenience base would thus extend to the event type *P*<sub>1</sub>, **then *P*<sub>2</sub>**, **then *P*<sub>3</sub>**, **then *P*<sub>4</sub>**, **then *P*<sub>5</sub>** – or simply *P*!. And, since *h* clearly does last as long as *p*!, and similar successions could be constructed for any mental event, the argument advanced above fails.

In what remains, I will argue that to defend token-identity in this way will either require making dubious empirical assumptions or ultimately undermine the original motivation for physicalism. First, let us ask: Is *P*! a kind of *physical* event? Is *p*! a token *physical* event? (It should be emphasized here that it is not enough that *p*! be an event, and that *P*! be an event-sortal. For the advocate of token-identity to carry the day here, *p*! must be a *physical event*, and *P*! a *physical event-type*.) An affirmative answer might seem obvious. After all, the constituents of *p*! are by hypothesis, physical events. *p*! is thus simply a succession of physical events. Nothing more should be required for *p*! to be a physical event. And, if Sortalism about event-identity is indeed correct, there must be then a physical event sortal *P*! that subsumes *p*!.

Let us take it for granted for the moment that *p*! really is an event; and *P*! really is an event-sortal. The principle that would take us from this assumption to the conclusion that *p*! is a physical event might be

(K): If an event *k* is a succession of events in the K-family, then *k* is also an event in the K-family.

But (K) has clear counterexamples. If I murder someone, and then later rob someone else, I have committed two crimes, **murder** and **robbery**. There is no third crime **murder, and then robbery**, that I have also committed. It might be objected that my counterexample assumes that there is an action that is composed of a murder and a later robbery. But I make no such assumption. I assume only that there is an *event* composed of a murder and a later robbery. Furthermore, if this assumption is false, then my opponent is even worse off. For if  $p!$  is not even guaranteed to be an event, it can hardly be guaranteed to be a physical event. It might also be objected that an event composed of a murder and a robbery is indeed a crime. But it would be peculiar at best to answer the question, “how many crimes did Eric commit that day?” with “three”. For that answer requires that I violated three laws (or fewer laws multiple times), whereas I only violated two laws (once each), the consecutive violation of which did not in fact violate a third law. Whether or not an event is a crime is determined by the laws fashioned by legislatures and interpreted by courts and is completely indifferent to the grammatical possibility of combining various terms for crimes with logical and temporal operators. Similarly, one might think, whether or not we should count an event or an event-type is physical will depend upon the laws and models discovered and articulated by those who work in the physical sciences, and is completely indifferent to the grammatical possibility of combining various physical terms with logical and temporal operators.

The advocate of the doctrine of token-identity can go one of two ways here. The first is to insist that researchers in the physical sciences will one day develop physical theories and models that *do* make use of sortals such as  $P!$ . Though I do not think this suggestion can be ruled out *a priori*, I see nothing in recent developments in physics, chemistry, or neuroscience that suggest that event-types such as  $P!$  (those stitched together with the sole purpose of discerning spatiotemporal coincidence with mental events) will come to play a role in physical theories. But I am happy to leave it as an open empirical question.

A second response will be to say that an event, and an event-type, can be physical even if it is of no interest from the point of view of physical theories; the class of physical kinds includes some that play a role in physical theories and some that do not. But a physicalist should be embarrassed to respond in this way. An important slogan for physicalism has always been that physical theories “carve nature at the joints”. This slogan comes to this: It is only by describing the world

using the resources of physical theories that we can limn the structure of reality. Ontology, according to physicalism, should take its cue from physics. But now we find that a proper defense of (at least one form of) physicalism requires something surprising: that we allow into our ontology physical kinds that are salient only *after* they have been stenciled using mental kinds. These physical kinds earn their metaphysical keep not by virtue of the role they play in physical explanations, but by virtue of the fact that their instances are spatiotemporally coincident with those of mental kinds. And these mental properties earn *their* keep by virtue of the role they play in *psychological* explanation. To save physicalism, it seems, ontology needs to take its cue from psychology. Insofar as it is part of the point of physicalism to adopt the physical sciences as the measure of all things, I contend that this way of saving physicalism is ultimately self-defeating.

We have seen, then, that there is a host of obstacles in the way of using Yablo's thesis to defend the doctrine of token-identity. First, psychological externalism must be false. Second, Sortal Supervenience must be true. And third, there must be pairs of mental and physical sortals that satisfy my diachronic constraint on the determinable–determinate relation.

## 6. CONCLUSION

If the doctrine of token-identity cannot survive the Sortalist challenge, where does that leave us? We are faced with a choice. Let us say that physicalism is the view that every particular in the world is a physical particular.<sup>57</sup> Then, either we must reject physicalism, or we must banish mental events from our ontology entirely. To many, this choice amounts to a serious dilemma. On the one hand, we do not want to give up on physicalism, which seems to be the only non-eliminativist way of escaping the pitfalls of such *unnaturalist* views as Idealism and Cartesian Dualism. But on the other hand, we are quite attached to our minds; the thought of sending them the way of witches and phlogiston is hard to swallow. Against the background of this dilemma, a natural reaction to the argument I have given here will be bewildered insistence: “There *must* be sortals that subsume mental and physical events; we just don't yet have any idea what they are.”

This reaction is natural, however, only if one assumes that the falsity of physicalism entails the truth of Idealism, Cartesian Dual-

ism, or some other view that sees the physical universe as intermingled, either constitutively or causally, with a non-physical universe. In fact, however, the falsity of physicalism entails no such intermingling. It does not follow from the fact that mental events are distinct from physical events (if it is indeed a fact), that physical events are not fully explainable in terms of physical theories. Nor does it follow that the efficacy of mental events must thereby be lost: For, as I argue elsewhere, we can hold both that physical causal systems are causally self-sufficient *and* that distinct (but supervening) mental events have physical effects.<sup>58</sup> According to this view, mental events and properties are natural and efficacious, but yet are not identical to physical events and properties. Such a view respects the autonomy and importance of the physical sciences, but also respects the logic of identity claims.

Whether physicalism is true or not is an empirical question. It depends (among other things) on whether there are indeed physical sortals on which mental sortals supervene, and which subsume both mental and physical events. If such sortals arise in the course of the development of physical theories, then physicalism may be true. Some might complain that this is no real concession to physicalism, since the prospects for such a development are bleak. But if the prospects for such a development are bleak, they are bleak in large part because of what we have discovered – for example, about the functional organization of our brains. They are bleak for *empirical reasons*. If in fact there are no such sortals, then physicalism is false; but we will not thereby be committed to any form of unnaturalism. Rather, it has simply turned out that mental happenings do not neatly map onto physical happenings.

One source of the powerful appeal of physicalism is that it boasts a greater sensitivity to the results of science than its rivals. But if the physicalist responds to the challenge I have articulated here by insisting that sortals subsuming both mental and physical event-types *must* exist, then he betrays just the sort of come-what-may dogmatism in his metaphysical convictions as he often criticizes in his opponents. My approach here is thus more in line with the physicalist's boast than is his own: For I have shown that the truth of physicalism is itself an empirical question.<sup>59</sup>



## NOTES

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<sup>1</sup> Sortalism about events is given serious consideration in Savellos (1992) and Steward (2000). Savellos, however, defends Sortalism only for natural-kind events, and does not consider whether Sortalism about events is relevant to the mind–body problem. Steward, for reasons I find unconvincing, ultimately rejects Sortalism about events. Others have suggested a connection between these issues without exploring it in detail. (See, for example, Ryle (1973); Nagel (1974); Strawson (1981); Lowe (1989).)

<sup>2</sup> “Object” has various senses. To be an object in the sense intended here is to be composed of matter, and to have no temporal parts. (This latter condition turns out to be dispensable, as we shall see in Section 3.)

<sup>3</sup> Throughout this paper, I will use “event” to range over event-tokens. When discussing an event-type, I will use the expression “event-type”. Occasionally, authors lump under the heading “events” both events and other, distinct, entities: states and processes. My use of “event” is more strict: “Event” as employed here picks out neither states nor processes.

<sup>4</sup> In Section 3, however, we will see that Spatiotemporality must be qualified, as events and objects occupy space in rather different ways.

<sup>5</sup> Strawson (1954). Strawson, however, calls sortals “substances”.

<sup>6</sup> Gupta (1980, p. 2). It might seem as if the distinction between principles of identity and principles of instantiation has application only to continuants. Events, arguably, are not continuants. As such, it might seem as if this is not a promising way to extend Sortalism to events. I argue in Section 3, however, that events – even if they are not continuants – have principles of identity just as objects do.

<sup>7</sup> Dummett makes this point in slightly different terms. He says that someone who grasps the sense of a “substantive general term” (a term for a sortal) most know both the associated *criterion of application* and the associated *criterion of identity*; whereas someone who grasps the sense of an “adjectival general term” must know only the associated *criterion of application*, since there is no associated criterion of identity. (See Dummett 1973, pp. 547–548.) Whereas Dummett speaks of criteria, I (following Gupta) speak of principles. A criterion of identity is (at least in Dummett’s usage) primarily epistemic in character. A principle of identity, as Gupta puts it, is “the metaphysical counterpart of such an epistemic rule” (Gupta 1980, p. 2). Since I am concerned with metaphysical issues, and not with epistemological ones, I have recast his point.

<sup>8</sup> Wiggins (1980, p. 47).

<sup>9</sup> Dummett makes a parallel point when he says that expressions such as “...is the same red thing as...” have “no univocal sense” (Dummett 1973, p. 548).

<sup>10</sup> For recent defenses of this view of constitution, see Baker (1997) and Johnston (1992).

<sup>11</sup> A Sortalist need not take this view of constitution. For one who does not, see Runggaldier (1998).

<sup>12</sup> For an argument that **object** is a true sortal, see Xu (1997), with help from Hirsch (1982). For a trenchant reply see Wiggins (1997).

<sup>13</sup> For an argument that identity does not require sortals at all (see Ayers 1974—1975, 1997). For reply, see Griffin (1976).

<sup>14</sup> I would not endorse a stronger and more controversial thesis, what Wiggins calls the Sortal Relativity of Identity. According to this stronger thesis, there can be sortals F and G, such that x is the same F as y, but not the same G as y. See Geach (1967), Griffin (1977) and Noonan (1980).

<sup>15</sup> Although the precise formulation of Sortalism in terms of SDO is my own, I take it to be faithful to the standard accounts, such as that given in Wiggins (1980). It might be thought that (c) in particular is foreign to Wiggins's account, but that is not so. A close examination of principle **D**, together with the principles meant to explicate and elaborate it (see D(iii) and D(iv) in particular) and examples meant to illustrate it (see pp. 68–69), should put this worry to rest. But my central concerns here are philosophical rather than exegetical. And SDO articulates the basic Sortalist insight in a relatively straightforward way. Of course in boiling Sortalism down to SDO, I have refrained from delving into some of the important and interesting complexities of various discussions of the nature and function of principles of identity. But consideration of these complexities would be out of place here, as my purpose is solely to connect the general Sortalist approach to identity with a central issue in the philosophy of mind.

<sup>16</sup> This principle is primarily neither epistemological nor psychological, but rather metaphysical. I thus do not take a stand here about what thinkers must know or have in mind when they make identity claims.

<sup>17</sup> It might be objected here that we sometimes tell perfectly intelligible stories about princes persisting as frogs (and not humans) and thus that it is not crucial to an animal's survival that its species remain constant. But the frog in such a story is plainly not the same sort of creature that begins life as a tadpole. When we tell these stories, we imagine that there is some other sortal (e.g., person), an instance of which is present through these spectacular transformations. We thus treat **frog** as a *phase* sortal (to be discussed shortly) for the purpose of the story.

<sup>18</sup> See Lowe (1989) for a helpful discussion of this point.

<sup>19</sup> See Wiggins (1980, pp. 64–65) and longer note 2.08 for some discussion of this point.

<sup>20</sup> See Wiggins (1980, p. 122).

<sup>21</sup> Mackie (1994, p. 321). I have, however, altered the passages slightly. Where she speaks of principles of individuation, I speak of principles of identity. This change is of merely terminological significance.

<sup>22</sup> I use “crime” in the strict legal sense here, as opposed to more figurative uses, e.g., “It was a crime that Elizabeth married Wilbur instead of Eugene.”

<sup>23</sup> The view that events are sortable may pose a problem for the thesis that events are tropes. That thesis, as typically understood, involves the idea that an event is the bare instantiation of any property – sortal or quality, though examples typically involve qualities. See Bennett (1988) for a defense of this view of events. But on the view of events sketched here, every event must instantiate an event-sortal. There thus can be no events that are the bare instance of an event-quality.

<sup>24</sup> Dretske (1967). See also Hacker (1982).

<sup>25</sup> Though, as remarked above, it is not the burden of this paper to defend Dretske's claim, let us consider how one might respond to what seems to be a clear counter-example to it. It might be conceded that although the race has not moved from land

to water in the case above, we could easily construct a case where this description would fit. Say, after about half of the contestants have moved from land to water, subsequent contestants are diverted to a different path of the same distance through the water (on account of sharks). Here, an opponent of Dretske might argue, the race really has moved. I would propose an alternative description of this scenario: The *path* of the race has been moved, i.e., the ground covered by the quickest half of the contestants is not the ground covered by the other half of the contestants. The last half of the race, understood as a race-track, has been moved. The race, understood as an event, did not move. The *whole* race could not have moved, since its path was altered prior to its being over, i.e., prior to there being a whole race. I do not contend that my redescription here constitutes an argument, only that it suggests a way of capturing the intuitive appeal of the alleged counterexample without giving up on Dretske's claim. This, in any case, indicates a direction in which a defender of Dretske might go.

<sup>26</sup> If my walk to the Sydney Opera House is interrupted, there will still have been walking, but walking is a process (more specifically, an activity) not an event. See Mourelatos (1978) for a seminal discussion of this distinction.

<sup>27</sup> Following Anscombe (1957) and Davidson (1980), I assume here that actions are events. For a recent dissenting view of actions, see Bach (1980). I should add, however, that although I rely on this assumption as an aid in the exposition of the argument, nothing of substance will ultimately turn on the assumption.

<sup>28</sup> Similarly, one cannot refer to, or have an any sort of intentional attitude towards, a particular event until it's past, for there are no present events. See Galton (1984) for a lucid discussion of this point. For a contrary view, see Parsons (1990).

<sup>29</sup> Throughout this discussion, my concern is with events that have duration. Whether or not there is a distinction between principles of instantiation and principles of identity in the case of instantaneous events remains to be seen. If such a distinction does apply, a very different approach than mine here will be required to reveal it.

<sup>30</sup> The best way to become clearer about the distinctive nature of events is through the excellent work that has been done on the semantics of sentences about events. For some highlights, see Vendler (1967), Kenny (1964), Mourelatos (1978), Galton (1984), Taylor (1985), Cresswell (1986), and Parsons (1990).

<sup>31</sup> So far as I know, only Lemmon (1967) argues for the view that two events cannot occupy the same place at the same time. See Davidson (1980, pp. 178–179) for a convincing reply.

<sup>32</sup> To say a token event *e* was *occurring* at a time *t* is to say that *e* occurred and its duration included *t*.

<sup>33</sup> It might be objected here that while there are relatively few categories of object, there are many more categories of event. And while I am not aware of any definitive list of categories, I expect that this is true. But I am not proposing here that there are no dissimilarities between objects and events, only that there are significant similarities.

<sup>34</sup> Someone might object here that two women (e.g., J. J. Thompson and G. E. M. Anscombe), neither of whom could be said to grasp the ordinary concept of a murder better than the other, might disagree about the temporal boundaries of a murder, and thus disagree about the principle of identity for murders. The concept of a murder, it will be said, is inherently vague or fuzzy. One might thus conclude that

there is no determinate principle of identity for murder, and perhaps for many other event-sortals as well. This might well be true; but if it is, this only strengthens the analogy with the principles of identity associated with different kinds of object. For one can analogously argue that an ordinary grasp of such concepts as ship, caterpillar, and person does not furnish one with definite answers to any question that might arise over the survival of a particular ship, caterpillar, or person.

<sup>35</sup> This, of course, parallels the widely-held corresponding thesis about object-individuation, first pointed out by Frege. Though Frege typically uses examples of objects that fit with our use here (according to which there is a contrast with event), it is worth noting that Frege's purely formal conception of "object" would cover events as well.

<sup>36</sup> The connection between identity and individuation is, however, complex. See Castañeda (1975) and Savellos (1992) for discussion.

<sup>37</sup> One might defend a stronger position: that without a common sortal, one cannot so much as formulate a determinate identity claim at all. On this view, the first route to non-identity in fact describes a kind of nonsense.

<sup>38</sup> It might be argued that this question need not be examined. After all, if  $m = p$ , then there are at least two sortals common to both  $m$  and  $p$ :  $M$  (which subsumes  $m$  and must also subsume  $p$  by Leibniz's law), and  $P$  (which subsumes  $p$  and must also subsume  $m$  by Leibniz's law). This argument, however, is question-begging. For the question at issue just is whether the antecedent of the conditional is satisfied. It is only satisfied if the consequent is true. If, on the contrary, there are not two sortals  $M$  and  $P$  that subsume both  $m$  and  $p$ , then  $m = p$  cannot be true. Thus, in this and the following section, we consider the case for the view that there are two sortals  $M$  and  $P$  that subsume both  $m$  and  $p$ . But to consider this case, we must address the question "how must  $M$  and  $P$  be related if SDE is to be satisfied?" For if  $M$  and  $P$  are not related in the right way, then they cannot subsume the same particulars.

<sup>39</sup> Yablo (1992, p. 256). A similar proposal is also made in Macdonald and Macdonald (1986).

<sup>40</sup> Yablo (1992, p. 256).

<sup>41</sup> Yablo (1992, p. 260). Yablo does not, however, call his principle (S).

<sup>42</sup> Yablo (1992, p. 252).

<sup>43</sup> Yablo (1992, p. 252).

<sup>44</sup> Yablo (1992, p. 254).

<sup>45</sup> Yablo (1992, p. 254) following Kim (1993). Some comment on this formulation of Supervenience is in order. First, I have added to Yablo's rendition of supervenience spatial and temporal parameters. My reasons for doing so will be discussed in Section 5. Second, I have changed the wording of the last clause to "everything that has  $P$  has  $M$ " from "all  $P$ s are  $M$ s." My formulation mirrors (S)(i) above. Also, Yablo's formulation doesn't allow grammatical substitution-instances for quality-names, which do not (ordinarily) range over particular things. (And, as we will see in Section 5, the focus of Yablo's discussion of properties just is qualities.) Third, it should be noted that the first quantifier in this definition ranges only over *objects* and not over *events*. If it ranged over events, then Supervenience would entail the doctrine of token-identity straightaway. For then every mental event would instantiate both mental *and* physical properties, both mental *and* physical sortals. And if a single event instantiates both mental and physical sortals, then the event is both mental and physical. Given that this definition is Kim's, and that Kim famously rejects the

doctrine of token-identity, the definition should not have this consequence. In any case, Supervenience should not be wedded to the doctrine of token-identity in this way. But what does Supervenience so construed tell us about events? In Kim's metaphysics, quite a bit. For Kim, events are property-object-time triples. The supervenience of an object's mental properties on its physical properties just is the supervenience of a mental event-type on a physical event-type. The ramifications of Supervenience for events as conceived of here will be explored in Section 5.

<sup>46</sup> Yablo (1992, p. 255).

<sup>47</sup> Yablo (1992, p. 256).

<sup>48</sup> Yablo (1992, p. 256).

<sup>49</sup> See Davidson (1980, p. 214).

<sup>50</sup> In Yablo (1992), Yablo concedes that psychological states with wide content might be exceptions to the determinable-determinate thesis. (See Yablo 1992, p. 271, n. 51.) I take this as evidence that he did at the time view spatio-temporal coincidence as entailed by Supervenience. In Yablo (1997), however, he takes this concession back.

<sup>51</sup> See Yablo (1997) for his defense of "wide causation."

<sup>52</sup> If asymmetric necessitation – (S) – just were determination, then "conjunctive properties [would] determine their conjuncts, and universally impossible properties [would be] all determining," p. 253, n.23. This point need not concern us here because it does not, at least on the surface, appear to threaten the view that physical properties determine mental properties.

<sup>53</sup> For criticisms of Yablo in a rather different vein, see Ehring (1996) and Worley (1997).

<sup>54</sup> I have opted for the more awkward "where- and whenever there are Ps there are Ms", as opposed to "all Ps are Ms" because the latter, but not the former, presupposes the doctrine of token-identity. See note 52.

<sup>55</sup> Unlike in the case of (SS) I have formulated (D) so that its satisfaction entails that Ps are Qs, since Q might supervene on P without its instances being identical to instances of Q; whereas, P determines Q only if every instance of Q is identical with some instance of P. Also, unlike in the cases of (S) and (SS), there is no need for a tense-parameter in the case of (D), since the identity of any Q-instance with some P-instance fixes their spatiotemporal coincidence.

<sup>56</sup> It is worth noting that (D) is not a requirement fulfilled by every pair of sortals capable of co-instantiation. For example, **boy** and **man** do not, according to this definition, stand to one another as determinate to determinable: the boy who threw the orange at my head is not the same boy as the old man at my deathbed, though he is the same man. Thus phase sortals do not determine their underlying substance sortals.

<sup>57</sup> Some might find this characterization of physicalism unduly strong; perhaps there is a weaker form of physicalism that is not threatened by the arguments I have offered here. This may be true; and I do not have any definite view of how weak a doctrine can be while still qualifying as a form of physicalism. (It is worth noting, however, that some physicalists would find my characterization of physicalism too weak!) But for a physicalist to allow the existence of non-physical particulars strikes me as a significant concession. Indeed, one reason for the interest in the doctrine of token-identity is that it appears to be a way to *save* physicalism in the face of the failure of the doctrine of type-identity. If token-dualism were compatible with

physicalism, then physicalists would not need to have looked for consolation for the failure of type-identity theory in token-identity theory. In any case, if there are forms of physicalism that allow for the falsity of token-identity, the arguments presented here do not touch them. And the dilemma with which I here conclude should thus be read as a dilemma for physicalists in my sense. The appearance of wiggle-room for the physicalist should not, however, be overstated. For a physicalist who rejects token-identity quickly runs in to trouble incorporating mental events so conceived into a physicalist world view. See, for example, Kim (1998).

<sup>58</sup> See Marcus (2001) and Marcus (2004).

<sup>59</sup> Philosophers of mind are generally careless about distinguishing between events and other metaphysical variables: e.g., states and processes. Given that beliefs and desires are mental items *par excellence*, and that beliefs and desires are states and not events, one might attempt to save the doctrine of token-identity by changing the focus to states, instead of events. Although this thought should certainly be pursued, I am doubtful that its pursuit will vindicate the doctrine of token-identity. In Marcus (manuscript), I argue that there are no token states, and thus that the doctrine of token-identity cannot meaningfully be applied to states. See also Steward (2000).

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Eric Marcus  
Auburn University