

**NUMBERS, MINDS, AND BODIES:
A FRESH LOOK AT MIND-BODY DUALISM**

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Introduction

In this essay, we explore a fresh avenue into mind-body dualism by considering a seemingly distant question posed by Frege: "Why is it absurd to suppose that Julius Caesar is a number?". In brief, we attempt to motivate dualism via considerations originating in the metaphysics of mathematics. Given the meat of the problem and the brevity of the assault, there will, inevitably, be loose ends. But we do hope to provide a sketch of a reasonable—and inventive—strategy for defending a version of mind-body dualism.

Let us give fair warning. This paper assumes a property dualism that will be anathema to some readers. That is, it assumes a gulf between the properties that are expressed by physical science (and various idealizations of such science) and at least some of the properties that are associated with mind. In particular, it assumes that the properties that characterize the phenomenal character of experience are fundamentally different in kind from physicalistic properties. We believe the same to be true of intentional properties¹—ones that characterize the contents of mental states, as well as the attitudes of thinkers towards those states, but the paper does not rely on this more thoroughgoing mind-body property dualism.²

What exactly does property dualism about mind and body amount to? We presume it does not merely amount to a denial of identity between, say, microphysical and phenomenal qualities. Someone might not admit identity between functional or biological properties on the one hand, and microphysical properties (together with properties formed by Boolean operations upon them) on the other. But it seems to us that labeling such a person a "property dualist" would nonetheless be misleading, given the standard use of that label. It might be suggested instead that the label 'property dualism' simply marks a denial of the supervenience of mental upon physical properties (where 'supervenience' here amounts to the thesis that physically duplicate worlds that are metaphysically possible will be mental duplicates as well).³ This won't do either. One who posits a relation of

brute emergence, holding of metaphysical (though not conceptual) necessity between the physical and the phenomenal might quite reasonably deserve the title of property dualist.

The central tenet of property dualism, as we understand it, is that mental properties (or a certain class of them) are not intelligible in terms of the properties of an ideal physics. If an ideal physics will have consciousness at the metaphysical groundfloor, property dualism is wrong. If mental properties are intelligible in terms of an ideal physics in the way that we imagine biochemistry to be so intelligible, property dualism is wrong.

A detailed spelling out of the relevant notion of intelligibility would quickly take us outside the ambit of this paper. Nonetheless, we offer the following as a first pass: P properties are intelligible in terms of Q properties iff perfect omniscience about the distribution of Q properties together with a perspicuous grasp of P properties would put someone in a position to determine a priori the distribution of P properties.⁴ This is the notion of intelligibility we take to be at work in such suggestions as that biological properties are ultimately intelligible in terms of chemical ones, even if they are not identical to them.

Our target topic is this: Having embraced property dualism, ought one go on to embrace a dualism concerning the things that have those properties? On the one hand, we may multiply bearers of properties in a way that marches in step with the property-theoretic gulf; no one thing may have properties from both sides of the gulf and hence insofar as both kinds of properties are instantiated, they must be instantiated by numerically distinct things. We shall call this sort of view "full blown dualism". On the other hand, we may allow one and the same thing to instantiate properties from both sides of the property gulf. So-called token-identity theories and dual aspect theories take this sort of shape. According to such views, each mind is identical with some physical object (in our case, a brain), and as a result, each mind is a thing that instantiates two different kinds of properties and as such has a dual aspect. We shall call this latter sort of view "mere property dualism".⁵

In Part Two of this paper we will suggest that full blown dualism is preferable to its more modest, property-theoretic, counterpart. The foundations for this conclusion will, however, be laid in Part One—a diagnosis and treatment of Frege's famous Julius Caesar problem. As Frege well knew, there is clearly something deeply wrong about identifying Julius Caesar with the number five, and this in spite of the fact that there is nothing in the mathematical platitudes about the number five that immediately precludes any such identity. In investigating the source of our conviction that such an identity cannot obtain, we expose two maxims applicable to the mind-body problem. We will suggest that just as these two maxims preclude Julius Caesar from being identical to the number five, they also preclude qualia from being identical to things such as neural events, and minds being identical to physical things, and this in spite of the fact that central platitudes about qualia and minds do not automatically rule out such identities.

In Part Three, we close by suggesting that full blown dualism need not be spooky, resurrecting a broadly Lockean, rather than Cartesian, picture.

1 The Julius Caesar Problem

1.1 The Julius Caesar problem and heterogeneity

We seem to have something like an a priori guarantee that Julius Caesar is not the number two. From whence does that a priori guarantee derive? Consider the means by which we seem to get a fix on the mathematical singular term ‘Two’: ‘Two is the successor of one’, ‘If two numbers a set of objects, then the set has a member x and a member y that are distinct and every member z is identical to either x or y ’ and ‘If any given set numbered by number x can be put into one to one correspondence with any given set numbered by the number two, then x is identical to the number two’. These mathematical platitudes do not by themselves appear to afford us the means for determining whether or not Julius Caesar is the number two. They merely tell us, for example, that if Caesar is the number two, Caesar is the successor of one and so on. In what follows we offer an analysis of this famous Fregean conundrum using Crispin Wright’s treatment as a spring-board (See [1], sections 55–69).⁶After indicating various ways in which that analysis might be developed, we pick up on one tacit theme worth preserving in the Wright account, and transport it to a Kripkean setting in order to isolate a pair of instructive maxims. Only then, armed with our maxims, do we fully enter into the fray of the mind-body problem.

1.1.1 Wright’s analysis

At the core of Wright’s treatment is an account of what it takes to master a sortal. There are two central components to such mastery, Wright explains. First one must have some sort of facility in determining which objects fall under the sortal term and which objects do not. Second one must have a facility in determining when objects falling under the sortal term are identical and when they are different. The second component is what distinguishes sortals from other predicates: To master ‘is brown’ or ‘is striped’ we do need to have some sort of facility in determining which objects fall under ‘is brown’ and ‘is striped’, but mastery of those predicates need not bring with it a facility in determining when brown or striped things are identical or different. (See Wright’s *Frege’s Conception of Numbers as Objects*, p. 2. See also Dummett’s, *Frege: Philosophy of Language*, 76ff.) By contrast, mastery of, say, ‘number’ and ‘organism’ does bring with it, according to Wright, a facility for determining questions of sameness and difference for those objects that the ‘number’ and ‘organism’ are true of; this is what makes ‘number’ and ‘organism’ sortals, ‘red’ and ‘striped’ non-sortals.

What are the grounds of our facility in determining which objects fall under the sortal? That is to say, what are the grounds of the first component of our competence? According to Wright, the first component of our competence is intimately linked to the second component. Suppose one has a sortal concept F and a criterion of identity and difference C for things falling under F . One determines whether an object a falls under F by determining whether C is applicable to it. Assume a capacity to recognize whether C is or is not applicable to objects

and we have, thanks to it, a capacity for determining whether the associated sortal is or is not applicable to those objects. Here is Wright on the sortal 'number':

The suggestion, then, is a simple one: that we exploit our grasp of the *second* part of the putative sortal notion of number—our grasp of the conditions of identity and distinctness *among* numbers—to fix the *first* part of the sortal concept: the distinctness between numbers and things of other sorts. (*Frege's Conception of Numbers as Objects*, p. 114)

An analysis of the Julius Caesar problem flows readily out of this picture of sortal mastery. Insofar as Julius Caesar falls under the sortal 'number', then the identity and difference of Caesar with other things must be grounded in the criteria of identity and difference appropriate to numbers. Thus the identity or difference of Caesar with Brutus would have to consist in the criteria of identity and difference appropriate to numbers. But the difference of Caesar with Brutus does not consist in any such facts. It consists instead in some admixture of facts about spatial separation, heritage, psychology and so on.

Here is Wright:

...Frege's account of numerical identity does at least make it plain that numbers are things which are to be identified and distinguished among themselves by appeal to facts to do with 1-1 correlation among concepts, whereas questions of personal identity are not decidable in that way (*Frege's Conception of Numbers as Objects*, p. 114)

We thus have an argument schema that can be applied to all Julius Caesar type puzzles:

1. The identity and difference of things falling under sortal S consists in facts of style F pertaining to those things.
 2. The identity and difference of object A with other things does not consist in facts of style F pertaining to those things.
- Therefore object A does not fall under sortal S.

where an instance of that argument schema is

1. The identity and difference of numbers consists in facts to do with one to one correspondence.
 2. The identity and difference of Julius Caesar with other things does not consist in facts to do with one to one correspondence.
- Therefore Julius Caesar is not a number.

1.1.2 Wright's analysis developed

The key premise in Wright's discussion of the Julius Caesar problem contends that the identity and difference of Julius Caesar with other things does not

consist in number-theoretic facts pertaining to him. This premise is, *prima facie*, secured by the observation, presumably acceptable by all, that an account of the identity and difference of Julius Caesar with natural objects can be provided that is not number-theoretic in style. But this observation does not yet secure the desired conclusion.

Suppose that there were two different styles of identity criteria true of a single object. (We need not suppose here anything like relative identity—according to which *a* would be identical to *b* relative to one criterion and different relative to another.) Let us imagine that the two styles of identity criteria march in step, delivering the same results regarding numerical identity and difference. Suspend your sense of absurdity (as you have had to from the outset) and suppose that Julius Caesar had certain, albeit undetectable, number-theoretical properties true of him. Suppose then that Julius Caesar had the property of numbering certain sets and not others. Perhaps Julius Caesar numbers the planets. Allow also that Julius Caesar falls under the sortal ‘organism’ (or if you prefer ‘person’) and that associated with that sortal are certain naturalistic identity criteria that entail a variety of facts about identity and difference for Caesar. The key point here is that there is no logical incoherence in supposing that organisms have number-theoretic properties such that whenever organisms *a* and *b* are different by the standards of naturalistic identity conditions, they also turn out to be different by the standards of number-theoretic identity conditions and that whenever *a* and *b* are the same by the standards of naturalistic identity conditions, *a* and *b* are the same by the standards of number-theoretic identity conditions.⁷ Even while recognizing the intuitive absurdity of this story, we are forced to conclude that the mere fact that naturalistic identity criteria are adequate to the sameness and difference of Caesar with other objects this does not by itself guarantee that number-theoretic criteria of identity and difference are inapplicable to Caesar.

Our focus here, like Wright’s, is on intra-world considerations: what is it that underwrites the identity and difference of things that actually exist? It may reasonably be objected that if we shift to inter-world considerations, the whole problem evaporates. In particular, it is arguably axiomatic that something is identical to the number five in every possible world and also obvious that it is not the case that in every world something has what it takes to satisfy certain minimal naturalistic requirements upon being Julius Caesar. One object is necessary, the other contingent. Assume the necessity of identity and the difference of Julius Caesar from numbers follows. It is a striking testament to Frege’s disinterest in modality that he does not even touch on this thought. Wright’s discussion rather follows Frege in its neglect of modal matters. So why not go with this solution and be done? As it stands, however, the solution cannot be fully satisfying because it lacks the proper generality. Grant the contingency of people and the necessity of numbers and one solves this instance of the problem. But what should we say of the hypothesis that the number five is identical to the universal being tall or to a particular time or to God or to a direction or to the proposition that snow is white...? We presume that a satisfying solution will also answer such questions.

Even when supplemented with a distinction between necessary and contingent beings, Wright's analysis seems at best incomplete. We see two ways in which it might be fleshed out, although only one ultimately finds our sympathies.

(a) Identity Criteria and Evidence-Transcendence

Let us pick up on a point noted above. Insofar as number-theoretic criteria are appropriate to Julius Caesar, they apply in virtue of properties of Julius Caesar that are in principle undetectable by us. If Julius Caesar is a direction, we have no way of telling which lines he is the direction of (though we can of course be sure that if he is the direction of one he is the direction of all the lines parallel to that one). If Julius Caesar is a set, we have no way of telling which objects stand in the membership relation to him. And if Julius Caesar is a number, we have no way of telling which sets are numbered by him.⁸ In short, were a number-theoretic criterion of identity applicable to Julius Caesar, the details of its application would be altogether evidence-transcendent. Assume that there are no-evidence transcendent identity criteria for anything and we can flesh out the argument in the following way:

1. If Julius Caesar is a number, Caesar has number-theoretic identity conditions true of him.
2. If Julius Caesar has number-theoretic identity conditions true of him, we are in principle incapable of recognizing how they apply.
3. If a set of identity conditions are true of anything, then we must be in principle capable of recognizing how they apply to that thing.

Now assume for reductio that Julius Caesar is a number.

4. Number-theoretic identity conditions are true of Caesar (from 1).
5. We are in principle incapable of recognizing how number-theoretical identity conditions apply to Caesar (from 4 and 2).
6. We are in principle capable of recognizing how they apply (from 4 and 3).

Since 5 and 6 are contradictory, we can conclude that Julius Caesar is not a number.⁹

(b) An Axiom for Categorical Sortals

A second way of developing the analysis does not at all lean on considerations of evidence-transcendence. Instead it leans on a firm insistence that no object enjoys heterogeneous identity conditions. That is to say, one takes it as a non-negotiable axiom that no object can fall under a pair of sortals with radically different styles of identity conditions, this axiom being integral to sortal mastery.

Can we say simply that no object can fall under two different sortals? We cannot. 'Animal' and 'horse' are, after all, both sortals. What we must insist upon

is that insofar as an object falls under two sortals there is a unifying set of identity criteria that explains how it falls under each of the pair. It will be helpful here to recall Michael Dummett's notion of a categorial sortal, which is introduced by the following discussion:

Now among nouns with which a criterion of identity is associated, there will be many to which the same such criterion is attached: e.g. 'man' 'woman' 'tailor', 'coward'. 'A is the same man (woman, tailor, coward) as B' really can be analyzed as 'A is a man (woman, tailor, coward) and A is the same person as B'. And among any such class of nouns, associated with the same criterion of identity, there will always be one which is most general, i.e. which applies to all those objects to which any general term in the class applies, that is, to all those objects for which that is the appropriate criterion of identity. It may require discussion to identify these most general terms: one might at first be uncertain, for example, whether or not the criterion for 'same person' was always the same as that for 'same animal', or, again, whether or not there exists a general criterion for 'same organism' to which 'same animal' is subordinate (in the sense that 'is the same animal as' could be equated with 'is an animal and is the same organism as'). But that it must be possible to identify such most general terms, one for each criterion of identity that is employed, it seems impossible to doubt. Let us call such terms 'categorial predicates' and the classes of objects to which they apply 'categories'. (*Frege: Philosophy of Language*, p. 75–6)

Assume as an axiom that no object falls under two different categories in Dummett's sense and one is well on the way to giving a compelling diagnosis of the Julius Caesar problem:

Suppose Julius Caesar is the number five and is an animal. There are four alternative ways to develop this:

- (1) Julius Caesar falls under two different categorial predicates.
- (2) All the natural/agent-theoretic sortals applicable to Julius Caesar are subordinate in Dummett's sense to 'is the same number as', so that 'is the same person as' is to be equated with 'is a person and is the same number as'.
- (3) All the number-theoretic sortals applicable to the number five are subordinate in Dummett's sense to some natural/agent-theoretic sortal, so that 'is the same number as' is to be equated with something like 'is a number and is the same animal as'.
- (4) Both the number-theoretic sortals and the natural/agent-theoretic sortals are subordinate to some mysterious higher sortal S so that 'is the same number as' is to be analyzed as 'is a number and is the same S as' and 'is the same person as' and 'is the same animal as' are to be analyzed as 'is a person and is the same S as' and 'is an animal and is the same S as' respectively.

(1) is ruled out by our axiom. (2), (3), and (4) are ruled out by what we (arguably) know. We know (arguably) that there is some criterion that deploys naturalistic

facts adequate for determining facts about sameness and difference of Caesar with other objects. It follows that naturalistic sortals pertaining to Caesar are not subordinate to some number-theoretic category. We also know (arguably) that there is some criterion that deploys number-theoretic facts that are adequate for determining facts about sameness and difference of numbers. It follows that number-theoretic sortals pertaining to numbers are not subordinate to naturalistic-theoretic ones. We also know (arguably) that there is no unifying identity criteria to which both our mathematical and naturalistic sortals are subordinate.

Assume our axiom and the Julius Caesar problem has a ready diagnosis. Our sense of absurdity relies on the axiom that no thing belongs to two categories coupled with what we take ourselves to know about the hierarchy of categories.

Within the framework of Wright's project, these observations can now, apparently, provide an adequate story about the first component of our mastery of the sortal 'number', which requires that we recognize which things fall under that sortal and which don't. Our ability to recognize that a human or dog does not fall under that sortal is now to be explained by the fact that (a) naturalistic identity criteria apply to the human being and to the dog (maybe of the same style, if 'dog' and 'human being' are subordinate to 'vertebrate', maybe not) and (b) no thing falls under two categorial sortals. The assumption that no thing enjoys two categorial sortals turns out, within this framework, to be integral to our workday ability to distinguish the extension of a sortal from its anti-extension.

(Interestingly, something *like* this approach is adopted by Paul Benacerraf in "What Numbers Could Not Be". He writes "if for two predicates F and G, there is no third predicate C which subsumes both and which has associated with it some uniform conditions for identifying two putative elements as the same (or different) C's, the identity statement crossing the F and G boundary will not make sense." (p. 65). Our approach is a little different: assume the no two categories axiom and one will conclude that identity claims connecting F's and G's are false, not meaningless. Benacerraf has some embarrassments to face on his own approach. Clearly "Five is the only thing mentioned by Joe today" is meaningful even if it is false on account of the fact that Caesar is the only thing mentioned by Joe today. Meanwhile, 'Caesar is the only thing mentioned by Joe today is meaningful' is true. Odd then, that 'a=b' should be meaningful 'b=c' be meaningful and 'a=c' be meaningless.)

1.1.3 A Kripkean analysis

We unpacked the Wright analysis in two ways. The first relied on verificationist considerations having to do with evidence-transcendence. Lacking sympathy with explanations that bottom out with verificationist prejudices, we are not inclined to this approach. The second way is of more interest to us. What is particularly interesting is the fact that it can ultimately be detached from the assumptions about sortal mastery which Wright himself relies upon.

Let us begin by relocating ourselves somewhat on the conceptual map. Ordinary mastery of a sortal does not, we say, require that we possess identity cri-

teria for that sortal, nor that we have a canonical means of recognizing for any object whether it falls under that sortal. These requirements ignore the fact that a sortal may get its reference from a reference fixer that does not yet provide identity conditions for it. Thus, for example, we may introduce a categorial sortal this way (pointing to a duck): 'Let 'C' express the category (in Dummett's sense) to which that waddling thing belongs'. We may go on to learn more about the essence of 'C' and relatedly, the conditions of identity and difference of C things. But we can coherently introduce 'C' into our language and have a workaday competence in C (of the sort once possessed by 'plant' users) without yet having much idea at all of its identity conditions. Similarly, for example, our mastery of 'banana' and 'horse' does not at all tell us whether a horse could be a banana since our workaday mastery does not provide us with any conceptual bar on the thought that bananas may turn slowly into horses as caterpillars turn into butterflies. As we confess to our Kripkean leanings, this may appear to make the Julius Caesar problem all the more pressing. If Julius Caesar could, for all I know, be identical to the banana I saw last week (him being the caterpillar, the banana the butterfly, so to speak) aren't all sorts of wacky conjectures—including that Julius Caesar is an odd number—opened up as altogether coherent?

While we may not pretend to know the identity conditions for Julius Caesar by virtue of our workaday mastery of the language we do, nevertheless, retain a deep conviction that Julius Caesar belongs to *some* natural kind. Our conviction that Caesar belongs to some natural kind or other runs somewhat deeper than our purported knowledge concerning which natural kind Julius Caesar belongs to. The discovery that some people turn into bananas may force us to refigure our sense of the natural kinds that there are. (In Dummett's lingo, it may force us to refigure our beliefs about the subordination relations of sortals). Perhaps people are like jade, dividing into two different natural kinds, one of which can metamorphose into bananas. Or maybe all people can turn into bananas... However the adjustments go, we will refigure our sense of the natural kinds without in any way giving up our sense that there is *some* natural kind to which Julius Caesar belongs. Further, and connected with this, we believe very firmly—almost unnegotiably—that Julius Caesar has a variety of core essential properties and that, whatever they are, they derive from the natural kind to which he belongs.¹⁰ Without quite knowing what the natural kinds are and what the core essential properties appropriate to each are, our intuitive picture of the world requires that there are such kinds and that various core essential properties flow from membership in such kinds.

With these remarks in place, we wish to suggest that the non-negotiable, intuitive conviction relevant to the Julius Caesar issue is one reminiscent of the theme of the last section: that things do not have a heterogeneous essence. That is to say, the core essential properties of a thing arise from its belonging to a particular kind and as such they enjoy a unity. Were a thing to have some essential properties by virtue of belonging to one kind and some very different essential properties by virtue of belonging to a different kind (where neither kind is subordinate to the other, as say between genus and species), then the essential properties of a thing would betray a fundamental disunity. There is of course no logical

impropriety is supposing such a disunity. Nevertheless, it is fundamental to our intuitive conception of the world that the essence of a thing is not disunified in this sort of way.

Now suppose Julius Caesar were a number. Then it would have certain natural properties that are essential to it. (After all, while we may have some doubts about the natural kind to which Julius Caesar belongs we have no doubt at all that Julius Caesar belongs to some natural kind or other). It would also, being a number, have some number-theoretic properties essential to it. After all, it is central to our conception of mathematical objects that they enjoy some core mathematical properties essentially. Two is essentially the successor of one, for example. Insofar as a natural object had number theoretic properties essentially, those properties will not obtain by virtue of one's belonging to a natural kind. A thing does not get to have members (in the set-theoretic sense) by virtue of belonging to a natural kind. A thing does not get to number sets by virtue of belonging to a natural kind. Suppose Julius Caesar is a number and we are forced to a picture according to which there are two different kinds that Caesar belongs to, whereby certain core essential properties of Julius Caesar obtain by virtue of Caesar belonging to a natural kind, other core essential properties obtaining by virtue of Caesar belonging to a mathematical kind. It is this disunity of essence that is intolerable to our conceptual scheme. Notice, now, that this is the very sort of disunity prohibited by our earlier axiom according to which one thing cannot enjoy two categorial sortals.

Let us take stock. Common to our development of Wright in 1.1.2 and to our Kripkean treatment is an axiom according to which a thing cannot belong to two different fundamental kinds. We leave the reader with two different diagnoses for that intuition.

The Wright-style diagnosis goes like this. The axiom that no object falls under two categories provides us with a facility for determining whether or not an object falls under a sortal. In particular, when we notice that categorial sortal A provides adequate identity criteria for some object *a* we can then, by assuming that axiom, conclude that the object does not fall under categorial sortal B. Generalizing now to all sortals: when we notice that some sortal A brings with it adequate identity criteria for some object *a*, we can, by assuming the 'no two category' axiom, conclude that the object does not fall under sortal B, so long as we know in addition that A is not subordinate to B, B is not subordinate to A, and that A and B are not subordinate to some further sortal C. In this way, an assumption of the axiom is integral to explaining one component of sortal mastery, namely that of determining when some object falls under that sortal. We exploit the 'no two category' axiom together with our mastery of identity conditions for various sortals to sort out which things each sortal does and does not apply to. We treat the axiom as a presupposition required for mastery of a language with a range of sortals in it.

The Kripkean mode of explanation, by contrast, does not proceed in this way at all. The Kripkean will insist that Wright requires too much of linguistic competence in sortals and hence invents data that are illegitimate explananda. The

proper explanation of the ‘no two categories axiom’ is merely a deep conviction built into our picture of the world—that the *de re* essence of each thing in the world has a unity to it.

1.2 *The Julius Caesar problem and the nature of intrinsic accidents*

Our discussion so far has relied on some reasonably obvious assumptions about numbers. *Inter alia*, we have assumed that numbers have their number-theoretic properties essentially. But what if someone were to challenge that assumption? We would certainly be tempted to simply dismiss such a challenge outright as absurd. But once again, we may hope to make progress in understanding our conceptual scheme by looking for a diagnosis of our sense of absurdity. After all, we could have simply dismissed the Julius Caesar problem at the outset as relying on a supposition that was absurd. But then we wouldn’t have learnt anything.

Note first that the essentiality of number-theoretic properties is not automatically secured by the fact that difference of number-theoretic properties ensures difference in the things that have them, and that duplication of number theoretic properties ensures sameness in the things that have them. Take fundamental particles. Difference in spatio-temporal trajectory ensures difference in particle. Exact similarity in spatio-temporal trajectory ensures sameness of particle. But that is not to say that two particles couldn’t have had switched trajectories. We may consistently allow that a and b can’t have the same trajectory at any world, while still maintaining that there is a world W1 where the actual trajectory of b is had by a and the actual trajectory of a is had by b. In short, principles about intra-world sameness and difference do not automatically yield results about inter-world sameness and difference. The fact, if it is one, that sameness and difference of numerical properties march in step with identity and distinctness of numbers does not guarantee by itself that numerical properties are essential, any more than the fact, if it is one, that sameness and difference of particle-trajectories marches in step with sameness and difference of particles guarantees that the trajectory of a particle is essential to it.

We might suggest that it is an analytic, conceptual, non-negotiable truth that the number nine is odd. An imaginary interlocutor, however, might concede this while still maintaining that this only gets us necessity *de dicto*. It is a necessary truth that anything, insofar as it has the property of being the number nine, has the property of being odd. But that hardly guarantees that anything *de re* is such as to have the property of being the number nine essentially.

Suppose now that our interlocutor, in light of all this, presents us once again with the Julius Caesar specter: Julius Caesar has the property of being the number nine, though something else could have had that property. Just as no two particles can share the same trajectory, there is no pair of things in any world that are both the successor of eight. But the thing that is the number nine in one world is not the same thing as the thing that is the number nine in some other world. There is of course no danger of a heterogeneous essence here. Julius Caesar has just the

essential properties we expect: namely those associated with his falling under the natural kind that he does. The property of being odd is one that is intrinsic but accidental.

What are we to say when confronted with this specter? We could stamp our feet and say “It is just a non-negotiable part of our conceptual scheme that numbers have their properties *de re* essentially! And foot-stamping would hardly be out of line—an incredulous stare is rarely more justified in philosophy than it is here.¹¹ Nevertheless, we believe that one can do better, not by producing something even more obvious than “The number nine is essentially (*de re*) odd”, but by bringing to light some systematic considerations of an intuitive sort which help to flesh out this obviousness.

The key point to notice, we believe, concerns the relations between the essential properties of a thing and its intrinsic accidents. Suppose something has 3-d extension essentially but circularity contingently. Both ‘having 3-d extension’ and ‘being circular’ are intrinsic, but only ‘being circular’ is a 3-d accident. In this case, the possibility of its having circularity as an intrinsic accident is not merely allowed for by its essence, but is positively explained by the essence. That is because its essence positively requires it to have one of the family of determinate 3-d shapes while not positively requiring it to have any one particular member of that family. In understanding the essence of a thing, one will, *a fortiori*, be in a position to recognize that it is possible that it have each member of some family of properties. In this way the possibility of those intrinsic accidents is rendered intelligible by its essence in the following way: its essential nature requires that some intrinsic property be possibly instantiated but does not require that it actually is. Another case is provided by causal powers: Suppose some causal power of unfolding in a certain way is essential to some natural kind.¹² That requires it be possible that it actually unfold in some way, but does not require that it actually unfold in that way. Thus the possibility of an intrinsic property—actually unfolding in such and such a way—is positively required by the essence, without the actuality of that property being required. Note the important contrast here between, on the one hand, the essential nature of a thing positively requiring that some intrinsic properties be possible, and on the other, the essential nature of a thing being silent on whether or not that property is possibly had. Call an intrinsic property of a thing an “intelligible intrinsic accident” if it falls into the former category: An intrinsic accident is therefore an intelligible intrinsic accident of a thing if its possibility—though not its actuality—is positively required by the essential nature of the thing. When an property is an intelligible intrinsic accident, the essential nature of a thing explains how it is that it is possible that the thing have that property. (Relatedly: when a property is an intelligible intrinsic accident, a perspicuous grasp upon the essential nature of a thing and upon that property will enable one to know a priori that it is possible that the thing have that property.)

Of course the essential nature of a thing cannot be thought of as merely a list of every single one of a thing’s essential properties. Suppose a thing is actually freckled. Then *being freckled at alpha* is essential to it and *being freckled by some member of its kind at alpha* is essential to every member of the kind. Moreover

the property of *being possibly freckled*, given some plausible assumptions about the proper modal logic, is essential to it (an essential property that could then trivially explain the possibility of being freckled). But such properties, though essential, do not intuitively characterize the nature of the thing. Aristotle thought of the essence as given by a ‘real definition’, where it is quite clear that the real definition will not mention every essential property. Following Aristotle, it is useful to think of the essential nature as given by a subset of all the essential properties, the subset providing a perspicuous rendering of the ‘real definition’ of the kind, in Aristotle’s sense. A fleshed out metaphysical theory of natural kinds—noticeably absent in Kripke—would be nice, of course. But we cannot try to make good on that lack here, making do for now with the intuitive remarks that we have provided.¹³

Our conjecture is that all (non-essential) intrinsic properties of a thing are intelligible intrinsic accidents. It is founded on a respectable intuition, namely that the kind of thing that a thing is explains the kinds of properties it can have. Further, this conjecture can be put to serviceable work in systematizing various relatively non-negotiable beliefs that comprise our view of the world.

In this connection, let us return to Julius Caesar. The property of being six feet tall at the age of 26 is, if it was an intrinsic property of him, an intelligible intrinsic property. The natural kind to which he belongs requires that Caesar have temporal and spatial extent without requiring that he have any particular spatial and temporal extent. In that way, the possibility, but not the actuality, of being six feet tall at the age of 26 is anticipated by the Julius Caesar’s belonging to the natural kind that he does. Even though, being six feet tall at the age of 26 is a contingent, accidental property of Caesar, that does not mean that there is no conceptual relation whatsoever between his having that property and his belonging to the natural kind that he does. Understanding what it is to be a human being requires that we understand that human beings are the sort of thing that must have spatio-temporal extent. Meanwhile, understanding “six feet tall at the age of 26” involves understanding that it is one of the ways of having spatio-temporal extent. By contrast, if Julius Caesar had numerical properties, those numerical properties would not be intelligible intrinsic accidents. The natural kind to which Julius Caesar belongs does not require him to have any of the family of numerical properties, nor does it ensure a potentiality to have any of them. In short, if it were possible for Caesar to have numerical properties, this is a possibility about which facts about natural kind membership are altogether silent. Membership in the natural kind to which he belongs would not enable one to explain how it is that it is possible that Julius Caesar have numerical properties. By contrast, we believe that the possibility of the intrinsic accidents that Caesar actually does have can be explained in terms of the kind to which Caesar belongs.

Assume as axiomatic to our conceptual scheme that intrinsic properties be intelligible accidents and it is clear enough why we cannot live with the idea that Julius Caesar has numerical properties. For Julius Caesar’s membership in that kind does not explain how it is possible for him to have numerical properties. Further, even if we have misidentified the natural kind to which Julius Caesar

belongs, that will not change matters: for it is unthinkable that membership in any natural kind will positively require the possibility of its members having numerical properties. If Julius Caesar did have numerical properties, they would, as it were, come from no where viz a viz his essential nature in a way that the intrinsic accidents that we associate with him do not come from nowhere.

Two maxims emerge from the preceding reflections:

- (1) No thing has a heterogeneous essence.
- (2) Every intrinsic property is an intelligible accident.

We suggest that these maxims diagnosis the absurdity we find in certain hypotheses. We have not, and will not, attempt to ground them in turn upon other axioms—explanations after all do have to come to an end somewhere. If these maxims are indeed deep and explanatory threads in our conceptual scheme connecting kinds and things, as well as, essential and accidental properties, then it is fair game to use them in trying to make sense of the world and, relatedly, in trying to make sense of the presuppositions that govern our concepts pertaining to the world—even if those threads defy further grounding. Having motivated our axioms in the realm of philosophy of mathematics we shall now attempt to make them useful in, in the philosophy of mind.

2 Heterogeneity, Intelligibility and Qualia

2.1 An argument for dualism

We begin with physical things. Each of these have essential properties by virtue of the natural kinds to which they belong. Assume now our guiding assumption—that of property dualism. We shall not pretend that the core platitudes about phenomenal events and the things that undergo phenomenal events—that they have a “what its like” character to them and so on—*straightforwardly* prohibit their identification with physical events and physical things anymore than the mathematician can pretend that the core mathematical platitudes about numbers straightforwardly prohibit their identification with material beings. Nevertheless, in the light of the preceding considerations, we are now in a position develop an argument for full blown dualism over mere property dualism.

Suppose, for *reductio*, that physical things and physical events have phenomenal properties. Each of these properties will be either essential or accidental to those physical things/events. We need not assume, of course, that all are essential, or that all are accidental. Perhaps the precise degree of pain is accidental to a pain event, but being a pain isn't. Perhaps having a capacity for phenomenal experience is essential to human beings but being in pain isn't. In any case, however one divides the modal labor here, one will run into some considerable trouble when confronted with our two axioms.

Insofar as one takes phenomenal properties to be essential to physical objects/physical events, one will violate the heterogeneity maxim. For isn't it, after all, fundamental to property dualism that phenomenal properties be a different kind

of property to physical properties, to the extent of being unintelligible in terms of such properties? As such, insofar as they belong to a thing essentially, they will not belong to that thing by virtue of its instantiating a physical kind. They will belong to a thing by virtue of its belonging to some mental kind. Insofar, then, as one ascribes such properties to a physical kind of thing, one will have to maintain that some core essential properties of the thing belong to it by virtue of its belonging to some natural kind and some very different essential properties belong to it by virtue of its belonging to a different kind. As such the essential properties of that thing would betray the very disunity prohibited by the “No Heterogeneity of Essence” maxim. It will not do here, we note, to patch things up by saying that the one set of essential properties supervenes on the other such that similarity of one modally guarantees similarity of the other. That would be like trying to make the identification of Caesar with the number five tractable by claiming that the individuating characteristics of Caesar *qua* number march in step modally with the individuating characteristics of Caesar *qua* natural kind. Positing brute modal connections between aspects of a disunified essence does not remove the disunity, nor does it make it tolerable to our conceptual scheme. In short then, it seems to us that insofar as one attributes physical and phenomenal essences to the same thing, that is tantamount to admitting a disunity prohibited by our conceptual scheme.

What now if one says instead that all phenomenal properties are accidental features of the objects that instantiate them? We have Kripkean sympathies here: “Can any case of essence be more obvious than the fact *being a pain* is a necessary property of each pain? ... Consider a particular pain or other sensation that you once had. Do you find it all plausible that that very sensation could have existed without being a sensation, the way a certain inventor (Franklin) could have existed without being an inventor?” (*Naming and Necessity*, pg. 146.¹⁴) Kripke, we believe is justified in stamping his feet here; denials such as the ones here are only slightly less absurd than the denial that Nine is essentially a number.

Nonetheless, we feel that foot stamping is not our only resource; that room still remains for theoretical justification. The trouble with the suggestion that phenomenal properties are contingent properties of physical things is that this appears to violate our second maxim. For membership in a natural kind does not explain the possibility of having phenomenal properties.¹⁵ (Of course, if phenomenal properties were nothing other than functional properties, the intelligibility doctrine would not be violated. The possibility of a thing’s having a certain functional architecture is precisely the sort of thing that is rendered intelligible by virtue of a thing’s belonging to the natural kinds that it does. The whole point of what goes by the name ‘property dualism’, however, is that it attempts to put some conceptual distance between the properties adumbrated by natural science on the one hand and certain mental properties on the other.) Assuming property dualism, and recognizing that a thing falls into a certain physical kind does not put one in a position to recognize the possibility of it falling into a certain phenomenal kind. If, then, phenomenal properties are intrinsic properties of physical things, they are not intelligible intrinsic accidents.

In short: Assume for reductio that any given phenomenal property P is realized by a thing or event that falls under some physical kind K. Assume further, property dualism.

1. P is essential or accidental to the K thing.
2. If P is essential, then the K thing has a heterogeneous essence.
3. If P is accidental, then the K thing has an intrinsic property that is not an intelligible accident.

But

4. All intrinsic properties that are accidental are intelligible accidents.
5. No thing has a heterogeneous essence.

So, from 4 and 3

6. P is not accidental to the K thing.

From 5 and 2

7. P is not essential to the K thing.

From 6, 7 and 1

8. The K thing doesn't have P.

We conclude, by reductio, that no thing that falls under some physical kind instantiates phenomenal properties.

Our reader may think we have showed too much by leaning on the analogy with mathematics. For, surely, no one will admit it quite as absurd to identify phenomenal events with neural events or minds with material objects as it is to identify Julius Caesar with numbers. If our diagnosis is correct, however, oughtn't both identifications strike us as equally absurd? As a corrective to any such impression, it is worth detailing some ways in which the suggestion of identifying Julius Caesar with the number nine places a strain on our understanding and imagination that token identity theory does not. In particular, we should note that the two modes of attack on the Julius Caesar problem that we identified in Crispin Wright do not carry over to phenomenal events. The first mode of attack relied on the point that, assuming Julius Caesar was a number, we would have no way at all of obtaining evidence as to which number Julius Caesar was. Julius Caesar's number-theoretic properties would be altogether evidence-transcendent. This point does not apply with equal force to the case of phenomenal events. Assuming phenomenal events were neural events, it is simply not true that we know of no way of obtaining any evidence concerning which neural events might be identical to which phenomenal properties. We already have in place 'third person' criteria

for phenomenal properties which, while admittedly allowing no conclusive verification of their presence, do allow for third person evidence. We can certainly couple such evidence with neurologic data so as to gain some reasonably disciplined ways of associating phenomenal states with neurologic states in a way that contrasts with our utter inability to make progress on associating number-theoretic properties with material beings.

Wright's second mode of attack relied on the fact that our workaday mastery of number language brings with it criteria of identity that are different to those that come with workaday mastery of material object sortals. By contrast, workaday mastery of phenomenal concepts does not seem to bring with it any principles of identity and diversity that are as nuanced as these. When is a pain at one moment the very same pain as the pain at the next moment? How could that pain have been different and still have been the very same pain? We don't have a very good sense at all of how to proceed with such questions. Thus our actual mastery of criteria of identity and difference for phenomenal experiences is rather thin. Neither facts about evidence-transcendence nor facts about sortal mastery are adequate to providing a satisfying and complete diagnosis of the Julius Caesar problem. But they do point to ways in which the suggestion of mind-body identity is something less of a strain. We do not have a sense of utter evidence transcendence for mind-body identities as we do with number-body identities. Furthermore, we do not have mastery of principles of phenomenal identity that can strain systematically against principles of physical identity in the way that our mastery of principles of numerical identity can strain against principles of physical identity.

Nevertheless, if we are right, there are deep threads to our conceptual scheme that, all by themselves, tell against number-body identity—indeed which give the most satisfying explanation of the incoherence of such identities—and which also provide a compelling case against mind-body identity.

2.2 *A relatively benign substance dualism?*

How might the argument of 2.1 be resisted? One response of course is to concede that the conclusions flow from our conceptual scheme but to go revisionist: 'Well, so much the worse for the presuppositions of our ordinary, so called "intuitive" ways of thinking about the world'. We acknowledge such revisionism as *prima facie* coherent, though we will suggest that a more conservative response lies open. In what follows we take up the question of just how full-blown a dualism 2.1 can be expected to justify.

An initial suspicion that the argument of 2.1 shows too much can be gotten by considering a metaphysical picture that is *prima facie* coherent, and in the spirit of property dualism, but does not appear to require any Cartesian ghosts in the machine. This is one according to which there are "nomological danglers", which are physical-phenomenal laws of nature that are contingent add-ons to the fundamental laws of physics, and which thus could have been different without the fundamental laws of physics being different. Call this the Jackson-Chalmers picture.¹⁶ It is property dualism all right, but there seems to be nothing like Car-

tesian dualism emerging from it. As Chalmers writes: "The arguments do not lead us to a dualism such as that of Descartes, with a separate realm of mental substance that exerts its own influence on physical processes." (*The Conscious Mind*, p. 124–5.) How then can we say that property dualism strongly militates in favor of full-blown dualism?

Though our argument told in favor of a multiplication both of events and their bearers, we shall proceed at this point by focusing on physical and mental subjects of events rather than physical and mental events. Many readers will have pause about whether events really exist,¹⁷ many more will have pause about questions concerning the essences of events, many more will be happy to assume a duality of events given property dualism but will question our thrust at the point at which it posits non-physical subjects of phenomenal events. With this in mind, let us consider what might appear to be the thesis of our paper—that property dualism, when properly thought through, leads one to think that no physical object is the subject of mental properties—alongside what seems to be a coherent and natural metaphysical picture that admits property dualism without admitting non-physical bearers of mental properties.

As we proceed now towards a relatively benign substance dualism, another sidelong glance is in order. One orthodox approach in metaphysics—associated with John Locke—allows that a caterpillar is constituted by a parcel of matter but is not identical with it.¹⁸ Call this view—which allows collocation of physical objects of different kinds, though not collocation of physical objects of the same kind (at least not without further argument) 'coincidentalism'. It turns out that our axioms militate for dualism all right, but perhaps only for a coincidentalist dualism.

What makes us call the caterpillar a physical thing on the coincidentalist picture? Presumably, the existence of the parcel of matter is neither necessary nor sufficient for the existence of the caterpillar since, on the one hand, certain organizational and relational properties must obtain in order that the parcel constitute that caterpillar, and on the other hand, the caterpillar—but not the parcel—can survive a change of parts. Nevertheless, the caterpillar, though distinguishable from the parcel is physical in at least two important senses. First, there is, in principle, upwards intelligibility as between global microphysics and caterpillar facts, in the following sense: Omniscience about microphysics—and thus about the underlying physical reality of nature—together with a perspicuous understanding of caterpillarhood would enable one to determine the distribution of caterpillars. Call this the micro-intelligibility sense of physical. Second, the caterpillar's parts are all ultimately microphysical. Call this the parthood sense of physical. Might it be that the two senses come apart? There is indeed no conceptual guarantee that they march in step and a fairly benign mind-body dualism can be arrived at by seeing that this is so.

Suppose that the Jackson-Chalmers picture of the world is correct. Note that it is utterly silent on such questions as "Is a capacity for having conscious experience part of what it is to fall under the kind *human being*?" Clearly, it would be

very odd, having embraced the Jackson-Chalmers picture, to suppose that such a capacity is essential to any microphysical particle or any microphysical parcel of matter. But there is no requirement for fleshing out the modal properties of human beings in a way that marches in step with the modal properties of the parcels of matter that constitute them. This point is familiar already to coincidentalists about more humdrum physical objects. The modal properties of statues and caterpillars hardly march in step with the parcels of matter that constitute them. And given our two axioms, we contend that the most natural way of fleshing out the Jackson-Chalmers picture is to think of human beings as essentially having a capacity for consciousness (or perhaps more cautiously, and in an Aristotelian vein, essentially having a capacity for consciousness insofar as one is a healthy member of the kind). Consciousness is, on this view, straightforwardly contingent in relation to microphysical objects and parcels of them, but not so in relation to certain physical objects (in the parthood sense) that are constituted by them.

Suppose that human beings have capacity for consciousness and that this capacity admits of no analysis in other terms. It seems to us that to relegate this capacity but not, say, the nutritive capacity to the realm of the contingent features of humans would be hardly less *ad hoc* than to relegate the electrical but not magnetic properties of electromagnetic fields to the realm of the contingent.¹⁹ (Note then, that while our property dualist will insist that consciousness is in principle unintelligible *viz a viz* ideal physics, he may not wish to insist that it is unintelligible *viz a viz* all natural science, since the science of certain physical objects (in the parthood sense) may itself turn out to be unintelligible *viz a viz* ideal physics). Grant us property dualism, and this relatively benign dualism ought to be very appealing indeed.²⁰

Are there possible worlds full of zombies—microphysically like us but altogether lacking in a capacity for consciousness? Our embellishment will hardly threaten the Jackson-Chalmers intuition that this is possible. It will merely opine in addition that such a world will not instantiate the kind *human being*. (Two alternatives: (a) It is full of unhealthy human beings. We don't like this because we want to make sense of health and the lack of it against the background of a fixed set of laws of nature. (b) In the spirit of Locke we might have triple coincidentalism of parcels, human beings, and persons, all physical in the parthood sense. One might then say: "I couldn't be a zombie in the sense of being identical to a thing in a world where the laws did not permit consciousness. But the human being that constitutes me without being identical to me could exist in such a world." We don't have much to say against this option, except to wonder why a theory of our capacity for consciousness should be excluded from an idealized biology of human beings.)

The sort of coincidentalism that we have been discussing is a sort of *via media* between what Michael Jubien (tendentiously) calls "the mysterious view" according to which humdrum physical objects coincide and the "mystical" view according to which one of the coincident objects has a non-physical part.²¹ Hu-

man beings, on this view are not mystical in Jubien's sense: they have no non-physical parts. But they are not, in the relevant sense, humdrum either, since unlike statues and caterpillars, they are not, even in principle, fully intelligible in terms of groundfloor physical reality.

Thus we arrive at a sort of dualism that is permitted by what went on before. Cartesian ghosts in the machine are also permitted by what went on before. Our present task has been to show that they are not required. Our coincidentalism warrants the label 'dualism' more strongly than a familiar parcel/statue dualism in that on this view human beings are not physical in the sense of being micro-intelligible. Omniscience about microphysics together with a perspicuous grasp of the kind human being will not allow one to determine the distribution of human beings since the existence of human beings requires the existence of beings whose real definition requires capacities that are not secured by microphysics alone. Property dualism, when combined with certain intuitive axioms, leads, we say, to the conclusion that there are non-physical beings in the sense of beings that are unintelligible by way of the microphysical groundfloor, these beings enjoying coincidence but not identity with beings that are physical in every sense. But it may not yield the conclusion that there are beings that are non-physical in the sense of having ultimate constituents that are non-physical.²² Are the permissible mind-body dualisms we have hinted at so implausible that we should go back and rethink the modal landscape? We think not.²³

Notes

1. See Mark Lance and John O'Leary-Hawthorne, *The Grammar of Meaning*, forthcoming, Cambridge University Press.
2. The contrast is between what Chalmers calls "the phenomenal" and the "psychological" aspects of mind. He is someone that opts for a thoroughgoing property dualism for the phenomenal but not for the psychological. See *The Conscious Mind*, pg. 11ff.
3. We leave aside complications to do with 'nothing buttery', whereby one might object that a world that is a physical duplicate of this world may not be a mental duplicate because of spooky spirit-gunk thrown in as an extra into one of the worlds. See Jackson, *op. cit.* p. 28 and Chalmers *op. cit.* pp. 41–2.
4. This accords roughly with Chalmers' notion of logical supervenience (see chapter 2, *op. cit.*). See also Frank Jackson's 'Armchair Metaphysics'. Unlike these writers, we (like many property dualists) have little interest in identifying metaphysical supervenience with any such relation.
5. There are, of course, intermediate positions. One might, for example, have mind-body dualism for event tokens without acquiescing in a duality of minds and bodies. The considerations that we advance in what follows, however, seem to lend themselves naturally towards the full-blown view over any such intermediate view.)
6. The task of grounding 'Julius Caesar is not the number five' on truths that are even more obvious is not ours, of course. For what could be more obvious than that Julius Caesar is not the number five? The task is to ground that particular truth on truths with

- a more general scope that are at once intuitive and far-reaching in their explanatory power.
7. Note that if it turned out that two different people had the same number-theoretic properties, say the ones associated with 'The number nine', we might conclude that '9' does not uniquely refer, a conclusion reminiscent of Benacerraf's observation that distinct sets are equally good candidates for the referent of '9'.
 8. Of course, if Julius Caesar is identical to the number five, then in a sense we do have a way of telling which set he numbers, so long as we access him under a numerical rather than a perceptual/historical/testimonial mode of presentation. What is required by this line of attack, presumably, is not merely that we be able to tell which number the object Julius Caesar is under *some* mode of presentation of that object but that we be able to tell what Julius Caesar is under the modes of presentation canonically associated with the name 'Julius Caesar'. As this is not a line of attack we wish to pursue at length, the details of such refinement will be left to Dummettian sympathizers.
 9. Note that we assume bivalence here. Deny bivalence and one might instead end up concluding from a similar style of consideration that the statement that Julius Caesar is the number five is neither true nor false. Nor would it be surprising for a philosopher who dissolved the Julius Caesar problem by considerations to do with evidence-transcendence to end up with such a conclusion.
 10. We ignore here such properties as 'existing in a world where it is possible that something is a number' or 'existing in a world where something is necessarily odd'. Some essential properties are really parasitic on the essences of other things.
 11. As many readers will be aware, the phrase 'incredulous stare' is cribbed from Lewis who anticipated purported refutation by incredulous stare of his brand of modal realism. See *Counterfactuals* pg. 86.
 12. An Aristotelian might complicate this story in the following way: What flows from membership in a kind is that, insofar as one is a healthy member of that kind, one has certain causal powers. Thus there may be members that lack the capacity. One needs to supplement *de re* membership in a kind with the *de re* possibility of healthy membership (a natural Aristotelian assumption) in order then generate the *de re* possibility, for any member of the kind, to have intrinsic properties associated with the exercise of those causal powers.
 13. Here and throughout we leave haecceitistic properties to one side. The kind of thing that Plato belongs to does not straightforwardly render intelligible haecceitistic properties, whether essential (being Plato) or accidental (being Plato and wise). Whether, in light of the non-heterogeneity thesis, a case can be made out for anti-haecceitism is an interesting question that we shall not pursue here.
 14. As a corrective to our sense that the intuitive case is fully devastating: "Suppose, however, that tormented by a raging toothache, you come to be distracted from it by a sudden emergency that calls on all your powers. Triumphant, you turn at leisure to enjoy the plaudits of the crowd, when once again the toothache crashes back into consciousness. Did the toothache cease to exist during the interim when you were absorbed in the rescue operation?" Jose Benardete, *Metaphysics: The Logical Approach*, pg. 180.
 15. This is part of the point of the literature that focused on the "explanatory gap" between the phenomenal and the physical, though to our mind this literature does not properly separate the conceptually distinct requirements of a homogeneous essence and the

- intelligibility of accidents. See Joe Levine's 'Materialism and Qualia: The explanatory gap'; Colin McGinn's 'Can we Solve the Mind-Body Problem?'
16. See *The Conscious Mind* op cit. and Frank Jackson 'Epiphenomenal Qualia'.
 17. Some might prefer an ontology of facts over events (see Jonathan Bennett's *Events and their Names* for an excellent discussion of the difference). With facts rather than events in view, token differences fall out of property dualism very readily, owing to the fine-grained way in which facts are individuated. (The fact that John ran is different from the fact that John ran quickly).
 18. See Book II, Chapter XXVII 'Identity and Diversity' in *An Essay on Human Understanding*. Locke's words are in themselves somewhat equivocal between a coincidental approach and the relative identity approach associated in modern times with Peter Geach. Note also that Locke is neutral in that chapter as to whether people have non-physical parts. See David Wiggins *Sameness and Substance*, pg. 30–31 for a contemporary exposition of this tack.
 19. We are grateful to Larry Hardin for the analogy.
 20. Now of course it is possible that a human being in some sense lose that capacity. But it is also possible that a human being lose her lungs and thus the capacity to breathe and be maintained for a while by fancy devices. But there is presumably some useful sense in which a capacity to breathe is essential to the kind human being (recall the Aristotelian idea that it is essential to healthy members.)
 21. See *Ontology, Modality and the Fallacy of Reference*, pg. 20.
 22. We have been laying out a relatively benign dualism against the background of a property dualism that assumes that phenomenal properties do not supervene on microphysics. Could we flesh out a picture which respects our axioms and which allows for the supervenience of the phenomenal on microphysics? Maybe. No individual micro-particle has phenomenal properties intrinsically. No individual micro-particle has a capacity to produce a phenomenal property. Sure an individual micro-particle on this view will essentially, insofar as it is caught up in some very complex micro-relations, also be caught up in a world where there are phenomenal properties. But this is not the sort of essential property that is typically thought of as part of the core that characterizes the kind a thing belongs to, as part of the real definition. In short, one can maintain as a metaphysically coherent thesis the microphysically unintelligible but modally strong emergence of human beings with an essential capacity for consciousness out of a complex of microphysical facts. How about parcels. Don't they, on this view, have a capacity to constitute consciousness essentially? No they don't. Recall the humdrum case of statues and clay : it is no part of the essence of a lump that it constitute a statue. But supposing it accidental, doesn't the consciousness constituting power amount to an intrinsic accident of the parcel that is unintelligible? This is the toughest objection to handle. Two options: (1) Deny that this property is intrinsic, in the relevant sense (just as being numbered by a Platonic object is not an intrinsic property of Caesar, in the relevant sense, even though it is had by him in every world.) (2) Develop a view that does not take parcels with metaphysical seriousness, and which thus allows that particles at a time constitute a human being while denying that, strictly speaking, they compose any such object as a hunk or a parcel. (cf. Peter Van Inwagen, *Material Beings*, who denies mereology in the context of serious metaphysics.) It is beyond our scope to pursue these ideas here.
 23. We wish to thank Jose Benardete and Jan Cover for their help.

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