PRESENTISM AND THE GROUNDING OBJECTION

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Presentists think that only present things exist.[1] But according to a popular line of objection, their thesis has an unacceptable implication: if there were only present things, there would be nothing to ground past and future truths.[2] It is a plausible principle that contingent truths like Socrates existed are true only if there is some thing or things in the world that ground their truth, that make them true. But what among the present things—which according to the presentist, exhaust reality—grounds a truth like Socrates existed? Says the objector: nothing. So presentists face an uncomfortable dilemma: reject the principle that contingent truths need grounding or give up obvious truths about the past like Socrates existed. Neither option is attractive.

Such is the grounding objection to presentism, roughly stated. I argue in this paper that presentists have an adequate reply. After setting out the objection in proper detail, I expand on a reply once advocated by John Bigelow (1996) and defend my expanded reply against objections.

1. The Grounding Objection Stated

1.1 Grounding and Truthmakers

The grounding objector holds that contingent truths need grounding. But what does she mean? What does her talk of grounding come to? A standard answer takes its start from the truthmaker axiom, which is typically construed along these lines:

(**TA**) $\Box\forall p(p \text{ is contingently true} \supset \exists x_s \Box(\text{the } x_s \text{ exist} \supset p \text{ is true}))$.[3]

In English: necessarily, for any proposition p, if p is contingently true then there are some xs such that, necessarily, if the xs exist then p is true. A truth is grounded, we might say,

when there are some things, the xs, such that the proposition that the xs exist entails the truth in question.

If (TA) is right, then, necessarily, all contingent truths are grounded. Suppose it is right. Then there's trouble for presentism. Consider the contingent truth that dinosaurs existed. What present things are such that the proposition that they exist entails the proposition that dinosaurs existed? Isn't it possible that things be just as they presently are and there have been no dinosaurs? (For example, isn't it possible that things be just as they presently are except that God created the world five minutes ago?) It would seem so. But if so, then no present things are such that the proposition that they exist entails the proposition that dinosaurs existed. Wherefore, given (TA) and the presentist's claim that the present things exhaust reality, it is not true that dinosaurs existed. But this looks bad for presentism: dinosaurs did, after all, exist.

Many presentists will reply by denying (TA). There are well known reasons for being skeptical about such principles.[4] So, for example, is there some thing or things such that the proposition that they exist entails the proposition there are no unicorns? Not obviously. For that matter, is there some thing or things such that the proposition that they exist entails Bush is president? Bush doesn't fit the bill (he could exist without being president), nor does the pair comprising Bush and the property being president (it could exist without Bush being president). Friends of (TA) will likely reply that the "state of affairs" Bush's being president—the non-mereological fusion of Bush and the property being president—does the job. But it's not just obvious that there are such things as these non-mereological fusions.

Perhaps these and like worries can be worked up into a good objection to (TA) and an adequate reply to the objection to presentism of paragraph before last. Perhaps. But even if so, the presentist has little cause for comfort since there's a widely discussed variation on (TA) that makes just as much trouble for presentism and is vastly more difficult to deny.

1.2 Grounding, Truth and Supervenience

The variation I have in mind is formulated by David Lewis and John Bigelow as the claim that truth supervenes on being, where the idea here is that truth supervenes on what things there are and which fundamental properties and relations[5] they instantiate.[6] In terms of possible worlds:

> (**SP**) For any proposition p and worlds w and w*, if p is true in w and not in w*, then (a) according to w, something exists that doesn't exist in w* (or vice versa), or (b) according to w, some objects instantiate a fundamental property or relation that they don't instantiate in w* (or vice versa).[7]

(SP) is plausible. It fails only if there are worlds in which truths about what non-fundamental properties and relations are instantiated—truths about what grue-like properties and relations are instantiated—fail to supervene on truths about what exists and what fundamental properties and relations are instantiated. But it is plausible that, necessarily, truths of the first sort supervene on truths of the second. At any rate, so think many of us.

(SP) looks pretty good. But presentism would seem to contravene it. Dinosaurs existed. Since, one thinks, present things could have been just as they are and dinosaurs

not have existed (here again, couldn't things have been just as they presently are except that God created the world five minutes ago?), the truth that dinosaurs existed would seem not to supervene on what present things there are and which fundamental properties and relations they instantiate. But presentism says that present things exhaust reality. So given presentism, the truth that dinosaurs existed would seem not to supervene on what things there are and which fundamental properties and relations they instantiate. So given presentism, (SP) would seem to be false. But (SP) surely isn't false; so presentism must be.

Let it be understood henceforth that the foregoing bit of reasoning expresses the grounding objection to presentism. In a word: presentism is incompatible with an obvious truth, (SP); so presentism is to be rejected.

2. The Grounding Objection Examined

The grounding objection as we've stated it depends on two principles, the supervenience principle (SP) and what we might call a temporal recombination principle:

> (**TR**) Things could have been just as they are at present (same things presently in existence, same fundamental properties and relations presently instantiated) and the past have been different.[8]

Sensible presentists will object to the latter. There are various ways of proceeding; I'll focus on a proposal once advocated by John Bigelow.

2.1 Lucretianism

Bigelow (1996) endorses a view we might call Lucretianism. The Epicurean philosopher Lucretius had an exceedingly sparse ontology. He seems to have thought that reality is exhausted by present atoms in the void and their properties. Responding to the objection

that there must be something more to the world than this because, after all, there is the fact that the Trojans were conquered, and this fact isn't to be found among the present atoms in the void and their properties, Lucretius had this to say:

> Again, when men say it is a fact that Helen was ravished or the Trojans were conquered, we must not let anyone drive us to the admission that any such factual event exists independently of any object, on the ground that the generations of men of whom these events were accidents have been swept away by the irrevocable lapse of time. For we could put it that whatever has taken place is an accident of a particular tract of earth or of the space it occupied. (Lucretius 1994, 21)

According to Lucretius, then, to say that the Trojans were conquered is to predicate a certain accident or property of a bit of land or a region of space—as we might put it, the property of being the place where the Trojans were conquered. Lucretianism, let us say, is the view that the world has this and many like past- and future-tensed properties: properties like being a place where dinosaurs roamed, and having been inhabited by wooly mammoths.[9]

The Lucretian presentist will be unimpressed by (TR). She'll think it impossible that a world should have the same past-tensed properties as ours but a different past. (So she'll think it impossible that a world should have, say, the past-tensed property of having been roamed by dinosaurs, but not have been roamed by dinosaurs.) But given (SP), truths to the effect that our world has thus-and-such past-tensed properties supervene on what things exist and what fundamental properties and relations they instantiate. So given that she accepts (SP), and I see no reason why she shouldn't, the Lucretian

presentist will think that things couldn't have been just as they are—same things presently in existence, same fundamental properties and relations presently instantiated—and the past different. So she'll think (TR) false.

Since without (TR), the grounding objection is a non-starter, we see that, for the Lucretian presentist anyway, the grounding objection gives little cause for concern. In the sequel, I consider what might be said against Lucretianism.

3. Lucretianism and Ontological "Cheating"

Theodore Sider (2001, 39-41; 2003) proposes that Lucretianism is of a piece with a variety of ontologies that "cheat" by invoking dubious irreducibly hypothetical properties. Some examples of irreducibly hypothetical properties (Sider 2001, 39-41): First, maybe the causal dispositions of a thing are brute—in no way explained by or reducible to its non-dispositional properties (or its non-dispositional properties together with the laws of nature). The glass has the disposition to shatter when dropped. On the "dispositions are brute" view, this property is a brute feature of the glass, not to be analyzed in terms of its structural properties, physical make-up and the like. Such brute dispositional properties are in an important sense hypothetical because, to borrow Sider's phrase, they "point beyond" the way things actually are—they are "outward looking". The dispositional property of shattering if dropped points beyond the way things are to the way things would be were something dropped. Hypothetical properties contrast with categorical properties: intuitively, those properties that do not point beyond their instances; they characterize a thing as it actually is, not how it could have been, or would have been, or was.

Second: brute counterfactual properties. Molinists propose that, from all eternity, the world had the property of being such that, were Quine to consider writing Word & Object under such-and-such circumstances, he would freely decide to do so. From the Molinist's perspective, this property is not analyzable in terms of non-counterfactual properties. So, for example, the world's having this property is not a matter of its having certain physically specifiable initial conditions and being governed by certain physical laws. Nor is it a matter of Quine's having certain propensities: the world had this property long before Quine existed. Molinists will think of this property as primitive, a part of the world's fundamental ontology. Such properties are paradigmatically hypothetical: they point beyond the way things are to how things would be under certain conditions.

Third: irreducible modal properties. Some actualists think that the world includes among its primitive properties modal properties like being possibly true, and being essentially human. Such properties point beyond their instances to how things could have been and are thus hypothetical properties.

And finally, the tensed properties of Bigelow's Lucretian. Properties like being formerly roamed by dinosaurs are hypothetical since they point beyond their instances to how things were or will be. If we think of them as primitive, unanalyzable into more basic materials, we get another example of an irreducibly hypothetical property.

Sider (and others too I expect) regards any ontology that invokes such irreducibly hypothetical properties as dubious. Says Sider: such ontologies "cheat" by postulating disreputable properties to solve their problems.

Sider's suggestion raises several interesting questions. First, what exactly does the hypothetical/categorical distinction come to? As it stands, it's a bit undercharacterized. Second, why are ontologies that postulate irremediably hypothetical properties ipso facto suspect? Why are these properties untoward? And third, is there any reason to think that the ontologies Sider mentions are committed to irreducibly hypothetical properties, or could it be that certain of their hypothetical properties reduce to categorical ones?

3.1 On the Hypothetical/Categorical Divide

I begin with the first question: What does the hypothetical/categorical distinction come to? This is a hard question. I think I understand the distinction between properties like being round and being possibly round, or being short and being formerly short well enough. It can be thought of as follows.

A couple points by way of setup. I shall follow George Bealer (1982) in abbreviating the singular term 'the proposition that S' with '[S]', and in referring to the property of being an x such that x is F with the singular term '$[Fx]_x$', and the relation among $x_1, \ldots, x_n$ such that $Rx_1, \ldots, x_n$ with the singular term '$[Rx_1, \ldots, x_n]_{x1 \ldots xn}$'. I shall join Bealer in assuming that these singular terms may contain externally quantifiable variables. For example, using Bealer's bracket notation, we may represent the proposition that, for some x, Joe believes the proposition that x is F as '$\exists x(jB[Fx])$'.

Finally, I shall assume that expressions like 'is possible', 'is necessary', and 'is past' are predicates, expressions that combine with a singular term t to yield a sentence that expresses a proposition about the referent of t. More, I shall assume that such predicates express properties. So: to say that $\Diamond$[S] is to say that [S] is possible—that is,

that [S] has the property being possible. To say that WAS[S] is to say that [S] is past—that [S] has the property being past. I leave it an open question for now whether such properties are analyzable into more basic properties or relations.

I can now characterize the distinction between the property being round and the property being possibly round. The latter property, I propose, is identical with the property $[\Diamond[Rx]]_x$—that is, it is identical with the property of being an x such that the proposition that x is round is possible. Some related examples:

being necessarily divine = $[\Box[Dx]]_x$

being formerly short = $[WAS[Sx]]_x$

Properties like the foregoing have this in common. Each is such that, for some properties G and H (such that H is not equivalent to the property being true[10]), it is identical with the property of being an x such that the proposition that x has G has H. In terms of our bracket notation: each is such that, for some properties G and H (such that H is not equivalent to the property being true), it is identical with the property $[H[Gx]]_x$. (So, e.g., the property being possibly round, I say, is identical with the property $[\Diamond[Rx]]_x$—the property of being an x such that [Rx], the proposition that x has roundness, has the property being possible, where the latter property, notice, is not equivalent to the property being true.) Not so for the property being round. For no properties G and H is it the case that being round is identical with the property $[H[Gx]]_x$ (though it certainly is equivalent to such properties).[11]

Here then we have a clean distinction between two sorts of property. Let us call properties like $[\Diamond[Rx]]_x$ hypothetical properties, and define the notion of a hypothetical property thus:

F is a hypothetical property $=_{df.}$ for some properties G and H (such that H is not equivalent to the property being true), $F = [H[Gx]]_x$.

Categorical properties, say, are non-hypothetical properties.

If this is what the hypothetical/categorical distinction comes to, then I understand it well enough. But if this is what the distinction comes to, it's hard to see why the actualist, the Lucretian and their ilk should be criticized for admitting hypothetical properties into their ontologies. To say that x is possibly F is just to say that the proposition that x is F has the property being possible; to say that x is formerly F is just to say that the proposition that x is F has the property being past. And what's to complain about with properties like being possible and being past? They aren't exotic or obviously untoward. Note too that if this is what the distinction comes to, the actualist, the Lucretian et al are not committed to irreducibly hypothetical properties. To say that being possibly round is identical with being an x such that the proposition that x is round is possible is to give a reductive analysis of being possibly round in terms of categorical properties: as the distinction is currently drawn, properties like being round and being possible are categorical: plausibly, for no properties G and H is it the case that being round or being possible is identical with $[H[Gx]]_x$.

In brief: if the hypothetical/categorical distinction is what I say it is, the properties invoked by the Lucretian—properties like being an x such that dinosaurs formerly roamed x—are neither irreducibly hypothetical nor obviously offensive. They are hypothetical, to be sure, but are analyzable into non-hypothetical properties like being a dinosaur and being past. Since the latter properties aren't dubious in any obvious sense, nor are the Lucretian's more exotic properties.

Sider will likely retort that (a) the hypothetical/categorical distinction is not what I say it is, and (b) even if I'm right that we can reductively analyze properties like having been round and being possibly round in terms of properties like being past and being possible, this is no real gain since the latter properties are just as dubious as the former. Take (a) first. Comments of Sider's suggest that, by his lights, properties like being possible, being necessary, being past, and being future are hypothetical properties.[12] Since my analysis of the distinction puts these properties on the categorical side of the divide, my analysis gets his distinction wrong.

Well, it would come as no great shock if my analysis gets the hypothetical/categorical distinction wrong: it's notoriously difficult to say just what this distinction comes to. But for present purposes, not much hangs on this. What matters, I say, is that properties like being formerly tall can be analyzed as above in terms of simpler properties like being tall and being past, and that the latter properties aren't obviously objectionable.

Sider will reply that the property being past is objectionable because it is irreducibly hypothetical. This takes us to (b). In reply, I'm not sure whether it's irreducibly hypothetical: if the hypothetical/categorical distinction isn't what I suggest above, then I'm not sure what the distinction comes to. (I doubt anyone else is either.) But even if being past were irreducibly hypothetical, why should this count as a mark against it? What exactly is wrong with these properties? Sider, I think, will grant that it's exceedingly hard to say just what the hypothetical/categorical distinction comes to, but will argue that, even if we can't say exactly, we can just see that there is something dubious about properties like being possible, being past and being future.[13] Maybe it's

difficult to say just what makes these properties hypothetical as opposed to categorical. No matter: we can just see that these properties, taken as primitives, are inappropriate ontological posits. Since it's very difficult to see how the Lucretian presentist could reduce tensed properties like being past or being future to less objectionable properties, the Lucretian who postulates their existence stands convicted of ontological cheating.

By way of reply, what one would like to see here is an argument for the claim that primitive properties like being past are somehow untoward. Surely we can't just see that such properties are inappropriate ontological posits. (How could one just see a thing like that?) Every ontology has its primitives; ontologies that postulate primitive tense are not so far any worse off than any other ontologies. Since, as best I can tell, Sider gives no argument for thinking there is something wrong with these ontologies, by my lights, his objection to Lucretianism doesn't cut very deep. The Lucretian need not postulate exotic primitive properties. Properties like being formerly roamed by dinosaurs can be analyzed in terms of less exotic properties like being a dinosaur and being past. And so far, we've no reason for thinking that tensed properties like being past are inappropriate ontological posits.

3.2 But are these fundamental properties?

"Fair enough," you might reply, "we've no reason for thinking that such tensed properties are inappropriate posits in the sense that one can just see that there are no such things. But we do have reason for thinking that such properties are ill-suited for the work the Lucretion presentist needs them to do. Here's why. Given that our Lucretian presentist accepts (SP) (something she surely should do: (SP) looks pretty good), she would seem to be committed to the claim that at least some tensed properties or relations

are fundamental. For suppose for reductio that (SP) holds but that no tensed properties or relations are fundamental. Suppose too, as seems plausible, that the world could've been just as it is at present—modulo the instantiation of tensed properties and relations—and the past have been different. Then it follows that the world could've been just as it is at present—same present things in existence, same fundamental properties and relations instantiated—and the past have been different. So it follows that truths about the past do not supervene on what things exist and what fundamental properties and relations are instantiated. So it follows that (SP) is false, which completes our reductio. Given that she accepts (SP), then, the Lucretian would seem to be committed to thinking that at least some of the tensed properties and relations are fundamental.

Suppose so. Then there is this problem. None of the tensed properties and relations postulated by the Lucretian seems well-suited to the role of fundamental property/relation. Properties like being an x such that the proposition that x is roamed by dinosaurs is past certainly don't. Fundamental properties "carve nature at the joints"; sharing of them makes for sameness of intrinsic qualitative character.[14] But surely the property being an x such that the proposition that x is roamed by dinosaurs is past does not mark a joint in nature; and surely two things aren't similar with respect to intrinsic qualitative character by virtue of each having been roamed by dinosaurs.

We discussed earlier the primitive tensed property being past, but it seems no better suited to the role of fundamental property than the property being an x such that the proposition that x is roamed by dinosaurs is past. Surely sharing a property like being past doesn't make for intrinsic qualitative similarity. Past things don't resemble each

other by virtue of being past any more than things that exist on Tuesdays resemble each other by virtue of their existence on a Tuesday.

So our Lucretian presentist has this problem. She needs at least some tensed properties or relations to be fundamental, but it's hard to believe that any of the tensed properties and relations she postulates are fundamental."[15]

By way of reply, though, it's not just obvious (to me anyway) that being past is not well-suited to the role of fundamental property. Remember, as our Lucretian presentist thinks of things, being past is a property of propositions. Is it just obvious that propositions wouldn't resemble each other by virtue of sharing such a property? Not to me. I have very few intuitions about what would and wouldn't make for qualitative similarity among propositions and no clear intuition to the effect that propositions that shared the property being past wouldn't be similar by virtue of this fact.

That said, it's also not just obvious (to me anyway) that the property being past is well-suited to the fundamental property role. I suppose the Lucretian could dig in her heels and insist that it is, but it'd be nice if she didn't have to. It'd be nice if she could show that the property being past and like properties are reducible to more basic properties and relations, properties and relations that are themselves more obviously suited to the role of fundamental property/relation. I shall urge next that she can.

4. The Ersatz B-Series

I shall argue in this section that the work done in a presentistic metaphysic by primitive tensed properties like being past, being present and being future can be done equally well by the B-theoretic earlier than relation. Since it is plausible that temporal relations like the earlier than relation are fundamental, if the Lucretian can show that properties like

being past are analyzable in terms of such relations, she'll have in hand an attractive reply to the worry of the previous section.

4.1 Taking Tenselessness Seriously

We begin by taking tenselessness seriously.[16] Call the properties being past, being present and being future the "A-properties". A tenseless proposition, let us say, is a proposition p such that it is possible to grasp or conceive of p without thereby grasping or conceiving of an A-property. To illustrate, I'll assume there is such a thing as the tenseless 'is'—henceforth, 'IS'. A few words about the meaning of 'IS'. When we say that x IS F, we indicate thereby that the two-term instantiation relation connects x and the property F, but say nothing about whether x's possession of F is past, present or future. This as opposed to the present-tensed 'is': when we say that x is (present-tensed) F, we indicate thereby that x's possession of F is present—that x has F at the present time. Well, suppose so. Then [Lincoln IS president] is plausibly taken as an example of a tenseless proposition: one can grasp it, one thinks, without thereby grasping an A-property. Given above assumptions about the tense operators, [WAS[Lincoln IS president]] is an example of a proposition that is not tenseless.

One "takes tenselessness seriously", let us say, iff one thinks there are tenseless propositions. In what follows, I shall suppose there are. I shall suppose henceforth that expressions like ⌜[Φx]⌝, ⌜[∀xΦx]⌝ (where Φ does not express an A-property) denote such propositions.

(It's an interesting question whether there are such things as tenseless propositions. I'm inclined to think so, but I don't have any knock-down arguments. For present purposes, though, I don't need any. My target here is the philosopher who doubts

there are fundamental properties like being past, being present, and being future. Such philosophers are not likely to doubt the existence of tenseless propositions. It is to these thinkers that the arguments of this section are addressed. I want to convince them that we presentists who join them in taking tenselessness seriously needn't suppose that properties like being past, being present and being future are fundamental. If you're one of those philosophers who doubts there are tenseless propositions, you're likely comfortable with an ontology that includes these and/or like properties as fundamental and can skip this section. I hope that enough has been said in previous sections to persuade you that the presentist has in Lucretianism an attractive reply to the grounding objection.)

4.2 On Times

I join Roderick Chisholm,[17] Edward Zalta,[18] and others[19] in thinking of a "time" as a certain sort of maximal abstract object: intuitively, an abstract representation of an instantaneous state of the world. Let us think of a time as any proposition that satisfies the following definition:

x is a time $=_{df.}$ For some class C of propositions such that C is maximal and consistent, x = [$\forall$y(y$\in$C $\supset$ y is true)],[20]

where (i) a class C of propositions is maximal iff, for every proposition p, either p or its denial is a member of C, (ii) a class C of propositions is consistent iff, possibly, every member of C is true, and (iii), '[$\forall$y(y$\in$C $\supset$ y is true]', I assume, denotes a tenseless proposition (lest my attempt to give a reductive account of tensed properties fall into unhappy circularity).

Three comments. First: Patrick Grim's arguments to the effect that there is no set of all truths (Plantinga and Grim 1993) raise doubts about whether there is any maximal,

consistent class of propositions. I am not sure what to think about Grim's arguments, but not much hangs on it. Nothing interesting changes in the discussion to follow if instead of thinking of times as above, we think of them thus:

$\underline{x}$ is a time $=_{df.}$ For some propositions, the $\underline{p}$s, such that the $\underline{p}$s are maximal and consistent, $\underline{x} = [\forall \underline{y}(\underline{y}$ is one of the $\underline{p}$s $\supset \underline{y}$ is true)],

where (i) 'the $\underline{x}$s are maximal' is a variably polyadic predicate that applies to some propositions, the $\underline{p}$s, iff, for every proposition $\underline{q}$, either $\underline{q}$ or its denial is one of the $\underline{p}$s, and (ii) 'the $\underline{x}$s are consistent' is a variably polyadic predicate that applies to some propositions, the $\underline{p}$s iff, possibly, every one of the $\underline{p}$s is true. That said, I'll assume the former definition in the discussion to follow.

Second: my definition of times won't work on just any metaphysic. The B-theoretic eternalist will find it odd to think of my times as "abstract representations of an instantaneous state of the world." She'll think that my times look more like abstract representations of the whole of history. She'll think, that is, that my times look more like abstract possible worlds than like abstract times. But given an A-theoretic or a dynamic view of time—the view that, necessarily, what exists and what is true are constantly changing—my definition is fine.

And third: well-known complications arise for my definition if existentialism is true. (Existentialism: the widely held doctrine that singular propositions depend for their existence on the individuals they are about, in this sense: for any $\underline{x}_1 \ldots \underline{x}_n$ and singular proposition $[\underline{F}\underline{x}_1 \ldots \underline{x}_n]$, necessarily, $[\underline{F}\underline{x}_1 \ldots \underline{x}_n]$ exists only if $\underline{x}_1 \ldots \underline{x}_n$ exist.)[21] So if we read 'possibly $\underline{S}$' in the above characterization of consistency in the standard way (i.e., 'possibly $\underline{S}$' is true in a context $\underline{C}$ iff the proposition expressed by $\underline{S}$ in $\underline{C}$ is true in some possible

world), and we read 'p is true in world W' in the standard way (i.e., p is true in a world W iff, were W actual, p would be true), we get trouble given existentialism. For given existentialism and plausible assumptions, it follows that there is no maximal, consistent class C of propositions such that [~(Bush exists)] is a member of C. Here's why. Suppose there is such a class; call it C. Then there's some possible world W such that, were W actual, every member of C would be true. So were W actual, [~(Bush exists)] would be true. But were [~(Bush exists)] true, Bush wouldn't exist, and given existentialism, neither would [~(Bush exists)]. So were W actual, [~(Bush exists)] would be true but fail to exist. But, one wonders, how could a proposition be true but fail to exist? It's a plausible assumption that this is impossible. If so, then there's no maximal, consistent class of proposition such that [~(Bush exists)] is a member of it. But if there is no maximal, consistent class of proposition such that [~(Bush exists)] is a member of it, then every maximal, consistent class of propositions includes [Bush exists] among its members. (A class C of propositions is maximal, recall, iff, for any proposition p, either p or its denial is a member of C. So if no maximal, consistent class of propositions includes [~(Bush exists)] among its members, it follows that every maximal, consistent class of propositions includes [Bush exists] among its members.) But from this and the above definition of times, it follows that, for any time t, were t true, Bush would exist—i.e., that Bush *always* exists. Since this clearly won't do, we see that the combination of existentialism and the above definition of times is an unhappy one.

The upshot of this is that my definition needs fiddling with if existentialism is true. I am persuaded by Plantinga (1983) and Bealer (1993)—for reasons that are independent of the question whether presentism is true—that existentialism is false, so

I'm happy to leave the definition as is. Friends of existentialism will need to adjust it. One well-explored option is to join Robert Adams, Kit Fine and other existentialists in distinguishing between truth in a world and truth at a world, where truth in a world is characterized as above, and truth at a world is thought of along the following lines.[22] Consider once again the proposition [~(Bush exists)] and let $W_{no\text{-}Bush}$ be a world according to which Bush never exists. Given existentialism, [~(Bush exists)] is not true in $W_{no\text{-}Bush}$. Still, though, there's a sense in which [~(Bush exists)] accurately describes what goes on in $W_{no\text{-}Bush}$. The language of truth at a world is intended to express the relationship that holds between a proposition p and a world W when, whether or not p is true in W, it accurately describes what goes on in W in the way that [~(Bush exists)] accurately describes what goes on in $W_{no\text{-}Bush}$.

Of course, it'd be nice to see this filled in some. For just what is the relationship that holds between [~(Bush exists)] and non-Bush worlds if [~(Bush exists)] isn't true in those worlds but nevertheless manages to describe what goes on in them? This turns out to be a ticklish question. I'm not sure how to answer it. But many existentialists think they have an answer to it. Suppose you're one of them. Then you can adjust the above definition of times by reconstruing its notion of consistency in terms of your notion of truth at a world. As follows:

> a class C of propositions is consistent iff there is a possible world W such that every member of C is true at W.

The problem with our earlier definition of times arose when we interpreted its talk of consistency in terms of truth in a world. Since, given existentialism, [~(Bush exists)] is true in no possible world, we got that no maximal consistent set of propositions includes

[~(Bush exists)], and thus that every maximal consistent set of propositions includes its denial. But this problem does not arise on the new account of consistency, for the existentialist will think that there are plenty of worlds at which [~(Bush exists)] is true, and thus plenty of maximal consistent sets of propositions including [~(Bush exists)] among their members.

I realize that much more could be said to fill this in, but I shall leave that to my existentialist friends. I only wish to point out here that (a) existentialists who wish to endorse the view of tensed properties I'll develop below will need to amend my definition of times slightly, and that (b) there are well-known suggestions on offer in the literature on how to do so.

Thus far, three elaborations on my definition of abstract times. A word now about how these abstract times are related to one another. Here is a prosaic truth: some times are earlier than the present time, others are later.[23] We presentistic believers in abstract times need not doubt this. Abstract times, we can suppose, form an ersatz B-series, where an ersatz B-series is a series of abstract times ordered by a primitive earlier than relation. This suggestion raises several questions. Let us look briefly into three of them.

First, what is this earlier than relation ordering the members of an ersatz B-series? I'm inclined to answer that it requires no further explanation as it's the relation we learned at mother's knee when we learned that last Tuesday is earlier than today. Maybe you reply: no, the relation learned at mother's knee is a relation that holds between concrete things (events, times or maybe spacetime points), not abstract times. I reply that this isn't obvious; not much hangs on our dispute though. My purposes are served well enough by supposing that the relation linking abstract times is an analogue of the

eternalist's earlier than relation. Some points of analogy: Both relations link times—concrete times in the one case, abstract times in the other. The eternalist's relation, as usually construed, is transitive, irreflexive, and asymmetrical; my analogical earlier than relation is also transitive, irreflexive and asymmetrical. (We need not be dogmatic about the formal properties of either relation; for instance, if time is eternally cycling, neither will be irreflexive or asymmetrical.) The eternalist's relation is non-ending and dense; so too with my analogical surrogate. (Though here again, we need not be dogmatic. Maybe time isn't dense or has an end.)

Second, I propose that abstract times are related by the earlier than relation. But isn't this hypothesis at odds with presentism? According to the presentist, everything is present. But then nothing—not even an abstract time—can be earlier than the present time; else not everything is present.

We presentists say that everything is present, but what do we mean by present? Some will invoke a primitive property of presentness and say that everything has that property. I think there's a better option. When the presentist says that everything is present, what she really means is that there is no temporal distance between any two things in our widest domain of quantification. (What is temporal distance? The general idea should be clear enough. Suppose eternalism is true. Then the temporal distance between Lincoln's assassination and now is a little over 139 years. As I understand it, the notion of temporal distance has broad application: spacetime formulations of Newtonian physics (e.g., Friedman 1983, Chap. 3) postulate a temporal distance relation linking spacetime points; relativistic spacetime theories postulate a different temporal distance relation linking spacetime points. Both theories, I say, postulate temporal distance

relations.) When she says that everything is present, then, she has in mind presentness understood thus:

x is present$_1$ =$_{df.}$ ∀y(x has no temporal distance from y).

Everything is present, says the presentist; that is, everything is present$_1$. But if she believes in abstract times, she'll think there's another sort of presentness—presentness$_2$ let us say—such that only one among the infinity of times—the present time—has this property. What is this presentness$_2$? I'll suggest below that a time is present$_2$ iff it is the true time, the time which has the property being true (abstract times, recall, are just propositions). Our analogical earlier than relation will need to work in such a way that all times, no matter how much earlier or later than the present$_2$ time, are present$_1$. All times are present$_1$, at no temporal distance from anything, though some are earlier and some are later. (So times are like the actualist's worlds: The actualist says that everything is actual. Nevertheless, she believes that some worlds are merely possible. What gives? She'll explain it thus: Everything is actual$_1$, where something x is actual$_1$ iff, according to the actual$_2$ world, x exists, and something y is actual$_2$ iff y obtains or is instantiated or is true (depending on your brand of actualism). Though all possible worlds are actual$_1$, most aren't actual$_2$—or as it's usually put, most are merely possible.)

So understood, the supposition that abstract times form ersatz B-series is not inconsistent with presentism, construed as the claim that everything is present$_1$.

And third, abstract times, I say, form an ersatz B-series ordered by the earlier than relation. Is it that all abstract times are organized into a single B-series, or that there are many ersatz B-series, or what? Presumably not the first option: Below I'll suggest that a proposition p has the property being past (being future) iff p is entailed by an abstract

time t such that t is earlier (later) than the present (i.e., the true) abstract time. But this suggestion is plainly crazy if all abstract times are organized into one, big ersatz B-series. (The suggestion is crazy because it's plausible that there is a maximal, consistent set of propositions that includes among its members the proposition, say, that pigs fly. But then given my definition of times, it follows that there is an abstract time t_{pig} that entails the proposition that pigs fly. If all propositions are organized into one, big ersatz B-series, then t_{pig} is either earlier or later than the present time. Suppose it's earlier. Then given my suggestion that a proposition p has the property being past iff p is entailed by an abstract time t such that t is earlier than the present time, we get the unfortunate result that [pigs fly] has the property being past—i.e., that WAS[pigs fly]. Since this plainly won't do, I'm committed to rejecting the suggestion that all abstract times are organized into a single ersatz B-series.)

Presumably, then, the idea is that there are many ersatz B-series. But then there is this question: What differentiates the actual history of the world—the ersatz B-series representing the way history actually unfolds—from the merely possible ones, the ones representing how history could have unfolded? Is it that there is some kind of primitive actuality property that distinguishes the one actual history from the infinity of merely possible histories? One hopes not: thus supplemented, the theory is starting to seem a tad baroque. But if not a primitive actuality property distinguishing the one actual history from the infinity of merely possible ones, then what?[24]

There are various options here. I think the presentist should hold that there is one and only one ersatz B-series, all right, but that it does not include all the abstract times among its members. It counts among its members only some of the abstract times—those

that did, do or will represent the world. (So it does not count the above $\underline{t}_{pig}$ among its members.) The rest of the abstract times aren't members of it or any other ersatz B-series on account of the fact that they bear the earlier than relation to no times whatsoever. To be sure, many of these abstract times are such that they could have born the earlier than relation to other times, but as a matter of contingent fact, they don't. What abstract times get "hooked up" by the earlier than relation, on this picture, is a contingent matter that varies from possible world to possible world.

(So the suggestion here is that the earlier than relation connects certain abstract times and not others, though which abstract times it connects is something that could have been different. Well, one might wonder, why wasn't it different? Why does the earlier than relation connect just the times it does? What explains the fact that it connects these times and not others?

Note that similar questions arise for the eternalist who believes in concrete times. Why do the concrete times come temporally ordered in the way they do? What explains the fact that they have this order and not another? Eternalists have answered such questions in various ways, but as plausible an answer as any is that they just do come ordered this way, and there's an end 'ont. It's a brute, contingent fact, on this view, that concrete times come temporally ordered as they do.

Likewise for the presentist: as plausible an answer as any to the penultimate paragraph's questions is that it's a brute, contingent fact that the abstract times come temporally ordered as they do. Explanation has to come to an end somewhere, and it's not unreasonable to suppose that it bottoms out in the contingent fact that certain times are earlier than certain other times.)

4.3 Characterizing Being Present, Being Past, and Being Future

We can now see how the presentist can do without primitive pastness, presentness and futurity. She need simply take the foregoing earlier than relation as primitive, and say that a time is past iff$_{df.}$ it is earlier than the present time, that a time is future iff$_{df.}$ it is later than the present time, and that the present time is$_{df.}$ whatever time happens to be true. In general, she'll say that a proposition p is past (present, future) iff p is included in a past (present, future) time, where p is included in t iff t entails p.[25] On this picture, Bigelow's property being an x such that dinosaurs roamed x turns out to be something more like: being an x such that the proposition that dinosaurs roam x is included in an earlier time.

5. Objections and Replies

The dialectical situation, then, is this. The grounding objection depends on the supervenience principle and the temporal recombination principle:

> (**SP**) For any proposition p and worlds w and w*, if p is true in w and not in w*, then (a) according to w, something exists that doesn't exist in w* (or vice versa), or (b) according to w, some objects instantiate a fundamental property or relation that they don't instantiate in w* (or vice versa),

and

> (**TR**) Things could have been just as they are at present (same things in existence, same fundamental properties and relations instantiated) and the past have been different

respectively. The Lucretian objects to the latter on the grounds that present things have properties like being formerly roamed by dinosaurs. Sider objects that no serious

ontology will have truck with such properties. Primitive properties like being formerly fat, being possibly bald, being brave should such-and-such a circumstance arise—all are dubious because all are irreducibly hypothetical, where a property is hypothetical, roughly, when it points beyond its instances to how things could be, would be, were or will be. Serious ontologies invoke only categorical or occurrent properties, properties that characterize how a thing actually is. I suggested a way of understanding the hypothetical/categorical distinction on which properties like being formerly fat and being possibly bald are hypothetical, but analyzable in terms of non-hypothetical properties like being past and being possible. Says Sider: the latter properties are no better off than their fancier compeers. I replied that this isn't obvious, then considered an objection to the effect that the Lucretian needs at least some tensed properties to be fundamental—to carve at the joints, to ground qualitative similarity—but that none of the tensed properties she postulates seem well-suited for the fundamental property role. I replied that her property being past isn't obviously unsuited for that role, but that nothing crucial turns on it because she can analyze this and like properties in terms of the B-theoretic earlier than relation (or an analogue thereof), a relation that is plausibly thought of as fundamental.

I conclude by considering a few objections.

Objection: your earlier than relation is mysterious; you haven't explained what it is for one time to bear this relation to another. I reply that no theory is without primitives; this relation is one of my theory's primitives. Besides, it's not as if I said nothing to explain the relation. I explained several points of analogy between it and the earlier than relation invoked by many eternalists.

Objection: this earlier than relation of yours is no better than primitive pastness, presentness and futurity. Just as one can just see that these properties are dubious ontological posits, so too, one can just see that your ordering relation on abstract times is unacceptable. I reply that I can't see any such thing and I doubt anyone else can either. Why should my earlier than relation be any more dubious than the eternalist's B-theoretic earlier than relation on times, events and the like? True, my relation links abstract times; hers links concrete times. But why think that a demerit for my relation?

Objection: your theory costs in primitives; we eternalists don't need this primitive, ersatz temporal ordering relation on abstract times. True enough, eternalists don't need this relation. But they need their own earlier than relation. And, it looks as if their relation will either be primitive or defined in terms of primitive temporal notions. (The project of defining temporal notions in terms of non-temporal—e.g., causal—notions is notoriously difficult.) If there's cost to be paid in primitives here, it's a cost which looks to be exacted of both presentism and eternalism.

Objection: unlike the B-theoretic eternalist's earlier than relation, your ersatz earlier than relation on abstract times is not plausibly thought of as fundamental, as carving the world at the joints. Consequently, it can't do the work you need it to do. In reply, why think this? Why would my earlier than relation on abstract times be any less suited to the fundamental relation role than the eternalist's earlier than relation on concrete times? I can't see any reason why it would be.

I'm out of ideas now about what might be wrong with my earlier than relation or my definition of pastness and futurity in terms of it. It looks to me like the Lucretian needn't take properties like being past as primitive; the work done in a presentistic

metaphysic by primitive tensed properties like being past, being present and being future can be done equally well by the B-theoretic earlier than relation. Since this relation seems well-suited to the role of fundamental relation, I conclude that the Lucretian has an attractive reply to the above worry that the primitive properties and relations she postulates don't seem very plausible candidates for the role of fundamental property/relation.

In summary: The grounding objection poses no real threat to presentism. The most powerful form of the objection relies on the supervenience principle, the principle that there could be no difference in what is true without there also being a difference in what things exist and which fundamental properties and relations they instantiate. The presentist can accept this principle with equanimity. The grounding objection also relies on the temporal recombination principle, the claim that things could have been just as they are at present and the past have been different. The presentist can reject this thesis by endorsing Lucretianism. We examined the worry that doing so commits her to objectionable primitives. I think it's clear that this worry is unfounded.[26]

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[1] More exactly, presentism is the claim that it is always the case that, quantifying unrestrictedly, for every x, x is present. For more on defining presentism, see, e.g., Crisp 2004a, 2004b, Hinchliff 2000, Ludlow 2004, Markosian 2004, Rea 2003, Sider 2001 and Zimmerman 1998.

[2] See, for example, Sider 2001, chap. 2. For discussion, see Bigelow 1996, Keller 2004, and Rea 2003.

[3] Cf. John Fox (1987, 189): "By the truthmaker axiom I mean the axiom that for every truth there is a truthmaker; by a truthmaker for A, I mean something whose very existence entails A."

[4] See, e.g., Lewis 1992.

[5] Fundamental properties and relations: i.e., perfectly natural properties and relations—the ones that "carve at the joints". For a classic discussion, see Lewis 1983.

[6] See Lewis 2001, 609ff., and Bigelow 1988, 133. For illuminating discussion, see Keller 2004.

[7] cf. Lewis 2001, 612.

[8] Note well: if truth and falsity are fundamental properties, (TR) requires slight re-formulation. For suppose truth and falsity are among the fundamental properties. Then, for the presentist anyway, things couldn't have been just as they presently are and the past different because among the present things are propositions about the past—e.g., dinosaurs roamed the earth—and, by hypothesis, among their fundamental properties are properties like being true. Surely things couldn't have been presently such that this very proposition has the truth-value it does and dinosaurs not have roamed the earth! But (TR) and the grounding objection are easily reinstated. If truth and falsity are fundamental properties, simply adjust (TR) to read "things could have been just as they are at present (same things presently in existence, same fundamental properties and relations presently instantiated—ignoring the present distribution of truth, falsity and fundamental properties that entail them) and the past have been different," where a property F entails a property G iff, necessarily, something has F only if it has G.

[9] For discussion, see Bigelow 1996, 44-47.

[10] Two properties F and G are equivalent iff, necessarily, something instantiates F iff it instantiates G.

[11] I've assumed throughout the above discussion that sentences like 'x is round' and 'x has roundness' may be used interchangeably and that quantification into predicate positions is unproblematic. Some will balk at these assumptions, but nothing crucial turns on them. The above discussion could be reformulated (at some cost in concision) without them.

[12] See his 2001, 40-41.

[13] Such a reply captures the spirit if not the letter of his remarks in 2001, 41.

[14] Lewis 1983.

[15] Thanks to an anonymous referee for raising this objection.

[16] See Chisholm and Zimmerman 1997.

[17] Chisholm 1979.

[18] Zalta 1987.

[19] See, e.g., Prior and Fine 1977 and Davidson 2003 and 2004.

[20] Cf. Prior & Fine 1977, 121.

[21] For discussion, see inter alia Adams 1981, Bealer 1998, Plantinga 1983, and Davidson 2000.

[22] For discussion of the distinction between truth in and truth at a world, see inter alia Adams 1981, Davidson 2000, Fine 1977 and 1981, Fitch 1996, and Turner 2004.

[23] Perhaps the "others are later" part isn't as prosaic. Believers in a Broad/Tooley style growing block universe (Broad 1923; Tooley 1997) won't find that part as prosaic.

[24] Thanks to an anonymous referee for posing this question.

[25] See Crisp 2003 and Davidson 2004: 19 for a related approach.

[26] Thanks to Matt Davidson, Brian Kierland, Trenton Merricks, Alvin Plantinga, Mike Rea, James Rissler, Ted Sider, Gregg Ten Elshof, and participants in the 2002 Metaphysical Mayhem at Syracuse University for helpful comments and/or conversation about previous drafts of this paper.

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