Explanation and Nowness: An Objection to the A-Theory

Introduction

This paper presents an argument against the A-Theory of time. Briefly, I shall contend that the A-Theorist has no explanation for why the present moment in particular has the metaphysical privilege she accords it, and that this puts the theory at a disadvantage. In what follows, I shall begin by presenting this argument. I then discuss some potential explanations and reasons militating against them, in addition to some other possible objections to my argument and my responses to them. The conclusion will be that the A-Theorist fails to provide either an obvious or a theoretical explanation of the present time's privileged status and is thereby at a theoretical disadvantage to theories that do not posit a metaphysically privileged present time.

1 *The Argument*

We can stipulate the A-Theory to be the claim that

(A-THEORY) Exactly one time is metaphysically present,

where being metaphysically present both at least partially corresponds to our intuitive notion of 2014 containing the present time and is somehow objectively, absolutely, non-indexically, etc. true of some time, if of anything. We find defences of this thesis in Bourne (2006) and Zimmerman (2005), and possibly in Lowe (1994). I should observe that this need not be read as an attempt at defining the A-Theory: the thesis, as stated, leaves open the possibility that, at time t, t' is uniquely metaphysically present, where $t \neq t'$, which dubiously counts as a version of the A-

Theory[1]. What matters is that it is an apparently necessary condition for the A-Theory, and that arguments against it will thus count against the A-Theory itself.

To dispel some familiar concerns that haunt the debate between A- and B-Theorists, I should moreover observe that I am construing the A-Theory as a claim about the *metaphysical* status of the present *moment*, not about the *logical or semantic* status of tensed *discourse*, such as whether such discourse can be reduced to tenseless discourse, or whether tensed sentences have token-reflexive truth conditions. There is excellent reason for construing the A-Theory so (see again Zimmerman 2005), but, if any of my readers disagree, they can simply replace my talk of the A-Theory with talk of a metaphysical construal of the A-Theory. The latter is widely enough espoused that my central claims about it will be of some interest.

From here it is possible to launch an argument that A-THEORY commits its adherents to distinctive unexplainable but contingent truths. According to the orthodox Kaplan semantics for indexicals, it is possible to define an operator *dthat[α]*, where α is a singular term and "dthat[α]" as uttered in a context C rigidly refers to the denotation of α as uttered in C (1989, 521). Stipulating "the F" to refer (flaccidly) relative to C to the unique object satisfying "F(*x*)" relative to C if such there be and to an alien object otherwise, with some background machinery Kaplan can demonstrate "the F=(dthat[the F])" to be a logical consequence of "$\exists!x$(F*x*)". That is to say, in any possible context relative to which the latter is true, so is the former (1989, 547). Letting "*now**" abbreviate "dthat[the metaphysically present]", anyone committed to A-THEORY is thus committed to A-THEORY* as a logical consequence.

(A-THEORY*) *Now** is uniquely metaphysically present.

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[1] I owe this point to an anonymous referee.

Note that I am not here claiming that the *proposition* (expressed by) A-THEORY *entails* the *proposition* (expressed by) A-THEORY*: the former would be true and the latter false at a world where some time distinct from the actually metaphysically present time were metaphysically present. Rather, for any given context, my *sentence* for A-THEORY* ("*Now** is uniquely metaphysically present") is a logical consequence (in Kaplan's sense) of my *sentence* for A-THEORY ("Exactly one time is metaphysically present"): for any context C, the former will be true relative to C if the latter is true relative to C. Since the A-Theorist must, relative to a given context, be willing to assent to my sentence for A-THEORY, she must be willing to also assent to its consequence A-THEORY*. A-Theorist readers at a context C, therefore, may take A-THEORY* as uttered at C, in which case they will be committed to the proposition expressed by my sentence for A-THEORY* thus interpreted.

The first point to establish is that A-THEORY* is, if true, contingently true. My argument is simple. If A-THEORY* is true, then it is temporarily true; it will fail to be true in the future, and was not true in the past. Moreover, if A-THEORY* is temporarily true, then it is metaphysically contingent. Therefore, A-THEORY* is, if true, metaphysically contingent. Both premises are hard to deny. Taking "in the future" and "in the past" to mean "true at some time later than *now**" and "true at some time earlier than *now**", respectively, the existence of any times earlier and later than *now** seem to require it. If times ever have the property of metaphysical presentness, then it is surely analytic that, for any time time t, at t, t is present. Assuming the earlier-than and later-than relations to be transitive and asymmetric (or, at the very least, that there is some time earlier than *now** and some time later than *now** to which *now** is

not identical), then at any (some) time earlier or later than *now**, *now** will not be *uniquely* present. A-THEORY*, therefore, is at best temporarily true.

That any temporary truth is metaphysically contingent is likewise difficult to deny. The sorts of truth we generally assume to be metaphysically necessary, we also hold to be eternal: we would not know what to say to someone, for example, who believed that "No man is taller than himself," while necessarily true, would become false, or who, while persuaded by Kripke's arguments that Hesperus is necessarily identical with Phosphorus, thought they would grow distinct in the future. If modal truths could change over time, moreover, our practice of taking the past truth of *p* as evidence of its metaphysical possibility would be undermined, but there seem fewer proofs more compelling that, say, zombies are possible than the past existence of zombies. A-THEORY*, therefore, being at best temporary, is contingently true if true at all.

As stated, this argument assumes a form of propositional temporalism: it assumes that the proposition expressed by my sentence for A-THEORY* has different truth values relative to different times. While this might rankle eternalist sensibilities, eternalism about the proposition expressed by A-THEORY* is implausible for an A-Theorist. That different propositions about which time is present be true at different times is as essential to the spirit of the A-Theory as anything, and my argument will therefore lose no plausibility in assuming as much.[2]

All of this is to provide some more formal defence of the obvious truth that, if A-THEORY is true and some time is uniquely metaphysically present, it is contingent *which* time is present. Just as obviously, this is not a *prima facie* commitment of views of time that reject A-THEORY: on such a view, it cannot be contingently true of any time *t* that *t* is uniquely

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[2] I am again grateful to an anonymous referee for stressing this point.

metaphysically present, for one such a view it is not true at all of any time *t* that *t* is uniquely metaphysically present. Independent of any scruples over the value of Kaplan's semantics and the like, therefore, the intuitive bedrock of the argument remains: A-Theorists are committed to distinctive contingencies about time.

This contingency causes a *prima facie* problem for the A-Theorist, which this paper shall argue the A-Theorist is not in a position to overcome. Intuitively, it is a defeasible disadvantage for a theory that it requires contingencies it cannot explain. To see the appeal of this principle, consider a physical theory T with five fundamental forces, each with a constant value, and a theory T* that takes only three of T's forces as fundamental and has no further fundamental forces. The remaining two forces of T have their value in T* determined by the values of the three shared fundamental forces. If the values of the forces are taken to be contingent, T* enjoys a *prima facie* advantage over T, and the reason seems clear: T* is *prima facie* preferable because it does not leave unexplained contingencies that T leaves unexplained.[3]

This principle, it should be noted, is a comparative one: on a first pass, a theory A is *prima facie* preferable to a competitor B if A is the set of unexplainable contingent truths on A is a proper subset of the corresponding set on B. I leave open the question of how to precisely state the comparative principle—what matters here is that the principle is comparative at all. Were it instead a non-comparative principle placing a prohibition, even a defeasible one, on theories that require any unexplained contingents, it would stray dangerously close to restating the principle of sufficient reason (PSR), which in almost any form requires that all contingent truths be explained and which has sustained serious criticism in the literature (van Inwagen 1983,

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[3] I am grateful to Josh Rasmussen and Alex Pruss for examples.

202-204). This weakened, comparative principle allows us to press the argument against the A-Theorist while ignoring debates over the viability of the PSR.

At a first glance, there is no explanation for A-THEORY*: put intuitively, there is nothing special about *this particular moment* in 2014 that would be reason for it, rather than, say, the moment five minutes prior, to have the special status of being present. Those who reject A-THEORY incur, moreover, no obvious unexplainable contingencies not also required by the A-Theory. Since A-THEORY requires A-THEORY* to be true, the A-Theorist's inability to give an explanation of *now**'s being present will therefore count against his position, given the principle stated in the last paragraph. The remainder of this paper shall argue against some possible explanations for A-THEORY*, the failure of which, combined with the lack of any more obvious explanation, thus count against the A-Theory and in favour of positions not requiring a privileged present.

2.1 *First Solution*

One possible solution might proceed by reducing the presentness of *now** to some other property. This latter property, or *now**'s having that property, would form the ground of the truth of A-THEORY*, thereby providing an explanation for it.[4] Specifically, I am thinking of reducing or grounding the property of presentness in some *structural* property of the present time. The literature offers several viable options for such a property. There are philosophers like Broad (1923) and Tooley (1997), for example, who identify the present as *the latest time at which any objects exist or states of affairs are actual*. McCall construes the present as *the last*

[4] This concept of distinct properties or facts *grounding* one another has elicited a great deal of recent research, see Audi (2012), Fine (2010), Schaffer (2009). That the grounded property or fact is *explained* by its ground is a ubiquitous theme in the literature; Audi (2012), for example, argues for the existence of grounding on the basis of our appeal to certain kinds of explanations, inferring that in them the *explanans* grounds the *explanandum*.

time before time begins branching (1994). Bourne, being a presentist, holds the present to be *the only time at which anything exists* (2006). All of these are plausibly interpreted as reductions or grounds for the presentness of *now**. To explain A-THEORY*, therefore, we need invoke nothing beyond that *now** exhibits some unique structural property among times.

This solution, however, is victim to a fatal flaw. While we may have thereby, in utmost strictness, answered the question, "Why is *now** present?" the proposed explanations themselves turn out to be just as troublesome. It is equally mysterious why *this* is the latest time containing any actual states of affairs, or why time starts branching *here* and nowhere else. Whatever virtues a theory might have that provides a ground for presentness in some more basic structural property, therefore, eliminating unexplained contingents is not among them.

2.2 *Second Solution*

There exists, however, a much more attractive option beyond the reductivist response. Some philosophers have suggested that times are somehow individuated by what is true at them, or some portion of what is true at them. Arthur Prior, for example, suggests that we might "identify an instant with a tensed proposition, namely with the conjunction of everything that would ordinarily be said to be true *at* that instant; or alternatively, with something that would ordinarily be said to be true at that instant only" (1968)[5]. Edward Zalta provides a similar, albeit more elaborate, account of time individuation, according to which a time is an abstract object "encoding" certain "propositional properties" (and no other kind of property), intuitively those propositional properties corresponding to those propositions true at that time (1987). Crucially, what properties an abstract object encodes provide, for Zalta, the identity conditions of that

[5] This trick played a key role in Prior's development of an adequate tense logic. See Blackburn (2006) for details.

object: any two abstract objects *x* and *y* are identical just in case, for any property *F*, *x* encodes *F* iff *y* encodes *F*, and all encodings are necessary (Zalta 2012). On any account such as these, what is true at a time is *essentially* and *distinctively* true at that time. The analogy with worlds encourages this thinking: by all accounts, if there are such things as worlds at all, then what is true at those worlds individuates them: what is true at one world is essentially true at it, and of any two distinct worlds something must be true at one not true at another (this position is suggested or entailed by the popular accounts of possible worlds offered in Adams 1974, Plantinga 1974, Stalnaker 1984, and Zalta 2012, among others). On such an account of times, however, a simple answer to the question, why is it *now**?, presents itself. *Now** has the property of being present because that property reduces to the truth of those propositions that individuate it, and those propositions are true. If a time *t* has *p*, *q*, and *r* distinctive of it, the explanation of *t*'s presentness would be that *p*, *q*, and *r* are true.

Take Prior's account as an example. William Vallicella has plausibly argued that the truth of a conjunction is explained, collectively, by the truth of its conjuncts. *p* and *q* together, for example, explain why *p&q* (1997). Since, however, a time is to be identified with a conjunction (intuitively, the conjunction of all non-conjunctive propositions true at that time), and since the presentness of a time presumably consists in its truth as a conjunction, the presentness of that time would be explained collectively by the truth of all its conjuncts. We could apply similar reasoning to Zalta's case, and presumably to any other similar theory. What is essential is that the presentness of a time reduce to the truth of certain propositions, and that the truth of those propositions thus explain its presentness.

This solution does not face the main problem for the reductivist answer. We can ask why the propositions associated with *now** are true, the analogue to the question that proved fatal to the reductivist answer, but this does not pose the same problem as that earlier question. The contingent propositions true at *now** (that Elizabeth II is Queen of England, that the sun is shining on Chicago, etc.) are not distinctive to the A-Theorist: even if she is unable to explain them, they will be just as true, contingent, and unexplained if A-THEORY is not true (or at least, their untensed equivalents would, like that Elizabeth II is Queen of England in 2014). If times were individuated by what is true at them (or some portion of the same), therefore, the A-Theorist would have a ready and plausible answer to why *now** is present. Unfortunately for the A-Theorist, however, there are at least two good arguments that times cannot be individuated by what is true at them.

2.2.1 *The First Argument*

The first argument is that times, as the referents of date-times like "4:00pm, 13 April 2009", in general have propositions true at them only contingently. Consider the claim that

> (WILDER) On Friday noon, July the twentieth, 1714, the finest bridge in all Peru broke and precipitated five travellers into the gulf below.

I take it that WILDER is equivalent to WILDER*, which more plainly reveals the commitments important to the argument.

> (WILDER*) That the finest bridge in all Peru breaks and precipitates five travellers into the gulf below is true at Friday noon, July the twentieth, 1714.

I assume that WILDER, and thus WILDER*, is contingent: what it narrates could have happened, and it could not. I will indeed assume, for the purposes of this argument, that it is

true; I know nothing that rules it out, and the world clearly would not very much differ if it were true (meaning here at the least that time would not have begun or ended after or before, respectively, Friday noon, July the twentieth, 1714). From this, however, we can launch an argument to the effect that times are *not* individuated by what is true at them.

> (1) "Friday noon, July the twentieth, 1714," is a rigid designator: it designates the same (abstract) object across all possible worlds.
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> (2) Counterfactually, if it were not the case that WILDER*, the contradictory of <the finest bridge in all Peru breaks and precipitates five travellers into the gulf below> would be true at Friday noon, July the twentieth, 1714.
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> (3) At a possible world at which WILDER* is true, it is not the case that the contradictory of <the finest bridge in all Peru breaks and precipitates five travellers into the gulf below> is true at Friday noon, July the twentieth, 1714.
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> (4) Therefore, the propositions true at a time are not in general essentially true at them, and therefore also not individuative of them.

WILDER*'s being contingent requires some possible world where it is false, and the standard Lewis-Stalnaker theory of counterfactuals, in conjunction with (2), requires some such world where the contradictory of "the finest bridge in all Peru breaks and precipitates five travellers into the gulf below" is true at Friday noon, July the twentieth, 1714. By (3), however, any world where WILDER* is true is not a world where the contradictory of <the finest bridge in all Peru breaks and precipitates five travellers into the gulf below> is true at Friday noon, July the twentieth, 1714. At different worlds, therefore, different things are true at Friday noon, July the twentieth, 1714, but since by (1) that phrase is a rigid designator, at different worlds different

things are true at the *same time*. Thus, what is true at a time is not *essentially* true at it, and thus times are not individuated, in general, by what is true at them.

Even if we grant that (1-3) do yield (4), however, we can fairly question those premises. (3) seems the least plausibly denied: it is essentially the principle that, necessarily, for any time t, a proposition and its contradictory are not both true at t. That may not be the principle of non-contradiction itself, but I doubt any but a dialetheist would deny it, and even the dialetheist does not generally cast in doubt the principle of non-contradiction for propositions like <The finest bridge in all Peru breaks>. The only way I can imagine (2) being false, assuming the Lewis-Stalnaker account of counterfactuals, would be having the relevant world most similar to ours being one where the universe had started or ended after or before 1714, respectively, which, clearly, is absurd on any sane account of worldly similarity. The most contestable premise, then, is (1), which might even strike some as counterintuitive. It has, however, a strong argument in its favour.

Firstly, for convenience's sake, I'll assume that if (1) is true, it is true for all similar Gregorian date-times. Nothing of importance hinges on this point: the argument could be rephrased so as to render it a non-issue. More substantively, I assume that the alternative to "Friday noon, July the twentieth, 1714" being a rigid designator is its being a definite description, to be analysed in terms of something like, "the time so-and-so many seconds after (or before) the beginning of the year when Jesus was born." (Historical and calendrical sticklers can replace that analysis with something more accurate.) Analysing "Friday noon, July the twentieth, 1714" and other Gregorian dates as such definite descriptions, however, yields implausible results. For consider the (to the best of my knowledge) true claim that

(CAESAR) Caesar crossed the Rubicon at midnight, 10 January, 49 B.C.,

which I take to be equivalent to CAESAR*.

(CAESAR*) That Caesar crosses the Rubicon is true at 12:00, 10 January, 49 B.C.

The problem with the descriptionist account of date-times is that it gives the wrong truth conditions to sentences like that in CAESAR. For, if the account were correct, then, counterfactually, if Jesus had been born a year later than the year we know as 1 A.D. (which I take to be possible), then Caesar would not have crossed the Rubicon at midnight, 10 January, 49 B.C. But this is surely false. That Caesar was then crossing is surely contingent, but its contingency derives from Caesar's ability to cross or not cross the river, *not* the purported Messiah's birth date, which is *completely irrelevant* to it. Consider also that, if "midnight, 10 January, 49 B.C." were a description relating in the relevant way to Jesus' birth year, and if Jesus' being born when he was is indeed contingent, and if future contingents are not true (a plausible position, especially for an A-Theorist), we derive a ridiculous consequence. On this view, since the relevant description did not apply to the date-time-referent that is midnight, 10 January, 49 B.C. before Jesus was born, Caesar had not crossed the Rubicon at midnight, 10 January, 49 B.C. until Jesus was born, since up till that point it had been a future contingent he would be born then. Indeed, it seems on this view that Jesus, in virtue of being born at that particular time, *made* Caesar to have crossed the Rubicon at midnight, 10 January, 49 B.C. I doubt even the most devout among us would claim so much as *that*. Whether Caesar crossed the Rubicon at midnight, 10 January, 49 B.C. was up to him, and no future individuals.

It is just possible to accept this argument of mine against the individuation of times by what is true at them while retaining the second solution to the problem of why *now** is present. For all I have demonstrated, the defender of the second solution might protest, is that the truth of every proposition true at time *t* is not a *necessary* condition for the presentness of *t*. All that the second solution requires, however, is that the truth of every such proposition be *sufficient* for the presentness of *t*. My problem with this response is that I see little rationale for believing that the truth of every proposition true at a time is sufficient for that time's presentness without accepting the stronger position that what is true at a time provides its identity conditions. Zalta, for example, explicitly motivates his position by arguing that times are the tense-theoretic analogues of worlds, which, as we have seen, are individuated by what is true at them. He has, therefore, no principled ground for taking what is true at a time to be *distinctively* true at it, as with worlds, but not *essentially* true at it, as with worlds. Prior's analysis of times (and a similar analysis of worlds) as propositions distinctively true at a time, moreover, was driven by a need to give times something analogous to *names*, which serves a number of useful logical and semantic purposes (Blackburn 2006). Since a proposition could not serve as a nominal (name) of a time *t* if its truth were merely a sufficient, and not necessary, condition for the presentness of *t*, the Priorean cannot retain the benefits of his theory while modifying it in light of (4). In short, unless the defender of the second solution can give a very different motivation than something like the analogy between worlds and times for accepting the truth of some propositions as a (merely) sufficient condition of a time's presentness, this mitigated version of the second solution will lack the plausibility of its original formulation.

2.2.2 *The Second Argument*

The second argument is that the most plausible version of the view on which times are individuated by the propositions true at them, when combined with some very plausible assumptions about the earlier/later relation on times, yields extremely implausible results about the nature of time in simple models.

The first premise of the argument is that, if times are taken as individuated by the propositions true at them, they should be individuated only by a certain kind of proposition true at them, which I shall call *p*-propositions. (To simplify matters, we shall interpret the times individuated by *p*-propositions as *sets* of such propositions, as the argument can be modified in obvious ways to respond to other views on which times are individuated by what is true at them.) A *p*-proposition is, intuitively, a proposition that is expressed by sentences embedding clauses with neither tense-operators nor date-indexing operators (in a language where the work of such operators is always achieved by operators placed at the beginning of sentences). Thus, the proposition expressed by "At 4:13pm, a young man stands in his bedroom" is not a *p*-proposition, since it embeds "a young man stands in his bedroom" with the date-indexing operator "At 4:13pm". Neither is the proposition expressed by "A young man stood in his bedroom" a *p*-proposition, since in a language where the work of tense is achieved through tense operators the sentence would embed the clause "a young man stands in his bedroom" with an operator like "It was the case that…". The proposition expressed by "A young man stands in his bedroom", however, or that of "Socrates sits", *would* be a *p*-proposition.[6] The rough idea is of a proposition concerned completely with the present: *p*-propositions deal only with how matters stand *now*, not at some particular date or in the past or future.

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[6] For a similar division among propositions, see Bourne (2006, 53), who also argues that times should be construed as sets, or set-theoretic constructs, of *p*-propositions.

There is good reason to hold that times, if sets of propositions, are sets of (consistent) *p*-propositions. The first is that, if times are allowed to contain non-*p*-propositions as elements, then both times and the before/after relation on times will be deprived of explanatory power. For suppose that <It was the case that(A young man stands in his bedroom)> is a member of *t*. I assume it to be intuitively correct that the proposition <At *t*', it was the case that(*p*)> has, on the A-Theorist view that times exist, its truth explained by *p* being a member of some time before *t*', and <It was the case that(*p*)> its truth explained by *p* being a member of some time before the present (see Bourne 2006, 57). On the view, however, that the truth of *p* at *t* is explained by *p* being a member of *t* (which is presumably the main explanatory function of having a proposition as an element helping to individuate a time), this explanatory power of the before/after relation is rendered redundant: since <It was the case that(A young man stands in his bedroom)> is a member of *t*, there is no need to appeal to the existence of a time *t*' of which <A young man stands in his bedroom> is a member to explain the truth of <At *t*, it was the case that(A young man stands in his bedroom)>. Similar arguments can be made regarding time-indexed propositions: the truth at *t* of *p*-proposition *p* should be explained by the membership of *p* in *t*, and the truth of <At *t*', *p*> at *t* should be explained by *p*'s membership in *t*', but these principles conflict for reasons analogous to those just given for tensed propositions. A-Theorists who wish the before/after relation to retain this explanatory function, therefore, ought not to allow propositions expressed by sentences embedding clauses in tense-operators as individuating members of times.

Given this restriction on what propositions can individuate a time, however, very simple models of the universe's history, with times taken as sets of propositions, require bizarre

consequences. Suppose that there exists only one object, *a*, prone to change in intrinsic properties over time, and that the only changes it is prone to are changes in whether it is in one of four mutually-exclusive states: A, B, C, or D. In my language, the strongest *p*-propositions ever true in this universe are <*a* is A> (*A*), <*a* is B> (*B*), <*a* is C> (*C*), and <*a* is D> (*D*). Let there moreover exist just the times t1, t2, t3, t4, t5, t6, and t7, where t*n* is before t*n*' if *n*' is the successor of *n*, and let the members of these times be as follows: t1∋*A*, t2∋*A*, t3∋*C*, t4∋*A*, t5∋*B*, t6∋*D*, t7∋*C*. This model describes one of the simplest ways the world could be: the times are finite in number, there exists only one changeable object, and its changes consist of movements amongst a small collection of mutually-exclusive states. Nonetheless, on simple and plausible assumptions about the before/after relation, the history of such a universe would be bizarre.

The source of the odd consequences is the identity of t1 with t2 with t4 and of t3 with t7. Since the three and two, respectively, agree in what *p*-propositions are true at them, and since they are all sets of just those *p*-propositions true at them, by the axiom of extensionality, t1=t2=t4 and t3=t7. Strange conclusions follow when we concede the natural assumption that the before/after relation is transitive. First, the model requires *a* to have a history stretching infinitely into the past: all times t2-t7 will have t1 before them, but since t2 is identical with t1, this means that t2 will be before itself (under the guise of t1). Thus, at any time *t* in the history of *a*, there will be a time at which *a* exists preceding *t*. In other words, the model requires that *a* be infinitely old. As an obvious corollary, time will be circular. Moreover, on the traditional definition of temporal discreteness, that for every time *t* preceded by other times there is a time *t*' such that *t*' is before *t* and no time *t** both precedes *t* and is preceded by *t*', *despite* the finite number of times in the model, time is not discrete. For every time *t* that precedes t5, for example, there is a time *t*'

that precedes t5 and is preceded by *t*: t4(=t2=t1) precedes t5, and t3 precedes t5 and is preceded by t2(=t4); t3 precedes t5, and t4 precedes t5 and is preceded by t3. The universe, in short, is one in which "time travel would be rampant."[7]

The only means of avoiding these conclusions would be denying the transitivity of the before/after relation on times. While this rejection has been seriously proposed (see Meyer 2013, Reynolds 1994), even those rejecting it generally admit that it would require a kind of universe very foreign to that we would find familiar. What is more, it is not even clear that denying transitivity resolves the puzzles: even on the most restricted before/after relation available that complies with t1<t2<t3<t4<t5<t6<t7, where *t*<*t*' iff *t* is before *t*', there are still counterintuitive results. At t2, the past will still be infinite, since t1<t2 and t1=t2; moreover, at nearly every time, the past will be branching (in that that there will be two times equally distant in the past), despite the extremely restricted before/after relation. These, however, are bizarre conclusions: the model described above is one of an exceedingly *simple* history of the universe, and not one with these strange, foreign properties—at least at a first glance, it seems conceivable and possible that time could be as the model describes without having these exotic features. We ought, therefore, to reject the view that times are individuated by the *p*-propositions true at them, and, since that is its best formulation, the view that times are individuated by what is true at them at all.

2.2.3 *Good Company for the A-Theorist?*

One possible worry about the main argument of this paper is that it overgeneralises[8]. It is generally agreed upon (the most famous exception, of course, being Lewis 1986) that the actual

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[7] I owe the quote to Daniel Rabinoff.

[8] I thank Alex Skiles for pressing this objection.

world @ really does enjoy an objectively, metaphysically privileged position amongst all other worlds, the position of objective *actuality*. As Stalnaker writes, "the standpoint of the actual world is the absolute standpoint, and… it is part of the concept of actuality that this should be so" (1976). On a first glance, however, my argument against the A-Theory might work equally well against this moderate actualism: it is a contingent truth, on this common view, that @ uniquely enjoys actuality. Unless the actualist can adduce reasons to believe an explanation for @'s actuality, therefore, she will be at a disadvantage to the possibilist who believes all worlds to be on metaphysical par.

There is more than one way of addressing this worry. One response might invoke the defeasibility of the principle that I have been arguing tells against the A-Theory: the actualist might argue that her theory's theoretical benefits vastly outweigh the cost of being unable to explain why @ is actual. The actualist stance, for example, might be claimed to have the powerful endorsement of common sense, or to have concerns of parsimony in its favour. This reply, however, is decidedly inferior to providing an explanation for @'s actuality. If this explanation could be achieved, such weighing of cost and benefit would be rendered redundant, and in the actualist's favour. On many views of possible worlds, however, like those of Adams (1974), Plantinga (1974), and Zalta (2012), there *is* a straightforward explanation for @'s actuality. On these views, the nature of a world is somehow determined by what propositions are true at it; thus, to explain why a world *w* is actual, one need only cite how all and only the propositions associated with *w* are true. The actuality of @ is explained by the truth of its individuating propositions.

This, of course, is an exact analogue to the second proposed solution to why *now** is present. The difference, I contend, is simply that in this case there are no reasons think the proposed explanation will fail. More exactly, the arguments I have offered in the foregoing sections for why times cannot be individuated by propositions true at them (which is what prevents the solution from working) have no analogues in the case of worlds: what is sauce for the goose is not, in this instance, sauce for the gander. Consider the argument of 2.2.1. That argument relies heavily a.) on intuitions about the truth and falsehood of natural language statements of the form "That *p* is true at *t*", where *p* is replaceable by an indicative clause and *t* by a Gregorian date-time, and b.) on the assumption that Gregorian date-times refer to times. An analogous argument about worlds cannot avail itself of such resources. There are few natural language expressions obviously suited for referring to worlds, worlds being largely a philosopher's posit, and with such expressions as do seem suited to the job, like "all that is the case", we have no corresponding linguistic intuitions. "That John is angry is true at all that is the case" is simply ungrammatical. Thus, the first argument gives us no reason to think worlds unindividuated by times.

The second argument's worldly analogue fares no better. The argument of 2.2.2 relies heavily on assumptions about the before/after relation on times, assumptions that have no analogue in the corresponding relation of accessibility amongst worlds. S5 is a plausible candidate for capturing our intuitions about the accessibility relations among worlds. It is, on the other hand, an utterly bizarre suggestion that the before/after relation on times would mirror the accessibility relation thus required to validate S5: it would be a strange world indeed where every time comes before every other time. Some of the argument, moreover, relies on the

intuitive possibility of "freezing" time (see Meyer 2013, 103) by having the exact same propositions hold for two times in a row. There is no corresponding intuition about possibility: having *p* be possible at a world exactly like ours but impossible at ours would be, again, bizarre. Despite appearances, therefore, actualists have an escape from their analogue to my argument, while A-Theorists do not.

3 *Grünbaum and Smart*

Well-versed readers may note a similarity between my basic argument and one of Adolf Grünbaum, who was himself drawing on a line of thought from J. J. C. Smart. Quoting the latter, Grünbaum declares that

> If past, present, and future were real properties of events [i.e., properties possessed by physical events independently of being perceived], then it would require [non-trivial] explanation that an event which becomes present [i.e., qualifies as occurring now] in 1965 becomes present [now] at that date and not at some other (and this would have to be an explanation over and above the explanation of why an event of this sort occurred in 1965). (Grünbaum 1967)

"[D]efenders of the" A-Theory, Grünbaum adds, "have not even been able to hint how they might resolve that perplexity without utterly trivializing their thesis." While I arrived at my argument independently of Grünbaum, his argument does bear a striking similarity to mine. The two differ, however, in important respects. First of all, he does not consider the possible responses I have offered, contenting himself with pointing out the need for an explanation. More over, Grünbaum seems to take his as an outright refutation of the A-Theory as such, whereas I have merely been arguing that the inability to explain A-THEORY* puts the A-Theorist at a theoretical disadvantage to one who denies A-THEORY. As Bourne, an A-Theorist, explains his view, "whether a given proposition appears in a time is a brute fact. Or rather... it is a necessary

truth that such propositions appear in some of the times, and *it is a brute fact that one* [time] *gets realized*" (2006, emphasis mine). There is nothing obviously impossible about Bourne's view; it merely puts him at a disadvantage to his opponents. Grünbaum and Smart's argument, therefore, while similar to my own, lacks some of the nuances that lend mine credibility.

4 *Nominalism about Times and Tense-Primitivism*

Several philosophers have sought to provide theories that respect the intuitive privilege of the present without committing themselves to the existence of times. Prior (1968) and Chisholm (1990) are two notable such A-Theorists with nominalist approaches to times. "There seems," writes Chisholm, "to me to be no sufficient reason... to suppose that this temporal world includes such entities as 'times'" over and above temporal *events*. On the most straightforward such view, and the one that will be pursued in this paper as representative of nominalist A-Theorists[9], a joint-carving language for expressing the truth about time will contain primitive sentential tense-operators P and F (with corresponding duals H and G), corresponding intuitively to the English "It was the case that…" and "It will be the case that…", and governed by the axioms of some adequate tense-logic (see e.g. Sider 2011, 285-288). Such theories are A-Theories of time in that only sentences not embedded in tense-operators are true *simpliciter*, for to be true, on this view, is to be *presently* true. These views differ, however, from the positions described in 2.2 (according to which, as well, being presently true reduces to being true *simpliciter*) by not incurring ontological commitment to propositions or times: tense-primitivist A-Theorists accomplish their work with an enriched ideology of primitive sentential operators rather than an

[9] I will thus be ignoring theories, for example, that jettison times in favour of sets of simultaneous events, or other time-like objects. As an anonymous referee alerted me, to counter such views we can easily repeat the main argument with sets of events (to continue the example) replacing times as possible bearers of metaphysical presentness. I have thus devoted my attention to what seems the nominalist version of the A-Theory most likely to damage my overall case, *viz.* tense-primitivism.

ontology of times and propositions. While this paper has been devoted to a criticism of the A-Theory as expressed in terms of times, specifically in terms of some particular time possessing the metaphysically privileged property of being present, the question naturally arises whether analogous criticisms can be provided against such tense-primitivist versions of the A-Theory.

One way of approaching this question is by trying to identify propositions expressible in the language of the nominalist A-Theorist that lack obvious explanations for reasons similar to those of A-THEORY*. This can be achieved more or less easily depending on the A-Theorist's answers to further questions about time. There is, for example, a very straightforward such proposition in need of explanation on the assumption that a.) time is discrete and b.) the past[10] is finite. The tense-primitivist A-Theorist can express the combination of these assumptions by saying that, for an arbitrary tautology φ, where "$P^n(p)$" abbreviates "*p*" preceded by the P operator iterated *n* times, for some finite *n*, "$P^n(\varphi)\&\sim P^{n+1}(\varphi)$" will be true. The intuitive idea, expressed in terms of times, is that, for each iteration of P through the *n*th, the tautology will be true because the tense-logic equivalent of necessitation (*viz*. truth at all times) holds for the tautology. Since there are only *n* times before now, however, there can be no *n*+1th past time at which the tautology could be true. Letting *p* stand for the number that will satisfy "$P^n(\varphi)\&\sim P^{n+1}(\varphi)$", "$P^p(\varphi)\&\sim P^{p+1}(\varphi)$" will express the proposition we are seeking. Now will be the first moment at which "$P^p(\varphi)$" is true and the last moment at which "$\sim P^{p+1}(\varphi)$" is true; thus, "$P^p(\varphi)\&\sim P^{p+1}(\varphi)$" will express a proposition true uniquely at the present. It amounts to asserting, "Time began so-and-so many moments ago" or "The present occupies thus-and-such a position in the time-series." Since there seems no obvious explanation of this truth (if it be one) in the

[10] Arguments analogous to those I here make about histories with finite pasts can, of course, be made *mutatis mutandis* about histories with finite *futures*.

terms available the tense-primitivist A-Theorist, and given that it be taken as contingent, it therefore presents a *prima facie* unexplainable contingency, and thus a drawback to this nominalistic variant on the A-Theory.

Dropping the assumption that time is discrete, it still seems possible to formulate an analogue to A-THEORY* if the tense-primitivist A-Theorist is willing (as she should) to supplement her ideology. The A-Theorist will still need some way of expressing propositions like that *x* hours ago…, which (assuming time not to be discrete) cannot be accomplished simply by iterating the tense-operators. The most obvious way to achieve this is to introduce metrical tense-operators indexed to (a subset of) the positive real numbers, like P_x, where *x* is a positive real number, governed by appropriate axiom schemata (see Prior 1967, 88-97; Øhrstrøm & Hasle 1995, 231-240). In introducing such operators, however, the tense-primitivist A-Theorist once again allows the expression of a proposition uniquely true at the present moment. For, on the assumption that the past is finite (i.e. that there is some least *n* for which "$\sim P_n(\varphi)$" is true for an arbitrary tautology φ) and continuous (i.e. that for an arbitrary tautology φ, if "$P_n(\varphi)$" is true, all "$P_m(\varphi)$" such that *m* is a positive real less than *n* are true—I take it that if the past is not discrete in the sense given above, it is continuous), for some positive real *n* now will be the last time at which "$\sim P_n(\varphi)$" will be true, for an arbitrary tautology φ, which will correspondingly be the first time "$\forall m(m<n \rightarrow P_m(\varphi))$" will be true, as only now have all distances from time's beginning shorter than the current distance from time's beginning been traversed. Thus, tense-primitivist A-Theorists who deny the discreteness of time but allow that the past is finite will still have, with "$\sim P_n(\varphi) \ \& \ \forall m(m<n \rightarrow P_m(\varphi))$", an analogue to A-THEORY*.

Where the past is infinite, generalising this paper's argument against the A-Theory to encompass the theory's (tense-primitivist) nominalist incarnations is trickier. One way of extending the argument might be to strengthen the principle that unexplainable contingencies count against a theory when competing theories do not require the same to the principle that it counts against a theory if it requires that there *could be* unexplainable contingencies when competing theories do not require the same. Thus, if the A-Theorist concedes that it is *metaphysically possible* that the past is finite, then even as a tense-primitivist his theory will suffer the drawback that it requires the possible truth of unexplainable contingencies like "$P^{p}(\varphi)\&\sim P^{p+1}(\varphi)$" and "$\sim P_{n}(\varphi)\ \&\ \forall m(m<n\rightarrow P_{m}(\varphi))$". It is unclear, however, that this stronger principle is true.

A perhaps more initially promising line would draw attention to the result of Meyer's (2009). Meyer there demonstrates that, as long as the primitivist about tense-operators P and F is willing to countenance an ontology that includes sets of sentences in her tensed language, she will have times in her ontology. More precisely, he proves that there is a semantics for which a minimal tense-logic (with no primitive tense operators beyond P and F) is sound and complete; that the models of this semantics include sets of items intuitively playing the role of times; and that, so long as the tense primitivist allows maximal consistent (for the minimal tense-logic) sets of his tensed language's sentences into her ontology, she must allow that models like this exist with those sets of sentences playing the role of times in the semantics. Indeed, for every model $\mathscr{M}$ of his semantics, there is a model $\mathscr{M}^{T}$ whose existence is entailed by the primitive tense-logic plus the existence of maximal consistent sets of sentences such that a sentence of the minimal tense logic is true at $\mathscr{M}$ iff it is true at $\mathscr{M}^{T}$. However history might be (including it being as it

actually is), consequently, the sets-of-sentences-countenancing tense-primitivist will have in her ontology (something analogous to) all the times comprising that way history is. Since all the models of Meyer's semantics have a privileged present time, the tense-primitivist must therefore allow that a time exists with the property of being present if any such model captures the world's history. The idea is that she is therefore in the same boat as someone who accepts A-THEORY*, and is similarly incapable of explaining why the present time is present.

This argument, alas, is not successful. Since Meyer's ersatz times are maximal consistent sets of sentences, the present time would be most obviously identified with the only such set to contain only true sentences. Meyer then has a simple answer to what explain's the present time's unique presentness: it is the only time to contain only true sentences as members. This is analogous to the second solution, contemplated in 2.2, but neither of the arguments against that solution have much purchase against this proposed explanation. The first argument relies on the assumption that times are what date-times like "Friday noon, July the twentieth, 1714" refer to, and it is implausible that maximally consistent sets of sentences in a tensed language are the referents of date-times. The particular stock of variables, operators, etc. can vary from tensed language L to tensed language L'. L, for example, might contain just a primitive existential quantifier, while L' contains a primitive universal quantifier. In the same fashion, L might have as primitive logical operators a conjunction-sign and negation-sign, while L' has only a Sheffer stroke. It is implausible that the referent of "Friday noon, July the twentieth, 1714" would be a set of sentences maximal relative to L rather than L' (or *vice versa*): either option would seem arbitrary, just as Benacerraf famously observed regarding whether the numeral "4" refers to {{{{∅}}}} or {∅, {∅, {∅, {∅}}}} (1965). Meyer's "times" are *ersatz* times, items more-or-

less arbitrarily constructed to have the properties he requires of them, and thus are not good candidates for the referents of date-times in natural language.

The second argument against the second solution fares, if possible, even worse against its proposed Meyerian analogue. The argument relies on the assumption that times cannot have (the propositions expressed by) sentences embedding clauses with tense-operators as members. Meyer, however, to prove his above-stated conclusions about these ersatz times *requires* that they contain such sentences. "Every maximal consistent set of sentences of tense logic *contains* a maximal consistent set of sentences of the underlying propositional logic, but what matters for the construction of the time-series are the *other* sentences, those with occurrences of the tense operators. The information contained in these sentences permits the construction" of models for the tense logic from those sets (Meyer 2009, 216, emphasis in original). While tempting, therefore, Meyer's conclusions do not require a tense-primitivist A-Theorist, even one who permits sets of tensed sentences into his ontology, to accept anything that poses the explanatory problems this paper has documented A-THEORY* to present.

A general problem underlies these attempts to extend the argument of this paper to (tense-primitivist) nominalist versions of the A-Theory. What makes explaining the presentness of *now** difficult is that, as a time and by arguments 2.2.1 and 2.2.2, it has no essential connexion with the propositions true at it. Whereas worlds can (perhaps) be identified with maximal consistent sets of propositions and have their actuality explained by the truth of those propositions, times have their identity independent of what is true at them. What enables us to find propositions expressible by the tense-primitivist A-Theorist who believes in a finite past that cannot have an explanation is that we can find another kind of object (in this case numbers) that

have a contingent property corresponding to presentness (in this case being such as to satisfy the open sentence "$P^n(\varphi)\&\sim P^{n+1}(\varphi)$" or "$\sim P_n(\varphi)\ \&\ \forall m(m<n\rightarrow P_m(\varphi))$" with n as a free variable and φ a tautology) while not having any essential connexion with the truth of certain propositions or sentences (what is true n moments since time's beginning is not *necessarily* true n moments since time's beginning). It is the absence of such entities on tense-primitivist A-Theories of time without finite pasts (or futures) that blocks extending this paper's argument to encompass them.

Conclusion

The foregoing results can be summarised as follows. A-Theorists who hold that some time has the metaphysically privileged status of being present are obliged to accept A-THEORY*. A-THEORY*, however, is both contingent and without obvious explanation, making it a defeasible reason to reject the theory committing us to it. None of the examined attempts to explain A-THEORY* succeed, either because they replace it with further unexplained contingencies, require that times be individuated by what is true at them, or rely on problematic ordinary language implications of the words most naturally used to express A-THEORY*. Tense-primitivist versions of the A-Theory, which reject the existence of times in favour of primitive tense-operators, are subject to similar criticism when they allow for a finite past (or future), since that allows numbers to act as surrogate times. And, thus, unless the time-countenancing A-Theorist can provide some explanation for A-THEORY* beyond those examined in this paper, she will remain at a theoretical disadvantage to opponents who deny that any time has the metaphysical privilege of being present.[11]

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[11] I presented an earlier version of this paper at the 2013 conference for the Society for Exact Philosophy at the University of Montreal under the title "Times, Reasons, and Nowness: Why You Can't Be an A-Theorist, Rationalist, and Comfortable at the Same Time." I am grateful for the comments and criticism I received there, as well as those of Alex Pruss, Josh Rasmussen, Alex Skiles, and Alfredo Watkins.

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