Temporal Passage and the 'no alternate possibilities' argument

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ABSTRACT
Dynamic theories of time typically commit to the claim that "time passes". In this paper I develop a version of the 'no alternate possibilities' argument in order to show that time does not pass, but that this is no threat to dynamic theories of time.

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1. Introduction

Certain views in the philosophy of time are described as 'dynamic'. I borrow from Olson (2009: 3) in describing a 'dynamic' theory as one according to which: 'certain times or events are absolutely present, and there is continual change in respect of which ones they are'. Dynamic views of time typically commit to the claim that "time passes".[1]

Dynamic views are supposedly highly intuitive. It seems most natural to suppose that time passes, and that a dynamic view is true. It is also highly intuitive to suppose that this feature of time (its passing) allows us to

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[1] See, *inter alia*, Markosian (1993).

distinguish time from space and that this somehow plays a crucial role in a theory's being dynamic.[2]

Nonetheless, arguments have been put forward against dynamic views of time. The argument that interests me here focuses upon the claim that 'time passes' as the weak-point of dynamic theories. The general tenor of these arguments is that, because there are good reasons to deny that time passes, so there are good reasons to deny the dynamic theories of time. In fact, as Raven (2010) notes, there are two such putative arguments against the possibility of time's passing: the 'no rate' argument (NRA) and the 'no alternate possibilities' (NAP) argument. NRA has received a good deal of attention in the wider literature; I have nothing to add (here) to that debate.[3]

My focus is on NAP. The argument is suggested, though not developed, by Price (1993: 13). Semi-formally, it takes the following form:

> (NAP)
> 1. If x passes, then the rate at which x passes could be different
> 2. Time cannot pass at a rate other than 1s/s
> Therefore,
> 3. Time does not pass

Premise (2) seems (relatively) uncontroversial; I shall say nothing more about it. The motivation for (1) is seemingly that a coherent rate is one that could have had other values.[4] My claim is that there is a version of NAP that, modulo certain assumptions, is effective against the thesis that time passes.

I begin (section 2) by considering responses to NAP due to Maudlin, Price and Raven. I then move to offering a variation on NAP, suggesting that it

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[2] See, *inter alia*, Markosian (1993: 830)

[3] See, *inter alia*, Olson (2009), Philips (2009), Skow (2011), and Tallant (2010). The NRA, roughly stated is that: all things that pass, pass at a rate. *If* time passed, it would pass at 1s/s. 1s/s is *not* a rate. So, time does not pass.

[4] Cf. Raven (2010: 464), who remarks of the temporal case: 'The necessity of the rate of time's passage entails that there are no possible alternative rates, hence (allegedly) entailing the incoherence of the rate itself'.

delivers the result that we should not think that time passes given a dynamic view of time.

2. Maudlin, Price and Raven on NAP

Each of Maudlin, Price and Raven offer a response to NAP. Both Price and Raven respond to Maudlin (though with different conclusions), so it is with Maudlin's view that I begin.

2.1 Maudlin's NAP

Maudlin (2007: 112-3) responds to (what I'm calling) NAP by trying to demonstrate that there are coherent rates that are fixed of necessity. To illustrate, consider an exchange rate. We can specify that a given currency has an exchange rate of 1 unit of that currency per unit of that currency: for instance, \$1/\$1. We could specify other rates of exchange for a currency to stand in to itself. There's nothing conceptually problematic about an exchange rate of, for example, \$3/\$1.

But (and this is crucial), necessarily, the only fair rate of exchange is 1n/1n—\$1/\$1. So, necessarily, \$1/\$1 is the only fair rate of exchange for the dollar. This is a coherent rate; it is a coherent rate that is fixed of necessity. And so we have a rate that is fixed of necessity and that is unproblematic.

Not so. Raven notes an obvious response, and though he does not appear to endorse it, I do. The rate of exchange is not fixed of necessity at all. There are many possible rates of exchange available and these different rates could have been otherwise.5 Whilst no such rate would have the property of being fair, that's beside the point. This is still a case where we have a rate of exchange and where there are other possible rates. (Indeed, it's tempting to think that the rate of exchange can only be described as 'fair' because other rates are possible: e.g. 'if there were no other possible rates, it would make no sense to ascribe fairness (or otherwise) to the rate'.)

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5 Indeed, I wonder whether there are other fair rates of exchange. Suppose that Verity is very wealthy (she is of 'the 1%'). Would a 'fair' rate of exchange not see her lose out relative to the 99%?

In any case, the point is this: Maudlin tries to respond to NAP by showing that there are rates that are fixed of necessity. The example that he introduces is not a rate that is fixed of necessity. The rate could be other, though wouldn't thereby be fair. As a consequence, the example does not show that there can be coherent rates that are fixed of necessity.

2.2 Raven's NAP

Raven (2010: 459) introduces and endorses 'Passivisim': there is some literal truth to the metaphor that 'time passes'.

As Raven (2010: 464) notes, there are many instances of ratios that are fixed of necessity; π is a case in point. It is hard to see that there should be anything incoherent about a ratio that just so happens to also be a rate—like the rate of time's passing—just because it is fixed of necessity. As Raven (2010: 464) puts it: 'If π is a necessary but coherent ratio, why should the necessity of the rate of time's passage establish its incoherence?'

As Raven goes on to note, one obvious line of response is that any rate that is fixed of necessity is, in some way, uninformative, trivial, or useless and that this constitutes a problem.

However, Raven does not think that this response has any mileage.

> [E]ven if the complainers make it tolerably clear what they mean by 'trivial', 'uninformative', and 'useless', the complaint is irrelevant. The real issue is passivism: that time passes. The relevance of the rate of time's passage to passivism is that passivism entails that time passes at a rate. Passivism simply does not entail that time passes at a non-trivial or informative or useful rate. Even a trivial, uninformative, and useless rate is still a rate. … To concede this is to concede nothing significant: it is not to concede that passivism itself is trivial, uninformative, or useless. (Raven, 2010: 464-5)

But what Raven concedes here is that which Price (2013: 303-4) thinks is troubling for the dynamic theorist.

2.3 Price's NAP

Where Raven concludes that the rate of time's passage being necessarily, and a priori, of some fixed value is uninformative and trivial, Price agrees, but thinks that the rate being necessarily, a priori, of some fixed value *is problematic*. To illustrate, Price (2013: 304) invites us to consider a spatial case where a traveler completes a journey of 500 miles and in doing so puts 500 miles behind him;

> 'the reference to the rate [500 miles per 500 miles] is entirely vacuous', for 'there are not two things…but just one (the tally of miles). Maudlin's exchange rate example misses the point because it provides two things to tally: the dollars you give me, and the dollars I give you'.

Price then offers some remarks (that could be seen) as a response to Raven.6

> In defence of Maudlin, one might say that the triviality isn't a fault but a feature… Fine, but we've just seen that we can have spatial rates in the same (trivial) sense. What we were supposed to be after was a notion of flow, or flux, which would capture what's supposed to be special about time.

Price then (rightly) points out that if time passes in just the same way that space "passes", then (as the scare quotes indicate) this doesn't seem to be a notion of passage that will capture what is supposed to be special about time. We can have "spatial passage" in this trivial fashion.

It is therefore hard to see that this very thin notion of passage could be what differentiates time from space, and so it is hard to see that this notion could play the key role required of it in a dynamic theory: of being the difference between time and space.

However, I think that Price's argument is misguided. Informally, it runs thus:

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6 Though Price does not cite Raven and, of course, both papers appear at the same time.

PR1: If a dynamic theory of time is true, there must be something to differentiate temporal passage from spatial passage

PR2: What differentiates temporal passage from spatial passage must be reflected in the way we express the rate

PR3: Spatial rates of passage and temporal rates of passage are both trivial and of the form 1n/1n (and so are not differentiated from one another)

Therefore,

PRC: It's not the case that the dynamic theory of time is true

What I don't see is why the dynamic theorist should endorse PR2. It seems open to claim that the way in which the rates can be expressed is trivial; that this aspect of the mathematical formalism is exactly the same in both the spatial and temporal case. Nonetheless, there remains a significant difference between the passage of time and the nature of space. An (unkind) comparison will help bring this out.

People are very different from space. Notably, however, there is a clear ratio in which metres stand in to themselves and that people stand in to themselves. Thus, for every metre of space between two points, there is a metre of space. That is, there is 1m/m of distance between any two points. The same ratio stands between the number of people in a given region and the number of people in that region: 1p/p. We shouldn't therefore conclude that there is nothing about people that differentiates them from space. Rather, we should look to some feature other than the ratios involved to describe the difference between people (on the one hand) and distances in space (on the other).

The lesson carries over to the temporal case: we should agree with Price that we require some difference between temporal passage and "spatial passage". But we should look to find that difference somewhere other than the rate. The obvious thing to say for a dynamic theorist—and this is just to repeat the definition of what Olson (2009: 3) thinks it is to be a dynamic theorist—is to take the view that, 'certain times or events are absolutely present, and there is continual change in respect of which ones they are'.

But where we can say this of time, the same cannot be said of space. We do not, I take it, think that certain places are absolutely here and that there is

continual change in respect of which ones they are—if only because we do not think that there is an absolute here.7

But even if one doesn't hold that view, it's really hard to see why the right place to look here is the rate, or the fact that 1s/s is a unit of time per itself and that 1m/m is a unit of space per itself. The place to look for differences between time and space lie in the nature of time and space themselves, not the formalism with which we describe their rate of passing. In general, then, Price's suggestion seems to lack bite. We seem to be left in a situation where NAP has no force.

3. Revising NAP

Nonetheless, there remains something appealing about NAP. To my mind, at least, there seems something troubling about treating time as passing if (of necessity) it cannot do so at any rate other than 1s/s. In this section of the paper I bring forward a challenge—a version of NAP that I think has some teeth.

Focus on rates generally. So far as I can tell, the term 'rate' may be applied in three different domains (in this context—I ignore uses of 'rate' where it is used to mean 'score' or 'rank', such as, 'rate how useful you found our service'):

(a) Cases where an entity changes its property/properties over time[8]
Examples: 30km/h (assuming that location is a property—a relational property); rates of change (generally);

(b) Cases where finance is involved:
Examples: tax rate; interest rate; exchange rate, etc.

(c) Cases outside finance where the term seems to indicate a proportion
Examples: Divorce rate; obesity rate, etc.

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[7] Cf. Tallant (2009: 428).

[8] Or where some entities change their properties over time.

So far as I am aware, these uses of 'rate' are exhaustive (ignoring the temporal case and the ranking case). Each case is one where the rate in question 'could have other values'.

Thus:

NAP1*: All uncontroversial cases of rates are cases that 'could have other values'

NAP2*: If all uncontroversial *F*s have some property, G, then, if x is not G, then this gives us defeasible reason to think that x is not *F*.

NAP3*: The rate of time's passage could not have any value other than 1s/s

NAP4*: We have defeasible reason to think that time does not pass at a rate

Let me now walk through the premises.

I take it that NAP1* is established by consideration of (a)-(c). (I concede, of course, that there *may* be other uses of the term 'rate'. But, in that case, my opponent should do two things. First, identify these uses. Second, show that in these other uses of the term 'rate' are such that the rates in question could not have had other values.)

NAP2* should not be controversial; an example will help to explain why. It was once thought that all swans are white. The first discovery of an object that looked a lot like a swan *but that was black* was not treated as a swan. In 1790, when John Latham 'discovered' the black swan, it was not recognized immediately as belonging to the genus *Cygnus*. It was classified as monotypic genus—a taxonomic grouping with only one member. Thus, that all uncontroversial swans were white (or grey, at birth) was a defeasible reason to think that this creature was not a swan. Of course, that reason was defeasible and was defeated. Various other properties ultimately trumped the color consideration (including biological properties). NAP3* is not in dispute. Thus, we have reason to think that time does not pass at a rate. Unless given reason to think otherwise, we ought to then conclude that:

NAP5*: Time does not pass at a rate.

For the time being suppose that's right. Now, continue the argument with another premise:

NAP6*: All uncontroversial cases of 'things that pass' are cases where those things pass at a rate

I see no reason to dispute NAP6*; I certainly cannot think of a counter-example.

In conjunction with NAP2* and NAP5*, though, this yields the result that we have defeasible reason to think that time does not pass. Once more, if we then lack reason to think otherwise, we should conclude that time does not pass.

Thus, the point is not that there is a *logical contradiction* in supposing that time passes at a rate of 1s/s. The point is simply that this sort of *putative rate* doesn't look at all like a rate; that gives us defeasible reason to think that time does not pass at a rate and, so, does not *pass* at all.

4. A weak complaint

Here is an objection. The complaint seems weak. It amounts to the complaint that a rate like time's passing would be unprecedented in not having some particular property. That something is unprecedented seems especially unlikely to cast much doubt on it in metaphysical contexts. For example, is it really a persuasive argument against God's existence that His existence is unprecedented (i.e. that there are no preceding examples of omnipotent, omniscient, omnibenevolent necessary beings who created the reality)? For the main complaint to be persuasive, more needs to be said about why the unprecedented necessity of time's rate of passage makes it dubious.

I don't think that this objection is especially pressing. I agree, of course, that an argument similar to NAP* could be used to generate the conclusion that we have defeasible reason to think that God does not exist. But, contra the imagined objector, I think that this *does* give us defeasible reason to think that there's no such being. Of course, the reason is *defeasible*. Anyone moved by arguments in favor of the existence of God will likely think a variant on NAP* outweighed by those very considerations. But that an argument, A, is outweighed by another, A*, does not mean that A is of no value.

It would be tempting, then, to think that there is an easy route to a reply. NAP4* simply noted that we have a defeasible reason to think that time does not pass. And so, in just the same way that an argument, A*, for the existence of God can be used to outweigh a variant on NAP* intended to show God not exist, we should simply look for arguments that show that time *does* pass.

That, surely, will be easy: proponents of passage will, at this point, just wheel-out whatever arguments they appealed to in the first place and claim that these trump NAP* in just the same way that those who believe that God exists will claim that A* trumps A.

I deny that there are any good arguments to support the truth of the claim that 'time passes'. My reasoning is simple. Suppose that you are a dynamic theorist of time. You do not, then, think that there is a thing, time, that passes. Rather, you think that things change. Indeed, by I take you to be committed to the truth of the claim that 'certain times or events are absolutely present, and there is continual change in respect of which ones they are'. So be it. But that is not to say that *time* passes; for to say that *time* passes is to say that there is an entity, time, and that it performs an action: passing. And that is not something that *any* dynamic theorist (that I am aware of) has ever argued.

Indeed, it seems probable that talk of time's passing is a distraction. The claim that 'time passes' is a literary device. It is an instance of hypallage. Hypallage, sometimes known as a transferred epithet, is the transfer of an attribute away from its 'proper' subject, to an 'improper' subject. Examples include: 'Jones made a careless mistake', and, 'Verity had a sleepless night. In the first case, it is not true that the mistake is careless: mistakes are not able to be careless. The 'proper' way to attribute carelessness is to say something of the form, 'Jones was careless and made a mistake'. Likewise, in the second case: it is not the night that is sleepless. Rather, it is Verity who has not slept well during the night.

Matters are similar in 'the passage of time'. I take it that it is true to say that (typically—make what you will of Shoemaker (1969) cases) objects change or pass one another during a given period of time. Thus, a feather floating down a stream will pass the root of a tree that marks a point on the bank—similarly for other changes. Thus, whilst time does not pass, objects do and they pass by *during periods of time*. In that case, I take it that the *proper* subjects of the epithet are *objects* and that *these* may be said to pass one another. I thus find it unlikely that NAP* will be overturned for I think it unlikely that we will find reason to think that time passes *at all*.

What, then, should we make of dynamic theories of time? In short, whatever we will. Let me repeat: as described, a dynamic theory of time commits to the truth of the claim that 'certain times or events are absolutely

present, and there is continual change in respect of which ones they are'; that, and no more. But that is entirely consistent with the falsity of the claim that 'time passes'. Since no dynamic theorist then has a reason to think that there is a thing that is time that passes, so there will be no response to NAP*. And, if there is no response to NAP*, so we should conclude that time does not pass. Whether we wish adopt a dynamic theory of time at all, is another question altogether.

5. A further worry

Another worry that has been put to me on this score runs as follows. Here is an analogy to the argument presented. The conclusion of this analogous argument is that you are probably not as tall as yourself. Premise: in most usual cases, when a is said to be as tall as b, this is a contingent matter: in other circumstances a could have been shorter than b. Premise: in most usual cases, when a is said to be as tall as b, a and b are distinct objects. Inductive conclusion: therefore, it is probably not the case that you are as tall as yourself; if you were as tall as yourself, that would be a necessary rather than contingent fact, and if you were as tall as yourself this would be an example of the relation "as tall as" holding between an object and itself rather than between two distinct objects.

Now, what all of this shows is just how absurd this *kind* of argument is. It's clear from the analogue just given that this *kind* of argument can give us absolutely absurd conclusions. And we should not want to endorse conclusions of this absurd form. Thus, if this kind of argument leads us into absurd conclusions, then we should reject this kind of argument.

However, as with the complaint given in section 4, I don't see that this line of response is pressing. Let us grant, simply for the sake of the argument, that the allegedly analogous argument really is analogous (about which I'm a little doubtful). Let us also allow that it generates the absurd conclusion. My interlocutor claims that the conclusion of the argument is absurd. I agree. But I take that to be good grounds to *outweigh* the conclusion. (I think that there are probably also better arguments in the vicinity for outweighing the absurd

conclusion; a quick look around my office confirms to me that everything within it is as tall as itself.) I don't imagine anyone disagreeing. It's pretty obvious that there are objects that are as tall as themselves. Thus, I think that the allegedly analogous argument with an absurd conclusion *has* an absurd conclusion and that we can use this very fact to reject the conclusion.

Is this any threat to the argument that I've presented? Presumably, there is a threat iff it is obvious that time passes. It was, after all, the obviousness of there being objects that are as tall as one another that allowed us to reject the absurd conclusion.

So, is it obvious that 'time passes'? Not, I think, unless there is a thing, time, that passes. If there is no thing, time, that passes, then it is obvious that time *does not* pass. And, given the remarks concerning hypallage and the commitments of dynamic theories of time, discussed at the end of section 4, I think it unlikely that the dynamic theorist will commit themselves to the claim that there *is* a thing, time, that passes.

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