Theories of persistence and the relations-to-times view.

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0. I want to discuss here a package of views about persistence and change which I call the ‘relations-to-times (RTT) view’. I take this view to be constituted by the following theses:

[End.] Endurance Theory: ordinary objects persist by enduring, i.e. by being wholly present at different times.
[Rel.] Relational account of temporary property instantiation: all apparently monadic properties that can be temporarily instantiated by ordinary objects are in fact binary relations that objects bear to times. More generally, any n-adic relation which an ordinary object may apparently bear to something else, is in fact a n+1-adic relation in which the additional place is occupied by a time.

D. Lewis has famously argued that the RTT view cannot accommodate the intuitions underlying the phenomenon of intrinsic change.1 Since then, different solutions and refinements of the view have been produced to deal with Lewis’s argument. Nowadays, the generalized opinion among both critics and supporters of the view seems to be that Lewis’ argument is far from being decisive.2 In fact, some philosophers who are not impressed by the force of Lewis’s argument take the RTT view to be the most plausible option for an endurantist to pursue. In this paper, I do not intend to engage in this ongoing debate about the plausibility of the RTT view, but rather to remove a misunderstanding over its content. I will offer a precision about how the view should be understood, which should be granted by its defenders and critics alike, in order for their arguments to be maximally plausible. As I will show, the misunderstanding I want to remove is not only a potential one. It does actually arise in some early and current discussions of the view.

This is the plan I will follow: first, I will make some introductory remarks intended to explain with some detail what theories of persistence are about (sections 1 and 2). Then, I will present the RTT view and argue that it must be understood in a specific way (section 3). Then, I will discuss two arguments –presented by Rodríguez-Pereyra (2003) and Johnston (1987) respectively-- in which a different understanding is assumed, and argue that these arguments fail, in part for that assumption (section 4). Finally, I offer a tentative explanation of why the defective understanding might have arose (section 5).

1. Three issues in the philosophy of persistence.

In this section I will characterize what I take to be the primary goal of theories of persistence, namely answering what I call the ordinary-objects question. I distinguish this question from two other related but independent issues (which I call the temporal parts-question and the time-question, respectively). Also in this section, I will briefly outline

1 Lewis (1986), p. 204.
the two most well-known theories of persistence: **perdurance** and **endurance theory**. This second theory is a fundamental piece in the RTT view.

Let us say that an object persist iff it exists at more than one time. I take theories of persistence as primarily engaged in explaining what it is for an **ordinary object** (such as tables, apples and persons) to exist at different times. In other words, theories of persistence are intended to explain in virtue of which facts it is true that one and the same object, say a banana, exists both at times \( t_1 \) and \( t_2 \), where \( t_1 \neq t_2 \). A generally agreed constraint on any such theory is that it be compatible with a coherent account of change. Thus, any satisfactory explanation of what it is for a banana to exist both at \( t_1 \) and \( t_2 \) must be compatible with an account of what it takes for the banana to **change** from being green at \( t_1 \) to being yellow at \( t_2 \) — i.e. to have incompatible properties at different times. This explanatory goal is very clearly stated by M. Johnston, who characterizes theories of persistence as seeking “to explain how the temporally qualified report ‘At \( t \), \( z \) is \( G \) and at \( t^* \), \( z \) is not \( G \)’ is significantly different from a simple contradiction (…) where explaining does not just mean opting for a style of appending ‘t’s and ‘t*’s but defending the views about properties, the nature of time and the nature of persisting individuals which justify this style of appending”.

I shall return soon to the issue of change. Let us now concentrate on persistence itself. What is it for an ordinary object to exist at different times? I will briefly characterize the two most well-known answers to this question: **perdurance** and **endurance theory**.

**Perdurance theory.** According to this theory, ordinary objects persist by perduring. An object **perdures** iff it has different **temporal parts** at each time at which it exists. The view is generally presented as claiming that objects manage to exist at different times in much the same way as they occupy different places: by having different parts at each. Persisting objects are thus pictured as temporally extended ‘worms’, composed of temporal parts laying at different times. Turning back to our previous example: the banana is a sum of temporal parts and exists both at \( t_1 \) and \( t_2 \) by having a temporal part at each of these times. The statement of perdurance theory draws on the notion of ‘temporal part’. For our purposes here, the following rough understanding of ‘temporal part’ will do: \( x \) is a temporal part of \( y \) iff \( x \) exist at only one time \( t \) at which \( y \) also exist, and \( x \) spatially coincides with \( y \) at \( t \). Perdurance theory is true only if these short-lived objects exist and are genuine parts of persisting objects. It is therefore evident that perdurance theory is far from being ontologically neutral. Rather, it makes substantive assumptions about which kind of objects there exist. However, as understood here, perdurance theory (as well as other theories of persistence) does not constitute by itself a complete ontological picture of spatiotemporal reality. Rather, it is a thesis about the restricted domain of **ordinary objects**, those objects we talk about and quantify over in ordinary discourse. It is not a general thesis about what there is, but about what chairs, bananas and persons are.

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3 This restriction to ordinary objects that I build into the definition of “theory of persistence” is a convenient terminological choice, but not completely ecumenical. Imagine a revisionist metaphysician who denied that there are any ordinary objects, and claimed that there is nothing but atoms arranged in different ways. This metaphysician could still take atoms to be persisting objects, and claim to have a theory of persistence about these. For instance, he could consider himself an endurantist about these atoms. Maybe the best thing to say is that theories of persistence make their respective claims relatively to a determinate kind of objects. However, ordinary objects are at the center of the debate on persistence, and that is why, having acknowledged this, I will continue to talk of theories of persistence as theories about ordinary objects.

(Thanks to Fabrice Correia for calling my attention to this point).


5 As understood here, perdurance theory should be distinguished from Sider’s ‘fourdimensionalism’ (4D), the thesis that, necessarily, every spatiotemporal object has a temporal part at each moment in which it exists. 4D is a very general claim about ontology, not about ordinary objects in particular. Its truth is consistent with the falsity of perdurance theory defined as above; this would be the case if the so called stage
Endurance theory. According to this theory, ordinary objects persist by enduring. An object endures iff it is wholly present at each time at which it exists. This is the view classically opposing perdurance theory. The view denies the claim that ordinary objects such as apples and towers have temporal parts. This is the intended sense of the slogan ‘being wholly present at different times’. But even if we can discern its intended meaning in this way, the slogan is still a metaphor, one that has been proved particularly difficult to cash out. Endurance theory is often credited to be the common-sense view on ordinary objects: it is claimed that common sense takes objects to ‘move through time in their entirety’, as endurance theory has it, and not to be extended in time by having parts, as perdurance theory has it. Defenders of endurance theory typically stress the difference between ordinary objects and events: events do have temporal parts, and ordinary objects do not. Events do not change themselves through time, while ordinary objects do. A classical charge that endurantists make to perdurantists is that they conflate objects with events. So, in general and with some exceptions, endurantists do not deny that some particulars have temporal parts, or that the idea of temporal parts is intelligible. They just deny that ordinary persisting objects have temporal parts.

With these two views about persistence on the table, I would like to make some further remarks about the relations between the issue addressed by theories of persistence and some other ontological issues. As presented here, theories of persistence address the following question:

Ordinary Objects-question: How do ordinary objects persist? What ordinary persisting objects are? What are the domain of quantification and the referents of singular terms in ordinary-object talk: enduring objects, perduring objects, none of these two?

We have just sketched the main answers to this question. There two related questions that I would like to mention.

Temporal-parts question: (a) Are there concrete instantaneous objects (=stages)? If there are, (b) which things are composed out of these stages (=have these stages as parts)? And (c) in which circumstances do these stages compose (=are parts of) larger, temporally extended objects?

Time-question: What is the correct philosophical account of time? Two more specific questions can be differentiated here. First, are the past or the future on an ontological pair with the present? Second, are there irreducible tensed facts or rather everything supervenes on tenseless facts?

The temporal-parts question is largely irrelevant for my purposes in this paper. But this is precisely the reason why I mention it now! Most philosophers do not distinguish the two issues as sharply as I do here; for them, the issues raised in the temporal-parts question are highly relevant whenever theories of persistence are compared and assessed. As I am presenting the debate, on the contrary, there is a clear difference between the two questions:

theory is true, and thus ordinary objects are time-bound and do not strictly persist. On the other hand, perdurance theory does not require 4D; it does require that every spatiotemporal object have temporal parts but only that ordinary objects do. More evidently, perdurance theory is non-committal with respect to unrestricted mereological composition (UMC), the thesis that for any class of objects S, there is an object x such that x
one concerns ordinary objects and ordinary talk about spatiotemporal reality; the other is about ontology with a big O, about what, in general, there exists, independently of whether we talk or think about it or not. Of course, as I have already noticed, answers to ordinary objects-question may require some specific partial answers to the temporal parts-question: some theories of persistence employ the ontological resources provided by different answers to the temporal-parts question. I think, though, that a clear distinction between these two questions helps to understand the points of disagreement in discussions about persistence, but I cannot go into this here.

More relevant for the purposes of this paper is the remaining third question, the time-question. The first of the two issues involved in this question is particularly relevant: are the past and the future on an ontological pair with the present? This question receives two basic answers. According to one of them, only the present time and presently existing objects are real—nothing exist which is not present. This is the view called presentism. The basic opposing view, eternalism, holds that all times and objects are equally real. Past and future times are as real as the present, and objects existing at those times are as real as the presently existing objects. As Sider puts it "just as distant places are not less real for being spatially distant, distant times are not less real for being temporally distant; the ontological significance of distance is thus a respect in which time is spacelike." Socrates exists as well as me, and he is not less real than I am. I exist now and he exists in the past. But this difference has no more ontological significance than a difference in spatial location. (I am not more real than George W. Bush just because of my existing here and his existing in America.) Let us consider our leading example: the banana that exists at both t1 and t2. If presentism is true, at most one of these two times is real, provided that it is present. There is no more than one time at which the banana is located, and this is the present time. If eternalism is true, on the contrary, both t1 and t2 are equally real and so are the entities that exist at those times. The banana must be either ‘extended’ through t1 and t2, or somehow ‘bi-located’ at both t1 and t2.

I said before that the eternalism-presentism debate is especially relevant for the purposes of this work. This is because the RTT view, which I will discuss below, is generally presented under the assumption that eternalism is true. This option may not be mandatory; some authors have argued that the issue of which is the correct philosophical account of time cross-cuts the issue of which is the correct theory of persistence; i.e. that prima facie, almost any theory of persistence could be equivalently developed under either eternalist or presentist assumptions—the two issues are largely independent from one another. Be it as it may, the RTT view, as well as perdurance theory, is most often stated under the assumption of eternalism. My presentation of the theory, and my arguments about how to understand it will follow this standard assumption. We will be working with the picture of a ‘block-universe’ in which all times at which our banana exists are ‘given’ as equally real.

2. Persistence and Change.

Let us turn back to Johnston’s quote above. He characterizes theories of persistence as the project of explaining

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has all the members of S as parts, and every part of x overlaps a member of S. The crucial point here is that both 4D and UMC are very general ontological doctrines, while theories of persistence, as understood here, are restricted to specific domains of objects, mainly ordinary objects.


7 This point of view is defended by Sider (2001) and Haslanger (2003). For contrasting opinions see Merricks (1995) and Hawley (2001), ch. 1.
It is implicit in this quote that failure in offering such an explanation would leave us with something close to contradiction. I think this point is correct: if we do not have a credible story about the work done by temporal qualifiers like ‘at t’, we do not have an explanation of why reports of change are not straightforwardly contradictory. This is only a way of making vivid the need for a theory of change and persistence. Change poses a problem we need to account for: given that we know that some reports of change are true, our problem consist in saying what kind of facts make them true. However, some philosophers have thought that there is not only a problem about change, something we need to account for, but also a puzzle. These philosophers often present their worry by means of the so-called ‘puzzle of change’, and take theories of persistence to be necessary to solve or dissolve this puzzle. I think this is a mistake: change is patently not a puzzling phenomenon and attempts to generate a puzzle from plausible assertions about change are all unsuccessful. I will come back to this point later, after a short presentation of the so-called puzzle of change.

The so-called ‘puzzle of change’ is based on an apparent conflict between the phenomenon of persistence through change and the strict demands imposed by Leibniz Law, the most fundamental law governing identity. This is one of the ways in which the puzzle of change is generally presented: John has an accident at work and looses one of his hands. So he changes from having two hands at t₁ to having only one hand at t₂. Call ‘John₁’ John as it is in t₁ before the accident and ‘John₂’ John as he is in t₂ after the accident. Surely it is true that John₁ is identical to John₂; this is implicit in the idea that John survived the accident, and, more generally, in the idea that ordinary objects persist through change. But this is incompatible with the John having changed from t₁ to t₂. Because for John to change from t₁ to t₂ is for John₁ and John₂ to have different properties. And this is banned by Leibniz Law, which requires that John₁ and John₂ have the same properties; that everything which is true of John₁ be also true of John₂. Therefore, barring contradiction, either John₁ is not identical to John₂, or John has not changed from t₁ to t₂.

As I have announced before, I am sympathetic with those who do not find the ‘puzzle’ puzzling at all. We have a real puzzle when a contradiction is derived from a set of assertions, all of which strike us as prima facie true. In this sense, the ‘puzzle of change’ is not a real puzzle. In our presentation above, it is clear that no one would grant all the assumptions needed to derive a contradiction. It is evident that in our presentation the ‘puzzle’ arises because of the peculiar way in which we have introduced the names ‘John₁’ and ‘John₂’; the definite descriptions we used to fix their references (“John as he is at t₁” and “John as he is at t₂”) are not precise. There are two ways of understanding them: either they are satisfied by particular stages of John or by the persisting object John itself. In the first case, it is trivially false that John₁=John₂. In the second case John₁ refers to John both at t₁ and at t₂. But then, it is trivially false that John₁ and John₂ have different properties. In neither case we get the apparently true propositions required to generate a real puzzle. However, not having a puzzle is not the same as not having a
problem. Even if there is no puzzle, there is still something that needs to be explained, namely what it is for an object to change. We know that John changed after his accident and we can and do talk about his change. We now see that this talk does not lead to contradiction in any obvious way, but there is still an issue about what makes true such talk. And as we may expect, different theories of persistence offer competing accounts about this issue. These accounts may have different virtues and drawbacks, and therefore they may accomplish their goal with different degrees of success. I think that the popularity of the so-called puzzle of change is due to the fact that, even if not a real puzzle, it constitutes a useful standpoint for watching the accounts at work. What we will call ‘solutions’ to the ‘puzzle’ are not more than these accounts of change at work, and the question of which solution is better should not be taken too literally, but rather as the question of which account of change yield better results.

Let us therefore turn to the different ‘solutions’ to the ‘puzzle’ offered by different theories of persistence. According to perdurance theory, John1 and John2 are in fact different objects; different temporal parts of the perduring object John. Since John1 is not identical to John2, Leibniz law does not apply and we reach no contradiction. On the other hand, endurance theory cannot appeal to there being different temporal parts, and is therefore committed to the identity John1=John2. But then, Leibniz law requires the endurantist to say that John1 is one-handed if John2 is, and that John2 is two-handed if John1 is. Since John has effectively changed from being one-handed to being two-handed, and since these are incompatible properties (being two-handed in the relevant sense implies not being one-handed, and vice-versa), the endurantist faces the threat of contradiction. There are different ways for the endurantist to avoid this threat. Some of them are elaborations of the following idea, which is perhaps the most obvious and immediate reaction to the ‘puzzle of change’: there is no contradiction in saying that the enduring object John (which we may alternatively call John1 or John2) is both one-handed and two-handed, provided that he is so at different times. The RTT view, which I am about to present, is just an elaboration of this simple idea. The basic move of the RTT view consists in relativization of properties to times. On this approach, it is just not true that John has incompatible properties; he has the properties of being one-handed-at-t1 and the property of being two-handed-at-t2. Since the two relativized properties are not incompatible, there is no contradiction in claiming that John persisted through change from t1 to t2.

The endurantist ‘solution’ just sketched has the advantage of capturing the immediate reaction to the ‘puzzle of change’. However, this solution has resounded defect emphasised by D. Lewis (1986, 2002): it deprives objects of all their intrinsic changeable properties. This has undesirable consequences: first, most of the properties that we ordinarily take to be intrinsic (like being one-handed) turn out to be non-intrinsic; they are construed as relational properties or as relations to times. Second, there is no phenomenon as genuine intrinsic change: if objects have any intrinsic properties at all, these must be unchangeable. In what follows, I will refer to this argument by Lewis only marginally, and will not be much concerned with it. However, Lewis’ argument has been so central in discussions about the RTT view that it is worth mentioning it even if only for the sake of completeness.
3. The Relations-to-times view and a potential misunderstanding of it.

The ‘relativization move’ just sketched is sometimes considered as the best option available for endurantists to explain change.\(^{10}\) This move can be done in different but more or less equivalent ways. I will concentrate here in the following version, which I will call the RTT view. I take this view to be constituted by the following two thesis:

[End.] **Endurance**: ordinary objects persist by enduring, i.e. by being wholly present at different times.

[Rel.] **Relational account of temporary property instantiation**: all apparently monadic properties that can be temporarily instantiated by ordinary objects are in fact binary relations that objects bear to times. More generally, any n-adic relation which an ordinary object may apparently bear to something else, is in fact a n+1-adic relation in which the additional place is occupied by a time.

In order to see the RTT view at work, we can focus on the following two sentences, which are true according to our example:

(a) The banana is green at \(t_1\).

(b) The banana is yellow at \(t_2\).

We can agree that whatever makes true (a) and (b), will also make true the claim that the banana **changed** from \(t_1\) to \(t_2\). But in virtue of which facts are (a) and (b) true? The RTT view offers an answer to this question, and thereby also to the question of what it is for the banana to change: according to the view, sentence (a) is true in virtue of the fact that the banana stands in the relation \textit{being-green-at} to \(t_1\), while sentence (b) is true in virtue of the fact that the banana stands in the relation \textit{being-yellow-at} to \(t_2\). These two relations are incompatible in the sense that an object cannot hold both to the same relata, but there is no contradiction in holding incompatible relations to different times. This account follows from [Rel.] above.\(^{11}\) The remaining component of the RTT view, [End.], is intended to capture an alleged truth about persisting objects. In virtue of [End.], the following two sentences are true:

(c) The banana is wholly present at \(t_1\).

(d) The banana is wholly present at \(t_2\).

As before, of these two sentences we can ask what makes them true. Expositors of the RTT view have rarely made any explicit comment about this,\(^{12}\) but the answer follows from the basic commitments of the view: (c) and (d) are true in virtue of the fact that the banana bears the relation \textit{being-wholly-present-at} to both \(t_1\) and \(t_2\). (For our present purposes, we can leave aside the vexed issue of what exactly “wholly present” means.\(^{13}\)) We have now a complete account of the banana’s life as pictured by the RTT view.

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\(^{10}\) A less popular option for endurantists involves adopting presentism. See Zimmerman (1998) for such a view.

\(^{11}\) As noted at the beginning of this section, the ‘relativization move’ could take a different form. According to the RTT view, the banana’s being green at \(t_1\) is a matter of bearing a certain relation to \(t_1\). In an alternative version of the relativization move, the banana’s being green at \(t_1\) is not a matter of bearing a relation, but rather of having the relational monadic property being-green-at \(t_1\). These two alternatives are generally taken to be equivalent for most purposes.

\(^{12}\) Hawley (2001) is an exception.
Now the following question might arise: once the banana has changed from being green to yellow, i.e. at t₂, does it still bear the being-green-at relation to t₁? We might as well ask: before change occurred, i.e. at t₁, did the banana already bear the being-yellow-at relation to t₂? I think that a defender of the RTT view should reject these questions as not well-formed. Before supporting this claim, let us consider what happens if she takes the questions as legitimate. If the proponent of the RTT view grants that it is a significative issue whether the banana at t₂ still bears being-green-at to t₁, then her answer must be affirmative. Otherwise, the problem that motivated [Rel.] re-appears: if the banana bears being-yellow-at to t₁ at t₁, but not at t₂, then there is something that is true of the banana, and not of banana₂. And then, by Leibniz Law we should conclude that banana₁ is not identical to banana₂. So, in order to prevent the re-appearing of the original problem, the proponent of the RTT view we are now considering should say that at t₂ the banana still does bear the relation being-green-at to t₁, and also that at t₁ the banana already bore the relation being-yellow-at to t₁. In fact, at every time in which the banana exists, it bears exactly all the same relations to the same times. Relations to times are held eternally, i.e. at all times.

But there is a better way for the RTT theorist to go, as noticed before: she should reject the questions we are considering as not well formed. For someone who has adopted the RTT view appropriately understood, the considered questions do not arise, as we will see. The RTT view offers an account of temporal qualification, i.e. of what it is for an object to instantiate a property or relation at a time. Given this explanandum, it would be a bad policy to construe the account as relying on a temporally qualified notion of relation bearing. Such an account would be circular: it would make use of the same notion that it is intended to explain. So, in order to avoid circularity, the relational theory should draw on an atemporal notion of relation bearing. According to this notion, relations to times are borne simpliciter, not relatively to times. It makes no sense to ask at which times the banana bears relations to times. Nor makes it sense to say that the banana always bears the same relations to the same times. We can only insist in questions and claims like these if we misconstrue the RTT view in the way explained above, as a circular account of temporal qualification. But this is not fair to the RTT theorist, whose intended account is not circular. Therefore, to insist in questions that presuppose the temporally qualified notion of relation bearing is to beg the question against the relational theorist’s account of temporal qualification.

13 See Sider (2001) ch. 1 for a discussion of this issue.

14 It has been suggested to me that this circularity need not be vicious. Circularity is not always a bad thing, and there is no reason to suppose that it is a bad thing in this particular case. But then, there is no reason why the RTT theorist should not iterate his account so that it self-applies. That is to say, the RTT theorist could say that relations to times do hold at times (and if so, at all times –i.e. eternally-, for the reasons explained in the previous paragraph), and then explain this holding at times in the same way he explains being green at t, applying the same pattern of explanation. If circularity is not a problem, then the RTT could be construed as claiming that relations to times hold eternally. Let us call this version of the view RTTe, and let us call RTTa the version according to which relations to times hold atemporally. I claim that the best construal of the RTT is RTTa. The objection I am considering here claims that there is really no obstacle in construing it as RTTe. In my opinion, even if there is no obstacle for this, the fact remains that RTTa fares better as an understanding of the intended content of the RTT view. The idea motivating the RTT view is (or should be, I claim) that relations to times are borne simpliciter, not relatively to times. The following analogy may help to see why I claim this: there are two competing accounts of what propositions (the objects of propositional attitudes and meanings of declarative sentences) are. According to one account of them, temporality, propositions are true or false relatively to times. Furthermore, one and the same proposition can be both true and false, relatively to different times. According to the competing account, eternalism (not to be confused with the homonymous view about time), propositions are true and false simpliciter, not relatively to times. Now, I think it would be a mistake to characterize the eternalist account of propositions as holding that propositions are true or false eternally, at all times (and thus I think the label ‘eternalism’ is misleading). This characterization—that propositions have their truth values eternally—is in fact a simplification of the view that we might adopt in one of the following two cases: (a) the eternalist may need to argue with the temporalist, and for those dialectical purposes he may choose to ‘translate’ his view into something that the temporalist could understand. He could then characterize his position by saying that propositions have their truth values eternally. But this is the eternalist position as the temporalist would state it, not as the eternalist himself would do. (b) We may be induced to such characterization by the fact that we attribute truth to propositions by using ordinary language, and ordinary language employs a verb (‘is’) which always admits temporal qualification. But we should take eternalism to be a theory of propositions, the proper statement of which may require a ‘technical language’ that departs from ordinary language at some points. I think that none of these reasons (a) and (b) should blind us from what the eternalist really claims: namely, that propositions are true or false simpliciter.
One final remark: my claim that the RTT view construes relations to times as born atemporally must be qualified. Not all relations to times must be construed like this. Take for instance the relations thinking-of, waiting-for, etc. Surely it makes perfect sense to say that I am thinking of time \( t_1 \) now but not tomorrow, or that yesterday and not today I was waiting for a time to come, etc. These are relations to times that do admit temporal qualification. But of course, these are not the kind of relations to times that the relational theorist distinctively appeals to in her account of temporal qualification. Rather, to the extent that these relations to times admit temporal qualification, the relational theorist would take them to be in need of explanation—an explanation given in atemporal terms: my thinking of time \( t_1 \) now is a matter of a ternary relation holding atemporally between me, time \( t_1 \) and the present time. So, the claim that the RTT view construes relations to times as holding atemporally must henceforth be understood as applying to the relevant relations to times, i.e. those that feature in the account offered by the relational theorist.

Summing up, my central remark about how to understand the RTT view is this: relations to times featuring in the account of temporal qualification are not themselves temporally qualified. To assume otherwise is to beg the question against the view, or to construe the view in an inappropriate way. Many will find this remark completely natural, having always taken for granted that the view is intended to be understood in this way. Let us then consider some recent and early discussions in which the theory is understood differently.

4. Actual instances of the misunderstanding discussed before.

Let us start by considering G. Rodríguez-Pereyra (2003) discussion of the RTT view, which he calls ‘relational theory of change’. Rodríguez-Pereyra defends the theory from a wide range of criticisms which he considers unsuccessful—most notably the aforementioned argument by D. Lewis. Still, he argues that the RTT view is unsatisfactory, mainly because it fails to account for genuine change. His argument can be summarized as follows:

(a) According to the RTT view, all change is relational: intrinsic change is explained as a special case of relational change.

(b) Relational change is a matter of bearing incompatible relations to the same relata at different times. For instance, along his life John changes from being shorter than his mother to being taller than her. His change is a matter of bearing incompatible relations (being shorter than, being taller than) to the same relatum (his mother) at different times.

(c) According to the RTT view, a changing object does not really bears incompatible relations to exactly the same relata at different times. Some of the relata, i.e. times, are in fact different.

Therefore, the RTT view fails to account for change, both intrinsic and relational.

In my opinion, the present argument misconstrues the RTT view in both premises (a) and (c). I will focus on premise (c), because that is where we find the misunderstanding that I have been discussing before. But let us briefly see what the problem with (a) is: it is simply not true that the RTT view takes all change to be relational change, in the

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Analogous remarks can be made in relation to the RTT view. There might be reasons for simplifying the view and construe it as RTTe. But even if we are allowed to do this, we must keep in mind that what the RTT theorist has (or should have) in mind is RTTα.
relevant sense of “relational change” described in (b). What is true is that the RTT view takes all temporary properties to be relations to times and, consequently, all change to involve relations. In virtue of this, we could describe the view as taking “all change to be relational”. But, if we do so, we must be careful not to understand “relational change” as in (b). That understanding is roughly the ordinary or pre-theoretical understanding of relational change. As such, it is clearly inappropriate for the relational theorist, who reinterprets the ordinary notion of relational change in a parallel way as he does with intrinsic change—as involving relations atemporally born to times. In short, premise (a) construes the RTT view as intending to explain all change (and a fortiori intrinsic change) in terms of an unanalyzed notion of relational change. And it is clearly not the case.

Let us turn now to premise (c), where the problem we have been discussing is more obviously present. This is how Rodríguez-Pereyra supports his premise:

“according to [the canonical version of the relational theory] the banana bears incompatible relations to different times, the green-at relation to t and the yellow-at relation to t’. But this is no more change for the banana than for someone to like Tom at t and dislike Tim at t’. After all, someone can like Tom and dislike Tim at the same time. Thus bearing the green-at relation to t and the yellow-at relation to t’ is no change since the banana bears those relations to different times. Indeed, since those relations are borne to different times, they can and are borne at the same times: both at t and t’, for instance, the banana bears the green-at relation to t and the yellow-at relation to t’.” (p. …, emphasis added).

Here we can see how the misunderstanding discussed above comes to surface. As Rodríguez-Pereyra understands it, the RTT view pictures the banana as existing at different times, and as bearing different relations to different times at each of those times. But as I have argued, this is clearly not the best way of understanding the view. On the understanding that fares better, the banana bears relations to times atemporally. It is therefore inappropriate to say that “both at t and t’ the banana bears the green-at relation to t”. It is also clear that Rodríguez-Pereyra’s argument depends on this misunderstanding of the view, and that it fails once we adopt the understanding recommended here.

Let us now turn to a second case where the same kind of confusion is lurking. In an early discussion of the RTT view, Mark Johnston considered a strategy for answering Lewis’ criticism that the theory deprives objects of all their temporary intrinsics. The strategy under consideration aimed to revise the notion of intrinsicness in order to allow binary relations to times to count as intrinsic.¹⁵ According to this “revisionist strategy”, as we may call it, we can count the banana’s binary relations as intrinsic as far as they are born to times. ¹⁶ Now, Johnston presents the following complaint against this strategy: if we revise the notion of intrinsicness in this way “when an object underwent no qualitative change over a period of time, it would still have changed its intrinsics”. I will not attempt to defend here the

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¹⁵ See Haslanger (2003) p. 330, for a more recent defence of the plausibility of this strategy.

¹⁶ This is just one way in which the revisionist strategy could be developed. An alternative would be this: instead of taking some relations themselves to be intrinsic, we could take some relational properties to be intrinsic. The revisionist proposal would be then that we can count as intrinsic those relational properties that an object has in virtue of bearing binary relations to times. On this second version of the proposal, it is not the relation being-green-at what is intrinsic to the banana at t₁, but rather the relational property being-green-at-t₁. My discussion below will
revisionist strategy, nor to buttress Johnston’s argument. Instead, my aim will be to show that, on its most plausible reading, Johnston complaint draws on the misunderstanding of the RTT view discussed before.

Consider a case that satisfies Johnston description: a banana exists both at \( t_1 \) and \( t_2 \), and it experiments no qualitative change from one time to the other. So the following two sentences are true:

(e) The banana is green at \( t_1 \).
(f) The banana is green at \( t_2 \).

The RTT theorist tells us that (e) and (f) are true in virtue of the banana standing in the \textit{green-at} relation to both \( t_1 \) and \( t_2 \). Moreover, if the relational theorist accepts the revisionist strategy about intrinsicness, she could also take the \textit{green-at} relation as intrinsic to the banana, both at \( t_1 \) and \( t_2 \). On this approach, the \textit{green-at} relation is intrinsic to the banana because it is a \textit{binary} relation born \textit{to times} \( t_1 \) and \( t_2 \). Now, as I have been arguing, these relations to times are born atemporally, not \textit{at times}. But then, how can we make sense of Johnhston’s claim that, according to this approach, the banana \textit{changes} its intrinsics from \( t_1 \) to \( t_2 \)? It seems to me that, under the present assumptions, we cannot: on the revisionist approach, the banana does not suffer intrinsic change (or any other kind of change), since it bears (atemporally) the same relations to different times. To put it differently: on the present approach, the banana has not changed in its intrinsics from \( t_1 \) to \( t_2 \), because these two times bear (atemporally) the same binary relations to the banana.

In my opinion, Johnston’s claim makes sense only if, contrary to our assumptions, we picture the as banana bearing \textit{green-at} to different times \textit{at different times}. If we take this view, we get something that comes closer to change and maybe to intrinsic change, as required by Johnston’s objection. If we picture the banana as bearing \textit{green-at} to \( t_1 \) at \( t_1 \) but not at \( t_2 \), and to \( t_2 \) at \( t_2 \) but not at \( t_1 \), then we have a putative case of change: \( t_1 \), something is true of the banana that is no longer true of it at \( t_2 \), namely that it bears \textit{green-at} to \( t_1 \). Moreover, this putative case of change should be considered as intrinsic change by the defender of the revisionist strategy, given that the relations involved are \textit{binary relations to times}. Then, Johnston objection applies: if the relational theorist pursues the revisionist strategy, we get intrinsic change in cases which intuitively do not involve change at all.\(^1\) But as I argued before, it is a mistake to construe the RTT view in this way. The RTT view explains temporal qualification in terms of bearing relations to times, but does not take these relations to be themselves subject of temporal qualification. The banana does not bear its relations to times \textit{at} those times. Thus, Johnston objection so developed, misconstrues its intended target in the same way Rodriguez-Pereyra does.

\(^1\) This point may be more easily grasped if we consider how it would apply to the version of the RTT view mentioned in the previous footnote. According to this version, the case considered would look as follows: the banana has the \textit{relational properties} of being green-at-\( t_1 \) and of being-green-at-\( t_2 \). The revisionist strategy says that these are \textit{intrinsic} properties of the banana. Now, Johnston’s complaint is that according to this view, and contrary to our intuitions, the banana underwent intrinsic change from \( t_1 \) to \( t_2 \). How could he possibly think this? There is no reason to think that the banana has undergone intrinsic change in this way. The RTT view explains temporal qualification in terms of bearing relations to times, but does not take these relations to be themselves subject of temporal qualification. The banana does not bear its relations to times at those times. Thus, Johnston objection so developed, misconstrues its intended target in the same way Rodriguez-Pereyra does.
5. A possible source of misunderstanding?

Discussion in the previous section shows that the misunderstanding that I have been trying to remove is not only a potential one. It actually features in some current and early presentations of the RTT view. I would like to finish with some remarks about the possible source of such misunderstanding.

As we mentioned at the outset, the RTT view is a conjunction of two independent theses:

[End.] **Endurance:** ordinary objects persist by enduring, i.e. by being wholly present at different times.

[Rel.] **Relational account of temporary property instantiation:** all apparently monadic properties that can be temporarily instantiated by ordinary objects are in fact binary relations that objects bear to times. More generally, any n-adic relation which an ordinary object may apparently bear to something else, is in fact a n+1-adic relation in which the additional place is occupied by a time.

I think a potential source of confusion is in the fact that the roles assigned to times are prima facie different in each component of the view. According to [End.], times are locations at which objects are wholly present. According to [Rel.] times are the relata of persisting objects in relations like *being-green-at*. Of course, the two roles can be coherently accommodated if we understand “being wholly present” as expressing a relation which persisting objects bear to times: for the banana to be wholly present at both \( t_1 \) and \( t_2 \) is for it to stand (atemporally) in the *being-wholly-present* relation to both \( t_1 \) and \( t_2 \).

But the notion of “being wholly present” has his own life outside the relational theory. Consider a dispute between an endurantist and a perdurantist in which the relational account is not at stake. We can take the endurantist in this discussion as accepting [End.] but rejecting [Rel.]. He may prefer an alternative solution to the problem of change that does not involve relations to times. (He may be a presentist, for instance)\(^{18}\). In this discussion, the endurantist’s claim that objects are wholly present at different times is intended, as usual, as a rejection of the idea that objects have temporal parts. In this context, it is natural for the endurantist to think of these different times as the locations at which objects are successively located, ‘sweeping in its entirety’ through them. Moreover, it is also natural in this picture to think of times as the locations where –while sweeping through them-- objects instantiate all their properties and relations, whatever they are. Now, suppose that later on in the discussion, the envisaged endurantist is forced to accept the RTT view. (Perhaps he realizes that this is the best way of defending endurance against its discussant). It is easy for him to misunderstand the content of the view and keep his original conception of times as locations at which objects have all their properties and relations. He might think that all he has to do in order to accept the view is to “add arguments for times” in the properties and relations that objects have, as before, *at times*. But this is a mistake. When adopting the relational account, the endurantist needs not only change the adicity of temporary properties and relations. He also needs to adopt an *atemporal* notion of relation bearing, for the relevant relations to times. Failure at noticing this may be the source of the confusion we have been discussing.

\(^{18}\) See Zimmerman (1998) for a characterization and defence of these strategies.
In short, what I am suggesting is that one way in which we may fall prey of the misunderstanding discussed in sections 3-4 of this paper is by holding onto an idea that may be appropriate and even natural in other endurantist approaches, but not so in the RTT view—namely the idea of times as locations where objects instantiate all their properties and relations. This idea must be revised by the endurantist who adopts the relational account, allowing for some relations to times to be born atemporally.\textsuperscript{19}

References:


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