

Perdurance, endurance, and ‘having a property *atemporally*’.¹

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In this paper I want to focus on a common feature of two opposing views on persistence and change—perdurance theory on the one hand, and the specific version of endurance theory sometimes known as ‘the relations-to-times view’, on the other. The common feature I want to highlight is this: both theories rely on an *atemporal* notion of property instantiation and relation bearing. I distinguish two possible meanings of ‘atemporal’, which result in two different understandings of what it is for an object to have a property or to bear a relation *atemporally*. I show that standard presentations of the theories considered are indeterminate as to which of these two understandings is the intended one. I claim that even if both understandings are admissible, one of them is more attractive and has more to recommend than the other.

I proceed as follows: in section 1, I offer an initial characterization of the two views to be discussed, and explain in which sense both of them presuppose a common notion of atemporal exemplification. In section 2, I discuss some potential worries about my claim that the relations-to-times-view employs a notion atemporal exemplification just as perdurance theory does. In section 3, I distinguish two senses of ‘atemporally’ and show that both of them yield reasonable understandings of the views. In section 4, I argue for one of these understandings in particular. The reasons offered bear on a reconsideration of what theories of persistence are primarily intended to explain. In the final section, I discuss further how perdurance theory looks like when understood as recommended in section 4. I also discuss there how my distinction between two understandings of ‘atemporally’ helps to see what is wrong with the no-change objection

1. Two opposing views on persistence and change.

¹ [Acknowledgments deleted for blind refereeing].

In this section, I present very summarily the two views on persistence and change that I want to consider, paying special attention to their shared feature mentioned above. Let me first make clear what I understand by ‘persistence’, ‘change’ and ‘theories of persistence’. Following Lewis (1986), I say that an object x *persists* iff x exists at different times. And I say that x *changes* with respect to a property P iff x exemplifies P at some time and fails to do so at some other time in which x exists. Theories of persistence for a domain of objects O are intended to explain how objects in O persist, i.e. in virtue of which facts they manage to exist at different times. This explanation must be compatible with a coherent account of what it is for these objects to exemplify different properties at different times, and thus with a coherent account of change. Consider for instance a banana that is wholly green at a time t_1 and wholly yellow at some later time t_2 . This banana *persists* from t_1 to t_2 and has different colour properties at each of these times, thereby *changing* with respect to colour. Theories of persistence are intended to explain in virtue of which facts all these claims about the banana are true.

According to *perdurantism theory*, ordinary objects like the banana persist by perduring, i.e. by having different temporal parts at each time in which they exist. For our present purposes, we can provisionally understand the notion of temporal part in the following way: x is a temporal part of y at t iff x exists at t and only at t , and x has the same spatial location as y at t . (An alternative definition will be discussed in section 5). Therefore, according to perdurantism theory, the banana’s persistence from t_1 to t_2 is a matter of the banana’s having two temporal parts, one at each of those times. These temporal parts are numerically distinct objects, which we may call banana_{t_1} and banana_{t_2} respectively. Regarding temporal exemplification of properties, this is what perdurantism theory says (at least for some properties): a perduring object exemplifies a property P at a time t iff the object’s temporal part at t exemplifies P . It follows from this that a perduring object *changes* with respect to a property P iff one of its temporal parts exemplifies P and some other of its temporal parts fails to do so. What ultimately makes true our claim that the banana changes its colour from t_1 to t_2 is the fact that banana_{t_1} is green, banana_{t_2} is yellow and both are temporal parts of the perduring banana.

The RTT view, on the other hand, is the conjunction of *endurantism theory* and a *relational account of temporal qualification*. Let us review these two components in order. According to endurantism theory, ordinary objects like the banana persist by enduring, i.e. by being *wholly present* at each time in which they exist. For our present purposes, we can cash out this metaphor as just the denial of perdurantism theory’s distinctive claim, i.e. as the denial that persisting objects have temporal parts. Thus, in our example there are not two different objects, one of them green and the other yellow. Rather, it is one and

the same object, the enduring banana itself, which is first green and then yellow. Of course, it is not claimed that the banana is both green and yellow *simpliciter*, but rather that it is so *at different times*. The second component of the RTT view, the *relational account of temporal qualification [RTQ]*, is an account of what it is for an enduring object to have a property *at a time*. According to [RTQ], all apparently monadic properties of enduring objects are really binary relations between objects and times, or equivalently, relational properties that have these relations as constituents. (More generally, any apparently n -adic relation exemplified by an enduring object, is in fact a $n+1$ -adic relation in which the additional argument place is occupied by a time). So, for instance, the banana's being green at t_1 is not a matter of the banana's exemplifying a monadic property. Instead, it is a matter of the banana's bearing a particular relation (which we may call 'the *green-at* relation') to t_1 . Therefore, what ultimately makes true our claim that the banana changes its colour from t_1 to t_2 is the fact that the banana bears the *green-at* relation to t_1 and the *yellow-at* relation to t_2 .

With this rough outline of perdurance theory and the RTT view already in place, I want to focus now on a feature shared by both views, namely the reliance on an *atemporal* notion of property and relation exemplification. In the case of perdurance theory, this assumption is very often made explicit in standard presentations of the view. So for instance, T. Sider says that "[perdurantists] tend to employ an atemporal notion of exemplification of properties and relations", and that as a special case of this, they "tend to speak of the parts of an object *simpliciter*, rather than the parts it has at this time or that".² On the other hand, also the RTT view relies on an atemporal notion of property and relation exemplification. Though not so often noticed, this point is explicitly acknowledged in K. Hawley's well articulated presentation of the RTT view: "the 'relations-to-times' response to the problem of change enables the endurance theorist to give an atemporal description of the banana. (...) If I say that banana is or was green on Monday, then what I say is true of it if and only if the banana bears (atemporally) the green at relation to Monday".³ To make the analogy between the two views clear, let me illustrate it with my running example.

Both theories picture the persisting banana as having its different properties at t_1 and t_2 , but explain this temporary exemplification in terms that involve *atemporal* exemplification. According to perdurance theory as characterized by Sider, there are two salient kinds of facts that obtain *atemporally*. First, banana_{t_1} and banana_{t_2} are temporal parts of the perduring banana *atemporally*. Second, banana_{t_1} *atemporally*

² Sider (2001), p. 56. Here and elsewhere I have replaced 'perdurantists' by 'fourdimensionalists'. This replacement is harmless in the present context, even if fourdimensionalism as defined by Sider is not in general equivalent to perdurantism as defined here.

³ Hawley (2001), pgs. 17, 24. It is worth mentioning that Hawley herself does not subscribe the RTT view.

exemplifies *greenness* and banana_{t_2} *atemporally* exemplifies *yellowness*. That is to say, temporal parts exemplify their properties and relations *atemporally* and, as a special case of this, they enter into mereological relations and are parts of perduring objects *atemporally*. A complete perdurantist description of the banana's lifespan would consist in statement of which are (atemporally) the banana's temporal parts and which properties these temporal parts (atemporally) exemplify. Since all these facts hold *atemporally*, such a description would be most accurately stated in a language that, unlike ordinary English, allows for tenseless verbs. But if, as it happens, ordinary English is employed for making claims such as 'banana_{t1} is part of the banana', the 'is' should not be understood as present-tensed, i.e. as expressing a merely present and temporary fact. According to the RTT view as characterized by Hawley, on the other hand, what obtains *atemporally* is the banana's bearing the *green-at* relation to t_1 , and its bearing the *yellow-at* relation to t_2 . That is to say, according to the RTT view the banana bears its relations to times *atemporally*. A complete description of the banana's lifespan in terms of the RTT view would consist in a statement of which relations the banana bears (*atemporally*) to which times. Also in this case, since these facts hold *atemporally*, such a description would be most accurately stated in a language that, unlike ordinary English, allows for tenseless verbs. But if, as it happens, ordinary English is employed for making claims such as 'the banana bears green at to t_1 ', the 'bears' should not be understood as present-tensed, i.e. as expressing a merely present and temporary fact.

I will address the issue of what exactly 'atemporally' means in section 3. But before that, let me emphasize a point that has been implicit so far. In the present context, claims to the effect that a particular property or relation is exemplified *atemporally*, or that a "fact" is (or is not) temporally qualified, are intended to be about ontology, and not about the language in which ontology is described. For instance, when the perdurantist says that banana_{t_1} is *atemporally* green, what he means is that *the having of the property* itself is atemporal, or not temporally qualified. The claim is not that the *sentence* 'banana_{t1} is green' is in somehow atemporal or not temporally qualified, or that the *verb* in that sentence is somehow atemporal or tenseless. Theories of persistence are about what it is for objects to exist at times, not about the linguistic expressions we use to describe them.

2. Two relevantly different notions of exemplification?

My claim that atemporal exemplification is a feature common to both views may strike the reader as surprising. This is because, as I said, reliance on atemporal exemplification is often acknowledged with respect to perdurance theory, but not so often with respect to the RTT view. In fact, Sider's remarks quoted above may be taken to imply that atemporal exemplification is a *distinctive* feature of perdurance theory,

something in which perdurance theory differs from rival views. More to the point, Sider emphasises an alleged contrast between the perdurantist notion of parthood, which is typically atemporal, and the corresponding endurantist notion, which is typically relative to times. And he goes on to claim that “as it is with parthood, so it is with predication generally. For the [perdurantist], temporary properties like *being 5 feet tall* are had *simpliciter* (by temporal parts), whereas the [endurantist] insists that such ‘properties’ are had only relatively to times”. These remarks are potentially misleading. They seem to contradict my claim that atemporal exemplification is a feature of the RTT view as much as it is of perdurance theory. However, correctly understood, they do not. In order to avoid confusion, let me explain how Sider’s remarks fit my presentation of the views so far.

Let us call ‘A’ the skin of the persisting banana, and ‘B’ the persisting banana itself. Both perdurance theory and the RTT view will then accept as true the following sentence of ordinary English:

(1) A is part of B at t_1 .

Everyday judgements like (1) picture the banana as an object existing at different times and exemplifying different properties and relations at those times. Both theories take at face value these judgments, but claim that they are ultimately made true by facts that obtain atemporally. The theories differ as to which exactly these atemporal facts are, as follows:

(2) A is part of B at t_1 iff A_{t_1} is (*atemporally*) part of B_{t_1} . (Where ‘ A_{t_1} ’ names the temporal part of A at t_1 and ‘ B_{t_1} ’ names the temporal part of B at t_1).

(3) A is part of B at t_1 iff A bears (*atemporally*) the triadic relation *being-part-of-at* to B and t_1 .

Now, there is a sense in which the parthood relation invoked in the right-hand side of (3) is time-relative, whereas the parthood relation invoked in the right-hand side (2) is not: the former but not the latter has a time as one of its relata. This is the point emphasized by Sider’s remarks above. I agree that there is this difference between the two relations of parthood. However, there is also a unique sense in which both relations are atemporal and not time-relative: unlike the ‘everyday’ parthood relation featuring in the left-hand side of (2) and (3), which holds *at t_1* , both the dyadic and triadic parthood relations featuring in the right-hand-side hold *simpliciter*, not relatively to times. In the case of the triadic relation postulated by the RTT view, t_1 is a relatum of the relation and not something which qualifies the relation itself; i.e., A, B, and t_1 exemplify the relation *simpliciter* rather than *at t_1* . (Compare: if I bear the relation *being younger*

than GW Bush, GW Bush is a relatum of the relation, and not something relatively to which the relation holds; the relation holds *simpliciter*, rather than *for GW Bush*). In short, my present point is that according to *both* views, the properties and relations that objects *really* exemplify –i.e. those in virtue of which they can be said to exemplify properties and relations *at times*— are themselves *atemporally* exemplified. Thus, Sider remark that “we can think of the [perdurantist’s] notions of atemporal parthood, and atemporal exemplification generally, as being those we employ when we take an ‘atemporal perspective’ and contemplate the whole of time”⁴ applies also to the triadic notion of parthood employed by the RTT view. The RTT view pictures persisting objects from an atemporal perspective as much as perdurance theory does.

3. Two senses of ‘atemporally’.

We have seen that both perdurance theory and the RTT view are sometimes presented as claiming that some facts –exemplification of properties and relations– obtain atemporally. It is now high time to address the issue of what exactly ‘atemporally’ means. In the present section, I argue that there are two different understandings of ‘atemporally’, and that the standard presentations of the theories are compatible with both. However, in next section I will argue that, relatively to certain purposes, one of these understandings yields better results than the other.

The point requires the following terminology to be introduced. Let us say that an object *x* is *eternally* F iff *x* is *always* F, i.e. if *x* is F at all times in which *x* exists. On the other hand, let us say that *x* is *timelessly* F iff *x* is F *not relatively to times*, i.e. iff *x* is F *simpliciter* (with respect to times). I intend these two notions to be non-equivalent. In particular, if something *x* is *eternally* F, it cannot be F *simpliciter* (with respect to times). On the contrary, if *x* is *always* F, i.e. if *x* is F eternally, then for every time *t* in which *x* exists, *x* is F relatively to *t*. In other words, being F *eternally* is just a particular way of being F relatively to times, a limiting case that involves universal quantification over times.

This difference between being F eternally and being F timelessly is a special case of a more general difference between what we might call ‘being F *absolutely* with respect to a parameter P’ and ‘being F *simpliciter* (with respect to a parameter P)’. As an example, consider the property of *being useless*, which we may attribute to some ordinary objects and artefacts. Objects are not useless *simpliciter*, but rather relatively to purposes; moreover, one and the same object can be both useless and not useless, relatively to different purposes. Of course, there might be objects which are *absolutely* useless, i.e. objects such that,

⁴ Sider (2001), p. 56.

for any purpose p that you might think of, they are useless relatively to p . But even these *absolutely* useless objects are useless *relatively to purposes*, though in uninteresting way. Now, suppose that one of these absolutely useless objects has a mass of 20 pounds. This is a property that the object has *simpliciter* (with respect to purposes) rather than *absolutely*. It is not the case that, for any purpose p , the object has a mass of 20 pounds relatively to p . Having a particular mass, unlike being useless, is not a property that objects have relatively to purposes.

Now, my central purpose in this section is to show that the standard presentations of perdurance theory and the RTT view discussed above are indeterminate as to which understanding of ‘atemporally’ is the intended one in their claims to the effect that objects exemplify properties (or relations) *atemporally*. Let us consider first the perdurantist’s claim that the banana’s temporal parts exemplify their properties atemporally. We can focus in the claim that banana_{t_1} is atemporally green. According to one understanding of this claim, banana_{t_1} is green *eternally*, i.e. at all times in which it exists. In fact, since banana_{t_1} only exist at t_1 , this claim is true iff banana_{t_1} is green at t_1 . This, I think, is a plausible understanding of Sider’s claim that, when talking about what properties temporal parts have, we should contemplate them from an atemporal perspective, as if we were watching the whole of time at once. On the present understanding, what we would contemplate from such a perspective is a myriad of short lived objects, each of them existing at only one time and having its properties *at that time*. But the original claim that banana_{t_1} is *atemporally* green could also be understood as the claim that banana_{t_1} is green *simpliciter* (with respect to times) rather than *eternally*. On this second understanding, it is not part of the view that banana_{t_1} is green at t_1 . Rather, once the view has been adopted, the question of whether banana_{t_1} is green at t_1 does not really arise. (In the same way as the question of whether this thing weights 20 pounds *for my present purposes* does not arise). On the present understanding of ‘atemporal’, what we would see from an atemporal perspective is myriad of short lived objects having its different properties *simpliciter* rather than *at a time*. This timeless exemplification of properties by temporal parts is that in virtue of which, *from a temporal perspective*, the perduring banana has different properties at different times. I will soon come back to the details of this second understanding of perdurance theory. For the moment, it is enough if I have shown that it is plausible as an understanding of the perdurantist proposal.

Let us now turn to the RTT view. According to the first understanding of ‘atemporally’ (as *eternally*), the RTT theorist’s claim that the banana bears *green-at* to t_1 atemporally boils down to the claim that it *always* bears that relation to t_1 . More generally, at every time in which the banana exists, it bears exactly the same relations to the same times. This understanding of the RTT view is compatible with the minimal

characterization of the view offered above, and has actually been assumed in recent discussions of it, as will become apparent later. According to the second understanding of ‘atemporally’ (as *timelessly*), it is actually inappropriate to say that the banana bears *green at* to t_1 *at* t_1 (or *always*, or *sometimes*). The relations to times invoked by the RTT view are born simpliciter rather than *at times*. The enduring banana is located at different times and has different colours at those times *in virtue of bearing different relations to them*. But these relations in virtue of which the banana is temporally qualified are not *themselves* born *at times* but rather *timelessly*. As in the case of perdurance theory, we can compare the two understandings by considering how the enduring banana would look like from an *atemporal* perspective in each case. If by ‘atemporally’ we mean *eternally*, from an atemporal perspective we would see the banana as existing at different times (maybe by being multiply located) and bearing, *at each of those times*, the same relations to the same times (and other relata). (Notice that in this picture times feature a double role, so to speak: they are both the locations in which the banana successively exists, and the relata of relations like *green at*, *yellow at*, etc). If on the other hand, by ‘atemporal’ we mean *timeless*, an atemporal perspective will show the banana *somehow* outside time, and bearing different relations to different times. These are the relations in virtue of which, *from a temporal perspective*, the banana has different colours at different times. I think this second understanding of the RTT view seems to be a fairly natural one, and in any case allowed by the standard characterization of the view offered in section 1.

4. Two possible goals for theories of persistence and a reason for *timeless* property exemplification.

In the previous section I have argued that standard presentations of both perdurance theory and the RTT view are susceptible of being coherently understood in two different ways, corresponding to the two different meanings of ‘atemporally’ that I have distinguished. In the present section, I argue that one of these two understandings fares better than the other. In particular, I argue that both views turn out to be more interesting if construed as employing the notion of ‘*timeless* exemplification’ rather than ‘*eternal* exemplification’.

My reason for preferring *timeless* exemplification has to do with my view about what the primary goal of both perdurance theory and the RTT view is. As other theories of persistence, I take these views as intended to explain what it is for an object to exist at different times, and to exemplify (possibly different) properties at those times. What I want to point out is that this goal is actually somewhat more ambitious than merely explaining change, or solving what is sometimes called ‘the *problem* of change’, i.e. the alleged problem of explaining how it is possible for one and the same object to exemplify different properties at different times. In my view, if theories of persistence are needed at all, they would also be

needed in order to describe a completely static world in which objects did not change at all. Even for a banana that remained inalterably green all along its existence from t_1 to t_n , a theory of persistence should tell us what it is for that banana to be green *at t_1 , at t_2 ...*etc. This point –i.e. that it is temporal qualification in general and not merely change what is at issue between perdurance and the endurance—is also presupposed by some of the authors who engage in this discussion. For instance, after her initial characterization of views discussed here, Hawley explicitly says that “I will simply refer to the ‘problem of change’. But the underlying issue is not specifically about change. Rather, it is about what underpins our talk about objects as they are at different times—what, if anything, can we say about how a persisting object atemporally is, and how does this relate to our talk about how the object is at different times”.⁵ To summarize the point: I follow Hawley in understanding the views discussed before as *primarily* intended to explain what it is for an object to have a property *at a time* (for instance, what it is for the banana to be green at t_1) rather than what it is for it to *change* over time (i.e., for the banana to be green at t_1 and yellow at t_2).

Differentiating between these two possible goals for theories of persistence does matter for our present purposes. In a nutshell, the point is this: if our primary explanandum is just change, then we can construe our theories of persistence as relying on the notion of having a property *eternally*. But if our goal is more ambitious and we want to explain temporal qualification in general (i.e. what it is for an object to have a property *at a time*) then we should better employ the notion of having a property *timelessly*. Let me elaborate on this point. Suppose that explaining change were our primary motivation for developing theories of persistence. That is to say, suppose that we are puzzled by the fact that one and the same banana is green at t_1 and yellow at t_2 , and we feel the need for an explanation of how this is possible. Then, something that could mitigate our concerns is a reduction of all temporary facts to eternal facts. In this scenario, what causes our puzzlement is the *temporary* character of some facts, such as that the banana is green at t_1 *but not at t_2* . We should therefore feel relieved if someone tells us that the banana’s being temporary green is *really* a matter of something going on *eternally*. And this is exactly what theories of persistence do, if we understand them as relying on *eternal* (rather than timeless) exemplification. So understood, perdurance theory tell us that the banana’s being temporally green is *really* a matter of having *always* a temporal part which is *always* green. The RTT view, on the other hand, tells us that the problematic temporary fact is *really* a matter of the banana’s bearing *always* a particular relation to a time. So, both theories tell us that, *really*, there is nothing to worry about: nothing *really* is only temporary green. We can therefore conclude that if our primary concern is change, then a theory of persistence

⁵ Hawley (2001), p. 16.

relying on the notion of ‘having a property *eternally*’ may be enough; such a theory will in actually reduce all allegedly problematic temporary facts to facts that obtain eternally, and thus remove the alleged source of puzzlement.

But as suggested above, our primary concern as theorists of persistence might be other than change. We might rather be interested in temporal qualification in general. That is to say, in explaining what it is for an object to have a property *at a time*. (Remember that by ‘temporal qualification’ I mean *ontological* temporal qualification, rather than linguistic qualification; we are interested in explaining what it is for an object to exist at a time t , rather than explaining how the linguistic expression ‘at t ’ works or means. These two tasks may be related, but it is important in the present context not to conflate them). I think myself that this second explanandum is more worth of attention than change by itself, but I do not need to argue for this here. For the present purposes, it is enough if we recognize it as a genuinely distinct explanandum, over and above the issue of change, and as one that theories of persistence may reasonably be intended to explain. As we saw, at least Hawley assumes this much. My present point is that for people like Hawley and me, who think that the primary explanandum of theories of persistence is over and above the issue of change, an account in terms of timeless exemplification would be more satisfying than an account in terms of eternal exemplification. (This point also applies to people ready make the weaker claim that *if* there is an issue to be explained by theories of persistence at all, the issue is not particularly about change). The reason is straightforward: an account of persistence in terms of timeless exemplification would afford a reduction of *all temporally qualified facts* (both merely temporary and eternal facts) to non-temporally-qualified facts, i.e. facts that do not obtain *at times*. Consider a banana that is both *only temporary* green (say, green at t_1 but not at t_2) and *eternally* bent (i.e., bent at every time in which it exists). Given that our present concern is not merely change but rather temporal qualification itself, these two facts about the banana are equally ‘problematic’, and both of them need to be somehow explained away, the second as much as the first. This is because we now worry not just about the *temporary* character of these facts, but rather about their very *temporal* character. Thus, what we now expect from a theory of persistence is a reductive explanation of what being *always* bent *really* is, as much as of what being green *at t_1* *really* is. And we can get this explanation from our theories, if we construe them as relying on *timeless* exemplification: according to perdurance theory, the banana’s being *always* bent is *really* a matter of all its temporal parts being *timelessly* bent (i.e., bent *simpliciter* rather than *at times*). The RTT view, on the other hand, tells us that the banana’s being *always* bent is *really* a matter of the banana’s *timelessly* bearing the *bent at* relation to all times in which it exists. Of course, such a reductive account of temporal qualification could not be obtained by using a notion of eternal exemplification: relatively to our present

explanandum, no explanatory progress would be made by saying that the banana's being *always* bent is really a matter of all its temporal parts being *always* bent, or a matter of bearing *always* the *bent at* relation to all times. Thus, my suggestion is that, relatively to the goal of explaining temporal qualification in general (rather than just change), the views of persistence we have discussed should be understood as relying on timeless exemplification. Moreover, if you think like Hawley and me that temporal qualification *is* the real underlying issue, then this conclusion follows simpliciter, and not only relatively to a particular goal.

5. Two further remarks: the 'no-change objection' and orthodox perdurance.

In this final section, I want to address two further issues. First, I want to comment on how the main result of last section relates to the so called 'no-change objections' that have been advanced against perdurance theory and the RTT view. Second, I want to discuss further my claim that timeless property exemplification gives a reasonable construal of perdurance theory.

No-change objections against theories of persistence are well known and trace back to McTaggart's infamous proof of the unreality of time. Both perdurance theory and the RTT view have been targeted by arguments of this kind. The objection is based on the following observation: on the picture offered by these views on persistence, the banana is pictured as having all its properties and relations *atemporally*, and therefore as somehow 'static'. At any time in which it exists, all the facts about the banana are, *atemporally*, 'already there'. On the basis of this observation, it is then argued that the views fail to picture the banana as really changing. Standard answers to this objection point out (correctly, I think) that even granting the premise, the conclusion follows only in virtue of assuming a question-begging notion of change. This answer is perfectly appropriate, but I think that something more can be said if we pay attention to what exactly 'atemporally' means. Even the initial observation motivating the argument turns out to be wrong-headed if 'atemporally' is understood along the lines recommended above. In order to make the point clearer, I will focus on a particular version of this objection, in which the target is the RTT view.

When applied to the RTT view, the initial observation that the banana is pictured as static takes the following form: on the RTT view, the banana bears *always* the same relations to the same relata, some of which are times. That is to say, both at t_1 and at t_2 (and in fact, at *all* times in which it exists) the banana bears *green at* to t_1 and *yellow at* to t_2 . (And more generally, for any n -adic relation R and for any objects $x_1...x_n$, if the banana at some time of its existence bears R to $x_1...x_n$, then it *always* bears R to $x_1...x_n$). This

is therefore the first premise of the no-change objection: the banana is pictured as bearing always the same relations to the same relata, some of which are times. The second premise is that change is a matter of having different properties at different times (for instance, being green at t_1 and yellow at t_2) or bearing different relations to the *same* relata at different times (for instance, being north from NYC at t_1 and being south from NYC at t_2). That is to say, an object x changes from t_1 to t_2 iff for some n -adic relation R and for some objects $y_1 \dots y_n$, $R(x, y_1 \dots y_n)$ at t_1 and not $R(x, y_1 \dots y_n)$ at t_2 . But this is precisely what does not happen to the banana, according to the first premise. Thus, the no-change objector draws the conclusion that RTT view fails to picture the banana as really changing.⁶ Now, the right response to this argument is that the second premise begs the question against the RTT view by holding onto the notion of change that the RTT theorist is precisely explaining away. In other words, having accepted (as a premise for reduction) the RTT's description of the banana as bearing always the same relations to the same relata, the objector should thereby accept the corresponding RTT's picture of change. But in defining change as in the second premise of his argument, he does not. Thus, the objector is not being consistent and the RTT theorist has little to fear: even granting the first premise, the conclusion does not follow in a non-question begging way.

But also the first premise of the argument may be objectionable, if the RTT view is construed as recommended above. This first premise pictures the banana as bearing *always* the same relations to the same times. But if we understand relations to times as holding timelessly, this is the wrong picture. It is not the case that the banana bears *always* the same relations to the same times, because these relations are not themselves born *at times*. The important point to notice is that all the initial persuasiveness that argument might have derives from picturing the banana as having all its relations *eternally*. Since this actually *is* the way in which we ordinarily think of unchanging objects, when we are asked to picture the banana as eternally exemplifying all the same relations and properties, we are naturally well disposed to conclude that the banana does not change. But we would not be equally well predisposed to draw this conclusion if, instead, we were asked to picture the banana as *timelessly* exemplifying all its relations to times. This way of picturing objects in time is not familiar at all, and in particular is not the way in which we ordinary think of unchanging objects. Thus, if the argument has some initial intuitive pull, it evaporates once we understand the RTT view as relying on *timeless* exemplification. Having so construed the theory, the argument cannot even get off the ground, since it cannot illegitimately exploit our intuitions about unchanging objects. In conclusion: the no-change objection fails for the well know reasons stated in the standard response above. What I am now suggesting is that, quite independently of those reasons, the

⁶ A slightly more sophisticated version of this argument is actually advanced by Rodríguez-Pereyra (2003).

objection simply does not arise against a theory of persistence that relies on timeless rather than eternal exemplification.

As a final remark, I want to discuss a bit further my claim that timeless exemplification can buy us a reasonable understanding of perdurance theory. By ‘reasonable’ I mean an understanding that is itself coherent and compatible with most of perdurance theorists’ claims and motivations. For the reasons given above, I think timeless exemplification does buy this. However, some of the perdurantist’s standard claims and notions may have to be rephrased or disambiguated in the direction required by timeless exemplification. This should not come as a surprise: after all, what I have been arguing all along is that timeless exemplification is *one* reasonable understanding, not that it is the only one. In fact, my central claim has been that standard presentations of perdurance theory (as well as of the RTT view) are compatible with *both* understandings of ‘atemporal’. More precisely, I think the situation is this: most of the perdurantist’s characteristic claims are compatible with both understandings of ‘atemporal’, but some of them actually do suggest that *eternal* exemplification is being intended. These are the claims that would need rephrasing if timeless exemplification is adopted.

Maybe the very definition of ‘temporal part’ is a candidate for rephrasing. Sider’s definition, for instance, is as follows: “*x* is an *instantaneous temporal part* of *y* at instant *t* =_{df} (i) *x* exists at, but only at, *t*; (2); *x* is part of *y* at *t*, and (3) *x* overlaps at *t* everything that is part of *y* at *t*”.⁷ In this definition, *x* is said to be part of *y* at *t*, both in the definens and the definendum. In the latter case, however, temporal qualification need not bother us. Sider very explicitly says that, for dialectical purposes, he is offering a definition that could be intelligible by the lights of someone who claimed not to understand atemporal parthood (and atemporal exemplification in general).⁸ That is to say, he is describing temporal parts as some opponents of perdurance would do it, not as the perdurantist himself does. But temporal qualification occurs also in the definendum, and here these dialectical reasons do not apply: it is the perdurantist notion itself what is here temporally qualified, and not only the ancillary notions in virtue of which it is made intelligible to non-perdurantists. It seems, therefore, that Sider’s notion of temporal part is intended to allow claims as the following: “banana_{t1} is an instantaneous temporal part of the banana at instant *t*₁”. This is compatible with Sider’s idea that temporal parts exemplify its properties and relations atemporally, if by ‘atemporally’ he

⁷ Sider (2001), p. 59.

⁸ “Throughout much of this book I will happily speak of atemporal parthood. But when I am trying to convince my opponents that fourdimensionalism is intelligible I had better not speak of atemporal parthood (...) Any argument for four-dimensionalism that uses ‘part of’ without temporal qualification in its premises faces the charge of begging the question since it is central to many versions of three-dimensionalism that ‘part of’ requires temporal qualification. So I will qualify the part-whole relation to times in my formulation of four-dimensionalism”. (p. 57).

means *eternally* (if banana_{t_1} is *eternally* part of the banana, then it is also so *at* t_1). But it is not compatible if timeless exemplification is adopted instead. If perdurance theory is construed as claiming that banana_{t_1} is *timelessly* part of the banana, then it is not part of the view that banana_{t_1} is part of the banana *at* t_1 . So, if timeless exemplification is adopted by the perdurantist, the definition offered by Sider should be rephrased in the definendum side. Instead of saying that x is an instantaneous temporal part of y *at instant* t , we could instead say that x is the instantaneous temporal part of y *that exists at* t . This way of talking is intended as not to suggest x is part of y *at* t and yet be compatible with the following perdurantist's core ideas: (i) that x is part of y *simpliciter*, (ii) that for y to exist at t is for y to have x as a part, (iii) that for y to have property P at t is for x to have P *simpliciter*.

Let me make a last remark of clarification, also related to the viability of timeless exemplification as reasonable understanding of perdurance theory. I have been pointing to the perdurantist idea that temporal parts have their properties *simpliciter*. This claim inevitably echoes D. Lewis' claims in his influential discussion of the problem of temporary intrinsics (1986, 2002). Actually, the fact that temporal parts have their properties *simpliciter* is Lewis' main reason for believing in their existence: something must be there to be *simpliciter*, rather than just relatively to one time or another. (Lewis 2002, p. 4). It is tempting to read Lewis as claiming here that temporal parts have their properties *timelessly*, in the sense I have been discussing. I think we can legitimately do this, and understand accordingly everything that Lewis says about temporal parts. Maybe some of Lewis claims will need appropriate rephrasing (as illustrated above with respect to Sider's definition of 'temporal part'), but the result will be a reasonable understanding of Lewis: a view which is coherent by itself and compatible with most of Lewis' claims and motivations in talking about temporal parts. This said, I hasten to acknowledge that it is doubtful that by 'simpliciter' Lewis means the same as I do here. When I say that banana_1 is bent *simpliciter*, what I mean implies that banana_1 is *not* bent *at* t_1 (or rather, the question of whether it is bent *at* t_1 does not arise). Lewis, on the contrary, seems to allow for this possibility. For him, being bent *simpliciter* (with respect to times) seems to be being bent *eternally*, i.e. *absolutely* with respect to the parameter of time. This is not surprising, however, for the following reason: as I have pointed out, the idea that some things must be bent *simpliciter in my sense* becomes motivated when our explanandum as theorists of persistence is temporal qualification in general rather than change by itself. Now, Lewis neglects this more general explanandum. For him, "the problem about persistence is the problem of change".⁹ Therefore, for the reasons already

⁹ Lewis (2002), p. 1. Similarly, some of his earlier (1986) remarks about the problem of temporary intrinsics suggest that for him the real issue is change by itself. He does not make this point explicitly with respect to change across *time*, but he does so in relation to the parallel problem in the modal case: "[the problem of *accidental intrinsics*] would not arise for Humphrey's essential properties, however intrinsic. For the problem is how he can have different properties as part of different worlds, and in the case of essential properties there is no variation to worry about. It is very hard to see how Humphrey could be a man as

explained in section 4, it is natural for him to think of temporal parts as exemplifying his properties eternally. There is no reason for him to look further and take exemplification to be timeless.

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part of one world and an angel as part of another, but if he is essentially human that difficulty does not arise". (p. 201).