

# TEMPORAL INTRINSIC CHANGE\*

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## Abstract

I propose to compare the intrinsic change of things with the temporal intrinsic change of events. Lewis pointed out that intrinsic change of things is paradoxical and proposed three solutions to the paradox. I think that the temporal intrinsic change of events is paradoxical in a similar way, but there are two and not three solutions to this second paradox. The difference between the solutions to the two paradoxes are investigated. In the end, I will advance some considerations on the possible attitudes towards temporal intrinsic change.

## Keywords

Time, Intrinsic change, Temporary intrinsics, D. Lewis

## 1. Intrinsic change and temporal intrinsic change

It was David Lewis<sup>1</sup> who first introduced the problem of temporary intrinsics. He was concerned with objects changing their intrinsic properties through time (for example, an apple changing from being sour to being ripe and from being ripe to being rotten<sup>2</sup>). I am instead concerned with events changing their temporal properties<sup>3</sup>(for example, the discovery of America changing from being future to being present and from being present to being past).

<sup>1</sup> Lewis (1986) pp. 202-204 and Lewis (2002)

<sup>2</sup> The example proposed by Lewis concerns shape: “when I sit, I have a bent shape; when I stand, I have a straightened shape” (Lewis (1986), p. 203).

<sup>3</sup> A lexical consideration may be useful. I introduce “temporal intrinsic change”, where “temporal intrinsic” is to be distinguished from “temporary intrinsic”. A property is temporary intrinsic if it is intrinsic and it is temporary (it lasts for a finite length of time), a property is temporal intrinsic if it is intrinsic and it is temporal (it concerns the temporal characteristics, in particular I am interested in the temporal properties being past, *being present and being future*). A change is intrinsic if it is a change of intrinsic properties, a change is temporal intrinsic if it is a change of properties which are both intrinsic and temporal.

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The parallel is easy to draw<sup>4</sup>. When we consider an object changing through time (for example, an apple passing from being sour to being ripe and from being ripe to being rotten), we tend to accept that that object (the apple) has different intrinsic properties (being sour, being ripe and being rotten) at different times. In the same manner, when we consider an event changing its temporal properties (for example, the discovery of America passing from being future to being present and from being present to being past), we tend to accept that that event (the discovery of America) has different intrinsic properties (*being past, being present and being future*) at different times.

In the case of an object changing, we assume that that object has different properties at different times. These properties are all monadic intrinsic (they apply to an object independently of any relation with other objects, temporal or spatial items, etc.) and are all temporary (they are possessed only for a certain amount of time, not always). In the case of an event changing temporally, we assume that that event has three temporal properties: *being past, being present and being future*; these three properties are all monadic intrinsic (they apply to an event independently of any relation with other events, temporal items, etc.) and are all temporary (they are possessed only for a certain amount of time, not always).

## 2. The paradox

The paradox emerges because to be monadic intrinsic and to be temporary are both conceptually contradictory and extensionally contradictory. It is conceptually contradictory for a property to be monadic intrinsic (i.e. non-relational) and temporary (which means that it is possessed only in relation to certain times): it means that the property is both relational and not-relational.

The two characterizations also give rise to two incompatible ways of applying the properties in consideration, i.e. to two contradictory extensions of the predicates corresponding to the properties.

### 2.1 The paradox of intrinsic change of objects

Let us first consider the properties possessed by objects through time. If the properties are monadic intrinsic, then they are possessed *simpliciter* by an event, independently of any relation. For example, if an apple has three properties (*being sour, being ripe and being rotten*) intrinsically, they just apply to it; it follows that the apple is sour and ripe and rotten. If *a* denotes the apple in question and *S*, *RP*, *RT* stand for the properties *being sour, being ripe and being rotten*, then it follows:

$$(1^*) Sa \wedge RPa \wedge RTa.$$

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<sup>4</sup> The idea of drawing the parallel is not new, Lewis' conceptual instruments were adopted by William L. Craig (1998) for analysing McTaggart's argument. The main difference between his approach and mine is the following: Craig assumes that, as Lewis' problem of intrinsic change is the problem of the identity of things through change, so the paradox of temporal intrinsic change is the problem of the identity of events through temporal change (Craig (1998) p. 122-123). I believe instead that if the problem of intrinsic change was introduced by Lewis in order to give an answer to the problem of the identity of things through change, the paradox of temporal intrinsic change cannot be interpreted as the problem of the identity of events through change. I believe that the paradox of temporal intrinsic change concerns the nature of temporal properties and not the nature of events.

Craig argues that the presentist A-theorist's solution to the paradox (see § 3) can be maintained if and only if what I have called variant (A) is assumed, while I believe that all variants (A), (B) and (C) are equally available. The difference is that while Craig assumes that the intrinsic property being present can be possessed by an event if and only if the event is existent (see footnote 7), I believe that it is possible to assume that there are existent events which do not have the intrinsic property being present. So, I do not believe that the paradox of temporal intrinsic change concerns the nature of events, because any assumption concerning the nature of events (for example their existence or their temporal duration) does not determine any solution to the paradox.

This difference between Craig's approach and my approach makes my presentation both of the paradoxes and of the solutions to the paradoxes quite different from his presentation.

On the other hand, if the three properties are temporary, they are possessed only in relation to certain times; and, in relation to any given instant of time, an apple has only one of the three properties, i.e.:

- (2\*)  $Sa \text{ aut } RPa \text{ aut } RTa$  (*aut* is a symbol for the exclusive disjunction)  
 (1\*) and (2\*) are obviously contradictory.

## 2.2 The paradox of temporal intrinsic change

Let us now consider the three temporal properties possessed by events. If the three properties are monadic intrinsic, then they are possessed *simpliciter* by an event, independently of any relation. For example, if the discovery of America has all of them intrinsically, they just apply to it; it follows that the discovery of America is past and present and future. If *d* denotes the discovery of America and *P*, *N* and *F* stand for the properties *being past*, *being present* and *being future*, then it follows:

- (1)  $Pd \wedge Nd \wedge Fd$

On the other hand, if the three properties are temporary, they are possessed only in relation to certain times; and, in relation to any given instant of time, an event, like the discovery of America, has only one of the three properties, i.e.:

- (2)  $Pd \text{ aut } Nd \text{ aut } Fd$   
 (1) and (2) are obviously contradictory.

Before considering the solutions to the two paradoxes, it is worth pointing out what I consider the main interest of the paradoxes so presented. First, intrinsic change is assumed; second, it is claimed that if intrinsic change occurs, then the properties in consideration have two incompatible characteristics (being monadic intrinsic and being temporary); third, it is argued that the incompatible characteristics of properties give rise to incompatible applications of the corresponding predicates. So, the order is from metaphysical assumptions to conceptual inconsistencies and from conceptual inconsistencies to extensional contradictions. This approach is very different from most philosophical literature on time and temporal change where the logical analysis of tensed sentences is first taken into account and, then, the appropriate semantics is advocated<sup>5</sup>. This difference will be particularly evident in the next section where I consider the A-theorists' and the B-theorists' solutions to the paradox of temporal intrinsic change: for each of them, I will always start from the metaphysical assumptions concerning the temporal properties and then I will consider the application of the predicates which describes those properties.

It may be useful if I anticipate how I am going to proceed. I first consider the two solutions to the paradox of the temporal intrinsic change of events and then the three solutions advanced by Lewis for the paradox of the intrinsic change of things.

## 3. The two solutions to the paradox of temporal intrinsic change

There are two solutions to the paradox of temporal intrinsic change.

The first one, the most popular one, is to assume that *being past*, *being present* and *being future* are not monadic intrinsic properties, but just relations to times (and to other events). This is the B-theorist's solution<sup>6</sup>. According to the B-theorist, there are no temporal intrinsic properties,

<sup>5</sup> I came to highlight this consideration after conversations with Philip Percival. I suppose that he favours the most widespread approach.

<sup>6</sup> I do not distinguish between a B-theorist and a Tenseless Theorist. As is well known, there is the old tenseless theory and the new tenseless theory. What is relevant for my presentation is that, according to both theories, "reality [...] consists of events related to each other by relations of simultaneity, earlier than, or later than; that is, events are temporally characterized only by the characteristics attributed to them in tenseless sentences." (Smith (1994), pp. 17-18).

there are only temporal relations. In particular, there are the following temporal relations: *being earlier than*, *being simultaneous with* and *being later than*. According to the B-theorist, whenever we attribute one of the properties *being past*, *being present* and *being future* to an event, we are attributing one of the previous relations to that event.

It is worth considering why the B-theorist position is a solution to the paradox. First of all, it solves the conceptual contradiction: as long as *being past*, *being present* and *being future* are all relational properties and not monadic intrinsic properties, there is no conceptual contradiction. Second, it solves the extensional contradiction: given an event *e* and an instant of time *t*, that event is past or present or future in relation to that instant of time. If *Pt* is equivalent to “is earlier than *t*”, *Nt* is equivalent to “is simultaneous with *t*” and *Ft* is equivalent to “is later than *t*”, we can say that for any event *d* in the history of the universe the following holds:

$$(2+) \text{ Ptd aut Ntd aut Ftd}$$

On the other hand, (2+) is compatible with the fact that event *e* is earlier than an instant *t'*, simultaneous with instant *t* and later than instant *t''*, i.e.:

$$(1+) \text{ Pt'd Ntd Ft''d}$$

(1+) is a way to interpret (1) of the extensional contradiction. It is easy to see that (1+) and (2+) are not contradictory. According to the B-theorist's assumptions, the paradox disappears as long as we consider *being past*, *being present* and *being future* as relations. In the eyes of the B-theorist, the paradox appears confusing; *mutatis mutandis*, it is as if I were saying on the one hand that I am both a daughter and a niece, and on the other side that I am either a daughter or a niece. Of course, I am both the daughter of my mother and the niece of my uncle, but given any one of them I am one or the other in relation to her or him, I am never both.

The second solution to the paradox is to assume that at least one among the properties *being past*, *being present* and *being future* is intrinsic: at least *being present* is a monadic intrinsic property. This is what I consider the Presentist A-theorist's solution. A reason, or the primary reason, for adopting presentism is the assumption that events have at least one monadic intrinsic property. An event is present not because it is simultaneous with a particular instant of time (or with the perspective of a particular observer), it is present because its way of existing makes it different from what has existed or will exist. The property *being present* characterizes the way events exist independently of any relation these events have with other events, with instants of time or with anything else.

This solution can be divided into three variants: (A) only present events are existing and they have the intrinsic property of *being present*, while *being past* and *being future* are not properties at all (they do not apply to anything)<sup>7</sup>; (B) all past, present and future events exist, but only some of them have the intrinsic property being present, while the others have the relational properties *being past* or *being future*<sup>8</sup>; (C) all past, present and future events exist and *being past*, *being present* and *being future* are all monadic intrinsic properties, even if incompatible ones (whatever event has one of them cannot have the others)<sup>9</sup>.

<sup>7</sup> Consider for example: “On a pure A-theoretic ontology, the only temporal items which exist exist presently. In other words, the pure A-theory entails a metaphysics of presentism. On a presentist ontology, past and future events/things/times are not real or existent and, hence, do not exemplify properties like pastness or futurity.” (Craig (2000), p. 179)

<sup>8</sup> Consider for example: “to render reasonable our special concern with the present, Smith strips past and future events of all their interesting intrinsic properties. For example, yesterday's headache, although it exists, is no longer painful. It has a past-oriented property, *having been painful* – a sort of backwards-looking relation to the property *being painful*.” (Zimmerman (1998), p. 212)

<sup>9</sup> Consider for example: “If ‘exist’ is present tensed, it can also be equivalent to ‘presently possesses some property’. Something that is past or future exists in this present-tensed sense, since if something is now past, it presently possesses the property of pastness.” (Smith (2003), p. 377)

Consider again the paradox of temporal intrinsic change and how the three variants of the A-theory solve the paradox. According to the A-theorist, *being present* is a monadic intrinsic property and not a relational one. *Being past* and *being future* are one of the three following alternatives: (A) not properties at all, (B) relational properties, (C) intrinsic properties. Each variant assumes one of the alternatives and rules out the others. So, no temporal property gives rise to conceptual contradiction.

The A-theorist does not come up against the extensional contradiction either. Each of the three alternatives rules out the possibility of one and the same event being past and present and future (i.e. there is no acceptable interpretation of (1) of the extensional contradiction). According to (A), only present events are existing, while past and future events are not existing. In order for an event to be past and present and future, it should be both existing and not existing, which is absurd. So, an event cannot be past and present and future. According to (B) and (C), *being past*, *being present* and *being future*, whatever they are, are incompatible properties. So no event can be past and present and future.

#### 4. The three solutions to the paradox of intrinsic change of objects

Lewis proposes three solutions to the paradox of intrinsic change<sup>10</sup>.

The first one parallels the B theorist's solution to the problem of temporal intrinsic change<sup>11</sup>. The B-theorist proposes to consider temporal properties as relations and not as intrinsic properties. The first solution proposed by Lewis is to abandon the idea that there are intrinsic properties and to assume that the alleged properties possessed by objects are "disguised relations" between objects and times. This solution solves both the conceptual contradiction and the extensional contradiction. There is not any property which is both intrinsic and relational, they are all relational. And given any object (for example, an apple) and given any instant of time, that object never has incompatible relations with that instant of time.

The second solution is more difficult to understand. Lewis explains it with the following words: "the only intrinsic properties of a thing are those it has at the present moment."<sup>12</sup> It is not clear to me what it means for a thing to have something at a moment and it is not clear what it is for a moment to be present. "To have a property at a moment" and "to be present" are both properties: are they monadic intrinsic properties? are they relational properties? I suppose that if either of the two previous properties is a relational property, then the alleged intrinsic properties of a thing are in some way conditioned by the relational property through which they are defined and they become relational. It should be maintained that both the properties are intrinsic and not relational; but, even admitting that "to be present" is a monadic intrinsic and not a relational property, it is quite difficult to believe that "to have a property at a moment" is a monadic intrinsic property and not, at least, an intrinsic relation between an object, a property and a moment.

It could be that I am misrepresenting Lewis' words: he may be saying that there is a property, the property "being present", which is the only temporal property, which is monadic intrinsic and which applies to events, i.e. to objects having properties, like "the ripening of the apple". The monadic intrinsic nature of the property "being present" has an essential role in the events to which it applies, it determines the monadic intrinsic nature of the properties which apply to objects. If this is the solution, then the second solution presented by Lewis is presupposing the

<sup>10</sup> He defines it "the problem of temporary intrinsics" (Lewis (1986), p. 203).

<sup>11</sup> A curious question might be: "Who parallels who?". Well, the B-theorist's solution historically came first; so the first solution proposed by Lewis parallels the B-theorist's solution to the paradox of temporal intrinsic change.

<sup>12</sup> Lewis (1987), p. 204.

A-theorist's solution to the paradox of temporal intrinsic change (i.e. it is presupposing that *being present* is a monadic intrinsic and not a temporary property).

This is a way out of the paradox: to assume that the properties of a thing are intrinsic and not temporary solves both the conceptual contradiction and the extensional contradiction of the paradox.

The third solution to the paradox presented by Lewis is available for intrinsic change of objects, but not available for temporal intrinsic change of events. It is a different way to demonstrate that the properties of things are intrinsic and not relational. The idea is that "we are made up of temporal parts, and our temporary intrinsics are properties of these parts"<sup>13</sup>. If we suppose that temporal parts of objects do not have incompatible properties, then it is possible to assume that they have those properties intrinsically.

It is quite useful to note that this third solution is not available for the paradox of temporal intrinsic change. If we assume that events have parts, even instantaneous parts, it is not possible to conclude that each of those parts has just one temporal property intrinsically. Let us suppose that there is an instantaneous event, say my typing the letter "e" on the computer, it has become from being future to being present and from being present to being past; so, the paradox arises again.

## 5. Are the solutions to the paradoxes instruments for highlighting the notion of intrinsic change?

The solutions to both paradoxes are very sophisticated and deep. The real problem with all these solutions is that they solve the paradoxes at the cost of getting rid of intrinsic change. I am not going to consider why the solutions to the paradox of intrinsic change of objects get rid of intrinsic change. I will take into account the two solutions to the paradox of temporal intrinsic change. I believe that they give two incompatible representations of a static reality; but this kind of observation is not something philosophers of time admit.

The B-theorist usually asserts that temporal relations are everything there is concerning time and change. When we say that Jane was young and that she is not young any more, all the facts at issue are that the event "Jane's youth" is in the *simultaneity* relation with an instant of time  $t$  and is in the *earlier than* relation with another instant of time  $t'$ , while the event "Jane's not being young" is in the *simultaneity* relation with the instant of time  $t'$  and is in the *later than* relation with the instant of time  $t$ . What is missing in this picture is that we expect the event "Jane's youth" to have a particular existence when it was present and not to have it when it has become past.

The presentist A-theorist would probably say that her theory is intended precisely to provide a conceptual characterization of the difference between present events on the one side and past and future events on the other. In order to stress the salience of the present events, she has introduced an intrinsic property possessed only by them.

The problem with this second interpretation is that, in order to express the idea of temporal intrinsic change, it is not enough to say that some event has the intrinsic property *being present*, it is also necessary to say that it has that property temporarily. And if we say that the intrinsic property *being present* is possessed temporarily, we come up against the paradox of temporal intrinsic change.

In conclusion, the B-theory and the presentist A-theory solve the paradox of temporal intrinsic change in two incompatible ways and at the cost of getting rid of temporal intrinsic change.

## 6. Some considerations on the possible attitudes towards temporal intrinsic change

If the two previous solutions to the paradox reject temporal intrinsic change, it could be believed that the conclusion to draw is that temporal intrinsic change is impossible and that the

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<sup>13</sup> Lewis (1987), p. 204.

nature of time is to be sought in one of the two opposing solutions to the paradox<sup>14</sup>. Whichever the solution adopted, the conclusion to draw is that temporal intrinsic change does not exist.

I think that another possibility is open: it is possible that the paradox shows our conceptual inability to grasp change in general and more specifically temporal intrinsic change. In order to figure out this second possibility, let us suppose that there are people who understand the paradox of temporal intrinsic change, who do not envisage any solution to the paradox which gives a conceptual model of temporal intrinsic change and who still believe that temporal intrinsic change is real. What do they believe?

Before considering the object of their belief, I think that it is useful to consider the premises they accept. They believe that temporal intrinsic change is real and, as a consequence, they are forced to accept that at least *being present* is both an intrinsic and a temporary property; moreover, they are aware of the conceptual incoherence of those assumptions and still cannot reject either of them. According to them, being intrinsic and being temporary are both ways in which the property *being present* is realized, but they recognize that being intrinsic and being temporary are two incompatible ways for a property to be realized.

Usually, when we are faced with a paradox, we tend to change one of the premises of our argument in order to establish coherence and to solve the paradox. There are cases, and I think that the paradox of temporal intrinsic change is one of them, in which some people consider all the premises at the same level and cannot abandon any of them.

Given those premises, what do they believe?

The *prima facie* answer could be that they believe in an incoherent reality. I suppose that the argument behind this answer is the following implication: if they accept two or more inconsistent assumptions concerning the same reality, they accept that this reality is incoherent. I do not think the implication is valid: they can have reasons to adopt two or more assumptions concerning the same reality, but they can still be unable to combine them together in a unified and coherent image of the reality. If they do not have an image of how the assumptions combine together, there is nothing which is the object of their belief. So, I think that it is possible to accept incoherent assumptions concerning the same reality and, still, not to believe in an incoherent reality.

Now, if they do not believe in an incoherent reality, what do they believe? Do they believe that some philosopher will find a solution to the paradox and will give a coherent picture of temporal intrinsic change? This is of course a desirable eventuality for these philosophers, but it cannot be taken for granted. Nobody can take a desirable eventuality as a reason to believe something.

Their position can be summarized in the following way: (a) they accept two inconsistent assumptions concerning the same reality (in particular, they accept two inconsistent assumptions concerning the same property), (b) they don't believe that reality is incoherent, there is nothing which can be the object of their belief, (c) the conclusion they draw is that we are conceptually unable to grasp temporal reality.

Having adopted this point of view concerning the nature of temporal intrinsic change, the two solutions to the paradox are not to be considered two competing descriptions of the ontological reality, they should instead be interpreted as two conceptual approximations to an unattainable reality.

<sup>14</sup> This position is parallel to the conclusion McTaggart (1908) drew from the paradox of temporal becoming: time, as we expect it to be, does not exist.

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