

# Is Future Real? Putnam's Argument Revisited

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# Abstract

Putnam's argument aims to prove that future is as real as present. His argument is based on the equation present = real. Is real what exists now. Is real what is part of observer-independent reality. What exists now depends on an observer—it is not real. It is then shown that Special Relativity is not only a physical theory, it has also a philosophical dimension in that it questions our very understanding of reality and requires a clear distinction between reality and its representation.

# **Keywords**

Present, Future, Observer, Reality, Representation, Perception, Simultaneity

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# 1. Present = Real?

According to eternalism, "all events in the history of Universe are equally real regardless of wether we judge them past, present or future" (Thyssen, 2020). In spite of challernging common sense, eternalism relies on impressive scientific references: Minkowski's fourth dimensional spacetime and Einstein's Special Relativity and it is often considered as a more or less necessary consequence of SR. This is why so many physicists and philosophers support it. But it long lacked an explicit demonstration, until three authors, Rietdijk (1966), Putnam (1967) and Maxwell (1985), endeavoured to give it a formal proof. Their arguments having much in common, they are often referred to as "the RPM argument".

In the present paper I shall address only Putnam's argument, as published in Journal of Philosophy (1967), which is the most usually quoted and probably the most influential (Thyssen, 2020).

Hilary Putnam starts from the fundamental principle of presentism: everything that exists now (and only that) is real.

Two observers, A and B, are moving with regard to each other. An event E is present in B's coordinate system (on a plane of simultaneity with B). But in A's

coordinate system, it is future. It is usually considered that event E is real for B, but not for A.

But observer A is on a plane of simultaneity with observer B: A is real for B.

According to Special Relativity, there are no privileged observers. Then what is real for one of them is real for all the others. This means that even if event E is not yet present for A, it is nevertheless real for him since it is real for B. Future exists really and past as well.

The reason is that we are not in a three-dimensional world, but in a fourthdimensional one, where objects and events are present not only in their spatial wholeness (their three dimensions) but also in their temporal wholeness (their fourth dimension—their full temporal existence), that is where all possible states of reality, present, future and past, exist on a par.

The argument is elegant—"simple but brilliant", as M. Dorato put it (Dorato, 2008).

But it is to be noticed that it rests entirely on the equation present = real. Its validity then depends on the validity of this equation.

#### 2. Towards Berkeley's World

Let us begin by defining its terms.

Real: It is postulated that there is an objective, observer-independent reality. We call real what is part of this observer-independent reality.

Present: "everything that exists now".

The important word here is *now. Now* refers to an observer. Is present what is in a relation of simultaneity with this observer.

The present is then observer-dependent and not observer-independent as it would be if it was part of objective reality. Therefore, it is not part of objective reality. To be present does not mean to be real. The presentist equation is false.

For an example, let us consider Langevin's famous twin paradox.

The travelling twin is present in two different reference frames, his own and his brother's. When in his own, he is, say, 70 years old. This is his present age. But when he is back on Earth, in his brother's reference frame, he is only, say, 30. This is also his present age.

Which of them is real?

This question does not make sense. His age depends on the reference frame in which it is measured. It is then observer-dependent, i.e. part of the observer's representation of reality, of the observer's information about reality, not of reality.

If it was part of objective reality, we would have two different realities in Special Relativity instead of one and further, as many possible realities as there are possible observers. We would be in George Berkeley's solipsistic world where "Esse est percipi aut percipere", i.e. where what is real is not what is, but what is perceived and where there is no objective reality at all.

Being observer-dependent, the travelling twin's age is not real. It is part of an observer's subjective representation of reality, of his information about reality.

If we assume there is an objective reality, the equation present = real, as far as it refers to the observer's present, is then false. And so is the whole argument based on it. Future is not real, neither is past, nor the observer's present itself: they are all subjective representations of reality and not states of ontological reality. Only the observer-independent present of reality is real.

### 3. The Philosophical Dimension of Special Relativity

And this is the important point: Special Relativity is not only a physical theory about space and time, it has a much wider philosophical dimension: it questions our very understanding of reality.

We usually take for granted that reality is what we perceive—let us call this naive realism, the spontaneous realism of the common man, who mistakes his subjective representation of reality for reality. But there are many observers and as many subjective representations of reality as there are observers, whereas reality is one. This is the reason why one must not confound objective reality and its subjective representations.

What Special Relativity tells us here is not that reality is always in all its possible ontological states, but that it may have as many possible representations as there are possible observers, depending on their physical relation with it— what is present for one being future for the other and past for a third one, etc.— all being subjective representations of reality.

#### **Conflicts of Interest**

The author declares no conflicts of interest regarding the publication of this paper.

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