

The Denial of Time

Description

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This post continues where we left off in [the last post](#) with material from [Are You Minding What Matters? Lesson Three: Our Moral Possibility](#) (though there's a section at the end not found in [Are You Minding What Matters?](#)).

The question at hand is whether it is possible to become more moral. In our [last post](#), we briefly mentioned some examples of moral reformation that seem to make it obvious that people *can* become more moral. Yet, there are a number of popular theories that challenge the reality of moral change. The first actually challenges the reality of *all* change since it suggests that time itself is an illusion. So, let's analyze

The Denial of Time

As disconnected from reality as this time-denial may seem, even the quintessential genius of modern times, Albert Einstein, held the view that ultimate reality is timeless. A few days after the death of a close friend and colleague, Einstein wrote a letter of consolation to the family of the deceased that contained the following:

Now he has again preceded me a little in parting from this strange world. This has no importance. For people like us who believe in physics, the separation between past, present and future has only the importance of an admittedly tenacious illusion. • Einstein to the Besso family, March 21, 1955

The separation between past, present, and future is only an illusion? That was, and is, the position of the majority of physicists from Einstein's day until today. But why is this? What is it that has led physicists to this conclusion?

First of all, it's important to understand that physics before Einstein was dominated by Newtonian Mechanics within which space and time were viewed as two separate aspects of reality that comprise the background upon which objects exist and move. Space was essentially an empty void that could be visualized as a stable grid upon which you could map coordinates. Time was universal and absolute, with the flow of time being constant and everywhere the same. Space was like a stage upon which all the objects of the universe act in the play of the cosmos. The beginning of time was the start of the play, and its flow could be tracked by a single clock hanging upon the wall of the cosmos, marking each moment as it passed. This was the view of Newtonian Mechanics.

In 1905, Einstein published his theory of special relativity and, shortly after that, he developed his theory of general relativity. Together, these two theories (along with their experimental verification) showed that space and time are not merely the background for the cosmic play. Further, they are not independent of one another. Instead, they interact with each other and with the objects in the universe. Einstein showed that the rate at which time passes for any given object is affected by the speed at which it travels and also by its proximity to centers of mass. For example, if two people were traveling at different speeds relative to each other and they both observed the same event (event X) from their respective positions in space, the speed at which event X occurred would appear to be different to each observer. In fact, if these two observers witnessed two events (events X and Y), those two events could appear to be simultaneous to one observer and not simultaneous to the other. What is more, is that neither viewpoint is privileged — neither is more true than the other. This means that one's experience of time is relative — it differs depending on one's position and speed in relation to other objects.

But does this mean that time itself is an illusion? Some think so. Yet, it isn't enough to say, "Our ideas of time within Newtonian Mechanics were wrong; therefore, time doesn't exist." It is, after all, possible to be wrong about something while not being completely wrong about it. But, too often, this sort of leap is made.

There are other factors at play when it comes to why physicists have generally adopted a non-temporal view of fundamental reality. Einstein's theory of general relativity showed that gravity warps space and time, which added extra weight to the idea that space and time are in some way inseparable. This gave rise to the now popular expression, "spacetime." In seeking to express general relativity through the language of mathematics, physicists and mathematicians developed models that described space and time together as a four-dimensional object. With a mathematical object such as this, a given point in time is represented as a location of "spacetime." Time was thus spacialized, and the way we conceptualize space was largely transferred to time. With space, a location in front of you or behind you is no less real by virtue of it not being your location. Likewise, with time, the moments in your past and in your future are considered no less real by virtue of them not being your moment in time — your location in spacetime. Every moment of time is theoretically part of this four-dimensional spacetime object and so all time — past, present, and future, is real as a single whole. The idea that the past no longer exists and that the future doesn't yet exist is thus, according to this view, a mere illusion.

This view of the universe and of time is sometimes called "block time" or "the block universe" since you can imagine yourself standing outside of the 4-dimensional object and viewing it as an unchanging block with every point of space and time all co-existing as part of that one spacetime object. "Eternalism" is another name for this same view since every point of time is considered co-eternal with every other point of time.

This scientific eternalism is just a modern incarnation of more ancient forms of eternalism. For centuries, the most influential Jewish, Christian, and Muslim philosophers and theologians have promoted the doctrine that God exists beyond space and time. Thus, the ultimate and most fundamental reality, in their view, is atemporal. And where did these philosophers and theologians get that idea? As is clearly expressed in their writings, they got it from the ancient Greek philosophers, especially Plato, with his Theory of Forms (also called Theory of Ideas). Plato's theory was that the physical reality we experience with our senses is not the true reality — it is

only a shadow of the true reality. The true reality, according to his theory, was immaterial and timeless. The thinking goes something like this: whatever changes cannot be permanent, and whatever is not permanent cannot be fundamental reality. The true reality, according to Plato, was a world of abstract objects that are the perfect forms of all the things we experience in physical reality. The physical world was understood to be a mere shadow of reality. Each physical object was but a dim and fading reflection of its perfect form in the eternal realm. In the physical world, we have things that are round, though not perfectly so, and not everlastingly so. Plato's explanation for why there could be a multitude of objects that are different and yet are the same in their attribute of roundness is that they are all imperfect copies of the real object in the eternal realm that is roundness. This is true for blueness, beauty, triangularness, etc. Any time there is an attribute shared across multiple physical phenomena, it was as though that attribute was an essence feebly expressed in those objects. The thought was that this pure essence must exist somewhere and that it must be what is truly real. While Plato asserted that these essential ideas, or forms, were real, it is important to remember that for him, they were still abstract, immaterial objects not physical objects and they dwell in an eternal, unchanging realm.

This view was picked up by Christian theologians in the early centuries of the common era and was heavily theologized and combined with Christian doctrine. The focus in Christianity is on God as the fundamental reality and as the primary subject of interest in the eternal realm. God's non-temporality and non-locality (his existence beyond time and space) is the foundation, in this view, of his omniscience and omnipresence. Since he isn't bound within time, he has all of time before him as a sort of block universe. He thus has perfect knowledge of all past, present and future events, as though they were all present for him since he experiences all of them as a co-existent eternal reality.

Modern science emerged from a world dominated by Abrahamic faiths, especially Christianity. And many of the leading scientists in the early days of modern science were Christians seeking to understand God's creation. It was due to this that scientific discoveries of regularities in nature were expressed in terms of laws (a natural mode of expression when describing what comes from a Lawgiver). In turn, these laws were expressed in terms of mathematics, partly because that is the most accurate and fitting language to use to concisely and precisely describe certain physical regularities. But, this bolstered the already long-held impression that mathematics was a mystical window into the abstract and eternal (changeless) world the true reality. While scientists today do not often bring God into their equations, the ideas of timeless laws and abstract (yet supposedly real) mathematical objects still persist.

If these eternalistic ideas (whether in their classical, theological, or scientific incarnations) are true, it would mean that change really is an illusion, and we really would have no hope of reforming our behavior to become more moral. We would be doomed to Einstein's admittedly tenacious illusion of the passage of time perhaps wishing we could change, but with the future already just as settled a fact as the past, we could do nothing but sit through the ride being constantly deluded into believing we are experiencing change, all the while knowing we are not.

Thankfully, we can know that this is not the case. The history of the various manifestations of the eternalistic theory reveals that it has its roots not in materialism but in immaterialism, which, as we observed in [Lesson One](#), has no hope of being true. Furthermore, while the theories of special and

general relativity are often used to dismiss the reality of time, understood more fully and with more clarity, they actually evidence the reality of time. As we already discussed, these theories reveal that time is integrally connected with space — that is, three-dimensional physical reality. The word “space” in special and general relativity is not a synonym for “emptiness” or “nothingness.” It is, instead, the three-dimensional extent of continuous matter. And, in fact, general relativity shows that space has material properties; it can be bent and warped by mass; it has curvature, and it can take on different structures in different circumstances. Since time in special and general relativity is integrally related to space, it is integrally related to matter. Thus, one cannot have timelessness without spacelessness and matterlessness, but since matterlessness is impossible (as we saw in [Lesson One](#)), spacelessness is impossible and so is timelessness.

When the connection between space and time was first explained by Einstein, most were inclined to make the mistake of spacializing their view of time, when they could have just as well (actually “more well”) temporalized their view of space. A major factor that inclined them to interpret general relativity in a time-dismissing way was the eternalistic notions dominant in society due to the influence of Christian theology and philosophy which itself stemmed from ancient Platonism. Another factor was the view that mathematics describes a world of abstract entities more real than the world accessible through our senses (this is a kind of Platonistic mathematics). A fuller explanation of the metaphysical biases influential in physics (in cosmology and quantum mechanics in particular), along with a time-realist approach to physics, can be found in the work of a few (yet noteworthy) contemporary philosophers and physicists such as Roberto Unger, Lee Smolin, and Marina Cortes (among others).¹ See especially Unger and Smolin’s book [The Singular Universe and the Reality of Time](#).

At this point, it should be clear that the denial of the reality of time is not only unfounded but untrue. Still, there is another aspect worth understanding; that is, the internal inconsistency of the notion that time is an illusion. Basically, the problem arises from the fact that to be deceived by an illusion requires undergoing an illusory experience. But illusory experiences, like all experiences, can’t take place without time. Every experience is a process, and every process requires time. Since the very notion of having the illusion of the experience of time requires time to be real, it shows that the experience of time cannot be an illusion. If time were not real — if there were no time — we couldn’t have the experience of the illusion since we couldn’t have the experience of anything — we couldn’t even think since thinking is a process of a brain. No time, no process. To be clear, illusions are possible — it is just that the basic experience of time cannot be one of them due to the self-conflicting nature of that idea. Furthermore, this doesn’t mean that we can’t have illusions about the ways in which time operates — yes, it is certainly possible to have illusions in that area of perception, but the experience of time — of moment to moment change — cannot, by logical necessity, be an illusion. Time, then, must be real, and so must change, since it is constituent of time. What this means is that the first challenge to the possibility of us changing our behavior has proven to fail; the reality of change and of time cannot be denied, at least not without denying reality, and we are thus at least guaranteed that some sort of change will occur.

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Let’s briefly summarize what we just covered:

First, it's popular to deny the reality of time and to claim that reality at the most fundamental level is timeless and unchanging — our experience of time and change being nothing more than an illusion. While this idea is currently explained and justified using the paradigm of post-Einstein physics, time denial long preceded Einstein. It spans back through the initial phases of modern science to medieval philosophy and theology, to ancient Platonism with its realm of timeless immaterial forms or ideas.

Understanding the history of time denial makes it plain that the idea is not rooted in materialism. On the contrary, it is rooted in immaterialism. And in light of [the first lesson of Are You Minding What Matters?](#), it should be obvious that it thus has no chance of being true.

While modern scientific theories such as general and special relativity are often interpreted as though they support time denial. In reality, they only show that previous assumptions about time as a stand-alone, universal, consistently ticking clock are wrong. In reality, however, rather than demonstrating that time isn't real, these theories actually demonstrate the materiality (and thus the reality) of time since time is integrally related to the continuous 3-dimensional extent of matter (aka "space"). While the connection between time and space has been interpreted by most as a revelation about time — as though it were another space-like dimension, we have far more reason to take it as a revelation about space — as being dynamic and ever-changing, or "timeful" — to use a super rare word.

Just to make this as clear as possible, what Einstein showed is that time is not an independent feature of nature. It isn't a clock that keeps on ticking at the same rate no matter what happens or doesn't happen. Instead, time is integrally related to matter.

Existence is matter in motion. And as matter moves, its configuration changes. Time is any and every relationship between sequential moments distinguishable by change. In one area, these relationships may change at a different rate than in another area, so the speed of time is physically different between those two areas. Notice that this shows time to be inevitable given matter in motion. In other words, matter in motion entails the reality of time.

The last thing we covered is that the idea that time is an illusion is internally inconsistent. To be deceived by an illusion is necessarily a material process. Literally, an illusion requires a brain taking in sensory information and interpreting it in some way that doesn't reflect reality. This requires physical motion in the brain, which means a sequence of moment to moment changes of physical configurations — which, as I just explained, entails time. Since the illusion of time would require time to be real, to say that time isn't real and that our experience of time is a mere illusion is a logically inconsistent position and thus cannot be true. In short, time must be real!

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See especially Unger and Smolin's book [The Singular Universe and the Reality of Time](#).