

Parallel Thinking Part 13: Time

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Until the early 20th century, scientists believed that time was one of the absolute constants of the Universe. The English physicist Sir Isaac Newton (d. 1727) declared in his

'Mathematical Principles of Natural Philosophy' (1687) that "absolute, true, and mathematical time, in and of itself and of its own nature, without reference to anything external, flows uniformly and by another name is called duration".

It was only when the young Albert Einstein published his paper on Special Relativity in 1905 that the idea of universal time was abandoned. Einstein demonstrated that when someone moved through space, the flow of time slowed down relative to someone who was stationary. The faster you move, the slower the clock ticks relative to a stationary observer. Einstein went on to unify the ideas of three dimensional space (height, width and depth) and one dimensional time into a four-dimensional reality that he called Space-Time.

The first important result of this concept is that before the beginning of the Universe, there was no space and no time. Time itself began with the Big Bang. It is an inherent part of the fabric of the Universe, not a separate entity.

Moreover, Einstein's Space-Time implies that our very perception of the passing of time is wrong. From our perspective we exist only in the present, in a moment which exists for no time at all, sandwiched between our inaccessible past and our unwritten future. This constraint is the time-dimension equivalent of existing in finite space. Our physical bodies differentiate exactly where we are, from where we are not. But we are also constrained to exist only in the present.

The shocking implication of Einstein's idea of Space-Time is that just as all of space exists, so too all of time – past, present and future – is real. We may not be able to access the past or future from our finite world, yet "the distinction between past, present, and future is only an illusion, however persistent". If a Being were able to perceive our Universe from the outside looking in, it would not only see all of space, it would see all of time. Such a Being would be able to perceive past, present and future at once.

God exists beyond the physical Universe He created. As we say in the song *Yigdal*, "God has no body or form of body" (see green siddur, p. 12). Yet He is also eternal, as described in *Adon Olam*, "He was, He is and He will be in His glory" (ibid. p. 10). The reason we struggle to comprehend God is due to our own cognitive limits, brought about by the physical, finite world in which we live.

