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The (Linear) Time of Our Lives

By Lawrence Rifkin | March 9, 2014

I am about to turn 50 years old, a mark of time that perhaps triggered the impetus to try to understand human life in the context of the largest possible backdrop — cosmic time.

Physicists study physical time. Psychologists study the human experience of time. But rarely do we explicitly put these two together, and attempt to understand human awareness directly within the scientific context of linear cosmic time itself.

Linear time doesn't seem so sexy these days. "Being in the now" and "transcending time" seem to get much of the attention and reverence in culture. But scientific linear time is not prosaic; linear time is full of grandeur and wonder.

It is through linear, historical time that the world can change, and with change can come growth, progress, stages, stories, and possibility. The physicist Lee Smolin wrote that every feature of human organization is negotiable and subject to improvement by the invention of new ways of doing things, whether by Darwinian evolution or the evolution of technologies, economies, and societies. Smolin writes about replacing "the false hope of transcendence to a timeless, absolute perfection with a genuinely hopeful view of an ever expanding realm for human agency, within a cosmos with an open future."



Time offers us hope and despair, it both creates and destroys, it carries us along helplessly but it also is the arena in which we can transform the possible into the actual.

Linear time, of course, is not all good — things could get worse. Human awareness of death may be the true fall from innocence. As Shakespeare put it, "And so from hour to hour we ripe and ripe, and from hour to hour we rot and rot, and thereby hangs a tale."

Two findings of science are particularly relevant and astounding. The first is that time is not absolute. Evidence has substantiated Einstein's special theory of relativity which, in part, says that time can slow down and speed up relative to an object's speed and gravitational force. How cool is that? As will be discussed further, the idea that matter and time are entwined can change our conception of ourselves in time.

Another awe-inspiring finding of science regarding time is just how unfathomably old the universe is, and how recently in history humans evolved. If the age of the universe were made equivalent to a calendar year, and the Big Bang was on January 1, then life did not evolve on Earth until October 2. Homo sapiens evolved on December 31 at 11:53 pm (about seven minutes before midnight), and all recorded human history occurred in the last 10 seconds before midnight! We are life's nouveaux riche.

Because of our temporal psychological limitations, we are unable to readily see, experience, or feel evolution, galaxy formation, the slow formation of mountains, or movement of continents. We don't experience time on nature's timescale. Our inability and difficulty in readily experiencing time on timescales other than our own is a source of much preventable environmental devastation and can put at risk human survival itself.

There is an assumption that a minute is a minute is a minute, but that is neither true from a physical perspective (Einstein's relativity) nor from the human experience of time. The experience of time is inexorably linked to both physical time and psychological time. Attention, emotion, memory, mood, dreams, and substances can slow the experience of time down or speed it up. Time "speeds up" as we get older, and is often experienced as going by faster for the elderly than for a child. In a 3 minute duration estimate test, 60 to 70 year olds overestimate the duration by an average of 40 seconds.

Just as matter and energy form a continuum, time can only be fully understood in connection to something. Many physicists feel time itself results from the increasing entropy of the physical universe. That time cannot exist without relation to matter is a scientific hypothesis, potentially falsifiable, but it is a hypothesis that is consistent with what we currently know about time.

Time can thus be envisioned as a time/matter continuum, not as just some separate neutral frame of absolute moments one after the other within which matter plays. Time is not like an underlying ocean on top of which waves of matter move forward. Time is part of the wave itself.

If matter and time are inseparable, then as Brian Swimme put it, the universe is not a place, but a story.

If seen as a time/matter continuum, then time has a story too. And this is no ordinary time in cosmic history. In this era, in at least in one small corner of the universe, mind exists, a form of matter of extraordinary complexity, which can interact with time at a new level, forming a mind/time continuum with astounding emergent experiential natural properties.

In a beautiful essay, Charles Van Doren wrote: “For aeons, time was not the measure but rather the form of human days, years, and lives. Each was an arc having beautiful words that named its parts: morning, noon, and night; spring, summer, fall, and winter; childhood, maturity, and old age...The parts of a human life are not temporal; they cannot be measured with clocks and watches. They are activities and powers, different kinds of things to do and be....Mixed together, they make a life lovely; regimented or required, time itself becomes a prison.”

Our minds may occupy just a small spatial volume in the universe, but mind/time interaction during this historical era of consciousness is pregnant with significance and possibility. Now is the time of awareness and experience. It is the time of progress and evolution. It is the time of your life.

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