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Bina Nir

ABSTRACT

In this paper, we embark on a cultural- genealogical journey to trace the concept of time, observing the shifts in the concept of time in Western culture. Time concerns religions, science, philosophy, and cultural creation. The perception of time in any culture also dictates the form of thought within that culture. At the basis of Western culture is a linear concept of time that has its origins in Biblical texts, while in Eastern cultures, the concept of time is circular. The genealogical research in this paper examines the roots of the linear concept of time in Western culture and the fundamental changes that this concept has undergone over the generations amid processes of secularization, the growth of capitalism, and the penetration of digital technology. Today, we inhabit the seam between two technologies, one mechanical and the other virtual and digital. These shifts force us to examine our shifting cultural reality through many different lenses, including concerning our perceptions of time. Although our cultural inquiry about future changes in our perception of time in virtual spaces is only just beginning, it has already raised quite a few questions that we address here.

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I. INTRODUCTION

The subject of time has preoccupied countless thinkers across diverse disciplines throughout time. Questions such as whether time exists externally to us or whether we move within it, when time began, and what preceded it have been posed in both philosophy and physics. Does time

have some independent and absolute being, as Plato claimed, or is it rather dependent upon change or motion, as Aristotle contended (Shalin, 2016; Hagar, 2004, 10–11)? The great myths also concern themselves with the essence of time. For Chronos, the god of time in Greek mythology, time is eternal, continuous, perfect, and ceaselessly flowing. Questions such as whether time will cease or reach the end of history are raised in various religious contexts as well as in connection with scientific predictions of global warming (Shagiv, 2016).

Every culture's perspective on time dictates and circumscribes that culture's form of thought. All knowledge is time, for people live within the framework of time (Krishnamurti and Bohm, 2003). At different periods throughout Western culture, various conceptualizations of time have existed contemporaneously with one another, sometimes contradicting one another and other times complementing one another (Funkenstein, 1991). For this reason, discourses on the subject of time should not be confined to scientific or philosophical contexts exclusively and should instead be understood in light of broader cultural, political, and artistic contexts. Time stands at the very center of our conceptualization of our reality. As Virilio claims, reality offers us multiple, diverse layers of meaning from which we must extract a personal and cultural meaning (Virilio, 2006).

In this article, we shall undertake a genealogical investigation of time and its traces by studying both the changes that the concept of time has undergone as well as our attempts to understand the future of time. Although this engagement with genealogy shall have as its subject the past, its goal is the comprehension and critique of contemporary reality. Since culture is determined by foundational assumptions that are often so entrenched as to be completely invisible save in the hindsight of later era, disclosing the past

diminishes its power to completely determine our lives. Adopting a genealogical method for the sake of critique is further supported by both Nietzsche and Foucault (Deleuze, 2006, 2). In Foucault's opinion, the genealogical method enables one to take a new perspective on values (Foucault, 1977, 152).

People in the West today, I would like to suggest, live according to two different earthly timelines. The first is the linear, historical, and cultural timeline that tends towards the end of days, the eschaton. Even though this timeline has undergone several permutations in connection with changing culture, it is fundamentally based upon a well-established religious narrative. The second timeline is that of "personal time" which characterizes capitalism and the culture of individualism. In addition to these two timelines, in the Judeo-Christian West, there is also an otherworldly dimension of time, namely, the spiritual. These various timelines, which together form our conceptualization of future time, are changing in this current period of global crisis. Most significantly, the eschatological narrative is becoming more prominent, beginning to penetrate and influence even "personal time". In addition, we shall consider the accelerated changes that are currently taking place in both the earthly timelines and the otherworldly, mystical dimension of time in connection with developments in virtual reality and other cultural shifts.

Narratives of living on the precipice of the apocalypse tend to become profuse in periods of crisis characterized by fear and uncertainty around the unknown and unknowable future. Such narratives originally emerged out of a religious worldview deeply embedded in Western culture. Accordingly, there is a pervasive feeling that our experience of the present moment—on the heels of the Covid-19 pandemic and in the midst of the climate crisis—ought to be characterized as life on the verge of the apocalypse, for ours is a period of great uncertainty and fear. Yet, while this may seem to be a warning about the nature of time itself (Lebovic, 2020), and while the apocalyptic sensibility of believing that one is living at the end

of time tends to arise principally in periods of crisis, at the same time, such a view is built upon foundations deeply embedded in the culture of the West.

The genealogy of time begins with the religious sources of Western culture. Various systems of thought and cultural values are reflected in the religious doctrines of a given culture. Both Western culture and Christianity are based on Jewish scriptures, the latter of which were scattered throughout the provinces of the Roman Empire and then preserved and disseminated by Christianity (Malkin, 2003, 44). Accordingly, we shall investigate the roots of the Western perspective on that timeline that is directed towards the end of days, the eschaton, and we shall locate the basis for this apocalyptic perspective in both biblical and other Christian religious texts. We shall also investigate the parallel development of the personal timeline. Thus, we shall also investigate the changes that occurred in these perspectives under the influence of capitalist culture vis-à-vis the influence of virtual reality.

II. LINEAR TIME

One of the philosophical characteristics of our time is our inability, as humans, to imagine a "beginning" and an "end" of time. The monotheistic religions describe the creation of the world as an event that occurred at "the beginning of time," but human achievement has been able to discover that there were events that took place even before the Earth came into existence. According to the Western Judeo-Christian tradition of thought that we inhabit, time has both a beginning—"in the beginning God created" (cf Gen. 1:1)—and an end—"in the end of days" (cf Isa. 2:2). Linear biblical time is irreversible, eternally aimed towards the eschaton and the reign of the divine kingdom (Leibowitz, 2002). The prophets assure us that we exercise influence over the nature of this end rather than it being a preordained future: "But if ye thoroughly amend your ways and doings...then I will cause you to dwell in this place, in the land that I gave to your fathers, forever and ever" (cf Jer. 7:5–7). In the Bible, people exist in time; at every moment they

are likely to encounter some trial in which they can either carry out or fail to carry out the will of God (Rauch, 1978, 10–11). Earthly time in the Bible is also linear but it is not discussed explicitly save in connection with the cosmology of the creation narrative. For example, Moses' mission has an implicit sense of linear time, for it contains within it the expectation of some future success. This expectation both for and of the future, which we first encounter in the Bible and which supplanted the antique world's conceptualization of a preordained future, brought with it a new perspective on faith. According to this perspective, time is not cyclical, but is rather unidirectional and irreversible. The observance of divine commandments in the present is simultaneously the hope for a better future, a future in which one receives a reward. This perspective is expressed when God says to Abraham: "Now the Lord said unto Abram: 'Get thee out of thy country and from thy kindred and from thy father's house, unto the land that I will show thee. And I will make of thee a great nation, and I will bless thee and make thy name great' (cf Gen. 12:1–2).

"In the beginning God created"—this is the beginning of time. In the debate surrounding the question as to whether the universe has a beginning, and if so, how it began, there are two main schools of thought. The first, the monotheistic, maintains that the universe was created *ex nihilo* and that the human race is evolving. "However, there was nothing prior to the heavens and the earth.... And were it not for these being made by You, nothing would exist at all" (Augustine, 2001, 294). The second school assumes the worldview that follows from the God of Plato and Aristotle. According to this perspective, God is conceptualized as an architect or a designer, but not as a creator. Relatedly, the matter from which the world is formed is conceptualized as eternal, not as created. "If the world be indeed fair and the artificer good, it is manifest that he must have looked to that which is eternal" (Plato, 1999, 530). "God...finding the whole visible sphere not at rest, but moving in an irregular and disorderly fashion, out of disorder

he brought order, considering that this was in every way better than the other" (*idem.*, 531).

"The end of days" refers to the end of time. In the first verse of Genesis, the foundation for an end of time is also assumed, for if something has a beginning, it also has an end. The biblical, linear vision of time marches on from the creation until the end of days, and history proceeds along this continuum (Dan, 2000, 19). The procession of time yields generation after generation, event after event, up until the present moment, from whence the continuation of history shall proceed directly unto the endpoint, i.e., the end of days (Zeligman, 1992, 102–3). The Prophets of Israel were very interested in the end-times, whose arrival, they asserted, depends upon the behavior of the Israelite community: "Thus saith the Lord: Refrain thy voice from weeping, and thine eyes from tears; for thy work shall be rewarded, saith the Lord; and they shall come back from the land of the enemy. And there is hope for thy future, saith the Lord; and thy children shall return to their own border" (cf Jer. 31:15–16).

In Christianity, this belief in the end of days was expressed principally in the Book of Revelation. The book was written under the influence of the apocalyptic visions of Daniel; Daniel became a model for subsequent apocalyptic works. "And he said: 'Behold, I will make thee know what shall be in the latter time of the indignation; for it belongeth to the appointed time of the end'" (cf Dan. 8:19). The events that occurred in this vision became a sort of touchstone for the Western perspective on history. Empires would come and go, conquering and displacing each other, but the general structure and its principle would remain the same, namely, the course of history would have as its ultimate goal the consolidation of the entire process in that necessary motion towards the end of time.

The principles implicit in the Book of Daniel were developed in the Second Temple Period, in the wake of the destruction of the First Temple (Flusser, 2009, 131–2). Some claim that this literature was written out of despair and a profound loss of belief in the power of religious worship to effect either individual or collective

redemption (Dan, 2000, 38). The roots of viewing the end of days as part of the new covenant lie already in the Bible (Efron, 2004, 269–70). In contrast to most ancient Eastern cultures, biblical belief disregards otherworldly dimensions and instead focuses on human reality as it unfolds in uni-dimensional earthly time. In this view, the end of time is included within historical existence. Biblical sources do not present a coherent image of redemption, but rather a series of apocalyptic motifs which emphasize the desire for redemption and repair at the end of days. Klausner (1999) emphasizes that Israel was unique among the peoples of the ancient world in possessing a messianic vision. This inheritance was bequeathed to the Western world by way of Christianity.

Augustine (2001) was responsible for adapting the Jewish structure of history and time to Christianity (Russell, 2001, 231). Augustine defines time as an internal experience, identifying the past with historical memory and the future with expectation. In his view, human civilization advances and develops persistently. At the same time, Augustine emphasizes the eternal time of God, i.e., mystical time. “In eternity, by contrast, nothing passes away, everything exists” (Augustine 2001, Book XI, 297). Augustine attempts to find a solution, connecting two positions that seem to contradict one another: i.e., mystical, eternal time, on the one hand, and linear, earthly time, on the other. As a result, in the Christian West, there are two dimensions of time—the otherworldly, mystical, divine-cosmic dimension of time, and the historical, earthly dimension of time. Meanwhile, Christian history, that is to say, Augustinian history, is linear.

For Western history, just as in the holy scriptures of the West, there is both a beginning and an end of time (Bloch, 2002, 56–57). The entirety of Christian thought unfolds within a sequence of time, and therefore within history. The story of the history of mankind, as it is related in the West, assumes the existence of progress and development that trend ever upward, as expressed in the arrow of biblical time (Carr, 1986, 120–125). This linear conception of history and its division into sections that both proceed towards

and add up to the end of time became dominant in virtually all cultural domains since the biblical basis served as a universal foundation for all their worldviews (Dan, 2000, 265–308). Indeed, the foundation for such [a worldview] already exists in the book of Genesis.

In the created world, there is a place for history, for only with this perspective is it possible to deflect a theory of the eternal return of events that have already come to pass: A procession of generations, with no beginning and no end, would transform history into a cyclical phenomenon without either any hope or any end. In the eyes of Christianity, the fate of humanity, suspended between the Fall and Judgement Day, is like a continuous adventure. And yet at the same time, in Christianity, theology isn’t derived from the future, but rather from a promise. Even though human existence is in fact an encounter with time, and while man’s actions occur within time, for Western civilizations, there are also great expectations of that time—in contradistinction to other cultures. In the West, people who are inclined towards action continuously learn lessons from the past (Bloch, 2002, 56–57).

III. SPIRITUAL TIME AND EARTHLY TIME

There is a widespread assumption that the Bible’s view of time is linear in contrast to cultures whose views of time are cyclical (Zakay, 1998, 90–93). However, some oppose this generalization as well as the assumption that the Greeks’ conceptualization of time was primarily spatial, while the Bible’s conceptualization of time is primarily temporal and finite, as illustrated by its division into fixed periods. According to these latter approaches, two different conceptualizations of time can be found in both the writings of the Greeks and the Bible. There are some also who attribute to the Bible both linear and cyclical conceptualizations of time, both of which are expressed in the calendar: While the cyclical conceptualization is manifest in the attention the Bible pays to the annual cycle of seasons in the land of Israel (Schweid, 1984, 14–15), but the adherence to this calendar invokes a historical, linear memory. Belief in a single, otherworldly Creator-God removed power from the forces of

nature and deterministic fate that underlay cyclical time. The Biblical Jew is pushed through time towards a better future at the end of days by the divine will, and yet the biblical framework sees in linear history a process external to God.

That is to say, there are two types of time in the Bible: mystical-spiritual, eternal time that belongs to God, and linear, historical time that flows from the beginning to the end, i.e., earthly time. For biblical man, earthly time is distinctly linear and dependent upon the fulfillment of God's commandments, though meanwhile, God exists outside of this time, eternally. In the Bible, time appears to be something that belongs to God; a sort of resource that He freely grants to man, as the Psalmist expresses it: "Thine is the day, thine also the night; thou hast established luminary and sun...thou hast made summer and winter" (cf Ps. 74:16–17). People can only experience and participate in the holy, mystical dimension time when they are specially granted to do so; i.e., at designated times wherein they withdraw from earthly, linear time. The Creator unto whom all time belongs expropriates the Sabbath day from linear time, from the linear sequence, and transforms it into a period of holiness, thereby moving it into divine time. Linear time is a time of labor, of working hard towards some final purpose. The Sabbath becomes a holy day by way of its being distinguished from the other ordinary days of the week and their continuous procession: "but the seventh day is a Sabbath unto the Lord thy God, in it, thou shall not do any manner of work....and He rested on the seventh day, wherefore the Lord blessed the seventh day and hallowed it" (cf Ex. 20:9–10).

God is an eternal being, described in terms of eternal time. Support for this idea can be found in examining the etymology of God's name, Yahweh, which is derived from the same root used to describe existence in the present tense. In the Catholic world, mystical time is bound up with religious experience.¹ The Church promises unconditional love to whoever takes refuge therein and urges people to believe that God forgives them and loves them. The world was an

easy place to understand: humanity stood at its center and would dwell in either heaven or hell in the future to come; i.e., in the promised mystical time. Indeed, this future was derived from the promise, i.e., from eschatology. As processes of secularization came to take hold in Europe towards the end of the Middle Ages and Renaissance, human longing for eternal, spiritual time diminished (Arbel, 2002, 87–88), and it was linear, earthly time that became the significant dimension of time.

The loss of connection with religious, mystical, and spiritual time occurred gradually. In pre-industrial, agrarian society, people lived according to the calm and orderly rhythm of the seasons and the cycles of working the land. The belief that there existed a realm of eternal time beyond these events of time instilled in people a certain faith in time. Conversely, the transition away from the calendar and eternal time and towards a life governed by the clock, coupled together with processes of secularization, instilled in people living in Western cultures new norms and worldviews concerning time. Secular humanity was expelled from the Garden of Eden forever, cast out into earthly time, and his new freedom aroused within him both fear and a desire for competition, success, and fame (Nir, 2016).

IV. THE PERSONAL TIMELINE

Most consider the Renaissance to be the period in which the individual in the modern sense was born. However, the Renaissance's discovery of humanity was not a complete innovation, but rather a new way of conceptualizing a phenomenon whose roots are in the foundations of Western culture. Individualism is bound up with the birth of that self-consciousness that is necessary for the development of the individual. Although self-consciousness began to develop already in the classical and ancient Jewish worlds, the development of individualism in its modern form only became possible with processes of secularization (Shanahan, 1992, 56; Fromm, 1975, 51). Individualism allowed the individual to abandon his connection to the moral structures of

¹

a divine world, and accept whatever “truth” he or she discovered.

Though it might seem paradoxical, individualism developed in Christianity despite the lack of freedom under the rule of the Catholic church. Christianity teaches the individual to distinguish between good and evil and permits him to “realize himself.” For the Jews and Greeks, individual responsibility is less important than it is in Christianity: Christian tradition emphasizes the power of spiritual activities and the individual’s potential to expand his capacity for divinity by way of spiritual labor. In this way, Christianity supports the development of self-consciousness, and it is precisely this self that attains its perfection in the Renaissance (Fromm, 1975, 53).

The process of secularization also influenced the Western preoccupation with history. Until the thirteenth century, Christian historiography was bound up with theology, that is to say, with the religious establishment, which firmly fixed which sources were fitting—and unfitting—to use as/in history (Arbel, 2002, 87–88). In the Renaissance, people adopted the approach of Cicero, who called history “life’s teacher,” and focused on human drama, on the relationships between people and exposing their weaknesses and victories (ibid, 90). History underwent a process of secularization whose basis was the arrow of biblical, earthly time. That is to say, understanding human experience in the past aids in our understanding of the present, and may even possibly serve to predict the future.

The race in earthly time towards the future brought about, among other things, the development of the modern conceptualization of time (Levine, 2006, 51–67) together with an increasing role for competition in society. In this process, minutes became precious and time became a resource so valuable that people felt as though they should not waste it on that which was useless (Fromm, 1992, 47). For example, the Renaissance artist Alberti Battista began each day by organizing his schedule so as to make the most of his time (Bluedorn, 2002, 227). Humanity became the master of its own fate and time became a personal resource. Linear-earthly time

becomes the only significant time that remains (Debord, 1992).

With the intensification of capitalism and the process of secularization, the people of the West began to live in two parallel timelines. On the communal and cultural plane, the linear timelines of the grand narratives of history, democracy, and capitalism are found. On a personal and authentic plane, a Western person is in an individual race for future success that is also based on linear thinking and expectation for the future, but that exists on a separate, personal, and authentic timeline. As for the religious basis of the linear axis, one must distinguish further between perspectives that see God as responsible for redemption and perspectives that see people as having the ability to influence their fate and set the wheels of redemption in motion. When a person believes that he or she can influence his future, since the latter is not predetermined, he develops the motivation to race in time after some future, personal, authentic form of success. Although this motivation is religious at its core, it has undergone processes of secularization.

In today’s consumer capitalist technological society, time has become a unique and precious resource connected with success and achievement. Today, social and economic success is measured in terms of the ability to achieve maximum efficiency and results in a limited timeframe, while those who do not “arrive” on schedule are deemed failures. Benjamin Franklin’s first uttered his famous refrain “Time is money” (Levine, 2006, 9) in 1748. Later, the connection between time and money in the West yielded an economic expression of the value of time: temponomics, literally a combination of time and economics. Temponomics is based on the assumption that time is a resource that should be managed just like money, and for that reason, it is possible to “earn time,” “save up time,” and “sell time” (Zakay, 1998, 93–94).

Time “passes,” time “runs away” and time “runs out.” Western people feel as if time itself is in motion. Time is experienced as a resource that is being depleted (Davidson, 2004). It is a unit of value, a currency, a commodity for investment

and consumption, and, above all, an important resource for success (Nir, 2016). Some even deem modern people to be “drunk on time” (Ayil, 1996, 141). Our current Western mythos is that we are chronically lacking time. In the secular life of the West, for those who do not believe in life after death, the general experience of time is that time progresses linearly until it runs out. On their personal or individual timelines, people in the West live with the sense of time as passing biologically, i.e., moving towards death and the annihilation of the individual.

An individual’s perception of time changes during their lifetime. In the West, time as experienced by young people is not the same as that experienced by older adults or the elderly. During adolescence, there is a fundamental change in a person’s perception of time, when individuals begin to see the “hourglass running out.” We no longer ask how old we are, but rather, how much time we have left (Eyal, 1997). Phrases like “one’s biological clock is ticking” express an image of life as a sort of organic clock, whose time is limited and predetermined. From the 1960s, this image took on a very tangible meaning, following an experiment by Leonard Hayflick (1965), which showed that human fetal cells in vitro divided about 50 times before they stopped dividing. This finding appears to indicate that death is genetically dictated and that the “biological clocks” in our bodies’ cells start “ticking” from the moment of our first heartbeat (Ashkenazi, 1991).

V. TIME IN THE DIGITAL EXPANSE

In the digital space wherein we spend most of our time, the concept of time undergoes numerous changes in response to our changing perception of reality. The digital age itself is undergoing rapid and substantial changes, each of which has consequences for our perceptions of time and space. Cyberspace is a network of digital databases that has been made available to users where they can visit and access a wide range of information, “which resides in a certain space created as a result of interaction between a user and a computer and requires a navigator” (Rosen, 2016, 21). Cyberspace refers not to any real space,

but rather to a virtual space that developed as a result of the use of computers.

In the age of digital information, a space of information flow has been created which has in turn created a culture characterized by a timeless time and a spaceless space that are indistinguishable. Events unfold on the screen before us, here and now, with only a click of the mouse. The mechanical world, slow and fragmented, has disappeared, and an electronic, computerized world, simultaneous and unified, has sprouted in its place, chafing against the limits of our physical body and consciousness (Rosen, 2009). Cyberspace is a compressed space full of a vast amount of information that reaches us at light speed and yet it is not a space completely independent of time, for information reaches the web surfer’s consciousness within his reaction time. Thus, while one is surfing the web, one experiences “the compression of space and time” (Rosen, 2016, 23).

This space does not follow the rules of Euclidean geometry, for geometry in this space is non-linear. One of the characteristics of space-time is simultaneity. Simultaneity constitutes a violation of the logical sequence since in Euclidean geometry a point in space cannot occupy two places at the same time. In classical physics, events that are simultaneous to one observer appear simultaneous also to a second observer who moves at a constant speed relative to the first observer. However, according to the theory of relativity, time is relative and not absolute, and the coordinates of time and space get mixed up when switching between descriptions of events by different observers (Garnot, 2016). In the high-speed motion of cyberspace, the linear perspective is flattened, so that the distance between different objects that have become two-dimensional grows shorter.

People today live simultaneously in the virtual world and the real, physical world. The digital revolution has given us a reality in which space and time can no longer be distinguished, as they were for Newton. New forms of media have thus led to the development of “a new space-time” (Moses, 2003). Time is neither external to us nor

distinguishable from space. Rather, we move within time as we occupy virtual space, and we can “exit” it into physical space and that “other” time, i.e., classical Newtonian time.

According to the Newtonian perspective, there is only a single timeline. In contrast, in large software systems such as Facebook and Twitter, each computer has its own timeline and time is not absolute—as Lorenz and Rosenan demonstrated using the room reservation system at Booking.com. In such a large software system, two different users in two parts of the world can attempt to reserve the same room, and the room will simultaneously be both available and unavailable. Thus, in the space of the internet, just as in the space of the actual universe, time is not absolute. Every computer has its own timeline, which is to say, a separate timeline from all other computers. Therefore, although each computer taken in itself behaves predictably, the behavior of the entire software system, considered as a whole, is unpredictable with respect to the user. The order of events may be different in each timeline, and it is difficult to synchronize them (Lorenz and Rosenan, 2016). The absolute timeline to which we were accustomed has thus been replaced by countless different timelines.

In the digital age, I would like to suggest, there is also a sort of return to conceptualizing time as eternal from the “divine” perspective, which in the past was connected with the mystical-eternal conceptualization of time. Cyberspace has brought us back, in a way, to the divine perspective, for now it is possible to see and experience the world as a whole, simultaneously, through a vast systems memory—such as previously would have been possible only for a sublime power like God (Rosen, 2016). Using virtual, 3D representation software such as Google Earth, the web surfer can see the world from a perspective previously impossible—he can fly to every corner of the earth and see satellite images, maps, and 3D buildings from the galaxies of outer space to the ocean canyons. The web replaces real space-time and acts as a gateway to interactive virtual worlds. With the click of a mouse, one can navigate the entire galaxy using images and information provided by NASA and other space agencies

(Rosen, 2016). This new point of view, made possible by the internet, has unwittingly brought us to the perspective of Spinoza. According to Spinoza, the fullest and most complete perspective of reality is achieved only from the viewpoint of eternity (Weinrib, 2011, Vol. 1). When we consider things that happen in time, we do not see them as they truly are. Only from the divine perspective do we obtain the complete picture, since God, according to Spinoza, is eternal in the sense that He exists outside of time. Complete understanding is obtained only through the viewpoint of eternity (Morgan, 2002).

Information in cyberspace exists in an “over-space” that can be navigated and “browsed” electronically. In Big Data—i.e., a large quantity of data is collected from a wide variety of sources—information is stored without being deleted and allows for the analysis of content in diverse fields, such as meteorology, trade, cyber warfare, military, and police intelligence. The ability to quickly retrieve information and identify patterns and connections that could not otherwise be perceived by humans, using millions of pieces of information remote in time and space, endows us with powers of simultaneous vision and action, thereby in a sense restoring us to a divine perspective. A large and cohesive picture of the world, in which all things are closely connected, is created, similar to the cosmos symbolized in medieval art. Such a perspective results not simply from being able to virtually view the world as a whole, as on Google Earth, but rather from the ability to make connections and predictions based on a vast amount of information. This image is consistent with Leibniz’s metaphysics. According to Leibniz, God created the world so that there is a pre-existing harmony among all the details; at every moment, all created monads operate to be in harmony with one another. For Leibniz, only the divine monad, i.e., the simultaneous monad, views the world through Laplace’s universal formula, while we experience the world through a formula that is deficient, ever-changing, and transitory. In contrast to Spinoza, whose point of departure is the one whole that includes everything, Leibniz’s point of departure is the existence of individual things

(Weinrib, 2011, Vol. 3). The world is made up of details, yet there is a predetermined harmony between all the monads such that they work together. Further, the harmony is complete despite the lack of mutual influence between the monads.

The return to a simultaneous conceptualization of time is expressed also in Augmented Reality. In 1994, Paul Milgram proposed that rather than conceptualize two extreme possibilities—one being the real world and the other being the virtual world—we should instead think about a continuum existing between the two possibilities and accept various iterations of mixed reality (Friedman, 2006). This area is called Enriched Reality or Augmented Reality. With Enriched Reality, there is also a return to a simultaneous conceptualization of time. This is a space-time that includes everything: past, present, and future. Further, this concept of time is foundational to modern physics, in contrast to the linear sequence of Newtonian physics in which time flows from the past to the future (Hagar, 2004). For example, in the present, reality can be enriched by the addition of a virtual dinosaur from a bygone era that nevertheless seems to exist. Thus, this is a simultaneous time in which several realities can be found side by side, the past coexisting together with the present. In Enriched Reality, the coexistence of different times breaks the Newtonian linear sequence.

The digital revolution also constitutes a return to eternal time in that it contains both a promise of remaining in eternal time and an illusion of eternal life. In the Renaissance, earthly glory—i.e., a man's name and deeds remained in the history books after his death (Burckhardt, 110) came to replace religious glory and that earthly glory compensated for both one's insecurity in this world and one's longing for eternity. In the current digital age, the yearning for eternal life has taken on new fervor. As an example, LivesOn, a Twitter-based company, promises to continue tweeting on behalf of a person even after their death: "When your heart stops beating, you'll keep tweeting" (Tzezana, 2013, 112). Indeed, today we are surrounded by the ghosts of deceased Facebook users, their profiles transformed into

memorial pages (117). In the digital space, one finds the promise of escaping that linear time which is always running out, and thereby "killing time"—i.e., transforming linear time into eternal time. As Lewis Carroll describes it in his *Alice's Adventures in Wonderland*, the clocks do not move because the Hatter "killed time" (Lewis 1954, 78–80).

VI. EPILOGUE

We have embarked upon a genealogical journey tracing the concept of time to understand the future of time. In the beginning, we considered the sources of the linear conceptualization of time that is oriented toward the future. As we saw, the biblical arrow of time that serves as a basis for Western culture, which moves us from the beginning towards the end, is also found in the major narratives of the modern era. The concept of historical progress has been popular for a long time, and at its basis lies the assumption of a beginning and an ending on the model of the biblical arrow of time. A cyclical concept of time, which differs from the dominant narrative in the West, appears in the Bible in Ecclesiastes: "The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is nothing new under the sun." (Eccles. 1-9 KJV).

At the same time, in the new consumer culture, which moves along the personal and authentic timeline, a more personal and subjective conceptualization of time is emerging. In societies that live according to cyclical or mystical time, distinctions between everyday activities and communal, religious, or holy times were abundant, for example, there was designated ritual time (Van Gennep, 1986, 107–110), celebration time, play time (Huizinga, 1966, 44–45), and ascension time. In contrast, in consumer capitalism, free time becomes times for consumption and/or bought time, i.e., time as a commodity. We thus live with a false consciousness of time (Debord, 2000, par. 158). In the secular life of the West, where people do not believe in life after death, the general perception of time is one of progress up to the point of annihilation. The future is understood as

different from the past. Time is flowing, uni-dimensional, and real.

As we have seen, these two linear timelines, i.e., the cultural and the personal, are undergoing rapid change, and it is difficult to predict what our perception of time, as a culture, will look like in the future, mainly in light of rapid changes and the introduction of new technologies such as artificial intelligence (AI).

Yuval Noah Harari (2015) claims that the digital revolution is no less significant than the industrial revolution. The industrial revolution shattered the natural environment, and the digital revolution threatens to do the same to the political environment. Technology indeed enriches and augments our lives. However, while technology adds something to our lives, it also takes something away; and while what technology adds is always glamorous, what it subtracts from us is often obscure and almost invisible (McLuhan, 2003).

In the digital age, we are witnessing the growth of various alternative conceptualizations of time, including changes in the experience of linear time in digital space (Rosen, 2016, 199). Today, Augmented Reality has also made it possible to technically break the linear continuum by allowing the past, present, and future to coexist together, simultaneously in a virtual universe that is nevertheless perceived as real. In these spaces, time becomes relative and has no independent existence, as Newton previously claimed (Michon, 1985, 57).

Western time was created with the creation of the world, the latter of which can now in turn be likened to the creation of a simulated, virtual environment. That having been said, the virtual world can be very different from the real world even in its most fundamental assumptions. For one to have a complete experience of virtual reality, information that is as rich as possible must be provided to all of the senses. The term "virtual reality" refers to a three-dimensional reality in which people can move about while interacting with objects and other people. When we are inside virtual reality, our senses are solely

engaged with the virtual world, to the exclusion of the real world (Friedman, 2006). In contrast to concepts like virtual environment, virtual reality refers to an experience in which the participant experiences the environment using special equipment. In virtual reality, in addition to a wide field of vision, one can reproduce real-world space and depth perception. Discussions of virtual reality in a sense bring us back to Plato's cave, in which those in the cave, upon seeing shadows, mistakenly take them to constitute actual reality (Plato, 1999, Vol. 2, 7). However, in contrast to Plato's cave, the experience of virtual reality is one that people undergo consciously, thus it may indeed be closer to hallucinatory time.

Hallucinatory time does not obey the rules of realism that govern normal reality. Hallucinations are defined as sensations or sensory perceptions that exist in the absence of an external reality (Sacks, 2013). Importantly, they are not defective sensory perceptions. Rather, hallucinations are "conjured" out of nothing. Hallucinations are very different from dreams, constituting a distinct and unique category of consciousness and mental life. During a hallucination, a person experiences an objective and real reality. Jung testifies to as much recollecting his own experience of hallucination: "I felt that I was floating in space [...] the sights and experiences were completely real. There was nothing subjective about them. Each one had a completely objective quality [...] nothing cannot be measured in temporal concepts [...] and yet everything existed together" (Jung, 1993, 274-276).

The dimension of time is at the heart of consciousness, which defines and shapes experiences. The mind and consciousness do not agree with scientific worldviews, and thus subjective feelings are often at odds with objective reality (Rijswijk & Roy, 2011). According to Shoshani (1999), time and consciousness are interrelated and both are disconnected from the material world, and relate to the subjective feeling of the individual. Cognitively, the dimension of time is not stable so that at different times of consciousness it becomes flexible and stable (Glicksohn, 2001). Therefore, some have argued

that it is human consciousness that creates the sequence and flow of time (Greene, 2005).

The Wachowski brothers' hit film *The Matrix* (1999) imagines the extreme of virtual reality. The material reality that everyone experiences is, in fact, a virtual reality, produced and coordinated by a supercomputer to which everyone is connected. When the hero wakes up in "actual reality," he is met with a desolate landscape and the smoke of ruins (Zizek, 2002).

Today we are living at the seam of two different technologies, one mechanical and the other virtual and digital. This situation compels us to reexamine many aspects of our social and cultural reality, and not only our perception of time. Our question as to what the future holds in terms of changes in our perception of time, vis-à-vis virtual reality, is in its infancy. This article does not intend to make predictions about the future of time, heeding Virilio's warnings about the "great accident." In his book *The Critical Space*, Virilio claims that Western culture's deployment of scientific rationalism, technology, and science to control the world of phenomena will bring about an accident that changes the human perception of technology—and that may even lead to the end of the modern project itself.

For this reason, we should be wary of *The Matrix's* prophecies—of a day when virtual reality will overpower actual reality. It is incumbent upon us to contemplate the consequences of the digital revolution and to ask deep questions, principally about time. For example: Is it possible that we are passing through a stage in the evolutionary process in which there will eventually be no distinction between the mechanical and the biological, or between physical reality and virtual reality, as Kurzweil claims (Kurzweil, 2006).

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