CREATIVE TIME SYNCHRONIZATIONS: PROXIMAL AND GROUNDED PASTS, PRESENTS AND FUTURES

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Abstract

The purpose of this paper is to present a new paradigm and an innovative technology for thinking about the future. The concept of time synchronization is introduced as a technology to improve individual competency for balancing the continuous construction of reinterpreted pasts, presents and futures in order to cope with the acceleration of change, complexity, and uncertainty. This new paradigm is driven by recognition of three factors: 1. Humans are both conservative and novelty generating. 2. Novelty is a key factor of life and humans address novelty through pattern-evolving creativity. 3. Reality is defined through the unique ability of humans to anticipate and define experience in terms of pattern and category. This article asserts that rapidly expanding human plurality and novelty require new models concerning relationships of past, present, and future. Such models should adequately address the rapidly changing and more complex conditions in which they are constructed and deconstructed, including the expanding opportunities that accompany them.

Keywords: *time; technology; models; future*

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One opportunity for futurists and strategists is to re-paradigm futures thinking within the context of alternative pasts, presents and futures, a variation on Lev Vygotsky's perspectives on zones of proximal development.[1] We argue for a new post-Cartesian, post-Newtonian "creative" process for re-associating pasts, presents, and futures as the basis for continually synthesizing the dynamics of "becoming" in the present. The creative process is one that jumps ahead of consensual realities and proposes proximal and grounded pasts, presents and futures that offer expanded choices through heuristic assessments. Our intent, therefore, is to offer an "intellectual technology" of virtual time manipulation that can add to the vitality and relevance of bold and imaginative strategic thought, futures study, and futures research.

Assumptions and definitions

In order to make conjoint meaning possible, virtual pasts, presents and futures must be "designed" so that they become proximal and grounded. Virtual time simulations, in order to make creative sense, must also be grounded. We define grounding as the plausible association of specified pasts, presents, and futures within a given context and its situational variables.

For purposes of keeping our exposition focused on the modeling and practice of virtual time manipulation, we shall refer to the contents of virtual pasts, presents and futures as "ideas". By employing this term we mean to infer the supposition of plural types of knowledge and information, including models, scenarios, and plans.

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[1] Lev S. VYGOTSKY, *Mind in Society: The Development of the Higher Psychological Processes*. Cambridge, MA: Harvard University Press 1978.

Background

To date, divisions of past, present, and future have been a necessary condition for a paradigm of futures research. However, we assert that individuals and societies must progress beyond traditional assumptions and categories of past, present and future to the recognition that these concepts are largely byproducts of industrial age notions of time. Those legacy assumptions are restrictive and heavily predicated upon Newtonian/Cartesian thinking, along with its precepts of control, determinism, and linearity.

Both the objectification of past and future, and human-shaped distinctions of time, have encountered historical opposition. As early as the fifth century BCE, the Eleatic Greek philosopher Parmenides took exception to artificial distinctions among past, present, and future. Parmenides argued that all existence is situated in the immediate present. For Parmenides, time was an illusion – only the existential present could exist.

Advancing a similar argument, Lynch has stated that past and future are constructed from the imagination. In support of his position that we live only in the present, Lynch quotes Saint Augustine to the effect that our existence is "a present of things past, a present of things present, a present of things future." Einstein is quoted as observing that "physicists believe the separation between past, present, and future is only an illusion, although a convincing one."[2]

Whorf stated that linguistic studies of the Hopi people of the Southwestern United States revealed a very different, non-western understanding of time. As a result of his studies, Whorf determined that the Hopi language did not include a word for time, nor did it exhibit language tenses. For the Hopi people, western concepts of past and future simply did not have meaning. The Hopi worldview existed entirely in an extended

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[2] Kevin LYNCH, *What Time is This Place?* Cambridge, MA: The MIT Press 1972, p. 122.

present, in the tangible and perceived reality.[3] This is similar to the statements made by Lynch regarding gypsies and other non-western, cultures. Further, Adam (1990) noted that sociologists no longer rely on clock time as the sole basis for studying temporal orientation. Instead, Adam states, "... [sociologists] conceptualize time as a *societal dimension* to be recreated, constructed, learned from, or eliminated."[4]

We argue that the symbolic classifications of past, present, and future are a function of cultures and their conventions. We challenge the traditional formulation of past, present, and future and acknowledge it as only one of many possible ontological constructions capable of characterizing understandings of being and becoming. Linear time is a conjectural model made more vulnerable in the 20th century by the introductions of quantum science and relativity. The unique assertion of time as a one-way arrow, instead of a phenomenon that is another artifact of cultures, is the result of a categorical limitation. A more robust position is the recognition of time as a simulational model concerned with being and becoming.

We argue that the ability to construct and deconstruct past and future virtual time states for use in alternative presents has always been a property of individuals as well as societies. Further, this ability must be viewed as a soft technology that can be developed and applied to enhance individual and collective options within alternative presents. The ability to construct and apply pluralized pasts, presents, and futures offers a new mode for sense-making, design, and choice in human affairs. It treats temporal research as an activity that involves the re-conceptualization and selectively interfaced expressions of virtual time states, together with their distinguishing details.

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[3] Benjamin L. WHORF, *Language, Thought and Reality.* Cambridge, MA: Harvard University 1956.
[4] Barbara ADAM, *Time and Social Theory.* Cambridge: Polity 1990, p. 98. (Emphasis added.)

In the modern age, individuals and societies must now learn to expand into the new frontier of virtual time states, thereby permitting new sense making, knowledge creation, and decision options. We define virtual time states as distinctive hypothetical and heuristic states of continuous novelty and emergent complexity. Comparison is the mechanism whereby one time state can be differentiated from others.

As noted, humans are time-bound. Concepts of past, present, and future events are bound together to provide continuity and a framework for sense making, knowledge production, decision making, and action. The process of time synchronization suggests a new methodology for harnessing the continuous emergence of novelty, invention, and design in the scope of human time binding. Historically, the invention of the clock decontextualized time and converted it into a measurable social commodity. In contrast, the concept of *time synchronization* is premised on the importance of context, and the choices made from plural constructions of pasts, presents and futures. We argue that there is no necessarily inevitable distinction between the concepts of temporal states and existence; they are simply in constant dialogue. Similar to knowledge, time demonstrates a contextual, personal, and sharable base from which creativity and novelty can be extracted and acted upon by individuals and collectives.

Time synchronization methods address historical and anticipated states of time-binding and time-transcendence. They advance the concepts of imported pasts and futures that are continuously invented and re-invented within alternative presents. The ongoing construction and deconstruction of imported pasts and imported futures within alternative presents provides frameworks for new formats of time associations. Thus, alternative presents are treated as continuously created and emergent contextual resources rather than single points with the passage of chronological time. In this sense, the continuous creation of co-existing plurality in present states is driven by a form of requisite variety generation in a process that we have called *time synchronization*. This applica-

tion of requisite variety assumptions is driven by on-going comparisons of constantly emerging and deconstructed virtual past, present and future states.

Elaboration

Time synchronization is a time simulation process that permits importing ideas, such as stories, scenarios and plans, into virtual pasts, presents, and futures. The utility of time synchronization is that it encourages the development and application of virtual time simulations to help bring about desired outcomes within shortened clock times. By virtually creating a diversity of compatible presents for desirable futures, the time synchronization approach we describe helps practitioners develop and "field test" what might otherwise be unknown or remotely distant futures.

Many acts of novel thought are casual, pre-conscious, and even "automatic". While humans are fully capable of highly sophisticated temporal associations among personally constructed ideas, many have trouble meeting "local" standards of validity because they depend upon socially challenging acts of imagination, day-dreaming, and creativity. As a result, many–and perhaps most–acts of time-based idea asynchrony develop between the socially consensual present and personally constructed ideas of virtual pasts, presents and futures. The result is persistent time asynchrony between individual human minds and their social contexts. We believe that such isolation exists everywhere, including within the professions, among them futures study. Novel constructions remain locked up in individual minds, reducing the timing and effectiveness of futures research.

Our approach to time synchronization is inspired by and derived from the work of Lev Vygotsky in that it is based upon proximal and grounded pasts, presents and futures. It is the author's intent to present a virtual time technology that is fundamentally cultural (personal and collective) in nature, that does no injustice to other forms of time conceptualization and

measurement, and that offers new portals for utilizing creative imagination to derive improved professional ideas (e.g. grounded scenario constructions, simulations, models, and policy and planning alternatives).

We believe that clock time requirements for tactical and strategic decisions are shortening too rapidly to permit the continued partitioning of time into cleanly separated categories of past, present, and future. The exponential growth of knowledge, invention, and innovative applications are producing spiraling rates of obsolescence that cannot be safely absorbed into the current narrow views of a single, empirical "present," rigid historical interpretations, and distant/isolated futures. Virtually removing boundaries among constructed pasts, presents, and futures will permit societies and individuals to become progressively more indifferent to clock time under selected circumstances.

We offer a soft technology built upon a class of perspectives that enhances the basic human ability to resynchronize time. The purpose of this technology is to improve individual competency for balancing the continuous construction of reinterpreted pasts, presents and futures to cope with the acceleration of change, complexity, and uncertainty. We regard time constructions as distinctive existential states of managed interactive complexity. We apply the term time synchronization to indicate a class of approaches for researching and developing the creation and application of temporal alternatives. Comparison is the basic mechanism whereby one past, present or future can be differentiated from others.

Implications for creative time manipulation

The maturation of the futures research field suggests that it has reached the point at which reconsiderations of temporal relationships among history, present, and future are required. Contemporary futures research is based principally on long-established concepts of past, present, and future that are associated with rationally observed and methodologically pro-

jected events indicated by clock or calendar time. While these traditional concepts remain functionally relevant for many applications, we argue that they are increasingly insufficient to manage emerging complexities in the practice of sensing, constructions of timely meaning, and strategic decision making.

It is important to stress that concepts of past, present and future be understood as categories that have been historically created and imposed by the pattern-recognizing and pattern-creating tendencies of human cognition and imagination. These legacies have served effectively for thousands of years as frameworks for sensing, knowledge creation, decision making, and action. Now, as the rate of change accelerates in the 21st Century, the cognitive and creative boundaries among pasts, presents and the futures are less clear. Leveraging human imagination, it is both possible and necessary to bend time to human requirements through what we call time synchronization, or the manipulation of virtual time. Virtual time allows the development of multiple streams of connected but nonlinear pasts, presents and futures.

Over human history several alternative concepts of time and associated passages of time have developed. They include:

1. Clock time: Based on physical measurement that can be verified by a detached and impartial observer. Historically, clock time has provided the basis for linear, coordinated and synchronized social activities and tagging relationships between cause and effect in the observed phenomenological world. Clock time provides a functionally objective and rationally agreed upon way to measure relationships between and among events within linear conceptions of past, present, and future.
2. Quantum space-time: Based on wave functions in non-Euclidean space, where, apart from any entropy within a system, unidirectional

arrows of time are not necessary, and observed "reality" is probabilistically determined.

3. Existentially (personally) perceived time: Premised on the collapse of past, present, and future into existential moments identified by their meanings. Existential time is experiential. It is closely coupled through the interactions of individuals, collectives, and technologies. Within existential time, traditional partitions between past, present, and future are capable of collapsing into a single moment.[5] This phenomenon is distinct from clock time, and is therefore crucial to our thesis.

4. Social and cultural time: Emerging out of individuals' interactions with contexts and each other. Many cultural anthropologists consider concepts of time (including tenses of past, present, and future) to be socially constructed. Collective representations and narratives of time and tense are observed as differentiated across cultures. Thus, cultural anthropologists address time (and concepts of past, present, and future) as a function of cultural relativity and social experience rather than measures of physical phenomena, which are in the realm of physical anthropologists and of archeologists.

Historically, time has usually been defined within the narrow domain of linear time. Linear time consists of a distinct and fixed relationship among past, present, and future. Before clock time and the industrial structuring of "modern" time, human understandings of past, present and future were largely based on cycles (e.g., repeating diurnal and seasonal events, and biological cycles) and social-cultural events (e.g., births, deaths, marriages, and wars). With the growth of the physical sciences and the Industrial Age, Western societies embraced highly structured clock and calendar time. Past, present and future became expressed through the physical sciences (e.g., the uniform and predictable movement of the sun and stars, the movement of gears, and emissions of radioactive materials).

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[5] Daniel GILBERT, "Time travel in the brain." *Time*, January 29, 2007, p. 91.

The passage of time became measured by physical rather than biological intervals.

Classical clock time is based on physical measurements that can be verified by detached and impartial observers. Historically, clock time has provided the basis for coordinating and synchronizing social activities and tagging relationships between cause and effect in the observed phenomenological world. It provided a seemingly objective, rational and mutually agreed upon way to measure relationships between and among events. Individuals and societies aligned themselves with such consensual thinking by synchronizing their behaviors with scientific and technological measurements of time, expressed as categorizations of past, present, and future with their associated "arrows" of time.

Scientists and social observers have come to recognize time in differing ways. For example, social time is generally held to be value-laden and situational, while physical time is commonly understood as relatively value-free and standardized. These differences exist because humans are simultaneously physical, organic and sociocultural entities. As such, they are creative organisms that tend toward meaning-driven perceptions and understandings of all things as sets of patterns, including past, present and future. This can make perceptions and interpretations of time extremely complex.

How temporal partitioning is differentiated and understood makes a critical difference in human affairs–whether it is based on culture, clock and calendar measurements, perceived sequences of historical events, highly personal experiences, or virtual constructions. Under such conditions, we argue that humans must learn to routinely construct heuristically interactive virtual pasts, presents, and futures. Without such skills, humans will remain limited in their ability to generate, ground, and apply knowledge, particularly within situations of rapid and unpredictable change, disruptive innovations, and radically new ideas. These circumstances have compelled us to develop a creative virtual approach to temporal and situational synchronizations.

Graphical depictions of grounded pasts, presents, and futures

Our intellectual technology is purposive. The following are visual examples of *temporal simulations* for the benefit of futurists, planners, and policy specialists. We employ graphics to illustrate virtual associations of past, present and future situations; and to emphasize new perspectives and choices in virtual and real world contexts. These perspectives and choices are associated with the processes of bringing virtual pasts, presents and futures into proximal relationships, and then grounding *best case* versions of each together.

The graphics show how a candidate idea is selected from the futures block and moved into an alternative (or parallel) present. We show how that present and its newly associated future are then linked to a compatible virtual past–that is, a history that is reinterpreted for this purpose.

Finally, we show how the virtual present, together with its virtual future and past, can create a "laboratory" relationship to the consensual present–in other words, how the consensual present creates a "space" for developing and assessing the virtual future, present and past that it has imported.

To us, what is critical and practically useful about the processes diagrammed above lies in the creation of alternative presents and reinterpreted pasts to help balance and integrate the values of alternative futures. In order for novel bonds to develop among virtual pasts, presents, and futures, candidate presents must act as catalysts for the development and selection of proximal and grounded futures. Such grounding permits directly working on distant futures or specified pasts within a laboratory simulation context. Once determined to be of potential creative value, a candidate present, together with its grounded past and future, can be imported into the consensual or "real" present, either in whole or in part.
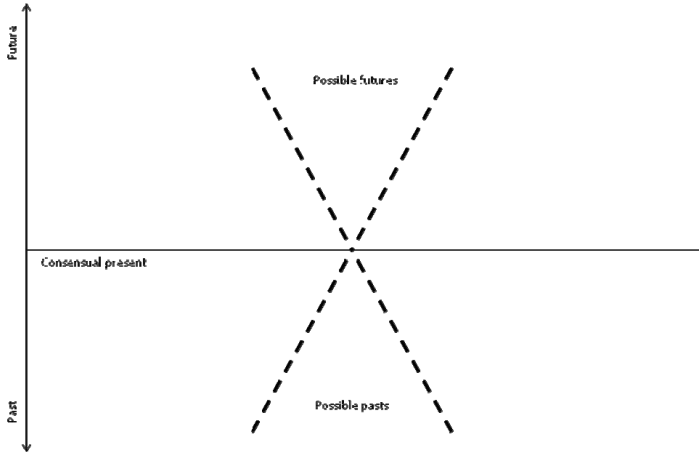
Figure 1: Classical temporal thinking model
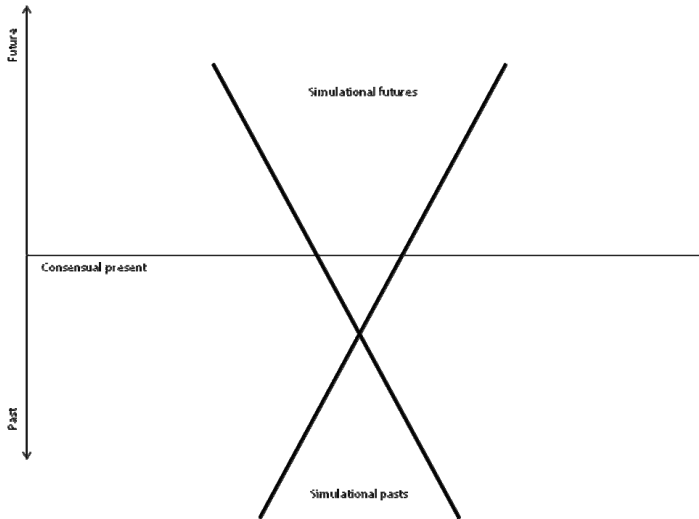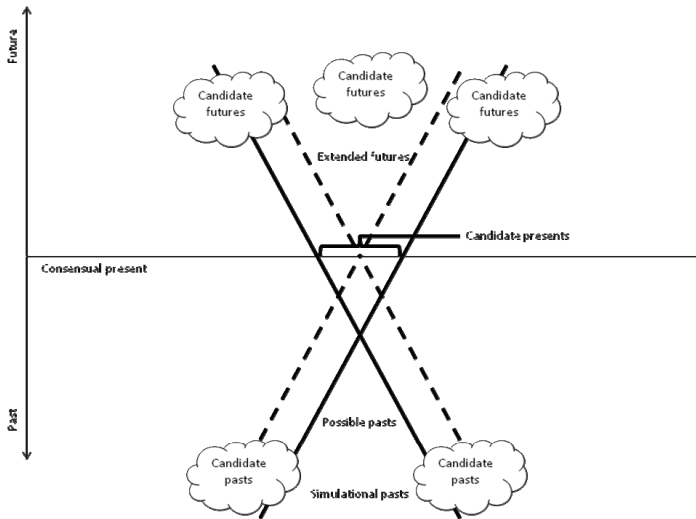

Figure 2: Time Shift model

Figure 3: Superimposing the two models, extending reality

Conclusion

Rapid change and new complexities now permit, and require, time to become more than an interval measure; it has become a critical resource in the generation of new sense making, knowledge construction, and decision alternatives. The conceptualization of time has migrated from a value-free phenomenon to be accepted to a value-rich resource to be developed. Such an advance requires post-Newtonian and post-Cartesian frameworks for the construction of meanings that re-conceptualize traditional understandings of temporal structures.

In many respects, we have tried to offer a creative intellectual technology based on focused imagination. In this work we have been influenced by the legacy of alternative histories, parallel universes, and the traditions of futures studies and development.

We caution that nothing in our thesis requires the diminution of other forms of time measurement, such as that provided by clocks, radioactivity, and so forth. To this point, we have argued that virtual time states can form a soft technology for planning and decision making only if they:

- Are not absolute, but hypothetical/virtual and subject to change;
- Exist only in relation to alternative perspectives and constructions;
- Are only conditionally verifiable, since their meanings are dependent on the characteristics of particular observers/constructors and their values and intentions.

The field of futures research is largely defined through its methodologies, or philosophies of method. Scientific futurists assert that discoveries of past, present, and future relationships (e.g., cycles, bifurcations, trajectories, and discontinuities) are best determined by methodological mechanics together with objective observations of phenomenological properties. However, our modeling and its intellectual technology are more concerned with the invention rather than the discovery of temporal patterns and processes in phenomenological events. A central tenet of temporal grounding is that different depictions of virtual pasts, presents and futures, and their associations, can be the professional products of human wishes, hopes, intentions and plans. Indeed, the process permits great extensions of grounded modeling, or the development of explanations to understand better our heuristic descriptions of virtual pasts, presents and futures.

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