TIME AND SOCIETY: A QUADRATIC THEORY OF TIME-CONSCIOUSNESS

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ABSTRACT

A general theory of the relationship between social organization and time-consciousness is presented. A model of time-consciousness is presented. A seven-part model of patterned-cyclical time-consciousness is constructed, inductively, from analysis of ethnographic and other studies of Australian Aborigines. When these aspects of patterned-cyclical time are turned into their opposites, the result is a full description of ordinary-linear time, based on clocks, calendars, and schedules. The gestalt-synthetic and logico-analytic modes of information processing of the left and right hemispheres of the brain are the infrastructure for these two kinds of time. A second temporal polarity is that between immediate-participatory time, which mindfully compresses future and past into the present, and episodic-futural time, which stretches temporal experience into future and past. The infrastructure for this polarity is the participatory processing of posterior cortex and the episodic processing of the frontal lobes and associated limbic structures.

INTRODUCTION

What distinguished human beings from the rest of the animal world? 'Intelligence' has been a keyword in answer to this philosophical and scientific question. One approach to this problem has been that of psychometric testing, the effort to measure and compare individual and group differences in the quality and effectiveness of mental functioning. An alternative approach is to study the use of important *categories* of human reasoning. In every culture the major notions used to conceptualize reality are what Aristotle called 'categories of the understanding'–including the seen and the unseen, the present and the absent, the changing and the changeless, matter and spirit. But the cosmologies, epistemologies, and metaphysics of modern societies, capitalist and socialist alike, are based above all else on two such cosmic categories–time and space. Perhaps the most basic aspect of a person's mentality is the way in which the major categories of life are lived. Of these categories, the person's experience of time and space are arguably the most fundamental. The essential categories of understanding that dominate our intellectual life, Durkheim explained,

> correspond to the most universal properties of things. They are like the solid frame which encloses all thought...for it seems that we cannot think of objects that are not in time and space, which have no number, etc.... They are like the framework of the intelligence. (1965 21-22)

While time and space are inseparable, time retains a certain priority over space in modern societies (Whitrow 1989 *vi-vii*). This priority, however, as will be shown in many ways, is nearly reversed among members of indigenous, oral cultures, such as the Australian Aborigines, where considerations of time are easily and commonly recast in terms of space.

In the sociological, anthropological, and related literatures on time and temporality, there are several empirical generalizations that, on the surface, would seem to be well-established. The literatures of this subject, from the 1920s to the present, reveal a general consensus that Western people have a 'linear' perspective on time, and that they tend to be 'future-oriented'. Additionally, it is known in the study of time and sociology (Adam 1990) and in social anthropology (Gell 1996), that members of 'primitive', preliterate, and pre-technological cultures have a 'holistic', 'cyclical' view of time that is a synoptic, all-at-once gestalt (e.g. Barnes 1974), and are also present-oriented. There is also evidence, in the social scientific literature, that these cross-cultural differences in time consciousness are somehow related to the cultural evolution of social life. For example, it is well-established that in hunting-and-gathering, preliterate, and tribal societies, communal social relations are given great emphasis, and that, in many instances, they show a remarkable insistence on a principal of social equality (Itani 1988). And in modern, Western societies, and far beyond, social relations of course *include* communal and equality-based informal social relations, but

in addition are organized in a more formal way, with an emphasis on economic activity, and on relations of social inequality and social hierarchy. In spite of these generalizations, there remains much to do in the study of time and social organization in an evolutionary context.

First, there remain daunting problems of concept definition. The linear-cyclical distinction is assumed and taken-for-granted by many 'temporal dualists' but is rejected out of hand by those who reject all kinds of 'dualistic' reasoning. Cyclical time is fundamentally a metaphor that might or might not include 'alternating' or 'flattened' time and remains badly in need of a clear definition (see Gell 1996 30-36, 84-85, 91-92) and linear time, assumed by many, is based on the thinnest of rationales to be the 'opposite' of cyclical time, and is in addition all too often assumed to have a clear meaning needing no definitional elaboration. A second distinction is that between a present or near-present orientation and of future orientation, which presents its own problems of clear conceptualization. Beyond these four concepts that are often, but not always, contrasted as two *pairs* of temporal orientation, of linear vs. cyclical, and of present/past vs. future, there are of course nearly endless ways to conceptualize temporal experience, but it should be conceded premature to give up on these broad notions of time awareness, because they are of fundamental importance and can be considered culturally universal cognitive structures. Attention is confined to four kinds of time-consciousness: cyclical, linear, present-oriented, and futuristit.

A seven-part definition of 'cyclical' time, which will be called 'patterned cyclical', has been developed inductively through a protracted study of the 'primitive' civilization with *the* most elaborated study of its time orientation, the Australian Aborigines. It will be found that when these seven aspects of patterned, cyclical time are, as a methodological operation, turned into their opposites or near-opposites, the result is a fully adequate definition of our ordinary, linear notion of time, based as it is on clocks, calendars, schedules, timetables. Neither of these two kinds of time-consciousness are dualities, and both can be regarded as, and measured as, continuous variables, so that cross-cultural differences are a matter not of kind but of degree. An effort is also needed, and made here, to clearly define present-oriented and future-oriented kinds of time consciousness. Moreover, these resulting definitions can and will be *criterion-validated* through showing that they are important aspects of the four most general kinds of information processing that contemporary cognitive neuroscience has been able to associate with the functioning of the organ of all thought and symbolic reason, the human brain.

There are also serious conceptual difficulties in relating social organization to time-consciousness. For example, it has been established in social anthropology and sociology that members of primitive culture tend in their social life to emphasize communal social relationships and hold to a principle of social equality. But how, in these cultures, are the social relations and forms of time-consciousness related? Might their cyclicity of time orientation be related to communal social relationships, or to effort to establish social equality, or to both, or to their interactions? And might their present-orientation result from communal interactions, or from equality in interactions, or from both, or from their interactions?

A similar situation obtains in the study of time in modern society. For modern, Western societies, there is, again, a vast literature linking industrialization, capitalism, urbanization, post-modernization, and other social macro-processes to both the linearity and to future orientation. These social macro-processes involve *social relations* based on economics and politics. There are other ways to conceptualize participation in modern life, but here attention is based on relations of money and power. There certainly would seem to be a consensus that market-pricing and authority-ranking social relations influence the modern tendency toward linearity and futurality, but again it is far from clear how these social variables and cognitive variable are linked. Is it economic relations that make us linear thinkers, or is it relations of social power that have this effect, or is it a combination of both? And what makes us futural in our temporal orientation? Is it economic social relations, or power-based social relations, or both? In the theory to be presented, four kinds of time-consciousness will be paired, in four propositions, to the *positive* experiences of four social relations. In one of these pairings, however, which sees linearity of time-conscious-

ness as influenced by market-oriented, economic social relations, we will be in for a surprise with respect to culture and the *valence* of involvement in market-pricing social relations.

Two theoretical possibilities which have not been raised in the study of time and societal development, are: 1) that cyclicity and present-orientation, which are obviously complementary and closely linked, might together form an *emergent* level of time time-consciousness; and 2) that linear and futural time orientations, which are also complementary and closely linked, might also interact to form an *emergent* level of time-consciousness. We have referred to four aspects of social relations that also seem to pair in a natural way. First, communal-sharing and market-pricing social relations, involving the principles of communion and agency, respectively, can be seen as opposite in meaning. And second, in instances of hierarchical, authority-based relations being set aside, or suspended, the result is an opposite situation, a *conditional equality.* It is also important to consider the valences of these social relations. Communal-sharing social relations are positive as we enjoy the company of companions, community members, and friends, but are negative as relations become hostile, abusive, and destructive. Thus, will, in the process of theory construction, confine attention to four social relations, which include eight variables. It will be proposed: 3) that communal-sharing and equality-based social relations, which are complementary in any society, and together are apt to be fundamental to primitive societies, together and in their interactions result in a higher-level social-organization, the basis of informal sociality, that can be called *hedonic community*; and 4) that economic and political social relations, which are also complementary and prevail in modern societies, result in a higher-level of social organization, the basis of formal sociality, that can be called *agonic society* (Chance 1988). This model finds its basis and its criterion-validation in primate and human ethology.

The theory requires two models, one of time-consciousness and one of social organization. Once this theory is presented, a methodology for the measurement of time-consciousness variables will be presented, along with a dataset with which the theory can be examined empirically. The data will be described and the proposition of the theory will be put to the test. The theory is tested in Part III by means of a radical cross-cultural comparison, that between Australian-Aborigines and Euro-Australians, which are viewed as exemplars of oral, indigenous and modern, Western culture. To this end, a lexical level content-analytic methodology is introduced, to create multiple indicators of eight social-relations variables (the negative and positive experiences of equality matching, communal sharing, authority ranking and market pricing) and of four time-consciousness variables. The data set consists of 658 transcripts of life-historical interviews with Aborigines and Euro-Australians obtained from throughout Australia in a wide range of ecological settings.

Regression analysis is made for each of the six propositions of the theory. In these analyses, the differences between Aboriginal and Euro-Australian forms of time-consciousness will be made clear, as will sex differences in time-consciousness. The variables Culture and Sex will be *controlled* as we examine the predicted relationships between social relations variables and time-consciousness variables.

A MODEL OF TIME-CONSCIOUSNESS

Aristotle, in his *Physica,* defined time as the measure of motion, and of rest, as he asserted, "For this is time: that which is counted in the movement which we encounter within the horizon of the earlier and the later" (1936). In the modern world this view of time, as a single dimension reaching from the past into the future, has been institutionalized and globally standardized by means of clocks, calendars, and schedules. This kind of time, that Heidegger called ordinary time, will be termed *ordinary-linear*, has in the modern world enjoyed a historically privileged place. Equally 'ordinary' has been the belief that while linear time is a unitary concept, there exists at least one more kind of time, an inference that follows from the intuitive senses of time as mentally and physiologically experienced duration and of human temporality, our certainty of a limited, finite life span. There are a wide variety of contrasting terms that are used to distinguish two meanings of time, including linear/cyclical, objective/subjective, cosmic/existential, quantitative/qualitative, time-as-measured/time-as-experienced (Wood 1989 13). It has

long been claimed by philosophers concerned with time and temporality that there is something amiss, even wrong, with this 'ordinary' concept of time. Critique of linear time has been advanced, e.g., by Derrida (1981) as a 'deconstruction' of 'chronophonism'. But ordinary, linear time is not an easy target for conceptual deconstruction because a concept must be constructed before it can be deconstructed, and the postmodernist deconstructionists in their critique of linearity have carried out no such construction.

Rather than assume the meaning of linear time, and then look for nonlinear time, an analysis of an archaic but extant time-consciousness—that of the tribal-living, tradition-maintaining Australian Aborigines, was carried out first. The result of this effort was a seven-part model of a *patterned-cyclical* time-consciousness (TenHouten 1999 126-33; Forthcoming). It is:

P1. Dualistic, split into two levels of reality, the sacred inner reality and the profane outer reality (Durkheim 1965; Munn 1970; Stanner 1979; Myers 1991). Durkheim (1965 488) saw the collective representation of the organization of society through temporal rhythms of everyday life being punctuated by extraordinary rituals in which the ancestral creator-beings of their inner reality are believed to signal their presence.

P2. A fusion of the past and the present: there is, for example, in significant ritual interactions a subtle manifestation of a sacred, inner reality fusing two separate levels of reality into a dialectical whole (Elkin 1979; Stanner 1979 24).

P3. Irregular, discontinuous, and heterogeneous: being made so, e.g., by the ritual alternation of profane and sacred times (Durkheim 1965 250).

P4. Event-oriented: In Aboriginal thought there is nothing beyond events themselves. This is entirely apparent in their cosmology, including sacred ceremonies and social dances which lack any reference to ultimate pre-event origins. As Swain (1993 19) put it: "For Aborigines, there is nothing more fundamental than the statement: events occur."

P5. Cyclical and based on overlapping and interdependent patterns and oscillations: Cyclicity pertains to four aspects of life–to cosmology and religious life, to natural and social cycles, to ceremonial cycles of the year, and to cycles embedded in Aboriginal social organization (importantly including reincarnation cycles) (Stanner 1979).

P6. Qualitative, with time existing on a multiplicity of levels which are synthesized not by logic or verbal clarification but rather by qualitative assessment of interdependent social and natural phenomena (Harris 1984 17; Rudder 1983).

P7. Based on the experience of long duration: There is in Aboriginal society a premium on likemindedness. Discussions in meetings, e.g., will typically not be based on a choice between two alternatives, but rather on a patient inching toward a collective consensus regarding events and consensus in times of troubles (Liberman 1985). The notion of long duration was given vitality by Whorf (1941), who described a 'ceaseless latering of events' embedded in the very grammar of the Hopi language, so that time is not a motion on a continuum but rather an accumulation and an intensification of events.

The opposites, or near-opposites, of these seven features of patterned-cyclical time provide a full description of time as a single dimension:

L1. Linear: the time-line is a single dimension;

L2. The present is linked, in a virtual fusion, to the future; linear time can be partitioned into past, present, and future merely by fixing the now as a point on the time-line;

L3. It is a measure of regular and homogeneous motion;

L4. Time-measurements are based on the use of clocks, calendars, and schedules;

L5. There is a diachronic ordering of events, a before and an after, a division of the time-line into past, present, and future;

L6. Measurement is quantitative, having a natural or arbitrary zero point; and

L7. Linear time can be imagined to be fleeting and 'flying by' along its single dimension.

It is not at all difficult to relate these two kinds of time-consciousness to the specialized information processing of the two cerebral hemispheres of the human brain. In the right-handed adult it is usually, but not al-

ways, the case that the left hemisphere (LH) and the right hemisphere (RH) are specialized for different modes of information processing (Bouma 1990; Davidson & Hugdahl 1995).

The right hemisphere is specialized for spatial, configurational, gestalt-oriented, pattern-recognition processes, such as face recognition, visual orientation, topographical orientation, and the tonal aspects of music. The RH is not devoid of language, as it participates in pragmatic and semantic as opposed to syntactic language use, and is involved in intonation, gesture, and prosody. The RH is important for spatial exploration, spatial orientation, visuoconstructive tasks, grasping and copying designs, visual memory, and visual closure or gestalt-completion. It is specialized for *simultaneous* stimulus processing, which lends to it capability for face and object recognition, facial-expression recognition and the melodic and chord-processing aspects of music. It synthesizes information from the environment; it recognizes forms, things, arrangements; it imagines, symbolizes, engages in visual closure (gestalts), and possesses a sense of totality.

The left hemisphere, in contrast, is specialized for verbal and nonverbal information that is asymmetrical and processed as a *sequence*. It is specialized for decoding and producing speech, naming and codifying, semantic relations, and for the meaning of words. The human use of complex tools, including language, requires thought that is sequential and uses syntactic mechanisms for generating new sequences according to grammatical rules.

The LH is involved in classifying and categorizing, programming rapid motor sequences, and for time-ordered stimulus sequencing. Insofar as 'linear' time can be thought of as an ordered sequence of moments, it is a specialization of the left cerebral hemisphere. On this, Bogen (1977 141, emphasis in text) writes of

> [w]hat may well be the most important distinction between the left and right hemisphere modes [of information processing,] ...the extent to which a linear *concept* of time participates in the [LH's] ordering of thought.

LH damage results in poor perception of sequence, whereas RH damage does not.

It is proposed–in contradistinction to Bergson (1910) and all other temporal dualists who restrict time to a single duality–that there exist, in addition to the ordinary-linear/patterned-cyclical polarity, a second polarity, consisting of exactly two additional forms of nonlinear time-consciousness–the episodic-futural and the immediate-participatory (for a fuller statement, see TenHouten 1998).

The timing, sequencing, and rhythmic organization of daily activities in the modern world depends on, but also goes beyond, being a mere 'linear' orientation, for such a notion of time refers not only to mundane routines but also to the uses of memory and intention along the past-present-future axis, in an effort to construct the future. Here, progress becomes a key concept, according to which the past is unrepeatable, the present is transient (L7), but the future is both infinite and exploitable. Heidegger's (1962) main contribution was his explication of this kind of temporality, which he disclosed through his study of the relationship between Being and Time. He saw that the unity of this primordial temporality is characterized by a priority of the future over the present, such that our experience of temporality exists not as a point on a time-line but rather as a temporality stretched into past and future. But what is it that is stretched? It is, by definition, the *episode* that is stretched. It is the person working toward specific aims and objectives that does the stretching, by means of a mental process constitutive of conation, as the thinker works with intentionality along a past-present-future complex. Because the past-present-future continuum also implies linear time, we can see that there is an intimate and complementary relationship between episodic-futural temporality and linear time-consciousness (TenHouten 1998), which is constitutive of a *Rational* time-experience.

Attunement to the environing nature, a mode of thought highly developed in oral, indigenous cultures, Abram explains, "is linked to a more primordial, *participatory* mode of perception... [P]erception is *always* participatory" (1996 27 emphasis added; 276 emphasis in text). This participatory mode of information processing has been shown by phenomenologists such as Husserl (1960) and Merleau-Ponty (1962) to turn toward the things themselves, the world itself, "as it is experienced in its felt immediacy." This intersubjective life-world (*Lebenswelt*) is, as Hus-

serl explained, the world of our immediately lived experience. Equality-matching, it is proposed, involves efforts to attaining, and maintaining, an equivalence of thought, mood, and behavior, i.e., a likemindedness. Immediate, participatory time-consciousness, then, is involvement with, and participation in, what is perceptually judged to be happening in the present; it is an immersion in the here and now. In this temporality of the ordinary, everyday life both the before and the after are contingent upon the now. This present-oriented temporality is brought about through real exertion and effective concentration in the now, in the knife-edged present moment, which, is of a single thought in which both past and future are *compressed* into a primordial immediacy. Their experience of this kind of time-consciousness is consistent with what James (1890) and Whitehead (1930) called the 'unifying moment' and the 'specious present' (Eisendrath 1971 48-51).

Just as linear and patterned-cyclical kinds of time-consciousness have as their biological bases the cognitive specializations of the LH and RH, episodic-futural and immediate-participatory temporalities have as their basis the workings of frontal and posterior cortical lobes, respectively, as is well-established in cognitive neuroscience.

The frontal lobes regulate the 'active state' of the organism, control the basic elements of the subjects' intentions, program complex forms of activity, and continually monitor all aspects of activity (Luria 1973 187-221). In order to act with intentionality, it is necessary that the frontal lobes are able to evaluate the results of one's own actions. The frontal lobes carry out a complex process of matching actions carried out with initial intentions, to evaluate success and error, so that actions can be corrected and modified as necessary. They abstract certain features from perceptual images and recombine these abstractions into models, which form the basis of decision-making and action. Sensory inputs not screened out by habituation are fitted into these images, or used as indexical summaries in episodic processing (Pribram 1981). These abstract mental images, or category prototypes, of prospective conduct enable rehearsal, in the mind, of acts. The frontal lobes constitute the command and control center of the brain. They are strongly connected to the parvicellular portions of the mediodorsal nucleus, which is phylogenetically the most recent thalamic area to evolve, and is the highest association area in the brain. The prefrontal cortex directly projects to and receives afference from cingulate and other limbic structures, which are heavily involved in the emotions. The brain regions most involved in intentional functions are the dorsolateral and orbital regions of prefrontal cortex (Fuster 1980). The principal and lateral dorsal limbic nuclei have an absolutely and relatively greater number of nerve cells in modern humans than in studied species of great ape (*pongid*) and of lesser ape (*hylobatid*). The larger size of these features might well modulate the integration of emotion and cognition, relaying a larger emotional component into the posterior cingulate gyrus (attention) and the posterior association areas (Armstrong 1991). This might help focus attention directed toward the external environment and enhance cause-and-effect reasoning and a Heideggerian 'anticipatory resoluteness'. The coordinated workings of thought and action across a temporal stretch define an *episode*. Episodic processing is not a neutral instrument of rationality. On the contrary, episodic processing is closely bound to emotional responses, which are important because the exercise of human reason requires a close interaction between "rational and emotional proclivities" (Boyle 1985 65). The emotionality of episodic processing has as its source the close anatomical connection between the frontal lobes and the limbic system. The development of the frontal lobes out of the limbic system is arguably the development of the human brain that most separates us from lower species and from the other primates such as chimpanzees.

There exists a dynamic, multi-level communication between posterior cortex, with its sense perception, and the frontal lobes and associated limbic structures. Channels of sensory information (other than olfactory) enters cortex at the primary association areas located behind the one-third of the cortex occupied by the frontal lobes. In both cerebral hemispheres, we find three lobes--the parietal (somatic, spatial), occipital (visual), and the temporal (auditory). All three sensory areas send information to any next highest association area(s) and to the prefrontal cortex. Sensory information enters the brain's cortex at the primary association areas, then is sent to adjacent 'secondary' and

'tertiary' association areas in these same posterior lobes, where the logical-analytic and gestalt-synthetic processing of the left and right hemispheres is accomplished. Thus there exists throughout the waking, conscious state of mind a never-ending complex, multilevel 'conversation' between the prefrontal and posterior areas of the brain. There are three major pathways originating in the somatic, visual, and auditory systems that converge on contiguous, but discreet areas of prefrontal cortex (Fuster 1980). Thus, among its many other duties, the prefrontal cortex functions as a multimodal sensory association area, which is concerned with 'egocentric spatial orientation' toward discreet events in sensorial space, and which also persistently integrates information about these events.

Just as our social relationship model consists of four elements that consist of two pairs of opposites and two pairs of complements, the present model of time-consciousness has the same logical structure and can on this basis be referred to as the *temporal quaternio*. It has been shown that patterned-cyclical and ordinary-linear kinds of time are opposites, because the seven aspects of patterned-cyclical time, P1-P7, when turned into their opposites, L1-L7, results in a full description of ordinary-linear time. When we examined the more general modes of thought of which patterned-cyclical and ordinary-linear time are based, the gestalt-synthetic and the logical-analytic, we further discovered that they, to some extent, are based on opposite principles of *simultaneous* and *sequential* information processing, respectively. And it has also been proposed that immediate-participatory and episodic-futural kinds of time-consciousness are also opposites, on the ground that the former requires a temporal *compression* of the present and future into the present, whereas the latter requires a temporal *stretching* of the present into both the past and the future. And when we look at the biological bases of these two kinds of time, the participatory and the episodic information of the posterior cortex and the frontal lobes, it was found that there is a 'dialectical' relationship between them, which Laughlin (1988) terms the prefronto-sensorial polarity principle.

Just as there is opposition, so there is also complementarity. There is a broad complementarity of immediate-participatory and patterned-cyclical time among the Aborigines. Consider an example from Sanson, who describes the process of reaching consensus among the fringe-dwellers of Darwin. Participation in the construction of a consensus, the 'word', takes the form of progressive recruitment of people to reveal the details of the story, thereby bearing witness, and engaging in the embodied work of righting and straightening a 'blaming' story. It would not be unusual for a primary witness to speak for hours in contributing to the story. Such a story is considered made "when all the righted details have been fitted together" (Sansom 1980 130). The blamed person will submit to the story and endure the patent social isolation of a person intentionally made lonely. The *gestalt* consisting of the entire social groups determinations needs to be *au courant*, up to the minute, so that people coming and going need to be updated with respect to the happening of important events. The objectified definition derives from the way in which "the determination in a warrant establishes a relationship between the present and the near but determined past" (Sansom 1980 133). Thus, there develops a shared consensus, a gestalt, that is built up and which must be up-to-date, in the present. *This temporal experience is constitutive of Natural time.*

The dominant value system of the modern, advanced societies includes universal education, a belief in equal opportunities for economic success, an emphasis on achievement, and a striving to 'get ahead'. Struggle is expected for influence, power, prestige, and wealth. Training in commerce facilitates the attainment of high status ranking in modern, capitalistic societies. Much of the world of commerce, such as banks and insurance companies, are based on a striving for the future. What is required of the successful individual's personality is a sense of ambition, initiative, and competitiveness. Very central to the reproduction of this value system is to learn early the importance of time in the struggle to get ahead. Striving for future economic success is linked to the mastery of ordinary-linear time and, more generally, on the attainment of logical-analytic reasoning skills, the result being an immersion in agonic society and the accomplishment of a rational time orientation. There is a complementarity of linear, clock time and episodic-futural time. Heidegger realized and made

clear, as we have seen, that future-directed action taken over time is apt to be described by members of modern societies in terms of *ordinary* time, such that accomplishment of objectives comes to be seen as being realized at some point in ordinary time in the future, perhaps as some date on the calendar marking a deadline. Heidegger, *to his credit*, has not gone entirely beyond and fully negated the concept of ordinary-linear time, as at least an approximate beginning and an approximated future end typically bind the temporal stretch, possessing the characteristic of *dateability*. Thus, ecstatic-futural, primordial temporality is, in the everyday modern world, described, either directly or indirectly, in a context of linear time. The tasks of life are never finished, and our goals, as we meet them, are talked about and scheduled in terms of clock- and calendrical-based time. There is thus, at least potentially, a veritable fusion of ordinary-linear time and episodic-futural time, which together can potentially result in a higher-level, *rational* time-awareness. *There is thus a fundamental complementarity of episodic-futural and ordinary-linear time, crystallized in the attainment of a Rational time awareness.*

[The cumulative references are at the end of the third part: "A Cross-Cultural Study".]