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A note on three equations for consciousness

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Abstract

Three new metatheoretical equations for total human consciousness, primary consciousness and secondary consciousness are presented. These equations are based on five fundamental entities underlying cosmic evolution: energy, matter, life, mind and culture. It is hoped that these equations may have some heuristic value for those workers who wish to appreciate the psychological process of consciousness as an integral part of the whole big picture of cosmic evolution.

A note on three equations for consciousness

This note presents three metatheoretical equations for human consciousness that describe:

- (1) total human consciousness (THC);
- (2) primary consciousness (PC); and,
- (3) secondary consciousness (SC).

These equations are presented in terms of five fundamental, metatheoretical, third-person, psychological intervening variables that interact within human psyches to generate consciousness. The five fundamental variables chosen were: energy, matter, life, mind and culture.

The fundamental principle adopted in this work is that these five entities emerged as the basic interactive realities of cosmic evolution and that each entity became a part of a new interaction term as the evolutionary antecedent for the next higher level of organization.

This work is metatheoretical in the sense that it is presented here under the following definition that is my combination of the definitions for ‘**metapsychology**’ and for ‘**metatheory**’ contained in the APA Dictionary of Psychology (2015, p.646):

metatheoretical *a higher-order theory about theories that involves a concern for the fundamental underlying principles and entities of any psychology.*

It should be noted at the outset that, at our current state of knowledge, it is not yet possible to provide valid, precise scientific measurements for all of the intra-organismic intervening variables between stimulus and response contained in these equations. However, these equations were developed in the belief that these variables are, in principle, fundamental measurable entities that interact within humans to produce human consciousness.

These equations are presented in the hopes that they may contain some degree of heuristic value to those who seek to examine the ‘big picture’ of cosmic evolution in terms of the fundamental entities of the cosmos that gave rise to human consciousness.

Background for the equations

For some time now, the present writer (Montare, 1996, 2000, 2019) has attempted to develop an overall, universal, metatheoretical framework for the study of a “cosmological psychology” as part of an overall cosmic evolution that would provide an evolutionary synthesis of cosmological, physical, biological,

psychological, and sociological evolution; and that would include the fundamental natural entities of: energy, matter, life, mind and culture.

In this scenario, inherent to Table 1 below, human consciousness (THC) is taken to be a part of the mind that is a composite wherein THC itself is composed of primary consciousness (PC) that is theorized to contain concrete, primary knowledge that has emerged endogenously at Stage 4 as part of the bottom-up process of human speciation; and, secondary consciousness (SC) that is theorized to contain abstract, secondary knowledge that has developed exogenously at Stage 4 from the learned acquisitions of human young by the top-down process of human socialization from Stage 5.

Table 1, adapted from Montare (2019, p.16), shows such an evolutionary framework for the emergence of the hierarchical human mind and its consciousness.

Table 1 – Metatheoretical framework for a Cosmological Psychology

<u>Stage of Evolution</u>	<u>Level of organization</u>	<u>Fundamental interaction</u>
5. Sociogenesis	Sociological	energy x matter x life x mind x culture
4. Psychogenesis	Psychological	energy x matter x life x mind
3. Biogenesis	Physiological	energy x matter x life
2. Baryogenesis	Physical	energy x matter
1. Cosmogenesis	Primordial Big Bang	energy

The first column of Table 1 must be read as a bottom-up, hierarchical progression so that the cosmological stages of evolution are shown as progressing from the lowest fundamental interactions during cosmogenesis at Stage 1 to higher-order interactions during sociogenesis at Stage 5. The second column shows the five stages as levels of increasing complexity of organization from the primordial Big Bang at Stage 1 at bottom to the sociological level of organization at Stage 5 at top. The third column shows the fundamental interactions that are theorized to occur at each Stage. As mentioned above, the chosen fundamental interactions for the elaboration of this cosmological psychology are: energy, matter, life, mind and culture. For a more complete elaboration of these ideas see Montare (2019).

The evolutionary story that is inherent in Table 1 was described by Montare (2019, p. 17) as follows:

In Table 1 the emergence of mind is taken to be an integral part of the cosmological evolutionary progression set into motion some 13.8 billion years ago when our universe probably began in an incredibly hot and unimaginably dense point-event of pure, primordial energy [Stage 1 – primordial organization following the Big Bang]. Energy somehow rather quickly expanded and cooled down enough for matter to exist and thereby formed the multiplicative energy-by-matter interaction that still constitutes the physical foundation of our present-day universe [Stage 2 – physical organization]. Some 3.85 billion years ago the energy-by-matter interaction somehow created the life forms that have continuously existed on our planet from almost as soon as it cooled from the original heat of its creation [Stage 3 – physiological organization]. Some several million years ago energy, matter and life combined to produce the energy-by-matter-by-life-by-mind interaction that very soon set down the antecedent conditions for the emergence of the primary/individual/ inherited human mind and its primary consciousness [Stage 4 – psychological organization]. And finally, some tens of thousands of years ago, the social networks produced by the cumulative interactions of individual human minds created our human cultures which today serve as the foundations for the developmental emergence in our young of learned acquisitions which constitute the secondary/collective-/acquired human mind and its secondary consciousness, that over time transform neonatal homo sapiens into socialized adults [Stage 5 – sociological organization]. (adapted from Montare, 2000, p. 4)

Therefore, this note presents the equations for consciousness as a part of our whole cosmological metatheoretical framework when it is applied to the psychology of human consciousness as a composite of primary and secondary consciousness.

The equation for total human consciousness (THC)

The equation for total human consciousness (THC) is presented as:

$$\text{THC}_{\text{st}} = f [(\text{PC}) (\text{SC})] \quad [\text{Equation 1}]$$

where total human consciousness (THC) at any given psychological event, within any sentient human organism, at any given coordinates of spacetime (st), is equal

to (=), a function (f), of the multiplicative interaction of primary consciousness (PC) with secondary consciousness (SC).

This simple formulation for total human consciousness can serve to remind any worker of the proposed multiplicative relationship between primary and secondary consciousness. Primary and secondary consciousness are placed in a multiplicative interaction term that can be interpreted to mean that once the two forms of consciousness are successfully acquired by young humans, the product of their interaction can be greater, if not different, from the sum, or product, of the parts.

An example from chemistry that would occur at Stage 2 shows that common table salt, (Na=sodium)(CL=chlorine) is quite different than either of its two multiplicatively-interacting atomic constituents (atomic sodium is a metal) and (atomic chlorine is a gas). Just as sodium and chlorine are not simply added to produce table salt, primary and secondary consciousness are not simply added to produce total consciousness.

One can invoke a basic formulation from Gestalt psychology and conclude that total consciousness as the resultant product of a multiplicative interaction is greater than the simple sum of primary and secondary consciousness.

The equation for primary consciousness (PC)

The equation for primary consciousness is presented as:

$$PC_{st} = f [(energy) (matter) (life) (mind)] \quad [Equation 2]$$

where primary consciousness (PC), at any given event, at any given coordinates of spacetime (st), is equal to (=), a function (f), of the multiplicative interaction of the fundamental cosmological entities of: energy, matter, life, and mind.

The equation for secondary consciousness (SC)

The equation for secondary consciousness (SC) at any given event in spacetime (st) is presented as:

$$SC_{st} = f [(energy) (matter) (life) (mind) (culture)] \quad [Equation 3]$$

where secondary consciousness (SC), of any given event, at any given coordinates of spacetime (st), is equal to a function (f) of the multiplicative interaction of the fundamental cosmological entities of: energy, matter, life, mind and culture.

The present set of equations share some similarities with the Drake Equation for the number of advanced technical civilizations in the Milky Way Galaxy (see Sagan, 1980, pp. 298-302). The most important shared characteristic is that our three equations and the Drake Equation contain terms in their respective scientific fields that are not measurable at our state of scientific knowledge. However, both equations were developed with a common goal: to provide some heuristic value by showing the direction of what must be achieved if precise measurements are to be reached in the future.

The Sperry statement

Our overall strategy of attempting to employ the metatheoretical framework incorporated in the three equations for human consciousness herein presented shares the concerns noted by Sperry (1983) that lower levels of organization should be accounted for in the analysis of psychological-level mental events and properties. Sperry stated that:

When trying to visualize mental properties as they have been described, it is important to keep in mind the fact that all of the simpler, more primitive, electric, atomic, molecular, cellular, and physiological forces remain present, of course, and they all continue to operate. None has been cancelled, but these lower level forces and properties have been superseded, encompassed, as it were, by those forces of successively higher organizational entities. We must remember in particular that, for the transmission of nerve impulses, all of the usual electrical, chemical and physiological laws still apply at the level of the cell, the fiber, and the synaptic junction. We must remember further that the proper function in the uppermost level always depends on normal operation at subsidiary levels. (Sperry, 1983, p.35)

It should be noted that our equations are based upon the idea that lower level entities should not only be accounted for on a one-by-one basis as suggested by Sperry; but, in addition, as cumulative interactions as shown in our three equations for human consciousness.

Summary and conclusions

It is suggested that these equations may serve as heuristic guidelines in the search for a further understanding of the nature and structure of total human

consciousness (THC), primary consciousness (PC) and secondary consciousness (SC) and of their place in cosmic evolution.

Finally, the essence of this work may be expressed as the rather ambitious attempt to begin to synthesize the interactions that make up the physical, physiological, psychological and sociological foundations of the human mind and its consciousness composed of a primary and a secondary level of consciousness.

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