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God-free energy and evolutionary epistemology

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This article investigates the reasons behind interwovenness and the profound philosophical thought that a God must be a part of the brain's predictive processing entropies. The article accomplishes this by utilising South African theologian Wentzel J. van Huyssteen's epistemological consciousness as an added benefit in examining our planet and, as a result, our cosmic universe, which transcends human God notions. This article caters for academics interested in the science-religion dispute on the existence of life inside the integrated metaphysical God. In this article, the connection between metaphysicality, free energy and Van Huyssteen's epistemic consciousness is used as metaphor(s) in our estimates of what life is, which includes a God, as it will show that we as humans can reasonably expect to exist beyond this (the) Earth. It is therefore the primary question that resonates with the whole of the universe as well as the minute fragmentation that is humans, only recently identified as sapiens, that sigh, or even better, long for a God, that encloses the question of: are we as humans made of, organs, metabolic systems, cells, atoms, memories or passions, that are a plausible mixture of an effective cognitive and affective cocktail, so to speak?

Intradisciplinary and/or interdisciplinary implications: This article proposes a dual paradox that theology and science are not only in opposition yet are, juxtaposing (therefore integrating) one another. They share a very astute understanding of free energy from both a mathematical (natural sciences) and philosophical (theological) evolutionary epistemological perspective.

Keywords: God; free energy; Van Huyssteen; neurobiology; cosmic thermobiology; evolutionary epistemology.

A Systematic Metaphysical interpretation of why God can be regarded as Free Energy from a theological-epistemological and mathematical point of view.

Introduction[1]

In the uncertain years from 2020 to 2024 marked by the coronavirus disease 2019 (COVID-19), the War in Ukraine, loadshedding in South Africa and rising living costs globally, I became increasingly frustrated as I delved into the processing theories (entropies) of the brain, particularly Karl Friston's work on 'free energy'. Initially, I felt depressed for not grasping this processing theory in the brain that is called free energy; however, I intuitively knew that if I persisted, I would perhaps derive something (perhaps a metaphysical responsibility[2]) from it. As a philosophical theologian, I realised that I was not alone in the world (not suggested as a punt to Van Huyssteen's *Alone in the world* [2006]) in not-understanding Karl-Friston Internet fandom: 'undivided with its own parody Twitter account and Markov blanket memes'. As an example, from the journal *Neuropsychoanalysis* (in Alexander 2018:1), Alexander wrote:

> At Columbia's psychiatry department, I (Alexander) recently led a journal club for 15 PET and fMRI researchers, PhDs and MDs all, with well over $10 million in NIH grants between us, and we tried to understand Friston's 2010 Nature Reviews Neuroscience paper – for an hour and a half. There was a lot of mathematical knowledge in the room: three statisticians, two physicists, a physical chemist, a nuclear physicist, and a large group of neuroimagers – but apparently, we didn't have what it took. I met with a Princeton physicist, a Stanford neurophysiologist, a Cold Springs Harbor neurobiologist to discuss the paper. Again blanks, one and all. (p. 1)

1.Note that part of this article was used in a (2015) PhD with title *Die Derde Diskoers. 'n Sistematiese-Teologiese verantwoording van 'n epistemologiese perspektief ten opsigte van die teologie-wetenskap dialoog. Pretoria: University of Pretoria.* Can be viewed at: https://repository.up.ac.za/handle/2263/45095 by Johannes Albertus van Rooyen.
NB: Note that this article is part of a Special Collection titled 'Religious Experience from an evolutionary perspective', directed by Prof. Danie Veldsman, Department of Systematic and Historical Theology, Faculty of Theology and Religion, University of Pretoria.

2.A constant cognitive as well as affective realisation from the author as an embodied human that also wants to make sense of our world, our(my)selve(s) and God.

As the author of this article, I would have ordinarily at this time gave up and said, 'Screw-it'. However, I persevered and realised that the deeper I probed this processing theory (entropy) as free energy in the context of mathematical brain imaging, the more it is aligned with metaphysical[3] clarity than anything I have ever articulated.

As for free energy, it subsists to a designated and a tautological[4] brain theory (Friston 2010, in Alexander 2018:1), a clue that is buttoned up by: 'nearly every aspect of [brain] autonomy and physiology starts to make sense' (Friston 2010, in Alexander 2018). Therefore, the supplier (God through evolutionary processes) of the dexterity of biological systems is counteracting a natural proclivity to chaos or disorder. A paragon of how life inexorably and emergently originates from the primordial soup[5] and an authenticated life story of Isaac Asimov's[6] psychohistory.[7] And it is from here that I get the inclination that a responsibility of the enigma that is free energy as a sophisticated entropy persistence to be pre-owned in various and sundry measurements. Free energy, to me in this article, is then an infinite mathematical, as well as a metaphysical concept, in my own satisfied and convinced Bayesian[8] understanding of its comparison.[9] This brings me to the structure of this article.

Structure of this article[10]

To answer my question of whether we are made of organs, metabolic systems, cells, atoms, memories or passions, I will make use of two structures, namely: (1) the predictive processing theories of the brain as free energy, and (2) the work of Wentzel J. van Huyssteen to explore an answer to my question from within these structures.

Within the **first structure** regarding the predictive theories of the brain, I specifically work from the vantage point of the neuroscientist Karl Friston,[11] from the brilliant article written by Scott Alexander[12] *God help us, let's try to understand Friston on free energy* (2018). In short, Friston is helping to sense the entropy[13] of metaphysical entities in the human brain. And therefore, will this information be able to assist me as an author to deduce a 'yes' or a 'no' at the end of this article?

The **second structure** has its origin within four very important and sublime works from the South African theologian Wentzel J. van Huyssteen namely: (1) *Duet or Dual? Theology and science in a postmodern world* (1998a); (2), *Rethinking religion, and science: Six models for the current dialogue* (1998b); (3) *Faith and knowledge: Our common evolutionary heritage* (2000) and lastly (4) *Alone in the world? Human uniqueness in science and theology* (2006).

Hence, before we entertain the first structure, I would like to set a backdrop that will resonate with these two structures as it will then be more relevant in this article. This backdrop has to do with the changes in Western culture perception that have potentially altered, at least three major landscapes of Western Christian theology. My reason for doing this here has to do with the integrated expectation of interwovenness and juxtaposing that all two these structures presuppose and therefore predispose humans' needs for an acknowledgement of these structures in their epistemological (what we think we know) impact in their search for the meaning of their world and therefore survival. And yet again, even before this, that is free energy, is it important to mention precisely these three distinctive theological shifts that were made to enhance my own answer in this article? These shifts have relevance to the Gaia theory.

The Gaia theory: First, second and third shifts and its implications for theology

The backdrop for these three theological implications points to (if one appreciates it or not) that humans cannot

3.The author is also much aware that the most recondite rooted deviation in the tree of life is between Archaea and the Bacteria. The most recondite rooted in the metaphysics of life is between humans and their relationship with themselves and the universe in which they domicile. In this construction of their own epistemological framework, they hesitate and encompass and then surpass the whole of reality. Humans are caught in an interdisciplinary concoction of their transcendent immanence that they forget to acknowledge these very illuminating entities that are evolution, metaphysics and perceptive observation responsibilities towards themselves, earth and God. The Gaia moment is lost. The youthfulness of life itself has been lost by humans albeit not in its fullest capacity, yet humans are close to it. However, there is hope and a positive resonation with the rest of the article. It is not too late!

4.This article works with the affirmation that in logic, a tautology is a formula or assertion that is true in every possible interpretation. An example is 'x = y' or 'x ≠ y'. A less abstract example is the ball is all green, or the ball is not all green. This would be a tautology regardless of the colour of the ball. See 'Tautologic' in the sources used.

5.In the context of this article, the idea of the primordial soup was originally proposed by Alexander Oparin and John Haldane as a possible explanation for the creation of life on our planet. The theory states that if energy is added to the gasses that made up Earth's early atmosphere, the building blocks of life would be created. See 'primordial soup' in the sources used.

6.Psychohistory is a fictional science in Isaac Asimov's Foundation universe that combines history, sociology and mathematical statistics to make general predictions about the future behaviour of very large groups of people, such as the Galactic Empire. It was first introduced in four short stories (1942–1944), which was later be collected as the 1951 novel Foundation. See Asimov in sources used.

7.To be blunt, my covert has to do that I want to grasp Friston's fairly new understanding and exposition of depression, that is germane of my obsession as an embodied metaphysical human to try and understand this profound psychotic illness.

8.In statistics, the Bayesian information criterion (BIC) or Schwarz information criterion is a criterion for model selection among a finite set of models: the model with the lowest BIC is preferred. It is based, in part, on the likelihood function and it is closely related to the Akaike information criterion (AIC). See Bayesian in equations in sources used.

9.Also see Alianna Maren's *How to Read Karl Friston (In The Original Greek)*; Wilson and Golonka's *Free Energy: How the F*ck Does That* Work; Ecologically, Alius Magazine's interview with Friston, *Observing Ideas, and the ominously named Wo's Weblog* (in Alexander 2018:2).

10.Note that writing here regarding free energy and Van Huyssteen is only a distinctive and minute contextualisation, regarding both these entities of what can be said regarding free energy and Van Huyssteen. It is in no way a comprehensive saying(s) of what these two are all about, not at all!

11.Karl John Friston is a British neuroscientist at University College London and an authority on brain imaging.

12.Scott Alexander (1984–) is the penname of a Less Wrong-rationalist blogger and psychiatrist. After graduating with a bachelor's degree magna cum laude in Philosophy, he gained an MD and then completed a residency Wikipedia as a psychiatrist-in-training.

13.In the contents of this article, I will from time-to-time term the word entropy as an information theory, the entropy of a random variable where the average level of information, 'surprise' or 'uncertainty' used inherent in the variable's possible outcomes. An equivalent definition of entropy is the expected value of the self-information of a variable. My reason for doing this has to do with my own inclination that Free energy has also got to do with a perception of what God is, could be, or can be, as perceived in the human brain.

presuppose, as perhaps creationists do, that God postulated us on planet Earth in a pre-specified form at a discrete juncture or twinkle in time, in an extraordinaire feat of creation. Humans too, like every other living organism, emanate (emerge) out of an open-endedness of evolutionary processes on planet Earth. And dare I say, if humans dispute or oppose this they will have to ask, why? This means they must then ask about the motives behind their dispute. And if some would imply, that it should make humans more caring for one another as well as all living organisms, then where is the deposition that had this outcome? Actually, the depositions show an entirely different view (the loss of other living organisms through humans' violence), which is conflicting.

From these three shifts, profound theological implications are tangible

The three major theological implications (shifts) that are very tangible from the vantage point of the Gaia hypothesis are a peculiarly Gaia theory obligation and therefore it necessitates humans to take theological responsibility for the evolution of life through the frugal blending of organisms and their environments.[14] Primavesi (2000:xix) rightfully asks: 'Where were we indeed, as God asks Job, throughout the enormous timescale this implies'?

Thus, the *first theological implication* is, can we ask, where was God in this pause betwixt the origins of life and our lives? What may we then say regarding God's organisms' dependence with the essential environment we share with other organisms? As Primavesi (2000) simplifies:

> … whether this be the air we breathe or the oceans and rocks which surrounds us when they are all either the direct product of living organisms or else have been greatly modified by their presence. (p. xix)

And then for me specifically, what is to be theologically conveyed? This means that we as theologians must propagate to humans to see, live and experience these amendments to the essential and vital environmental affectedness by our human potentiality, even within the minute lifespan of our species.

From this statement originates (emerged) the *second theological implication*: that of the righteousness to the whole planet Earth and its hamlets.[15] My point of departure here has defiantly to do with those who discernibly sustain no righteousness. If we as humans do not come to entertain and do something concrete, as well as for those who are still going to emerge (be borne later on, on this planet Earth), our metaphysical entities as religiousness means diddly to our hamlets. Here, it is important for me to make the reader aware of how detailed the righteousness regarding planet Earth has grown. Rossing and Buitendag (also South African Theologians 2020:11) had this to say in their article 'Life in its fullness: Ecology, eschatology and ecodomy in a time of climate change'. David Rhoads calls it by the name: We are nature, and we should not think of ourselves as living on Earth but rather embedded in'. With this, Klaus Nürnberger (2017:1) (also a South African Theologian) illuminates Rossing and Buitendag's statement: 'There is indeed continuity between humans and other living beings, yet humans are far ahead of other creatures on an exponentially accelerating trajectory'. Part of human consciousness is the capacity to envision the future. It can either confine itself to what is possible and probable or overshoot these limitations.

The *third theological implication*, in the context of this article, is the most important: the purpose and motives behind our human God-concepts: 'Are they used to validate human violence – or to alert us to the suffering and death its causes'? (Primavesi 2000:xix). Buitendag (2019) writes in the Afrikaans language that I will translate (to the best of my ability) regarding Descartes in accord with the symbiosis of man:

> Moltmann does not turn a blind eye to the view that René Descartes res cogitans (thinking) and res extensa (extended thinking) have not distorted our understanding of reality and any form of symbiosis of man and nature. By means of a quantification dogma as a knowing subject, man has enveloped a divisive gaze with an approach of division and prevail. The natural environment is entirely deserving in this view. It has naturally led to an anthropocentric understanding of reality. (p. 1)

In eagerness and anticipation of these appreciations that naturally lead to an anthropocentric understanding, I realised that my own theological assimilation has shifted lately, towards a more deterministic God that is affective and solicitous to all living organisms and therefore all of us humans (all of them) too! Therefore, the primary theological task is now to become the portrayal of the convoluted and disconcerting nature of this 'God'. This is a portrayal to be re-discovered from a more grandeur picture that is immensely near in space and time, or at least distinctly distanced from a living organism. This is a God, who should not be disconcerted with, nor is he or she separate from our home environment – Earth, the universe and the cosmos – as a visible (cognitive) and invisible (affective) venerable holiness encompassing the entire history, current existence and future of all entities or for that matter, entropy.

This brings me to the first structure that has to do with free energy. The reason for this is that the sequences of metaphysicality that form part of the process that provides a mathematical explanation of free energy and therefore God, in space and time.

14.Please take note that from time to time the terms 'environment(s)' and 'environ(s)' are used interchangeably to enhance my own interwovenness as endeavour, as well as that of this article aim to the best answer to the question asked in this article.

15.The term 'hamlet(s)', in this context, is a substitution for the term 'community' or 'society'. The reason for this substitution has to do with the term 'community' and 'society', that is to my mind is a laden (heavy) term in the relevant present-day contemporary world, and therefore, the term 'hamlet' is used in the context of this article.

First structure: Free energy as mathematical as well as metaphysical entropies

'Free energy' is a greatness used in a variety of Bayesian dispositions.[16] It entertains a special co-adaptational detectability mechanism in apt Bayes theories. Thus, subsequent to this grasp, Friston (in Alexander 2018:2) petitions that the brain insures this Bayesian approximation processes (algorithms). Reducing the free energy greatness in this process is proportion-ish to irritate the concept of prediction error, trying to vex the extent you are caught off guard by the world around you and vexing to augment the preciseness of mental models (units). This reverberates well with gauge (evaluated) predictive processing theories. Under this grasp, the brain resolves predictive processing concluded by free energy reductionism (Alexander 2018:3). It is because of this that free energy reduction be regarded as an agnostic-reductionistic-process, and it then means that humans must be told regarding their vexing to approach Bayes as truly as probable. This comes from the equivalent authority as said earlier 'caught off guard' by the world around humans. It also proposes that free energy reductionism is a request that the foundational psychological drive is the minimalisation of uncertainty (hence, also labelled as 'hesitation', 'irresolution', 'indecision', 'ambivalence' and to add one of my own 'isolations' (Alexander 2018):

> If you subscribe to the premise that creatures like you and me act to minimize their expected free energy, then we act to reduce expected surprise (awe)[17] or, more simply, resolve uncertainty. So, what's the first thing that we would do on entering a dark room, we would turn on the lights. Why? Because this action has epistemic affordance; in other words, it resolves uncertainty, expected free energy. This simple argument generalizes to our inferences about (hidden or latent) states of the world and the contingencies that underwrite those states of affairs. (p. 3)

For theologians and philosophers, the revelation that the one and only human ground (motive) is uncertainty-minimalisation must have profound implications for theology and philosophy as it originates a surplus of a God. Then unquestionably the Christian religion has an ace-up-there-sleeve[18] when they propagate the impetus (motivation) that phenomenal concepts or elements like money, power, sex, friendship and (even) altruism have no substance. At first, I thought this cannot be veracious or accepted or even entertained; however, intuitively I sensed that it can be investigated because this voraciousness has epistemic values as it resonates well with the motion as it confirms uncertainty (expected free energy). This lucid controversy induces our presumption regarding (hidden or latent) determination to the world and the predicament that subsidises those determinations of events. As this investigation postulates that this uncertainty-minimalisation: 'is the best human-player on the field'.

In apprehension, it must be veracious that there is only one human impetus (Alexander 2018):

> [*A*]fter all if you are Paris of Troy, getting offered the choice between power, fame, and sex – then some mental module (unit) must convert these to a common currency so it can decide which is the most attractive. (p. 3)

Say, for instance, that the medium of exchanges is, I do not know, dopamine in the stratification, then in some minimalistic appreciation the only human impetus is increasing stratification dopamine. Although this is a profound simplistic way of putting it, the reader knows what I mean. Then the one and only unnatural explanation regarding free energy interpretation is to determine the simplistic medium of exchange with uncertainty-reductionism or whatever there are: 'some special phenomenon's which at present has added tenor' (Alexander 2018:3).

Therefore, would I like to put-it-on-the-table that our brain perceives, for an example, the hunger driven by prognostication that our mouths are stocked with delectable food, it is then a prognostication-oversight and rings all kinds of consternations, and our brain prognostic-setups are misled and uncertain. The single way to reduce this uncertainty is to bring realism into the track with the prognostic setup and literally stock our mouths with delectable food. Either there is a hint of elementary neuroscience research that presupposes a substance like this is a reality or the simplistic sentiment goes more or less like this.

Presume my intrinsic possibility objective X determine an extended possibility to a sphere in whichever I am devouring a bite of cake while spacing my neurological observation recommend that I am presently not devouring a bite of cake. Effectively there is a diploid that guides X in positioning with my neurological observation: (1) I commit to altering X to determine extended possibilities to cake spheres; (2) I commit to take a bite of cake, so altering my neurological observation thereby yielding to the cake prognostication of X. Diploids of (1) and (2) could precede a sphere in whichever my (resent or latest or present) neurological observation is y. Juxtaposed to the coeval sphere, the neurological observation resolves to a reductionist surprise of *awe*. Therefore, conversion to these spheres can be regarded as a minimisation of free energy, in an unpretentious rationality

16.In the context of free energy as produced here, that resonates in statistics, the Brethren in Christ (BIC) or Swarz Bayesian criterion (SIC), and Sawa Bayesian criterion (SCB or SBIC) is a criterion for model selection among a finite set of models; the model with the lowest BIC is preferred. It is based, in part, on the likelihood function and it is closely related to the AIC... When fitting models, it is possible to increase the likelihood by adding parameters but doing so may result in overfitting. Both BIC and AIC attempt to resolve this problem by introducing a penalty term for the number of parameters in the model; the penalty term is larger in BIC than in AIC. The BIC was developed by Gideon E. Schwarz and published in a 1978 article,[1] where he gave a Bayesian argument for adopting it. See Bayesian in sources used.

17.It is important for me, to deduce that this *(awe)*, specifically in the context of this article, and at this precise juncture can and could means a positive or a negative for the reader. I myself would categorise it (in this quote *per se* as negative. Negative as no human would like to be in *(awe)* in the negative modus thereof.

18.See van Rooyen's unpublished article *DNA and God: A systematic-theological and philosophical endeavour to assist humans (as subjects) better understanding their own religious experiences (as objects)* (2020). See title in sources used.

of this designation. Movement is thus interpreted as an endeavour to guide one's neurological observations in position with one's depiction of the world (Alexander 2018:4).

This is significantly insane. When I determine to grab for a bite of cake, I don't determine an extended possibility to spheres in whichever I am at present devouring the bite. It is literally my discernment that I am not devouring the bite, concurrently with my *sighing* or *longing* to devour the bite, that interpreted my attainment.

As Alexander (2018:4) explained: 'There are at least two fundamental problems with this simple picture just outlined'. Firstly, that it fabricates no rationality beyond presupposing a self-determining supplier of objectives and *longings*. Let us pretend it is factual that I grab for a bite of cake by virtue of fantasising (as it were) that this is what I am determined and prove to upturn this fantasy into a phenomenon. Where does this fantasy come from? Inexorably, it is not just a technical (scientific) malfunction in my neurological observation.[19] Diversely, it would be an extraordinary serendipity that I predominantly fantasise about gratifying and vigour-expanding spheres. Therefore, an extension part of my cognitive make-up prompts the fantasies that cause me to move. And if there are no such supplies, the popular 'dark room theory'[20] comes to mind: why don't we then effectively reduce neurological *awe* and thus free energy, by sitting inert a dark room till we die (Alexander 2018:4–5)?

Secondly, there exists a double-up problem that effective movement obligates consistent as well as distinctive objectification. When I want to grab a bite of cake, I naturally promote to appreciate where my arms are, where the cake is, what betwixt the two, etc. Therefore, if my intrinsic interpretation of the world mistakenly tells me that the cake is at present in my mouth, it is difficult to deduce how I manage to literally take the cake from the platter (Alexander 2018:5).

Remember, in reducing free energy, it can be observed as a relative disposition for guidance as a possibility of an objective X near betwixt objective y. If we determine X as portraying the organism's beliefs regarding the current determination, and y as the object of its objective, then we have the obligation for two complementary movements. What is extraordinary is that just the objects are determined and portrayed by a possible objective, rather than (be determined) by a relevant objective. How would it be experienced?

Here is a sentiment. Pre-empt that with the current possibility objective X, we can project any objective y to the object objective X^y, which is X relative to y, or maybe on any determined neurological observation-spheres that would advance with X. As an example, if I extraordinary grab for the cake, my expectation (hope) objective X will amend and transformed to an object objective X^y that determines the prominent possibility to my arm being outstretched to experiencing and cognitively perceived the cake in my fingers, and so forth. Therefore, determining a movement that reduces the variation betwixt my object objective as well as X^y is then commensurate with determining a movement that comprehends my objective (Alexander 2018:5).

This perhaps precedes to entertain empirical paragon of how movements evolve. Obviously, we need to perceive more regarding the purpose-objective X^y that is inflexible. It materialises from (comparative[ly?]) relatively X on the objective state y; however, whereby then do we determine the germane X? Why do I want to grab a bite of cake, which I envy? Debatable then is the elucidation that grabbing out is anticipated (according to X) to precede to a better-distanced determination in which I eat the cake that I envy. Therefore, to estimate the bordering purposed possibility X^y, we apparently need to conceal the organism's more distance determinations (future determinations) and then exhaust approaches from (casual or speculative) constrained theories, maybe, to gain better instantaneous objectives (Alexander 2018:5).

For me, it appears that this saga is more integrity driven and therefore better equipped, and less unorthodox, than the saga that is delineated. In the current translation, perception and movement are not a diploid process to the precise end, reducing free energy. The free energy that is reduced in perception is a comprehensively sundry as well as extendedness than the free energy that is reduced in movement. What is factual thought is that diploid assignments require mathematically resembling escalating problems and therefore, answers. However, that is not at all as extraordinary proneness to the celebrated mathematical and estimations alike betwixt modified and augmented as well as predicted relevance[21] (Alexander 2018:6).

19.Here it is absorbing to me, where the neurological observations is discussed in what Mark Pretorius (South African Theologian) in his article *Examining the function of neurobiology in Christian spiritual experiences and* practice (2020:3) saying: 'As surprising as these may be, and without denying the role they may play, the following, as argued by Pretorius (2020), cannot be proven through psychological scales: (1) that the spiritual experience is merely a creation of the mind, with no spiritual relevance, or (2) that the spiritual experience is not supernatural as a result of the involvement of natural means'. D'Aquili and Newberg (1999:146) clarify this as follows: [i]f you were to dismiss spiritual experience as mere neurological activities, you would also have to distrust all of your own brain's perceptions of the material world. Furthermore, and as rightly proposed by Pretorius (2020), we must take caution in the idea that we are 'nothing but a pack of neurons, and thereby reduce conscious and spiritual experiences) to mere mechanistic terms which leave no place for divine intervention. In addition, Jeeves and Brown (2009:99) also caution that one cannot and should not reduce religion (or religious experiences) to a primary form of cognitive activity only'.

20.In the context of perceived neurological observations, one of the most interesting theories of brain function in recent years is that of surprise minimisation. This theory was born of computational neuroscience which brings together aspects of physics, information theory and machine learning and tells us that your brain spends its time predicting what will happen next and then updating predictions based on what your senses tell it. In every situation, your brain is testing and updating models of reality so that surprises are kept to a minimum. These models are based on the probabilities of different outcomes and are thought to be Bayesian. This just means that instead of assigning probabilities based on the frequency of events you start with some assumptions and continuously update based on new evidence. See Dark room theory in sources used.

21.The free energy principle as I understand it here at this point in the article makes no prognostication regarding movement or ultimate objectives. It perhaps, appropriate definitely to biological organisms. Most of Alexander's suppliers' minute that this attitude emerges by natural selection, to vend and determine observation uncertainties relevant for survival of our species. I do not think that it has any carriage to everything on, for instance, responding on exotic (alienated) discernment, and therefore defiantly computers, that can be programmed with any human's brain that carries humans' intention. This may lead to a presupposition.

It is alluring to throw-the-baby-out with the bathwater. However, a sunder motive for me here is in place that if there is an intuitive interwovenness betwixt marvel-resistant (curiosity-immunes) and the whole of other forces. As an example, sex is assumed to be simple and marvel resistant. Yet, how repeatedly do humans say that they are captivated by someone because of his or her mysteriousness? And, what then regarding the Coolidge Effect (manifested in the polyamory hamlets as new affinity energy)? Subsequent to being with your same partner, sex and romance are squandered of its enchantment, only to re-enter if the organism engages with a new partner. I am asking, does this not direct us to a bizarre and remarkable resemblance betwixt sexuality and marvel(curiosity) resistant?

I think that the one standing enigma is, the actual special observation-sphere of uncertainty minimalisation. Why should uncertainty regarding what it would like to be in an affinity with a special individual, that is aesthetically awesome be so plethoric more coercive than uncertainty-debate what the most central consonant in the Bible is, an investigation that I think extremely few would entertain? As Friston (in Alexander 2018) postulates when referring to humans who are more contentious when not asked to perform simple tasks of uncertainty, however, than to perform tasks that are unresolvable, aenigmas, tasks that are perplexed although have an ample mystified ring to it:

> [*T*]hey ask Friston whether he would prefer to alternate to engage in a u-shaped entropy where humans like being in the middle betwixt too minute uncertainties or too a plethora of uncertainties … Friston … does not want to switch teams. (p. 6)

With Friston, who does not want to change teams, brings us to the second structure of this article, the South African theologian Wentzel J. van Huysteen. As said elsewhere, with regard to free energy, my reason for this is that it forms a sequence of metaphysicality that engages in being part of the process that processes an evolutionary epistemology and therefore God in space and time.

Second structure: Wentzel J. van Huyssteen and the evolutionary epistemology of humans on planet Earth

The way cognitive experience-space of humans' understanding of their own epistemology (therefore, humans' proportional knowledge) is limited. It is limited because of the fact that it forms part of external reasons where the evolutionary epistemology of humans resonates well with their organic epistemology that juxtaposes their provisionality from below (their biology), from behind (their evolutionary past) and from the front (their open future), and it then forbids humans to engage it in their whole of existence. Especially, if it is understood from an evolutionary context and with it also extremely complicated yet very important, however, profound significant differences between scientists and theologians in their disciplines in science and philosophical theology within a perpetual moving transcendent perspective. It is because of this double challenge (constraints of the evolutionary epistemology of humans with and as well as the ongoing transcendent perspective of humans), that I am in agreement with Van Huyssteen (2000:130) that humans themselves must try first to understand their own interdisciplinary contexts before they engage in this double challenge[22] (Van Rooyen 2015:32)

These epistemological realities that are complicated albeit very interesting tapestries of cognitive thoughts that include intuition as well as all the affective nuances of humans longing for a God, as a kind of faith-hope hybrid, resonate well with any human's religious consciousness. In his book *Duet or Dual*, Van Huyssteen (1998a:xii) sketches a picture in a comment when he intermits that theological reflections are basically hijacked by contemporary thought of post-modernistic radical pluralism. It basically amounts to the restart of the origin of knowledge, therefore from an evolutionary perspective, is to be understood (Van Rooyen 2015:32).

Hence is it important that theological pronouncements be consistent with the whole universal truths when formulated. When theological statements are defined as the truth and the whole truth, a kind of 'how' must be coupled with it. However, theology and science (physics, geology, biology and the medical sciences) must resonate their 'how' to the equivalent of the sense and meaning of life (Van Rooyen 2015:32).

I am therefore very excited when I read what Van Huyssteen (1998) said regarding evolution:

> I (Van Huyssteen) therefore believe that evolution, rightly understood, can enrich our religious faith considerably, and may actually set the stage for a friendly and rewarding duet between religion and science. (p. 1)

I also believe that evolution rather enriches our theological reflection not only enriches but also takes it further: 'where evolutionary thinking takes us precisely to the other side of this acceptable option of understanding' (Van Huyssteen 1998a:xvii) (Van Rooyen 2015:33).

As an example, in the context of paleoethology, was it the voice of Darwin that showed that science and theology are each in their own right and is it difficult to accept that only one type of human species lives on Earth today? Van Huyssteen (2006:165) indicates this in a particularly descriptive way by speaking of our being alone when he says: 'Perhaps our being alone in the world today may just be a hard evolutionary and historical fact, with no further scientific or really special implications'. But also (and this is one of the primary assumptions that this article works with), the work of creating my own answer to the question asked at the beginning of this article. The question therefore of whether we (humans) are made of organs, or metabolic

22.What normally happens is that when this double challenge is not understood in the right way, humans tend to reply to this difficulty to retreat or withdraw from the engagement between science and theology to their own safe existence of exclusive pre-empted knowledge.

systems or cells or atoms or memories or passions, or as I will suggest, all of the above, lies within the amalgamated metaphysical reality of humans here on our planet Earth (Van Rooyen 2015:53).

Van Huyssteen (2006:165) makes an astute assumption when he states: 'That we as humans will never fully understand how we evolved into what man is, without first understanding man's origin from other earlier Homonyms'. To better understand the uniqueness of man in Homonymous evolution, Van Huyssteen (2006) strikingly expresses this in his *Alone in the World*:

> The overriding concern here is as follow: while we always come to our interpersonal and cross-disciplinary conversations with strong personal beliefs, commitments, and even prejudices, a postfoundational approach should enable us to realize that there is also much that we share, and help us identify these shared resources of human rationality in different modes of knowledge so as to reach beyond the boundaries of our traditional communities in cross-contextual, cross disciplinary conversations. (p. 46)

Van Huyssteen (2006:47) mentions, however, that the problem of human uniqueness, because man has deemed it necessary to distinguish them from the rest of the world, is as follows: 'As human beings, it seems, (we) are doomed forever to agonise over what it means to be human, therefore, to speak of human uniqueness is not only to speak of biological evolution'[23] (and of course selection), but also of rational selection: 'Certainly our various capacities for intelligent reflection and action have an evolutionary basis, but the way we use these capacities on a cultural level seems to be more about complex rational selection than natural selection' (Van Rooyen 2015:59).

Primates are the oldest of all the surviving placental mammals. The oldest known mammal-type species (genus Plesiadapis) is native to North America and inhabited Eurasia and Africa. Molecular evidence suggests that the last common ancestor between man and the rest of the remaining great apes separated about 4–8 million years ago (Van Rooyen 2015:62). Van Huyssteen (2006:60) also refers to this when he mentions: 'As for actual human origins, scientists are now arguing that molecule evidence indicates that the hominid group was established about 5 million to 6 million years ago, although the earliest putative hominid fossil – a small fragment of a cranium – is just 5 million years old'.

Van Huyssteen (2006:60) then interjects that:

> Indeed, the evidence is extremely fragmented until we reach the period a little later, just after about 3.5 million years ago: fragments of the jaw and the famous footprint in Laetoli, Tanzania. (Van Rooyen 2015:62)

What is being said regarding Van Huyssteen's inserts above is juxtaposing the first structure of free energy as well as the theological shifts as implications, originating from the Gaya hypothesis. Let me explain when I integrate these two structures onto one another, regarding the question asked at the beginning.

An own endeavour in juxtaposing *(interwove)* free energy with Van Huyssteen's epistemological consciousness

With the Gaia theory[24] and the free energy as sciences, humans have sturdy evidence on Earth that life started out lucid and the more lucid it became the most elementary fragmented metabolic pathways are the most venerable. Humans postulate that if there is life on other planets that it too started our lucidity.[25] Therefore, the finest suiters for universal eventualities of life are the most antique eventualities of life that humans fit to determine here on Earth. Humans must determine the most foundational boulevards, bar to life's root and foundation to have been probed by life somewhere.

What are humans then: Organs or metabolic systems or cells or atoms or memories or passions?

Without hesitation, can I surely say that humans are organs, metabolic systems, cells and memory through humans' thought patterns in the brain. These cognitive functionalities are embodied (when humans cut themselves, they bleed and the anti-clotting bodies are kicked into production), when the metabolic systems stop, it would not lead to their structures being upheld with their surrounding environs. When cells stop growing humans get old, and atoms are the basic units of matter and the defining structure of elements and were created

23. Regarding another point of view that resonates well with that of biological evolution has to do with a dispute or a litigation or even just an incident that humans perhaps are so unintended or even blind to the thermal straight-jacket (in a negative modus) or perhaps a thermal tuxedo (positive modus) that our biochemistry and with-it its metaphysicality has to wear. The discernible idiosyncratic's of biological evolution may just manifest human neurological observations with various modes of phenotypes rather than human biochemical foundations. Perhaps the evolution of biochemistry today is only as thermally embarrassed as well as deterministic as it was 4 billion years ago. Perhaps that is why our metabolic evolutionary roads within a cognitive as well affective sphere are so antique. Humans metaphysical stance, their unapologetic endogenic chromes, their ontological traditions and hermeneutical fabrications resonates or better, zooms into human's evolutionary epistemology to blind them; however, I would rather hope for an illuminate humans' position in the universe.

24. The essence of this pyrexia disposition is a feverishly discourses as a major supposition of the Gaia hypothesis. Contemporary life is not at all an unresisting of denizen that disposed trend pyrexia. The link betwixt life and pyrexia has metamorphosed a quasi-deterministic aspect in the rationality that notwithstanding pyrexia has shown a prevailing capacity in coercing life, life itself has also been able to adjust the pyrexia within the confines set by deterministic means of planet establishment and the evolution of galactic glow (Lineweaver & Schwartzman 2005:12).

25. From another Cosmic thermo-biological point of view or angle humans have (not yet), paragon living organisms outside their world and life; however, they ascertain that it is essential to cogitate regarding a like deviation exists celestially in outside living organism(s) trees of life. Psychrophiles (cold living bacteria) have placenta lipidosis with well-to-do unsaturated lardaceous acerbic generating the placentas to a more variable at cool pyrexia. Thermophiles have placentas lipidoses that have well-to-do saturated lardaceous acerbic giving them cohesion at high pyrexia's since saturated lardaceous acerbic form sturdy hydrophobic servants (Madigan, Martinco & Parker 1997). Hyperthermophiles, literally all of them that are basically Archaea do not embody lardaceous acerbic of their placentas, however, alternatively have hydrocarbons of sundry magnitude, phytane with ether affinity (rather than ester affinities in Bacteria) (Lineweaver & Schwartzman 2005:13).

after the Big Bang 13.7 billion years ago, and when the memories fail humans, they cannot function.

However, and gladly can I say that this is not all. Humans do also have a very dispositioned uniqueness and they hoped (as I do in this article) that this uniqueness is the affective functionality that humans termed passions that have more to it than just passion or that warm feeling that you get when enjoying something profoundly nice.

It is precisely here where the metaphysical aspects of the functionalities are located. Human beings absolutely envy to befriend a God. Therefore, is it precisely because of this, 'where the metaphysical aspects of functionalities are located', that humans can and may resonate with themselves, their environs and even their God's.

My own endevour on this is a gentle, however, a predominantly perception, because of my own view and understanding of the orthogonality principle[26] that is relevant for only a meagre approximated intelligence. Thus, is it only subsequent to us humans when induced elementeries are up to a satisfied sphere, that one can induce to an approximate intelligence that are or can be an orthogonality-telos.[27] Maeaning that this *telos*, with all His/Her capacities trancends a kind of truism that originates higher yet, lower than a *Homo sapiens*.

Deduction

Thus, humans are all the above: organs, metabolic systems, cells, atoms and memories. But more, we are also metaphysical passions. Humans are Gaia youths (Primavesi) and albeit alone, however, not entirely alone in the world (Van Huysteen) as a duet and dual entities that resonate well with our expansive *sigh* for knowledge (rationality) and not want to sit in a dark room with faith that recedes human(s) ability to rethink the science and religion debates as a prerequisite for survival.

To me, free energy is God, albeit I resonated with the mathematical side of free energy and the observations Friston made in Alexander, and therefore the reason being that what the brain does to generate a simulation that investigates to evolve an intrinsic that accurately negates the emerging incentive. Something termed as (error) edge detection is a path to investigate a diploid movement and amount (output) by juxtaposing the input and the memory or simulation and then modifying the simulation to once again match the input.

This is entertaining because of the evolutionary fact that all the biological, therefore also the neurological processing processes each sentiment (affectivity) responds in visualise various determinations and therefore the simulation upheld to emerge in the future (hope or eschatology, etc.), taking into account the various processing determinations, so that in the instant the affective sentiment emerge because they are welcomed with their unlikeness to edge (error) detection. Thus, the various sentiments have discernible worlds with an intimate that are the body and brain that also rule our muscles.

It is then diploid into three spheres: (1) the precognitive and preaffective; (2) the current (active movement at present); and (3) the future within an instantaneous time delay betwixt body and mind.

When the brain is generating a good and accurate transform (ation), that I stipulated above must include both metaphysics and physics in general, that accurately predicts the incoming stimulus where there is a minimum energy point and with edge detection and machine learning or artificial intelligence networks, this minimum is maintained and so it transforms that the brain created as a model (unit) of the outside (and inside body and brain senses) that is constantly seeking to minimise energy, the energy necessary to match the outside stimulus that would overwhelm the brain (think of the problem of seizures) (Alexander 2018).

One can imagine that this type of processing, from the earliest of life, works long before there were eyes and ears in the dark depths of the ocean as there was still feeling and temperature sensing with a need *(sigh* or *longing)* to find and eat or consume the basal metabolic rate (BMR)[28] that is required to maintain life with its internal feelings.

Then this points to that humans are part of what the minimum energy brain is and must it also be minimised in using the transform-paragon/simulation, hence the feeling of hunger or being satiated (Alexander 2018).

The above can and must be rendered at all levels of life, as humans are organs, metabolic systems, cells, atoms, memories and passions from the first beginnings of memory that is necessary to make a *(the)* paragon or have a *(th*e) history (our evolutionary past) from which to make choices (the present) and this type of synergy can be seen to emerge out of things (our future) that wants to hatch or are taught to each other in their own types of existence. Long before sex, however, it will then lead to the world that will/would then, soon invent sex because it is an excellent way to produce the higher-level paragon or species from (*the*) individuals (Alexander 2018).

26.The orthogonal principle in statistics (and therefore also in mathematics) and signal processing is a necessary and sufficient condition for the optimality of a Bayesian estimator. Loosely stated, the orthogonality principle says that the error vector of the optimal estimator is orthogonal to any possible estimator. See Orthogonal in sources used.

27.The term *telos* is a term used by philosopher Aristotle to refer to the full potential or inherent purpose or objective of a person or thing, similar to the notion of an *end goal* or *raison d'être*. Moreover, and specifically in the context of this article, can it be understood as the supreme end of man's endeavour. See *telos* in sources used.

28.Basal metabolic rate (BMR) is the rate of energy expenditure per unit time by endothermic animals at rest. It is reported in energy units per unit time ranging from watt to ml O_2/min or joule per hour per kg body mass J/. Proper measurement requires a strict set of criteria be met. See basal metabolic rate in sources used.

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