Article

Universal Grammar, the Mirror Universe Hypothesis & Kinesiological Thinking

Stephen P. Smith*

Abstract

A semiotics is presented based on the kinesiological movement of vision that carries three categories, coming as a projection, reflection and a middle-term that joins the two. This is presented as a mirror universe cosmology in terms of both metaphysics (ontology) and science (physics and cosmology). The key hypothesis is that the metaphysical and the physical cosmologies are the same, and Cartesian dualism can be replaced by a panpsychism that is non-dual but admits to a property dualism carried by the apparent two-sidedness that is foundational for the mirror universe cosmology. Gravity in all its forms, and the plurality of emotions, come with valences that source the middle-term and relate to both navigation and innate memories. With this theory evolution is driven by the valences that source the middle-term, and hence, the triadic structure of the mirror cosmology acts as a strange attraction and will leave like-looking artifacts on the substrate of evolution, biological development and psychology. Finding such artifacts constitutes empirical evidence in support of the theory. Very significant empirical support is presented from the fields of biology, and neuropsychology. Nevertheless, the universal grammar carried by kinesiological thinking is self-limiting and only describes a mode of inquiry.

Keywords: Complementarity, Consciousness, cosmology, CPT symmetry, bilateral symmetry, dualism, emotion, gravity, metaphysics, panpsychism, projection, property dualism, reflection, semiotics, symmetry, triadic, two-sidedness.

1. Introduction

"A picture is worth a thousand words," is a well heard adage that comes with an obvious meaning, and the phrase has a deep cultural evolution showing an emergence from similar expressions that came from prominent historical figures.[1] The capacity for visual thinking is also a talent that people may possess, in various degrees (e.g., Grandin 1995). Visual mathematical thinking is a skill that is measurable in standardized tests. Nevertheless, it is word usage and language that is found most prominent when it comes to the grounding of thinking into something that is more foundational like a universal grammar[2] from which words emerged, i.e., emerged from something that resembles the Logos of Heraclitus, or the Tao of Lao Tzu, or the

Correspondence: Stephen P. Smith, Ph.D., Independent Researcher. E-mail: hucklebird@aol.com

[1] See A picture is worth a thousand words - Wikipedia.

[2] To permit such a grammar, linguist Norm Chomsky in *Approaching UG from Below* stipulates necessary conditions coming as a genetic endowment, experiential acquisition and principles that are not specific to any human language. In *The Realm of Language*, philosopher and mystic Rudolf Steiner (1861-1925) also describes a spiritual unity among all languages, which necessarily carries the sought universality.

Logos of St. John. John 1:1 of the *New Testament* reads, "In the beginning was the word, and the word was with God, and the word was God."

Despite the popularity of words, and thinking in words, this paper will argue that thinking in pictures is closer to being foundational, and perhaps words emerged from this deeper foundation. More precisely, this paper will argue that it's not so much the static picture that carries the essence of the universal grammar, but rather it's the moving picture found in action and in relation that represents the most fundamental semiotics. Therefore, this basic thinking is kinesiological. The emphasis on kinesiological thinking is not to discount other modes of thinking, such as sound-based thinking, thinking in feelings or taste or smells, not to mention words again. These alternative modes may also relate to the action principles of physics that may also carry a parallel impact on the qualia experienced in the mind. However, if the physical actions can be described as a moving image of vision it is better to stay with the picture-based (or video-based) analogy to present an understanding that might offer better accessibility.

Cooke (2020) theorizes that all life makes internal models of the universe as a necessary part of life's survival and navigation of the world, and that this mirroring is consciousness. Cooke's theory is very agreeable to the present paper, except that the present paper is to imply that mirroring is more fundamental and thus gives consciousness a panpsychist and emotive origin rather than something that emerged as Cooke speculates.

The development of metaphysics from first-person experience is described in Section 2 by pointing to some historical examples. This paper develops a metaphysical hypothesis in Section 3 that describes a kinesiological semiotics as part of a universal grammar. Section 4 presents a mirror universe cosmology that has recently emerged from the sciences of physics and cosmology, but presented together with the property of two-sidedness presented by Smith (2021). This finding comes with a non-binary logic, and the self-limiting nature of this logic is presented in Section 5. Nevertheless, the implication is that the hypothesis of Section 3 can overlay seamlessly with the physics and cosmology of Section 4. Some evidence of this panpsychist theory is presented in Section 6, followed by concluding remarks in Section 7.

2. Metaphysics and starting with what is Self-evident

René Descartes is often criticized for introducing us to a dualistic thinking that artificially separated the reality of mind and the outside physical world, making two disjoint realities rather than one. However, he was correct with a different proposition when he discovered the one truth that could not be doubted, his *cogito ergo sum*, I think therefore I am. Whatever self is, it is a real self because even a foolish self presupposes a self that is real, saying nothing about the matrix that underlies reality. The simple immediacy of self is a first-person experience, and first-person accounts are often dismissed by scientific accounts of a presumed objective world that is held separated by dualistic thinking. For example, some advocates of Darwinian evolution might invent the epiphenomenal self to treat first-person experiences, but that thinking finds itself cut off in its own abstract world and is conflicted with Descartes' cogito-ergo-sum. Indeed, the

epiphenomenal self cannot even evolve because such a self is not adaptive. Philosophers and scientists that argue that a provisional freewill is an illusion are equally discordant. In fact, the reality of even a limited freewill implies the existence of a vitalism that is more friendly to *Creative Evolution* written by Henri Bergson, and less compatible with the Modern Synthesis and the Central Dogma of genetics. Donald D. Hoffman[3] has concluded that it is impossible for a self to see reality the way reality actually is, assuming of course that this conscious-carrying self -evolved through Darwinian evolution.

In the *Prolegomena to Any Future Metaphysics*, Kant was pessimistic about developing a science of metaphysics, which is necessarily restricted to the mental space and does not have any obvious connection to empiricism. That would seem to make metaphysics a dead end. If something can be offered to save metaphysics, perhaps it is only that metaphysics ought to be applied narrowly to identify abstract necessity from what is found self-evident in first-person experience. For example, Kant's antinomies are well represented as complementarities that are described in Section 3.

Hegel trampled on Kant's pessimism and started from the first-person immediacy of ego-awareness and developed his *Science of Logic*. For Hegel, clear thinking was to start with the immediate and blunt reality of something that could not be doubted (pure being), even though this being was also found mediated at the beginning. The start of logic was to carry no beginning prepositions, and logic was to unfold into determinations that returned back to their own ground from which they began; i.e., the determinations were necessarily mediated, and logic was found in-itself and for-itself.

Phenomenology as introduced by Edmond Husserl also accepted Descartes' cogito- ergo-sum. Intentionality and consciousness where to be taken on their own self-evident terms rather than with preconceptions that are more one-sided. What was experienced was to be described accurately, without misleading connotations, and if revisions were needed revisions were made to remove ambiguity and improve accuracy. History was reactivated to reveal ontic meaning.

Alfred North Whitehead wrote *Process and Reality* with equal respect for the absolute reality of the stark and blunt first-person experience and the absolute ground from which these experiences first emerge and then evolve (representing his actual entities), all else being relative in the confines of the process interactions that are detectable as occasions of experience. Whitehead's thinking was complicated and came with a rich vocabulary. Nevertheless, his logic was non-binary, or non-monotonic[4], and hence, Whitehead was able to avoid mistakes that are common to one-sided thinking despite his apparent complexity.

Christopher Langan (2017) describes his Cognitive-Theoretic Model of the Universe (CTMU), and it too is free of beginning assumptions but coming from self-evident tautologies that carry self-duality right to the grounding language of reality that must also describe itself as a language

[3] Refer to numerous YouTube interviews.
[4] That is, open to revision and additions.

and where inductive idempotence is realized. This approach is again non-binary, and hence, it is able to avoid the mistakes that have followed dualistic thinking.

As will be demonstrated shortly, it is remarkable how it is possible to start with tautological truths, and build on them to develop a richer perspective by identifying what is found necessary from what is self-evident. It is not that mistakes won't be made, but if an account is open to revision, then the first-person account can improve. The goal is to make the most accurate and less ambiguous account of what is realized in the first-person experience that is found self-evident. It is science that must bend to this self-evidence, or it is that the first-person account must be revised. But there is no one-sided dogma being passed down to subjects that hold first-person experiences. Rather, there must be non-binary thinking representing three semiotic categories[5]: information is sent; information is received; and the sender and receiver are part of a fundamental synthesis. Indeed, with three semiotic categories the activities of intension are more existential and provisional, with less of the overreaching that typifies one-sided thinking.

3. A Metaphysics for Kinesiological Thinking in the Mirror Cosmology

A new semiotics for kinesiological thinking will likewise start from a tautological beginning coming from prepositional logic, upon which a mirror cosmology will unfold. Prepositional logic begins with a very uninspiring and obvious tautology, represented symbolically as A=A and refers to the *principle of identity* and is part of Aristotelean logic. This principle is equally the ultimate bait and switch and represents the deception of a one-sided logic, or a binary logic, that is constructed around tight mathematical identities and deductions. There is a lot that is unstated in A=A, because it presupposes the relation that something on the left-hand side of the equation is held to its right-hand side. It is no less the essence of consciousness that must entertain the grounding tautology given meagerly by A=A, and nowhere in these symbols is found the slightest whiff of this otherwise great discovery. The grounding tautology when thoroughly vetted implies that the projection (A on the left-hand side, picking a side arbitrarily) comes with the reflection (A on the right-hand side), and now the equation turns into an equivocation (as a flaw in logic) because now the two sides of the equation are not the same. Moreover, it is the equal sign that may carry the meaning of the conscious observer that folds the left-side projection into a right-side reflection that makes an internal interpretation or description. The interpretation is actually a psychological projection, and may not be a pristine interpretation of the projection that enters consciousness. Then A=A only tells us that the projection stands in relation to the reflection that is mediated by an observer.

It is also important to note that the projection is the functional complement of the reflection even as the observer cannot immediately tell one from the other. What is experienced by the observer is just an immersion in a unified field of vision. The words projection and reflection might be exchanged with little loss in meaning of A=A, but generally the reflection is also intended to represent an internal representation of the world that is beyond the ego. The reflection is also the

[5] In the subject of semiotics, Charles S. Peirce introduced the triad with three categories, as an alternative to the simple dyadic model described by Ferdinand de Saussure.

first innate memory that is immediately fleeting and given bluntly. Because vision depends on the speed of light, everything in the field of vision is in the past light cone.

If the equation A=A is to hold closely we find something very remarkable happening if a binary logic is followed. Because the psychological projection has aligned with the projection, the ego-self might either feel insulted or lauded by the outside world that projected A into consciousness. Of course, the ego might also be neutral to having received A. Depending on how the ego is emotionally, the ego might impose the psychological projection on the outside world while pretending to be objective.

In the aligned state of A=A, an objective reality is not available if thinking is strictly binary. Objectivity requires non-binary thinking. However, the enlighten agent that follows a non-binary reasoning is happy not with any generic tautology of the form A=A that on the surface can be a very unpleasant realization labeled A. No, the agent is happy because of the grounding tautologies that had been taken for granted have become revealed following a period of silent pondering. It is the agent's pristine emotion that is found two-sided; determined by the inherited chain of past projections while expressing itself as a psychological projection. It is this grounding tautology that never goes away, unlike the lesser expressions of A=A, that has left the biggest impression beyond the tautology because it's the self that is found two-sided. It is this above exercise that started with the principle of identity that becomes self-evident, and represents the rediscovery of the Logos or Tao that is now well beyond prepositional logic.

The principle of identity given by A=A actually implies more than just that the A on both sides are indistinguishable, it is also implying something about the fundamental matrix of reality: that the innate projection is indistinguishable from the pristine reflection that is found impacted less by psychological factors that can be carried by a separate category representing emotion. Therefore, the fact that complementarity is real carries an emotion-based relativity that pits one side against the other where distinction is possible again. Hence, the reflection is relative to the projection that made it, and this relativity is modulated by emotion. When an agent is on one side of a mirror and sees a reflection, we find that the mirror is relativistic because it is clear which side the agent is on. However, the condition A=A at the most fundamental level implies that the mirror is two-sided and the agent is unable to tell which side they are on. This is a metaphysical condition implied by the principle of identity that is realized only at the most fundamental level, and when this condition is met the ego dissolves. Alternatively, lesser mirrors hold reflections that are relativistic, where complementarity and reciprocity are realized. These last two findings are jointly transformative[6], whereas the simple tautologies were not.

So it is that the cosmology of mind is a house of such projections and reflections, or simply a house of mirrors. On the surface the mirrors are relativistic and hold complementarity, and what gets reflected to an agent is either an attraction or something that repulses; i.e., the reflection

[6] God tells Moses, "I am that I am" (Exodus 13:4), as in seeing your own reflection in a mirror and saying "I am that," but where one side cannot be distinguished from the other that is found repeating "that I am". In this case the reflection makes an idempotent presentation (becoming Chris Langan's CTMU) and comes back unchanged from the mirror cosmology that has been found two-sided.

carries a valence that implies a preference or direction. Moreover, the house of mirrors is kinesiological because action comes from a felt emotional gravitation. However, at the most fundamental level the mirror is found two-sided, where the projection and reflection become the same operation when complementarity finds perfect cancellation and the ego dissolves. Hence, the emotional gravitation and the plentitude of unspecified valences source the middle-term that holds the two-sided cosmology together. For the emotionally immature the mirror cosmology is a mad house of mirrors, and it remains that way until the two-sided mirror is rediscovered and then the emotional energies dissipate.

Therefore, it is a call to action that gets reflected and projected in the mirror cosmology, even if the resulting actions are inconsequential and are limited to actions that are merely intrinsic to the projection and its reflection where emotional gravitation can be ignored. Moreover, because of the plentitude of emotive valences it must be that the mirror cosmology has the capacity to store memories more generally, otherwise agents would never learn how to become emotionally driven by the images they hold in mind. In fact, it is the most strongly charged emotional events that are remembered the most. The memory is again kinesiological, as if a video recording is available and represents memory. Dreams are like watching fragmented movies, rather than thumbing through a photo album.

What are the necessary conditions of kinesiological memory? The kinesiological action points to the future on both sides of the two-sided when viewed intrinsically on the surface of each side. It is only in relative terms that one side can be compared with its other as part of a thought experiment, and from each side the other side may be said that time runs in reverse (the complement of forward). It's the past that must be engaged to conjure memories in the present moment. Hence, that past must be reactivated as a kinesiological movement, and there must be a relativity that indicates an interaction involving the present moment and the past. Therefore, both sides of the two-sided must refer back to the past by referencing the other side in the mental space, and this implies that an emotive middle-term joins the sides and it is this middle-term that can extend back in time thereby representing a duration that separates the present moment and the past. This interaction renders the sought relativity where the apparent forward time bifurcates and returns as a bi-directional time. The reverse-time function can carry a projection into the past of the middle-term, and reflects back as a memory in the normal time direction. Hence, memory creation and retrieval is no less a kinesiological reverse-time projection that comes back as a forward-time reflection, representing itself by three semiotic categories as is characteristic of the mirror cosmology, but now representing an extended duration in history with only a short moment needed to recall the past. The mysterious discrepancy between the age of the memory and the recall period is the property of the middle-term and bi-directional time. Ancient starlight can be recalled almost instantly, meaning that the transactional actions of projection and reflection are experienced concurrently. The mental experience is unlike a one-sided kinesiological action that sees time passage as a surface feature of either the projection or reflection alone. Hence, the mental space is two-sided, or mediated, as Hegel surmised.

It must also be possible to detect both memories in the positive sense and those in the negative sense because complementarity is a fundamental part of mirror cosmology; i.e., both projecting

and reflecting are unified parts of the cosmology because the fundamental mirror is found two-sided.

Now it is possible to understand how language and semiotic meaning are derived from a mirror cosmology where kinesiological memories are possible. Meaning is carried by mere utterances and symbols with the replaying the kinesiological video, either by memory or by following a written script, as emotive valences are permitted to surface again in real-time. At least that is the way it seems from my point of view, and I am more a visual thinker. Otherwise, the danger is to search for the meaning that is carried by printed words within the chemistry of ink, which is an absurdity that comes from an extreme reductionism. Better to avoid that extreme and adopt something more holistic, perhaps as described above. Nevertheless, the above is an example of describing a metaphysics from tautologies that are happened upon during first-person experiences, and my account is now open to debate, revision and rebuttal. It is unlikely that everything will be corrected, completely erased and dismissed. Something more pristine is likely to remain, which has been the nature of metaphysical investigations.

4. Mirror Universe Hypothesis

The temptation in physics and cosmology is to assert that what is visible and detectable is also what defines what is real; thus, incorrectly dismissing everything that is metaphysical. However, what is visible is dependent on a reference frame, and this reveals that what is visible is only relational. Hence, science is limited to making sense of relations, something Whitehead (1922) understood.

But what is underneath the relation? The laws of nature that are by design limited to the intrinsic action on a space-time manifold can't tell us what is underneath the manifold, or underneath the apparent relations that are visible.

Consider this question that scientists have asked: where is all the antimatter hiding? But this question implies that both matter and antimatter in equal amounts should theoretically exist as part of a visible universe of relations! It is more plausible that one is sublated by the other and this union forms a necessary relationship, and both are visible but unified in the one category of visible matter, which creates a double meaning for visible matter and a more theoretical matter that is only presumed to have no relationship to an underlying reflection of itself that is in the form of antimatter.

Scientists (Barbour 2020 and Boyle et al. 2018)[7] have theorized that all the missing antimatter (or something very close to it that carries mass) is on the other side of the big bang, or Barbour's Janus point. However, we have no way to distinguish the two sides using the laws of nature that only carry intrinsic action. The two sides look identical, and we would have no way to tell which

[7] From a historical perspective, theories pertaining to a possible antiverse have been around since Paul Dirac theorized the existence of antimatter in 1928.

side we live on (Smith 2021). One side is found reflecting into the other, making a mirror universe. I am now suggesting that scientists have made a psychological projection because it seems more likely that the two sides are unified in the above relational sense, and we are living on both sides (which is another way of saying that there is only one reality but in the non-dual sense). This unified model is now in closer agreement to a cosmology that carries a dark-sector mirror, as described by Cyr-Racine et al. (2022). If Smith (2021) is correct or if we people are already equipped with a personalized dark-sector mirror, then we have already found a way to transcend the laws of nature that are limited to the intrinsic on the presumed space-time manifold. That is, we found a way to experience authentic volition beyond the intrinsic laws, and the debate over freewill is settled in the positive sense. That would make us interdimensional agents, but equally non-dual and less burdened by the noted psychological projection.

A closer study of the symmetries of nature is a worthy consideration, and in particular, the symmetries that led to the apparent two-sidedness reported here need review. Electromagnetism was united with the strong and weak forces by Yang and Mills (1954), while at about the same time Lüders (1954) and Pauli et al. (1955) showed that the laws of the resulting unified field theory (including special relativity) were CPT invariant[8]. Moreover, general relativity and the probabilistic behavior of statistical mechanics have no ability to look different to us in a hypothetical CPT inverted world; and so, everything in physics is today found CPT invariant. The second law of thermodynamics, which is actually unexplained by statistical mechanics, possibly[9] looks identical on each side.

Everything in physics is found complying with the principle of two-sidedness because of CPT symmetry, more than likely. This includes the noted theories of cosmology, and in any regard, laws that are limited to intrinsic action are unable to tell on which half of the two-sided universe the action is happening. Meanwhile, that which is timeless and spaceless are invisible because these have no reference frames, hence a hypothetical aether that joins the sides of the two-sided may go undetected.

It is important to also appreciate that CPT symmetry is a discrete symmetry, and not the continuous symmetries where Noether's theorem applies. The continuous symmetries come with conservation principles and they can be represented at a location on a space-time manifold. The gage symmetries of the Standard Model of particle physics are examples of continuous symmetries. Therefore, the discrete symmetry that gave us the property of two-sidedness does not describe the richness of all of physics. Two-sidedness only implies that there is a mode of inquiry, and that is something closer to what is expected from a universal grammar rather than the acquisition of knowledge coming from actual discoveries. Moreover, to the discoveries of

[8] CPT is an acronym for charge, parity and time. Parity symmetry is the same as mirror symmetry. CPT invariance implies that the associated laws remain unchanged under a full CPT inversion where the charge is in reverse thereby turning matter into antimatter, switching to the mirror image and reversing the time direction.

[9] Only because the universe has been described as expanding on both sides, and statistical mechanics is surmised to be unchanged by the inversion. The comparison remains overly hypothetical because the probative value of the 2nd law is lacking when it is presumed to operate disjointly and within the intrinsic manifolds of each of the sides. Beyond statistical mechanics, the 2nd law is undefined in this context.

physics something must also be added having to do with the valences of gravitation which include: Quantum gravity; the action of general relativity or Newton's gravity; dark matter and its impact on galaxies; and dark energy and how the universe is thought to expand. If the metaphysics presented in Section 3 is correct, these gravitational valences belong to the same class that also holds emotional valences, and therefore these collected valences are necessary for innate memories; gravity becomes a memory. This also requires time to bifurcate into a bi-directional time, which now implicates a gravity enhanced quantum mechanics but resembling Cramer's (1986) transactional quantum mechanics.

5. Non-binary Logic in the Mirror Cosmology is Self-Limiting

Tight mathematical equations might describe the laws of nature. While a nominated equation might find empirical validation and become an established law of nature, there remains a deeper danger in building the list of equations into a theory of everything. The quantitative is represented in great abundance in the laws of nature coming as such equations, but note again that the qualitative hides in the middle-term when the equation becomes an equivocation. Note that it was such a middle-term from which all the emotive valences in Section 3 were placed. To distill all of reality down to mathematical equations is to ignore the middle-term and pretend that the quantitative rules supreme and relegates the qualitative, the arts and all the humanities, to the trash can. This mistake can be avoided with non-binary logic. However, even a kinesiology that is friendly to first-person experience can drift off course and become badly one-sided. Hawkins (1998) presented such a failed kinesiology in my reading, so it is very important for non-binary logic to accept self-criticism and the revisions that follow.

It is important to note that two-sidedness that comes with a property dualism recognizes three categories that are inherent in non-binary logic, as opposed to the two main categories of binary logic. So, this is different to theories of everything that are made hard by insisting on using a binary stream to represent information exchange while insisting on representing the laws of nature as tight mathematical equations. However, as soon as you admit to three categories, such as (1) the sender, (2) the receiver, and (3) the middle-term that offers unification of the sender and receiver, we are led back to a provisional or existential understanding because such a non-binary logic makes no pretense of its own completeness. The sides of the two-sided are just surface features, i.e., it's the grounding middle-term that carries completion while leaving something that is beyond understanding (such as gravity and emotion). Therefore, what has been described is better not presented as a theory of everything, when it is more an interpretation of quantum mechanics[10] that makes better sense than alternatives that suffer from psychological projections and the taking of equations too literally.

Richard Feynman is sometimes quoted saying, "if you think you understand quantum mechanics, then you don't." Is it possible that if you understand two-sidedness you can gain a better insight

[10] It is quantum mechanics that is closest to being fundamental in physics, it is quantum mechanics that includes unified field theory where CPT invariance is prominent. In chapter 6 of my book, *Trinity*, quantum mechanics is already found compatible with Peirce's triadic semiotics.

into quantum mechanics, and when you reformulate all of physics you might demonstrate that Feynman was too pessimistic? Rather than trying to see if the principle of two-sidedness leads to an improved interpretation of quantum mechanics, all emerging from the two sides of the universe being held in a quantum superposition making a unified whole, instead note the close correspondence found in Kaufman's (2014) interpretation based on his irreducible triad, representing the realms of the Actuals, and the Possibles and the Mind. This already takes Peirce's overthrow of Saussure's dyadic sign and extends the triad all the way to the most fundamental.

Two-sidedness implies three categories as found with the Tao, and it is unsurprising how many different flavors of semiotics can spring forward, all claiming to be the finest interpretation that holds three categories; I am not sure that quantum mechanics is a different challenge, I think not. Verse 42 of the *Tao Te Ching* tells of how the Three gives birth to the ten thousand things.

6. Examples of Kinesiological Systems in Nature

If the mirror universe hypothesis holds, then the kinesiological movements that are driven by gravity and emotion will generate a fractal pattern, and artifacts of the property of two-sidedness and the like will be left behind on the substrate of evolution because of strange attraction.

At the level of cells and biochemistry, the native language is necessarily kinesiological. The lock-and-key hypothesis already reflects the complementarity of molecular shapes and electrical charges. Moreover, communicating biophotons (e.g., Tang and Dai 2014) are like all photons of quantum mechanics where the photon is also its antiparticle. Complementarity is demonstrated when antigens are matched with antigen receptors, and when the double helix forms with two complementary strands of DNA. Replication and protein synthesis carry a kinesiological movement that uses the complementarity offered in templates, which is what Pattee (2007) refers to as *copying by inspection*. There are receptors in the brain, receptors in all cell membranes, and hormone releases into the blood that function in communication in the body (e.g., Pert et al. 1985).

In animals, the two genders are complementary, and flowers are both male and female or have both male and female parts. The hemispheres of the brain have complementary and asymmetric function, but also show structural bilateral symmetry (McGilchrist 2009). Bilateral symmetry relates directly to the attraction caused by two-sidedness; the left side of the face is very similar to the right side, and it is impossible to tell which side the person is on. The two-sided mirror that represents a plane and shows bilateral symmetry runs right down the center of the face, from top to bottom. Most animals, fish and insects show bilateral symmetry (e.g., Ranjan and Gautam 2020), plants less so but plants come with other fractal-like patterns showing the hypothetical work of projections and reflections. Leaves and pedals of flowers may show bilateral symmetry. Complementarity may be seen as a bilateral asymmetry where one complement is missing in the spatial expression (Levin 2001). For example, our human heart is generally located on the left side of the chest, creating such bilateral asymmetry. However, with the condition *dextrocardia*

the heart is located on the right. The condition of *situs inversus* is where the organs in the chest and abdomen are positioned in the mirror image from their normal positions. What this means is that mirror imaging must be part of biological development, and occasionally it must happen that the projection gets switched with the reflection to cause these rare conditions. However, switching may not be rare because while most folks are right-handed, there are a significant number of people that are left-handed. Psychologically, there are a significant number of conservatives and liberals, introverts and extroverts, specialists and generalists, deductivists and inductivists, frequentists and Bayesians, etc., and these diverse perspectives are complementary and part of our human community. Are we sure we are isolated people that are hopelessly conflicted, or are we just one humanity and are unable to tell which side we are on?

The human body plan and nervous system do follow a bilateral symmetry with some variation, and there is a genetic basis for the underlying developmental processes (Levin 2001), not to exclude a necessary regulation that complements genetic determinism. The bioelectric field is known to control embryonic development and differentiation, and here entire cell collectives communicate among themselves with the two-sided biophotons (Pezzulo and Levin 2016, Whited and Levin 2019). This regulation rest above the genetic programming in the cell and it is necessarily epigenetic, basically carrying out the function of the Waddington landscape that had been more theoretical. Moreover, it is hard to see this bioelectric orchestration as anything other than an example of warm-body quantum mechanics[11] which already connects to something that might carry the gravitational and emotive attractions. Warm-body quantum mechanics had been restricted to less dramatic discoveries having to do with enzyme activity, photosynthesis, bird navigation, smell and the connection of microtubules to consciousness (McFadden and Al-Khalili 2014). But if the connection to consciousness had been real, it was never likely that warm-body quantum mechanics would remain minor in biology because consciousness already carries emotion and that would have fed back into its own evolution and generated a wider vitalism as actually discovered with bioelectric fields. The expectation now is that epigenetic regulation comes in layers, cells are conscious having communicating ion channels with two-way bioelectric controls, organs carry intelligence, the body is intelligent, and the brain is not alone. Smith (2018) described a layered system based on a speculative reading of warm-body quantum mechanics which will necessarily involve communicating biophotons.

A layered system of regulation is also implied by the apparent modularity that is found when complexes like limbs and organs are formed during embryonic development, enough regulation to move the entire heart-plan to the right side of the chest, for example. A small number of Hox genes are involved with modularity (e.g., Ronshaugen, McGinnis, and McGinnis 2002). More generally, bioelectric regulation can reconstitute morphogenic modules from DNA and cellular hardware that possesses an apparent plasticity (e.g., Durant et al. 2019).

The stability of particular genes on DNA versus the mutability of the same genes appear to be in a balance. Mutations are not random as once thought, but seem to be under regulation (e.g.,

[11] The study of electromagnetism is part of quantum mechanics, more generally. The action principles of electromagnetism are invariant with respect to charge, parity and time taken independently. Hence, information encoded by electromagnetism can be expressed under different modalities and dualities.

Melamed et al. 2022). If the regulation that permits gene mutation is the same pathway that protects the particular genes from mutation, the only difference is the direction of the regulation, then that indicates complementarity again. Chen et al. (2010) describes genetic switches involved with modulating mutability in bacteria while balancing the need for genetic stability.

Taylor et al, (2022) found that a gene-editing experiment meant to turn off a gene associated with aggression had actually made hamsters more aggressive. This implies that the gene had a dual or complementary action that relates to balance. Regarding emotion in rodents, mothering of baby rats creates a mood disposition in adult rats, all related to epigenetic changes in the brain that effects the way adult rats respond to stress (Weaver et al., 2004). Therefore, it is an early emotion that found cultivation by mothering and this came with epigenetic alterations that were real.

While employing advanced methods, Garner et al. (2022) made a map showing interactions among a collective of grid cells in the brain of rats. Remarkably, the joint activity of grid cells mapped onto the surface of a torus, while the rats went about their business, navigating the environment and even sleeping. The torus is only a map showing the behavior of grid cells among themselves, rather than a map describing the outside territory. That is, the torus provides only a mode of interaction among grid cells. The resulting symmetry properties of the torus are very suggestive. Two-sided mirrors can be placed to transect the torus, and all mirror placements showing rotational symmetries are disqualified. Only one remaining mirror placement cuts the torus into two halves and shows bilateral symmetry, like slicing a bagel in the middle while keeping the donut shape (metaphorically, not a real separation). A circular path of zero curvature marks the rounded ceiling of each half-torus where grid-cell activity tends to congregate. Moving in or out from the circular path runs up against the mirror that is impossible to pass without connecting to the other half of the torus. Two-sidedness implies that what was found was a mapping that came in duplicate areas of activity. The activity can map to one, or the other torus halves across the bilateral plane. It is a pattern that is expected if projections tend to fall on one half while reflections map to the other half, because the two torus-halves represent complementary mappings, or energy mirroring and matchings called bijections. Hermitian smooth bijection in Riemannian spacetime (e.g., general relativity) is a distinct, and understood, process and that recent work (Abreu-Blaya et al. 2010) addresses the non-smooth (fractal) case.

Research in humans suggests the existence of anti-memories coming from a bioelectric complementarity where the exact opposite electrical pattern is found among neurons that are associated with an original memory (Barron et al. 2016). The action principles of electromagnetism are parity invariant, but they also carry a hidden duality because complementary information is generated by reversing the electrical charge. Hence, the information needed to express a bilateral symmetry is fully contained in one side of the projective plane.

Smith (2022) described color afterimages as innate memories starting in the retina, and here color afterimages come as color complements. Complementarity also implies cancellation[12], where information contained on the reflection gets cancelled with information on the projection. Hence, the identical information is contained in the reflection and projection, but the orientation is switched. Therefore, complementary colors like blue and yellow cancel, which means in this case that when the two are combined in an additive mixture they make white light; it is worth noting that the color we see is qualia, and this cancellation happens in the mental space. Melodies also come in two complementary flavors, making the original song and its pitch-inverted song that carries the same information having to do with the selection of notes. The pitch-inverted song can make wonderful music, and typically sounds dissimilar to the original song (Smith 2020).

In physics, complementarity had been introduced by Niels Bohr to describe properties that cannot be measured at one time, implying that the object of measurement cannot be separated from the activity of measurement.[13] Complementarity of this sort may express itself with quantum entanglement. Position and momentum cannot be simultaneously measured to arbitrary precision. The particle-wave duality implies that the finding of a particle at one time excludes the possibility of finding a wave, and vice versa. The interference caused by measurement as seen in Thomas Young's double-slit experiment is a phenomenon that is among the hardest to explain in physics.

In cosmology, bilateral symmetry[14] defines the shape of spiral galaxies, solar systems with coplanar orbits and a neutron star with polar jets, which implies the existence of projectile and reflective modulation. Banhatti (1998) provides a comprehensive review of the bilateral symmetry of galaxies having to do with the electromagnetic spectrum.

The modulation for the orbits of a solar system is loosely described by taking Einstein's equations of motion to represent the projection, and his field equations to indicate the reflection. However, the more precise definitions come from the alternative formulation of general relativity given by the Hermitian manifold where the sides of a bijection define the projective and reflective aspects of the semiotic movement. General relativity does not work to describe the shape and motion of galaxies, hence dark matter has been hypothesized as a fix. It is not

[12] In much the same way matter and antimatter can cancel when they make contact, transforming mass into electromagnetic energy.

[13] See Complementarity (physics) - Wikipedia.

[14] Bilateral symmetry (generated by strange attraction) is unchanging in time, or it is a spatial pattern that is stable or consistently periodic. A spatial representation of a solar system that is stable and without the time dimension will possess a center sun and coplanar planetary orbits that are ellipsoids. Because the planets rotate in time, they can be replaced with a cloud around each orbit. Now this model shows the solar system as an actual volume that is static with respect to time. There are actually three perpendicular planes where two-sided mirrors can transect the model to show symmetry by a mirror image that finds agreement with the model on the other side of the mirror. Those mirror planes are in the co-plane, through the minor axis of the ellipsoid, and through the major axis. There are no rotational symmetries in this model, which would otherwise need to be disqualified when establishing bilateral symmetry.

unreasonable to suspect that dark matter might relate to a reflection that complements the forward in time projection of galaxies, and such a reflection is possibly identical to the mirror world in Cyr-Racine et al. (2022).

Meanwhile, cancellation waits for a mass-carrying projectile that enters into a black hole, leaving behind only its entropy that enlarges the surface area of the event horizon (Hawking 1975), and this is found consistent with the holographic principle where information inside a volume gets mapped onto its surface. Schwarzchild's simplification of general relativity implies that the inside of a black hole is a mirror world where time runs in reverse (Davies 1996, pg. 224). Hence, the black hole can be described as a triadic interaction involving information exchange in the mirror universe.

7. Conclusion

The hypothesis of a kinesiological semiotics that is part of a mirror universe cosmology that had been presented speculatively in Sections 3 and 4 has found empirical support in Section 6. More generally, this is a strong endorsement of the panpsychist position. As this paper has shown, panpsychism is no longer a proposition found in just philosophy, it is a theory that is strongly engaging science and is finding empirical support.

Pattee (2007) describes necessary conditions for how symbol making meant to carry higher-level signification (or meaning) can emerge from lowly biochemistry. With conditions that are necessary but not sufficient, Pattee could not identify the origin of symbolic control to copy by description rather than just by inspection. My approach was to adopt an unapologetic vitalism, if not panpsychism, and find a place for the fundamental substance within a non-binary logic with three categories. Rather than finding a semiotics that explains the origin of life or how to copy by description, what was found was only a mode of inquiry. The fundamental substance had to fold the mirror cosmology in on itself to create a bi-directional time that was found necessary for memory. A life with a capacity for memory that can make copies of itself had a first beginning only because the fundamental was already part of the mirror cosmology. A necessary bi-directional time implies that warm-body quantum mechanics is also necessary. What bends the mirror cosmology in on itself sources the middle-term and represents proto-emotion or proto-gravity.

A mode of inquiry belongs to the mental space, and by itself the vital substance must already be in existence if advances are to be made. As noted in Section 5, a mode of inquiry is far from a theory of everything, and trying to turn it into one based on a metaphysical expansion is to follow Hegel into a realm of lengthy espousing that ultimately fails. From my point of view, the universal grammar is about centering felt emotion and following the Tao, and that is all that can be abstracted.

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