An (ontogenetic) transcendental (de)materialist theory of subjectivity

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1 Descartes' cut

Rene Descartes was seeking truth and he tried to do this by removing all doubt the *Meditations on First Philosophy*.[1] For Descartes, body and soul, are independent, but are unionised to form a single individual being.[2] Although both are necessary for a human, the soul (or the I) is what constitutes the essence of the self.[3] The soul is also responsible for thought – or is the mind itself.[4] He concluded that thought is the only thing he could be sure actually exists therefore '*cogito, ergo sum*',[5] or, 'I think therefore I am'. Thus, the core property of the soul is thought.[6] The Soul is responsible for human nature/essence thus it is the reference point all. The soul, or now as we understand it, the mind, is a thinking thing (*res cogitans*). The *cogito,* as it was dubbed, is the individual's thoughts, which are not subject to external influence. He identified continuous thought with being conscious, and self-consciousness for him was an identification of one with those thoughts. By thinking and identifying in this way, we continuously gather knowledge about ourselves. Descartes' view on consciousness relied on the premise that the human soul embodied in thought it always aware of itself, and this awareness did not result from a knowledge base or consciousness-based relation to other objects.[7] Thus, knowledge of the self originates in the ability to recognise that I am thinking. Knowledge of anything external to us then comes after the knowledge of self and of God.[8]

The effect of this was mind-body dualism and all of its discontents which have been highlighted since it was first proposed through till today. Including *Descartes Error: Emotion, Reason, and the Human Brain*,[9] which points to his separation between thoughts and emotion. Although Descartes is an immensely popular target, in Western philosophy dualism can be traced back to Socrates and his recursive *daimon* which was situated in his head.[10] Nonetheless, Descartes' line of thinking is part of a bigger issue, that of abstraction. It will become clear throughout this work. Also, just on the note of recursion, crows have demonstrated the use of symbols and recursion.[11]

2 I'm sorry Dave, it's time to leave the buckets behind

2.1 What is life?

The Stoic and their notions of *virtue* regarded the notion of self-preservation (*oikeiosis*) as the source of consciousness – which applied to both humans and nonhuman animals.[12] This was a foundational element of the Stoic doctrine. It involves the notion that an organism will 'appropriate' its own physical constitution[13] to protect it. Life and consciousness were about self-preservation of our material bodies.[14] Aristotle came along then and proposed that consciousness arises from mental states which included thoughts, memories, and emotions – and not self-preservation.[15]

Keeping with Aristotle,[16] and the common thought around this time, life was thought to be the ability to initiate motion (macro-motion since they did not know of atoms). This was known as animation – and that which could not animate, was inanimate. This view continued right through the ages, and even subsists in today's age when we look at the arguments around AI. Animation was a property of living matter – and only living matter had purpose. Modern science has shown this is wrong – almost everything is always moving – either vibrating or actively shifting – we just cannot always see it! Thus, we need a new definition of life – but what is it? In *The hard problem, qualia, agency, intelligence, and Freud* I describe a tenable account of classification based on agency and semantic information predominantly. Here however, I will present an account of the 'true subject' by taking thinkers of the past and taking their ideas and applying it today. Ideas are just ideas, and with each age,

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they can produce different results. *We must always re-apply them to determine their value.*

2.2 The boom of different sciences

As time progressed, more scientific fields were created, some springing off from others, and some being completely new. These include subjects like neuroscience, neurophysiology, cognitive sciences, linguistics, biology, physical sciences, chemistry, computing sciences, endocrinology, medicine, social sciences, law, evolutionary sciences, psychotherapy, and so on. Each of these fields, and the many others, have differing ontologies and each has their own problems. The biggest issue here is the separation – or as Robert Sapolsky calls it 'thinking in buckets'.[17]

When you think in buckets, you cannot see the Whole from the parts. Human behaviour (X), are influenced by things that happen seconds before (A).[18] However, there are things that happen minutes (B) before that both determine (A) and the behaviour (X). Then again, there are things that happened hours before, that determine (X), (A), (B).[19] This continues until you get to evolutionary cycles of information. Thus, looking back, the causes of behaviour are indeterminable, however, we can be sure that they are nonetheless a process of determination. To quote Robert Sapolsky –

> '…it actually makes no sense to distinguish between aspects of a behaviour (*including a thought*) that are "biological" and those would be described as, say "psychological" or "cultural".[20]

To continue to quote Sapolsky –

> '…This is because the boundaries between different categories are often arbitrary, but once some arbitrary boundary exists, we forget that it is arbitrary and get way too impressed with its importance. For example, the visual spectrum is a continuum of wavelengths from violet to red, and it is arbitrary where boundaries are put for different color names (for example, where we see a transition from "blue" to "green"); as proof of this, different languages arbitrarily split up the visual spectrum at different points in coming up with the words for different colors. Show someone two roughly similar colors. If the color-name boundary in that person's language happens to fall between the two colors, the person will overestimate the difference between the two. If the colors fall in the same category, the opposite happens. In other words, when you think categorically, you have trouble seeing how similar or different two things are. If you pay lots of attention to where boundaries are, you pay less attention to complete pictures'.[21]

3 Popper and my scientific framing

I utilise the works of sceptical empiricist (and one of the founders of the modern scientific method) Karl Popper to ascertain axioms which will act as my framework and justification for my approach. These are some relevant axioms which pose a scientific justification of my theory.

- In section one of the *Logic of Scientific Discovery*,[22] Popper argues against the 'problem of induction' within empirical sciences. The core of the argument here is that the validity or truth of universal statements cannot be justified as 'known by experience' or 'observations'.
- This is because any inductive process leads to a search for a 'higher authority' which in turn leads to an infinite regress.
- In the same book, Popper also says,
  > '…To give a causal explanation of an event means to deduce a statement which describes it, using as premises of the deduction one or more universal laws, together with certain singular statements, the initial conditions'.[23] What this means is that scientific theory includes the deductions of causal explanations – *explanations are important too.*
- In *Conjectures and Refutations: The Growth of Scientific Knowledge*,[24] Popper argues against the myth of public opinion (*vox populi vox dei*) as being the final authority, or of unlimited wisdom. What he is alluding here to is that public opinion tends to not be informed (it can be informed nonetheless). Public opinion is also an irresponsible form of power – in that it is anonymous. To this, as I will demonstrate in my sections of the brain, public opinion tends to be based on moral disgust which tends to be groundless outside of its original primitive functions. Also see John Stuart Mill in *On Liberty*.[25]
- In *On the Sources of Knowledge and Ignorance*,[26] Popper's main arguments are that (1) our understanding of the world is still incomplete; (2) in responding to Hume's empiricism argument with regards to observation and the source of knowledge – Popper says that most of our knowledge is not based on observations but are based on other sources (like reading elsewhere). The empiricists would argue that there is a linearity in which that

> knowledge terminates at some point in time to an experience (similar to Wittgenstein).[27] To this, Popper says that the genesis is impossible to determine because the movement of knowledge is not linear – furthermore the genesis could itself have been a conjecture – and not an observation. His solution to this is common-sense – we should not look for truth by searching for the genesis of knowledge, because it is impossible (as described). The search for genesis, be it an explicit reliance on mathematics or the search for a higher authority is not actually a search for validity of knowledge, but a search for truth. Truth should rather be made as contingent – thus we are able to test it and verify it. We do this by simply searching for corroboration/checking in the form of evaluation of the source and if there is evidence that it is reasonable. Furthermore, common-sense simply requires one to just ask what the direct immediate source of the knowledge is and whether that source is reasonable! The empiricists argument collapses on itself because with every step that one takes, the number of requisite steps increases exponentially.

A reliance on Popper allows me the following:

- A common-sense approach to the origins of knowledge.
- A divorce between knowledge and the empiricist conflation of knowledge with truth.
- A divorce of knowledge needing to come from 'experience' or 'observation'.
- To bring this theory within the realm of scientific reasoning as it relies in modern scientific evidence, which is testable by observation (and has been) from which I make various deductions and draw conclusions.
- Importantly, this theory explains events (see *Beautiful Impotent Reason*). By offering a theory in which everything is explained, deduced, and testable, in Popperian terms, this theory should supersede others which do not offer the same.

The overall framework is an invariance methodology (see *Beautiful Impotent Reason*); that is one in which there are correlations of invariant information or conclusions amongst all disciplines. The sole unit of commonality amongst all disciplines is *information*. Information is thus the *universal*.

4 Why move to an information (de-materialist approach)?

Badiou is a key materialist philosopher. In the *Logic of Worlds: Being and Event II*,[28] he highlighted a distinction between what he called materialist dialectics and democratic materialism. The latter described the bio-politicking notion of using material, tangible human bodies as subjects in search of ideological domination and thus wealth. In the current epoch, this politicking has attached value to non-biological and immaterial matter (information).

The similarity in both idealism and contemporary materialism (bar Badiou and Zizek) is that they share the same substantialness of matter. German idealism as described points to the occurrence of an event, however it cannot explain this event in terms of the common framing of matter.[29] For Zizek, quantum physics presents a solution. Herein, information theory is the solution. Badiou's distinction between Being and Event further helps me overcome barriers – in that Event is to be understood as that which is more than or other than Being, and which is irreducible to Being. Events are thus present in Being, but not reducible to Being itself. In *Subverting Foundations: (Un)intelligent Atemporal Design*, I explicate a deeper theory of this notion with reference to abduction and the Hegelian atemporal logic of negation. Therein I said –

> 'Inferential logic can be atemporal if properly considered. There are two types of inferences – type one inference indicators and type two inference indicators.[30] Type one indicators refer to 'therefore', 'consequently', 'thus', 'implies' and others of this sort. The quality of these inferences is that the logical flow is temporal; the steps entail a movement from the premises to the conclusion. However, type two inferences do not do the same. These include, 'since', 'because', 'for', 'is entailed by' and others. The quality of type two inferences is that the conclusion is then followed by the type two inference and then the reason. For example –
>
> > 'Hegel was a more popular thinker than Schopenhauer *because* students flocked to his class instead of Schopenhauer's'.
>
> Here, 'because' is the type two inference indicator, and it indicates that what follows it

> (students flocking to Hegel's class instead of Schopenhauer's) is the reason for believing what comes before the indicator (Hegel was a more popular thinker than Schopenhauer). In other words, this is abduction or hypothesising; which is also the Hegelian notion of *setzung der voraussetzungen* – which means to posit the presuppositions. I would strongly suggest that abduction/type two inferential logic accounts for actual change in evolution. Hypothesising is atemporal logic and it also speaks to a general notion of statistics (what kind of system best fits the data I have at hand; instead of trying to predict data from the system one has)'.

This is thus an Event which cannot be reduced to Being since it is atemporal, but it is nonetheless contained within Being. Moreso, this is also an ontological development of an Event in that its usage is put down to Being.

5 The emergence of information: How order emerges from chaos!

5.1 The initial nature of information and Norbert Wiener

Information is the single golden thread running through every single discipline in existence.[31] Initially there was debate as to the nature of information. It is clearly incorporeal and intangible, in that it cannot be physically handled, but it can be stored in objects. Initially, information was thought to be physical because of its physically embodiment; it is within some physical thing (like atoms constituting an object). It was not construed as a 'thing' but instead *a physical arrangement taking the form of a thing*. It is different from its surroundings, *only in terms of order of arrangement (appearance)*. However, as information became even more important in the 21st century, it became commodified. Information during this time morphed into being understood as a non-physical, ethereal, digital, and immaterial substance. One of the founding fathers of cybernetics Norbert Wiener provided a 'definition' of information in his breakthrough book, *Cybernetics*.[32] Wiener said that –

> 'As a final remark, let me point out that a large computing machine, whether in the form of mechanical or electric apparatus or in the form of the brain itself, uses up a considerable amount of power, all of which is wasted and dissipated in heat. The blood leaving the brain is a fraction of a degree warmer than that entering it. No other computing machine approaches the economy of energy of the brain. In a large apparatus like the Eniac or Edvac, the filaments of the tubes consume a quantity of energy which may well be measured in kilowatts, and unless adequate ventilating and cooling apparatus is provided, the system will suffer from what is the mechanical equivalent of pyrexia, until the constants of the machine are radically changed by the heat, and its performance breaks down. Nevertheless, the energy spent per individual operation is almost vanishingly small, and does not even begin to form an adequate measure of the performance of the apparatus. The mechanical brain does not secrete thought "as the liver does bile," as the earlier materialists claimed, nor does it put it out in the form of energy, as the muscle puts out its activity. Information is information, not matter or energy. No materialism which does not admit this can survive at the present day'.[33]

The last part in particular is fundamental. *Information is not matter or energy*. Thus, the definition he provided is not a positive one, but a negative exclusionary one. Whilst information is neither matter not energy, *it needs matter for embodiment and energy for its communication*.

5.2 Shannon and Weaver's communication theory

The breakthrough of information theory occurred in 1949 when Claude Shannon and Warren Weaver published their book called *The Mathematical Theory of Communication*.[34] Both were not too keen on their theory being called 'information theory' per se as they felt it was more a mathematical theory of communication. This mathematical formulation speaks to how communication can occur – using symbols, signals and carriers of information or knowledge (they were able to ensure optimal error free communication through the use of redundant strings of codes which could transmit signals even in the presence of noise). In part one of the book, Weaver describes the concept of information, and, in the second part, Shannon demonstrates the mathematical proofs. Weaver described information as the measure of one's freedom of choice when selecting a message.

5.3 Optimising compression and meaning

In his endeavour to create optimisation, Shannon had to deal with qualitative and quantitative aspects of information (in its abstract form) itself. On this, Shannon noted the following –

> 'Frequently the messages have *meaning*; that is they refer to or are correlated according to some system with certain physical or conceptual

> entities. These semantic aspects of communication are irrelevant to the engineering problem. The significant aspect is that the actual message is one selected from a set of possible messages. The system must be designed to operate for each possible selection, not just the one which will actually be chosen since this is unknown at the time of design'.[35]

Weaver says of information –

> 'The word information, in this theory, is used in a special sense that must not be confused with its ordinary usage. In particular, information must not be confused with meaning'.[36]

Shannon says the following –

> 'The fundamental problem of communication is that of reproducing in one point either exactly or approximately a message selected at another point. Frequently, the messages have meaning…These semantic aspects of communication [referring to the meaning of a message] are irrelevant to the engineering problem'.[37]

Information is hence meaningless (and meaning is not information here); *it is the receiver/interpreter who weaves in meaning*. It is *not value* either. The perceiver supplants meaning into information, both humans and machines alike. Meaning and information are almost always confused because of how people automatically imbue information with meaning. Fundamentally, it is meaning (through correlation of signals or sounds with objects or things) that we use to communicate (to communicate physical orders of information). Meaning is not the message; and meaning lays within the receiver, contexts, and prior knowledge.

Shannon and Weaver were concerned with *transmitting information and not meaning*. Thus, he created a formula which could transmit messages even in the presence of noise. The formula he came up with for encoding messages with maximum efficacy was the same as that which Ludwig Boltzmann created half a century prior. Both formulas treated *information as physical*. For Shannon, informational entropy is the *minimum volume of data necessary to specify any type of message*.[38] I will return to the nature of information below.

To communicate effectively, the mechanisms to be used were strings of symbols and signals, as mentioned.[39] Shannon determined that some symbols will be used more frequently than others (the source of the code will have a higher frequency with regards to certain symbols or knowledge). Based on this it is possible to assign shorter codes to these ones (including higher frequency symbolic pairings) hence reducing the total length of required code. Natural language demonstrates the same – namely, the frequency of a letter for example depends on what precedes it. This is Shannon's empirical entropic frequency distribution formula.[40]

5.4 The rate of information production

Shannon then proceeded to formulate how much information is produced and the rate of its production by the stochastic probabilities (see *Beautiful Impotent Reason*) he introduced. This was unnecessary for the mathematical theory of communication, but it was of interest to Shannon, nonetheless. This unnecessary aspect of Shannon's endeavour is what set the ball rolling for the communication theory to be known as information theory – having many important implications regarding quantitative and qualitative aspects of information itself.

5.5 Entropy: Boltzmann and Shannon

The state of a system (the microstate) is the configuration of the system. The statistical-physics definition of entropy is the logarithm of the fraction of all states that are equivalent. Entropy is at its lowest where the states have the least possible variance (order). It is at its highest where there is the most possible variance (MPV). Boltzmann's entropy is the measure of the multiplicity of equivalent states of a system. Entropy is not to be confused with chaos or disorder itself, but chaos has a higher MPV. Therefore, higher entropy usually means higher chaos.[41]

Shannon's theory of entropy differs from that of Boltzmann's, which lead to a clash with: (1) common understanding of information; and (2) Boltzmann's entropy. According to Shannon's theory, if we were to introduce chaos (noise) into a system, or even remove information from a system (which is chaos or randomness), we would be increasing information because one would then need *more bits to effectively communicate* the message (there would be more equivalent microstates possible). More bits meant more abstract information. This is a quantitative measure of abstract information *because both upon transmittance and storage, information takes on an abstract nature*. It is abstract because its content is irrelevant for its transmission or storage. In noiseless channels, there would be

less abstract information necessary because any transmitted symbols would not be changed by the channel. This transmittance then would simply reflect information (like the language used in the message) that the receiver has about the message. This is because depending on the language, there is a limited probability distribution which would *make sense* to the receiver. These are restraints of order – the limit of which is called the *entropy rate*.

However, in the presence of noisy channels (which can change the transmitted symbols); *chaos requires much more bits to be communicated* compared to communicating statistical order (this is statistical).[42] Without the *correlations present* within order (these constitute order) more is required to communicate the microstates of the system. Shannon's entropy was hence the *measure of microstates of a system and so information and entropy were equivalents*. What Shannon is saying is that the correct amount of information transmitted is equivalent to the amount of information which was missing in the signal.[43] In other words, *the uncertainty (as entropy) on the receivers end regarding what was actually sent*. Hence, entropy, for Shannon, was a measure of uncertainty regarding missing information. However, entropy and information are not the same. Shannon's entropy therefore is neither an actual measure of information, nor a suggestion on the amount of order within a system. Shannon's information is the total of bits in a system which is *necessary for effective communication*. Information is more than bits! Entropy speaks to an average of physical states; and information to a particular state.[44]

5.6 Predictive and restorative information

A non-symmetric channel can have different effects on different symbols (relative) and the outputs can change. In these kinds of systems, there can be large distribution changes (because the physical processes which induce transmission are different for different symbols) including average abstract information quantity gains being made if the channel is used frequently. Predictive information here is the information contained in the channel input about the channels output (moves 'forward' in time). This is information about an object or process which does not at that time exist at the time when the information is read. Restorative information on the other hand is the information contained within the channel output about the channel input (moving 'backwards' in time). This is information regarding something which at that time does not exist in that specific form.

5.7 Help, the Universe has Alzheimer's!

In Laurence Krause's book, *A Universe from Nothing*,[45] the quantum origins of the universe were explained – how something can, in fact, come from 'nothing' – only because this 'nothing' is not nothing – but rather 'no-thing'. Krause discussed how a very old, observable fact could now be explained, namely, why are other galaxies in the universe moving further away from us (based on red-shift and other scientific measurements).[46] It was concluded that the universe is 'expanding', and this expansion is increasing (space is stretching, not expanding per se). One can think of space as uncooked cookie dough, with each galaxy as a chocolate chip nestled within that dough. As that dough bakes, it expands, and the chips move further apart. The sombre note about this discovery is that information will be lost as galaxies move further apart. The universe, like an Alzheimer's brain is moving steadily towards the penumbra, or equilibrium. This movement is the movement towards maximum entropy since there would be no free energy left to do any work within the Universe (it will be equally spread out) Nonetheless, here on Earth there is an ever-accumulating amount of information and a presence of complexity too. Note that this does not impact the overall system of the Universe which is still moving towards maximum entropy even with the Earths productions. How does information accumulate here on Earth?

5.8 What makes information possible? In-equilibrium systems

The origins of information require: (1) the arrow of time; and (2) additional principles such as in-equilibrium systems. Ilya Prigogine who won the Nobel Prize in Chemistry for his contributions to non-equilibrium thermodynamics (the theory of dissipative structures) can assist with this. His most important contribution highlighted that information *emerges naturally in physical system states which are out of equilibrium.* Prigogine realised that Boltzmann was right, but the Earth was a bit different in that it was an out-of-equilibrium system. The steady state of the Earth for the time being is to be out-of-

equilibrium. The energy of the sun and nuclear decay in the Earth's core is responsible for driving it out of equilibrium; this energy allows for the emergence of information.

Information richness and order arise *spontaneously emerge* from these systems. For example, batteries, computers and humans too who eat to remain out of equilibrium. Static steady states are those which obtain equilibrium with the arrow of time – however, they are not static on the micro-level (particles are always vibrating). Prigogine explained these systems through the mathematics of their behaviours. He discovered that *after chaos, a system will eventually organise into information rich states with correlations present*. Matter within these systems also reach order; order and information emerge from chaos!

5.9 The irreversibility of time

In *A Brief History of Time*,[47] Stephen Hawking identifies three arrows of time: (1) the thermodynamic arrow; (2) the psychological arrow; and (3) the cosmological arrow. The flow of time, as we describe it in everyday life, is imaginary. Time does not flow; time is an arrow. Time being irreversible is also necessary for the emergence of information. Like information, the arrow of time are not mechanical laws of the Universe, but are rather characteristics of it. These characteristics, in turn, depend on the behaviour of clumps of particles – thus giving rise to a trajectory of information. This trajectory itself has no meaning. When Boltzmann demonstrated his theory of entropy, that systems which had many particles would move towards states that had as little information as possible[48] – he demonstrated how order moves into chaos. This is the second law of thermodynamics – and thus is linked to the irreversibility of time. The law itself basically states that the entropy of closed systems increases with time (no available energy to do work, thus order becomes chaos). The flow of time for us is observed as such because of the loss of information in ourselves, the environment, and others.

Why is time irreversible? Is it not possible to revere states from their current ones to previous ones, or the initial state? It is impossible to do this because, in the initial state, there is more chaos or randomness. This randomness is amplified exponentially over time as that state changes. It is not a lack of proper measurement tools; it is a matter of trying to compute infinity. This would be a matter of measuring numbers after the decimal – which are infinite.

Time is irreversible (because the chaotic nature of statistical systems would require an infinite amount of information and energy to be reverse). There are also an infinite number of paths to traverse. This is called the 'entropy barrier'. This theory of time is different to that of Albert Einstein and Isaac Newton – in that it is not spatialised. Thus, the past is unreachable, and does not in fact exist – the same goes for the future – and even more, the present is an ongoing continuous calculation. The construction through computation of reality is thus an ongoing event. However, importantly, Prigogine's theory allows the past to be accessible in systems in which there is no dissipation or loss of information – idealised systems unlike ours. Nonetheless, *Earth seems to be producing more information rich states – why?*

Edwin Schrödinger in his 1944 book *What is Life*,[49] explained that the permanence of information on Earth is due to information being embodied in solids. Corporeality or solids have properties which shield information loss and allow the information embedded within to be more stubborn. Solids were thus fundamental to the evolution of life. From the biology point of view, information (or DNA) is embodied in cells. From Schrödinger's perspective,[50] life depended on the aperiodicity of solids because of its ability to embody and maintain information. I have now explained the conditions for information and its emergence on Earth. We build institutions, mechanics, networks, and modes based on this principle (houses, cars, and external storage). We too are made of solids. These solids allow us to accumulate information at a lower energy cost.

5.10 Stubborness/de-aption/exaption

Overall, the Universe is still moving towards equilibrium despite actions here on the Earth. This is how the supposition goes. Information nonetheless has developed mechanisms to protect it being solids and corporeality.[51] However, information on Earth developed more tools to avoid entropy – namely the manners in which it can be created, combined, and re-combined. This gives the information a kind of stubbornness – which depends on physical properties.

One way is through thermodynamic potentials – all this means is that the steady states of physical systems can be described as minimums of mathematical functions. Not all steady states of physical systems minimise energy, many states minimise or maximise other qualities instead. The quality of most salience in out-of-equilibrium systems minimise the production of entropy. Out-of-equilibrium systems self-organise into steady states in which *order spontaneously emerges* and there is minimisation of the loss of information. To derive this, Prigogine observed a system which was close to equilibrium had one steady state and many transient states. Transient states are those in which there is more dissipation.

In their 1971 paper which contained a discussion on life and information,[52] Prigogine and Grégoire Nicolis argued that entropy is dominant in equilibrium-based systems, whereas with out-of-equilibrium ones, information creation can occur through non-linear kinetic laws which nonetheless show usual thermodynamic behaviour (thus Boltzmann's theory is not contradicted – they both exist). These out-of-equilibrium systems spontaneously produce information and then hold onto it – although not forever. Thus, we know that information preceded humans – however, humans are responsible largely for its stubbornness. Endurance of information is vital to preserve life.

Exaptation, as expressed by Stephen Gould,[53] describes situations whereby the evolutionary function of a feature is different to its current usage. In *Subverting Foundations: (Un)intelligent Atemporal Design*, I describe how wings originally evolved as a means to increase surface area thus enhancing thermoregulation; with flight only being exploited thereafter by organisms. This is a situation wherein a feature can have a different function, or no useable function at all, however conditions then change, or the organism finds a new use for said feature. Richard Dawkins also describes something called 'de-aptation' or 'de-aption'. This is where a meme can override the interests of those who created them (or genetic programming) – and can, in fact, change aspects of its founder. Memes can therefore hegemonise the biological substance of humans[54] – subjecting them to 'non-biological' or denaturalised structures. De-aption can thus also be interpreted to be something which was initially useful, but which is now harmful, yet resists change (like heritage, tradition, and so forth).

5.11 Information explains emergence and inherent dialectic 'opposition'

The core posit of this argument is described in more detail later, however the nature of information itself predisposes 'nurture' over 'nature'. This means that inherent in informational systems is the ability to be less influenced by natural grounding and more influenced by contexts and environments. An example can be abstracted from *The hard problem, qualia, agency, intelligence, and Freud* wherein I described the pre-frontal cortex (PFC) of the human brain, which is tasked as being the 'executive' branch of the brain (and is the last part of the brain to evolve), is only fully developed in the mid- to late-twenties. It is least affected by genes, and more affected by environments and contexts – including interactions. This is another grounding for an ontogenetic account. Furthermore, the complexity and preciseness of thought emerges only after a process called *Neural Darwinism*, wherein neurons compete and die. The dead neurons then leave spaces which allows for interlinking neural pathways to form. Furthermore, the discovery of neuroplasticity – namely, that the brain does produce new neurons and synapses (with older ones dying too spontaneously and through disuse) upturned the previous ideas of the brain cells being static. Complexity can emerge from simplicity. Most importantly, the cortex is the least susceptible to genetic influence and most of its development is through social interaction and contextual development. Thus, *nature gave the human brain a means to overcome it so to speak*; creating in inherent sort of opposition within itself. *Sapience takes precedence over sentience*. This is precisely the notion of the unconscious and the atemporal logics that I described in *Subverting Foundations: (Un)intelligent Atemporal Design*. Nonetheless, systems (like biological ones including humans) are limited in their preservation and creation of information – thus to correct this, social grouping and other mechanisms were necessary.

6 The Kantian oeuvre and German idealism criticism

6.1 The Kantian oeuvre and his criticism of Descartes

In the section called 'Refutation of Idealism' in the *Critique of Pure Reason*, Kant critiques Descartes.[55] Kant argues that Descartes' logic of equating the verb of thinking and the establishment of an 'I' or subject amounts to a false hypostatisation. There is a disconnect between the verb, and the subject. This goes back to Kant's distinction between analytical propositions (logical constructions of subjectivity or consciousness) and synthetic propositions of identification. For more information on this, consult *Beautiful Impotent Reason*.

This goes to the heart of Kant's project – being the separation of epistemology and ontology. His argument broadly is that existence is not a predicate for concepts – it is a synthetic judgement that requires empirical evidence. Whether something exists or not is not a predicate for the concept itself. Concepts are analytical propositions – or logical constructs. Thus, Kant creates a transcendental turn – or a Kantian Copernican revolution.[56] For Kant, when one tries to discuss the 'pure knowledge', one gets caught in antinomies because of the interrelation between sensibility and understanding.[57]

6.1.1 The Kantian mind

Kant's *oeuvre* thereby depended on his descriptions of how knowledge and experience were possible, which in turn demanded of him to create an account of the human mind. For there to be knowledge and experience, there needed to be three faculties: Sensibility, understanding, and reason.[58] Sensibility is the ability to perceive objects via our senses (including colours). Understanding is the ability to conceptualise in terms of universals (more or less the ability to abstract) and particulars (abstracting certainties). Reason is the ability to use inferences and derive judgements using this faculty -reason is not to be confused with thought itself. It is a power of correlation and rule following.

Before I continue on Kant, a quick introduction on Locke and Hume is necessary. In Locke's *An Essay Concerning Human Understanding*,[59] Locke described what is to be known as the substantial and the essential self. Locke also distinguished between real essences and nominal essences.[60] In his discussions on this, he alleged that real essences will be unknowable, as they are at the corpuscular level to which there is no access. Nominal essences on the other hand are those which arise through experience – including language and cultures and the like. In making these arguments, he also posits that consciousness is just the contents thereof based on nominal experiences and memory – and to demonstrate this point he gives the example of the principle and the cobbler who swop consciousness.[61]

Hume, as an empiricist posited the bundle theory of perceptions – namely that no matter how far you look back into your experience, you would simply find perceptions. These philosophers will be discussed in more detail below. Nonetheless, Kant aimed to fix the mess between rationalists and empiricists.

6.1.1.1 Understanding

Kant argues that there exists a pure understanding[62] (namely concepts and judgements that come directly from the understanding itself and not perceptions or senses). Pure judgements of understanding are known as the logical forms of judgements, and pure concepts are the categories. The pure forms of judgement are like that of Aristotelian logic and his classification of ontological properties. The most important of which are those of quality which includes affirmation and negation – and the in between being infinite judgement. Infinite judgement is the affirmation of a negation – or in other words, an affirmation of a non-predicate.[63] To understand this, one must understand the linguistics of the German language.

The idealist tradition (especially Hegel below) was to grapple with the infinite. Similar to Plato's *Allegory of the Cave*,[64] (What happens in the cave, is the finite, what happens outside is the infinite – reflecting ancient Greek thought at the time) it was a search for truth which was outside of the subject (Gods, customs, traditions and so forth). It was then Socrates who first introduced subjectivity in truth, with his concept of his reflexivity in the form of *daimon* sitting in his noggin. The idea was now to correlate the infinite, with truth and with the subject. Hegel deconstructs the opposition between infinite and finite created by the other idealists. He shifted the place of the infinite as being outside of the finite – to being within the finite itself. Hegel was able to do this because of the German language.[65] In English,

the words finite and infinite operate in opposition – with their meaning coming directly from that dichotomy itself. Whereas German is more dialectic in nature. The German word for infinity is '*unendlichkeit*'. The 'un' predicate points towards an uncertainty which comes from within the subject (*endlichkeit*). The German concept itself, unlike English, does not mean that without an end, it means that which is finite, has an internal negation, which then creates something else. It's like the Freudian '*unheimlich*' which is translated into uncanny – meaning that which undermines itself from within.[66] The German infinity meaning thus as Hegel points out is a negation of a negation – which is the affirmation of a non-predicate. This is an example of an infinite judgement described above. To understand, think of Chalmers zombie world. If you take a predicate, you can either negate it, or you can affirm the non-predicate. If something is alive, it could be not alive – being dead (negate the predicate), or it could be indefinite – being undead (or a zombie). Kant does not take the binary equation in which we have a predicate which is affirmative, or negated, Kant introduces the infinite judgement which does not fit in either category. It exists in a third category, and it is defined by the way it cannot be defined – the undead – neither dead nor alive. It is not the negation of a predicate, but the affirmation of a non-predicate. These pure forms of judgement do not require sensory information. The affirmation of non-predicate is thus exclusory of empirical information. Nonetheless, the understanding passes over the manifold of intuition, which is the sensory experience.[67] That is how judgements and categories enable us to perceive objects.

6.1.2 Support for my dialectics

This further justifies the approach I have taken. The concepts originated in German (Schelling was the very first to propose the 'unconscious' which was then developed by Freud) and then were modified and applied. However, to understand them fully, one must understand their true meanings. Furthermore, the concepts which are often relied on to oppose AI subjectivity are largely based on these conceptions (AI cannot be a subject because it is not conscious and so forth) – therefore solutions posited within the framework from which those negations arose are counters of the highest order. The idealist traditions are like vanishing mediators in most societies – people have concepts, but do not understand what they mean truly and how they only coherently operate within their original conception.

6.1.3 Transcendental apperception (TA)

Transcendental apperception[68] is a fundamental for Kant for unity of 'self' and the world – thus allowing for there to be experience. The TA is the most important principle of the understanding. Kant says –

> 'The supreme principle of all intuition in relation to the understanding is that all the manifold of intuition stand under conditions of the original synthetic unity of apperception'.[69]

He also says –

> 'Now this original and transcendental condition is nothing other than the transcendental apperception. The consciousness of oneself in accordance with the determinations of our state in internal perception is merely empirical, forever variable; it can provide no standing or abiding self in this stream of inner appearances, and is customarily called inner sense or empirical apperception. That which should necessarily be represented as numerically identical cannot be thought of as such through empirical data. There must be a condition that precedes all experience and makes the latter itself possible, which should make such a transcendental presupposition valid'.[70]

This synthetic unity of TA is understanding itself – and it is the means by which knowledge and experience is possible. The TA is not subjective, nor is it psychological – it is instead an a priori condition for both knowledge and experience – it is the synthetic unity of consciousness itself. The TA is the condition for the unity of knowledge, experience, and the 'self'. Thus, the solution to Chalmers hard problem lies herein which I will describe in later sections. However, the TA must be separated as the transcendental ego, and the empirical ego. The latter is that of the common understanding of self – the empirical self-consisting of concepts like identity, self-hood or self-knowledge. The transcendental self is intimately linked with the manifold of intuition – and thus we have the issue of continuity of the self. How can there be a continuous self when the empirical self continuously changes? The former is responsible for this. The former as the transcendental ego, precedes, produces, and unifies the empirical ego. The transcendental ego, I argue is a production of the

understanding – namely, the infinite judgement. However, before that argument I must describe how it comes into being, and how it unifies things. It does so through the transcendental imagination.[71]

6.1.4 The transcendental imagination (TI)

Kant posits that reproduction and apprehension are acts of the imagination. The common understanding of the imagination is defined by its opposition to perception; however, the Kantian usage is to be understood as literal image building.[72] The imagination is an automatic function of the soul.[73] It forms this image using the information from the manifold of sensory intuitions. Much like the (TA), there is a separation between transcendental imagination (ti) and empirical imagination (ei). There are also different types of functions (productive[74] and reproductive).[75] The TI is the necessary unity of the imagination.

6.1.5 TA: Representation without intuition

Kant says,[76] 'Imagination is a faculty for representing an object even without its presence in intuition'.[77] The imagination produces our intuitions and sensory representations of objects which do not come to us from experience or sense themselves.[78] It can also produce sensible representations of ephemeral objects, like concepts and ideas. This is a critical function because it brings a non-sensory thing into our sensory representations. It is thus has a mediatory function between sensible and non-sensible/intellectual representations – which is fundamental for his ideas on cognition, aesthetics and moral experience. In *Anthropology from a Pragmatic Point of View*,[79] Kant says –

> 'The power of imagination (facultas imaginandi), as a faculty of intuition without the presence of the object, is either productive, that is, a faculty of the original presentation of the object (exhibitio originaria), which thus precedes experience; or reproductive, a faculty of the derivative presentation of the object (exhibitio derivativa), which brings back to the mind an empirical intuition that it had previously.– Pure intuitions of space and time belong to the productive faculty; all others presuppose empirical intuition, which, when it is connected with the concept of the object and thus becomes empirical cognition, is called experience.– The power of imagination, in so far as it also produces images involuntarily, is called fantasy'.[80]

What Kant is saying here is that the imagination can produce presentations (a sensible representation of an object which is not directly present) in two ways: (1) productive; and (2) reproductive. The productive is when it operates as the original source of the presentation and does not rely on past experience. The productive imagination itself is thus responsible for experience. This production can either happen at the empirical level or the transcendental level. The empirical level allows other people (not I) to experience its products.[81] The transcendental level on the other hand produces an original representation that makes experience in general possible. It also acts as a vital tool of synthesis. The reproductive level on the other hand is where the imagination acts in just an empirical way in the productions of presentations which are derived from past experiences. To summarise, the imagination mediates between sensible and non-sensible in either a productive or reproductive way. In this way, it can create experience, enable experience, and use past experience. The imagination is necessary for cognition, perception, aesthetic judgement, artistic creation and morality. The artistic creation aspect will be discussed in later sections.

6.1.6 Imagination in cognition and perception

In the *CPR*, Kant notes that cognition is possible due to different representational capacities and representations. The imagination is part of a triad of capacities, namely the sensibility and understanding. The sensibility (receptive and passive – the ways in which we are affected by the world) and understanding (the active and spontaneous capacity directing how we think about the world) operate in a dichotomy. Sensibility provides intuitions, being representations that are immediately about objects, and are singular, while understanding provides concepts, which are representations which relate 'mediately' to objects – this is by means of mark which is common to several things.[82]

> 'With us understanding and sensibility can determine an object only in combination. If we separate them, then we have intuitions without concepts, or concepts without intuitions, but in either case representations that we cannot relate to any determinate object'.[83]

As above, cognition occurs only when we combine both the intuitions and concepts. Furthermore, the imagination is what mediates both – bringing them together. The sensibility and the understanding – are connected by the transcendental function of the imagination. The imagination can do this because it shares features of both sensibility and understanding. Kant notes that imagination is part of sensibility when it produces intuitive sensible representation.[84] However, unlike sensibility intuitions which arise through passive affection – the intuitive representations produced by the imagination are created by spontaneous acts of synthesis. Synthesis is the action of using or synthesising the manifold of intuition. He also argues that the understanding can do this too – thus it is similar to the imagination. Since the imagination can produce representations through this synthesis, it can also mediate the sensory and the understanding. The imaginative synthesis happens in different ways in cognition and perception – an empirical and a reproductive way. There is also the transcendental productive way mentioned prior.

6.1.7 Empirical imagination and perception

It is here where Kant challenges Hume's empiricist view. Hume of course argued the passivity of affect, while Kant countered that perception instead requires the synthesis of the imagination. We need it to both create and combine intuitive representations to form a percept. Kant says that the imaginative synthesis is a 'necessary ingredient' for perception –

> 'No psychologist has yet thought that the imagination is a necessary ingredient of perception itself. This is so partly because… it has been believed that the senses do not merely afford us impressions but also put them together, and produce images of objects, for which without doubt something more than the receptivity of impressions is required, namely a function of the synthesis of them'.[85]

6.1.8 Empirical synthesis: Apprehension, reproduction, and recognition

Image formation requires the synthesis of the triad of apprehension, reproduction, and recognition.[86] Apprehension and reproduction are part of the imagination, and the recognition is part of understanding. Apprehension and reproduction are different, but their combination (through empirical synthesis) is necessary for there to image formation. Apprehension is where the imagination uses the precepts of objects in the manifold of intuition.[87] Kant says –

> '…apprehension of the manifold alone would bring forth no image…were there not a subjective ground for calling back a perception, from which the mind has passed to another…i.e., a reproductive faculty of the imagination'.[88]

The synthesis of reproduction allows for there to be recalling of past representations in the manifold and allows for the combination of these with the perceptions at present.[89] After apprehension has taken these perceptions in the manifold, and reproduction brought past representations, it is possible now to form images requisite for perception.

6.1.9 The transcendental synthesis and experience

The empirical synthesis of apprehension and reproduction are only possible however through the productive transcendental synthesis. Experience is possible because of two contributions of the imagination: (1) it establishes the affinity of appearances; and (2) objective reality of the categories. Affinity (or association) is the something in the manifold which allows appearances to by empirically synthesised. To illustrate this point, Kant uses the example of cinnabar, the ore of mercury –

> 'If cinnabar were now red, now black, now light, now heavy…then my empirical imagination would never even get the opportunity to think of heavy cinnabar on the occasion of the representation of the color red'.[90]

Here he argues, that the empirical rules (governing apprehension and reproduction) cannot be responsible for associability because those rules presuppose associability. Thus, there must be a transcendental function which creates affinity or associability of appearances – which is the imagination. The imagination allows affinity this through the act of transcendental synthesis of the a priori forms of intuition (space and time) and the *a priori* concepts of understanding.[91] The *a priori* forms of intuition are conditions for all appearances, and when the *a priori* concepts of the understanding are synthesised with this then those categories will also determine all appearances and make the associable.[92] This is how these categories of understanding become reality – as intuitions applied to objects. How does this work exactly? Kant explains this in the 'On the Schematism of the Pure Concepts of the Understanding chapter. He says –

> 'Now pure concepts of the understanding, however, in comparison with empirical (indeed in general sensible intuitions), are entirely unhomogeneous and can never be encountered in any intuition. Now how is the subsumption of the latter under the former, thus the application of the category to appearances possible?'.[93]

For this to work, Kant had to argue for something which was both intellectual and sensible which could mediate. The imagination produces this mediating representation – called a schema. He says the scheme is the rule or procedure whereby the imagination can bring concepts and intuitions together.[94] This schema must be pure – meaning non-empirical.

6.2 The Kantian nature of reality

6.2.1 Phenomenal versus noumenal realms: The ding an sich

The phenomenal world is that which is produced by experience and the senses. These are empirical and synthetic judgements. However, the noumenal is the world of the *Ding an sich* – or the Things-in-themselves. The noumenal is an analytic proposition Kant posed (a logical construct) which he established in his theory of mind (the transcendental *a priori* features of the mind must be interpreting something else first before there can be human experience). This transcendent idea is Platonic in nature, and is a recurring theme. Reason, for Kant, was the barrier to accessing the noumenal world, or things in themselves, because whenever reason tries to do so it runs into antinomies. The idealism philosophers which follow took issue with this distinction between the phenomenal and noumonal. This is because Kant's *oeuvre* gives little account or contradictions regarding how the noumonal gives rise to the phenomenal. Kant of course could not do this, because then it would be an application of the understanding including causality to something which is unknowable – thus illogical. [95] However, what Kant does say is that pure reason itself allows us to reason about the world of the *noumena* because pure reason tries to go beyond the antinomies in the phenomenal world. It is an attempt to overcome finitude and reach unity.

6.2.2 What does this mean for the phenomenal world?

In the *Abyss of Freedom*,[96] Zizek alludes to Kant as being the foundational thinker of autonomy and freedom – and also being the first crack in the concept of the universal. Why is this? In *The Puppet and the Dwarf: The Perverse Core of Christianity*,[97] Zizek outlines the reasons for this – namely that the noumenal world, or the *ding an sich*, is posited as pure freedom. However, this pure freedom amounts to just being a puppet on a string of the Absolute which amounts to no freedom at all. Kant states that if noumenal subjectivity were accessed by reflective self-consciousness, it would result in the awful majesty (*furchtbaren Majestat*)[98] – being something which has no agency. Thus, for there to be freedom, the phenomenal reality must be barred (meaning incomplete or inaccessible which thus leads to antinomies). So, for Kant, in order to create freedom and autonomy, the subject must be disconnected *from direct access to the noumena*. Freedom, or the truly autonomous act, is thus one in ignorance (if we do not know the truth even if we are determined, whatever we do is still free).

The phenomenal subject is thus barred. In Strawson's critique of Kant,[99] he points out that the phenomenal 'I' would have to appear to the noumenal 'I' and it would appear as an appearance of the noumenal 'I'. This is an illogical doubling – and if the noumenal subject appears to itself, then the separation between phenomenal and noumenal disappears. The result is that the transcendental apperception 'I' is necessarily empty. It does not have any intuitional content – and, as Zizek argues, it is neither phenomenal or noumenal. It is an example of the Kantian infinite judgement. Thus, the apperceptive 'I' is only such for as long as it is inaccessible to itself; it is an empty kernel. Hence, the crack in the universal – namely that the starting point of any ontology is a lack of something – be it knowledge or unity or understanding.

Thus, as Zizek points out, this *notion of a barred or split subject* is inherent in the subject itself. He goes on to assert that while Kant assumed this was an issue with the phenomenal world, this barring is inherent in reality and beyond itself. It is therefore not an epistemological limitation – and our reason does in fact reach Reality and truths.

6.3 German Idealism's criticisms Kant (A)

6.3.1 The birth of the subject-object dichotomy

The question that arose from Kant's chapter on the Transcendental Deduction was how could we know that our a priori concepts of the understanding are true if they do not come from experience? It is impossible given that the understanding which is non-spaco-temporal interacts with the sensibility which is. Thus, how is knowledge possible?

Embracing the parallax created by Kants Copernican turn, Fichte created the subject-object distinction which has since become the defining notion in all systems, crossing countries. *In Attempt at a New Presentation of the Wissenschaftslehre*,[100] Fichte argues that it is the subject who posits the object, and not the other way around.

For Fichte then, the apperceptive 'I' described earlier is an act of pure consciousness and spontaneity – in which it determines itself through intellectual intuition. What happens is there exists a knower, and a known – this makes knowledge possible. However, the knower and the known as the same substance, with the only knower being a point within the substance known as the absolute ego (the ich). This absolute through its activity of intellectual spontaneous conscious intuitions[101] then learns about itself – and thus learns about substance which is everything (or the Universe itself). The substance had to be unconscious, for it both the knower and the known were conscious, the dichotomy falls away.[102] The subject knows objects, by brushing up against 'limits' within itself, does it then identify objects. For Fichte, the ich, was conscious, and everything else was unconscious – reality is perhaps then created by the subject/consciousness. He maintained, like Kant, that the ich was itself a construct, and unknowable (a purely regulative principle). Knowledge is thus produced by action – not reason.[103] In *Foundations of the Entire Wissenschaftslehre*,[104] , Fichte says –

> 'If the I reflects upon itself and thereby determines itself, the not-I is infinite and unbounded. If, on the other hand, the I reflects upon the not-I in general (upon the universe), and thereby determines it, it is itself infinite. In representation, therefore, I and not-I are reciprocally related; if the one is finite, the other is infinite, and vice-versa; but one of the two is always infinite'.

When Schelling and Fichte were still working together in Jena, they took issue with Fichte's absolute ego.[105] They argued that if it just an ideal, then knowledge is impossible. It cannot therefore be a regulative principle. Thus, where a finite ego experiences objects external to it, thus must be a sub-conscious self-knowledge as an ich. This Schelling-Hegel description then means that the absolute is a single infinite substance which is constituted by a living force – and its own attributes are the subjective and the objective. This was the birth of the organic conception of the absolute.

6.3.2 What is transcendental subjectivity?

Schelling tried to account for how transcendental subjectivity arose from a material substance – which Kant did not explain. The main proposition put forth by Schelling was that subject can arise from substance, but that the subject is then not reducible back to the substance. The substance becomes barred.[106] To explain why this is so, he then needed to describe the Real and Reality. If he could explain this, with reference to organics, then he could explain how knowledge and experience is possible.

6.3.3 The placing of the Real

In the *1797 Treatise Explicatory of the Idealism in the Science of Knowledge*, Schelling asks –

> 'What, then, is ultimately the reality that inheres in our representations?'.[107]

He then distinguishes between the Real and Reality (*die Wirklichkeit*). Reality describes the experiences of the subject – and the Real is the ontological foundation upon which Reality (and later Being) is based. The Real is not part of Reality per se, but its foundation, and it in fact resists incorporation/characterisation by/into Reality. The Real, for Schelling, is the kernel of Being itself, and thought is only possible in this way. Despite this, neither thought nor the subject is reducible to this kernel of the Real, nor is it accessible.[108] Thus, the Real is a *grund* (grounds) for Reality, transcendental subjectivity, thought, Being, existence. As the Real is the constituent of the transcendental 'I', it is barred. The *an sich* is now part of Being, and it is *grund*. It is an unstable Real, waiting to burst through.

6.3.4 What is the Real/Absolute as the grund?

Given that Kant posed the first crack in the universal of objective reality, by motioning that subjects themselves have a hand in its creation through active participation[109] – the question was then what is the Real? Fichte argued that

the *ding an sich* is not unconditioned, as Kant proposed[110] – but rather the subject exists first, and then through its positing activity creates the distinction between itself (as I) and other (as not I). Thus, the *an sich* is a product of the mind – a point of resistance in which the positing activity is limited. Nonetheless, it is still a thing of thought. Without the subject, the *an sich* does not exist. In Fichte idealism, the distinction between I and not-I is one that is within the I itself. [111] Schelling argues similar, stating that the *an sich* is an a product of thought.[112] However, this thought then remains behind in consciousness, with its origin being obscured thus leading to the notion that it does exist – namely the process of hypostatisation. In his 1830s lecture series,[113] Schelling lays three criticisms that support his argument: (1) the *an sich* only occur through thought; (2) it is an abstraction of the properties and characteristics of objects (percepts), thus it is empty or nothing; and (3) the *an sich*, as unconditioned, is a paradox, since things require a subject to posit them as things.

6.3.5 Can we know objective reality?

Schelling agreed with Kant that one cannot attribute the notion of existence or Being to *an sich* or the noumenal or the Real – as this is a category mistake.[114] One cannot use discursive reason to characterise it – but we can nonetheless use reason to answer questions about it.

6.3.6 What is the relationship between the noumena and phenomenal worlds?

To explain the *an sich* and its connection with phenomenal reality, Schelling explained that the Real is embedded within Reality itself as a form of intuition. This is known as the 'receptiveness of the Real'. He also points out that Kant inverted natural order by prioritising the conceptual faculty of understanding over the concrete sensible intuitions of experience. He alluded to a failure by Kant to properly account for the origins of experience and objects – accusing the Kantian oeuvre of being groundless.

6.3.7 The nature of reason

Kantian reason was not a condition for truth or experience, but rather a barrier to it. As such, the ultimate ground for Reality, was this reason. Schelling's conception of reason on the other hand is founded on interactions with the Real which then cause its operation. In this way, experience is actual – unlike Kant's conception.

6.3.8 The Universe as the Absolute

Schelling says,[115] 'The absolute is not the cause of the universe but the universe itself'. The Absolute, for Schelling, is the Universe itself - or infinity which does not require a predicate of existence. It is unconditioned and its essence is 'to be'. The Universe consists of everything that we understand to be part of or within it. It is thus not a thing, but rather the naturalistic Whole of everything.[116] The subject-object identity now means that both mental and physical states are attributes of a single infinite whole/substance – which too was 'living' and 'growing' (or expanding in today's terms). He argued that everything in the universe could be unified by a vital force which then operated in a hierarchy of measure of how-much force was present. Lower rungs had less – like plants, higher rungs had more, like the human body. At the very top, was human self-consciousness.

The Whole/Absolute is an organism which is self-generating and self-organising as a whole. He came to these arguments based on the science of the time which had a different understanding of matter. Biological matter is active, self-generating and self-organising. The living force inside biological substances was thus both material and teleological (inherent in matter itself).

6.3.9 How do we know this Absolute?

Schelling argues that we could not have knowledge outside of experience, and the Absolute was the necessary condition for experience. How does this work? Schelling constructs his theories of philosophical construction and intellectual intuition. Briefly, he (and early Hegel) said that our discursive reason could never know unconditioned things, but reason itself was not discursive.[117] Reason is to be understood as a power of perception and intellectual intuition. The answer was in seeing things as a whole using reason. If we see things as wholes in themselves or ends-in-themselves – in Kantian parlance, there is no reason to relate them to other things. They further argued that in order to see things as wholes, its properties which are partial aspects of it, must be removed. Once these are removed, we can see its vital essence. Hegel changed his stance on this once he left Jena.[118]

6.3.10 The antagonistic Real and the cause of the split

Schelling says –

> 'Were the first nature in harmony with itself, it would remain so. It would be constantly One and would never become Two'.[119]

This is fundamental to understanding Schelling. He argues that the Real, as a *grund* is itself full of antagonisms, thus introduces those into reality too from within. In *Weltalter*,[120] *The Ages of the World*,[121] and the *Clara* dialogue,[122] Schelling argues that the Real is terrible, because it is that abyss of freedom that Kant feared. Thus, the *grund* for Reality, matter and Being is horrible, and it lays within Being, and just below the surface of Being. Absolute freedom is actually no freedom at all. Zizek suggests that the split from substance to subject is possible because of the antagonistic nature of the Real. The split itself, is an attempt (a 'desire') by the Real to resolve or suture those antagonisms within itself.

Zizek points out that Schelling makes another important contribution, namely that the Real is barred. It is because of this, that Being and existence is also full of antagonisms – or not in equilibrium. In *Organs Without Bodies*,[123] Zizek argues further that freedom and autonomy are only possible if this is the case – as Kant realised. The ultimate *grund*, must be incomplete or not in equilibrium. If the grund is unbarred, or in full harmony, then subjectivity or Being cannot emerge or exist. Subject (as corpo-Real) is the product of an inconsistent substance, thus seeking to create distance between itself, and substance. Subjectivity is thus the emergence of order out of chaos, as an attempted suturing of said chaos, which cannot be reduced back into that *grund* of chaos.[124] In this way, the split involves a sort of de-naturalisation or dematerialisation. This chaos of the Real nevertheless is just beyond the surface (and in Being too). Thus, because Being is just the Real attempting to 'fix' its own cracks, as such, Being as grounded on the Real means that Being is groundless.

6.3.11 Zizek and Freud: The libidinal economy and repression

Zizek likens this to the Freudian libidinal economy (energy/desire/hormonal feelings) wherein drives operate in rotation and involuntarily (as the ontogenetic ground for subjectivity). However, these drives are not in harmony (not in terms of their rotation – but in terms of the differences between the drives themselves).

The *trieb* or the vortex of the involuntary drives is not the beginning of time as we know it. Time rather begins after the point of negation, which is where the subject emerges from the drives (or is separated from the Real). The act of separation is what creates existence, reality and time. This Act is known as *ent-scheidung* – or a divorce[125] (or for Lacan the symbolic castration). The drives themselves exist in eternal time – and thus is not part of time itself. The true beginning for Schelling is the move from drive to desire, and the act of divorce is not within time itself – it is atemporal. The Universe thus does have a beginning, but not one in time. The divorce creates the linear flow of time itself (past and present only exist after the creation of the flow of time, prior to this they were the same), and the *cause in this way is obfuscated by its effects*. This means that the flow of time itself, obfuscates the Real and the Act of divorce. In meta-psychonalaysis this is known as primordial repression. What Zizek contends then, is that what is primarily repressed is not the Real as the rotary motion of the drives but rather *act* of the horrible pure freedom itself – being the divorce. This is the atemporal negation I described in *Subverting Foundations: Unintelligent Atemporal Design*. This is also precisely what Georges Lemaitre suggested when he first proposed the big bang theory in 1931. Schelling and Freud made the suggestion many years before Lemaitre did. We know that before the big bang, there was something, but that the big bang created the things we know including possibly the origin of time. In the 1960s, Penrose and Hawkins also demonstrated that time cannot extend backwards infinitely.[126] The common proposition of what existed before the big bang – is a singularity – or the vortex of the drives.

6.3.12 Why did Schelling create the unconscious?

Schelling was the first to coin the term unconscious. He was also the first to theorise what it was, and how it came to be. A theory which Freud later explicated. What Schelling does is motion towards the unconscious aspects of subjectivity including the unconscious as being the basis for acts and desire. The unconscious thus gave rise to the 'consciousness', and the highest act of all (the

divorce) is situated within the unconscious. The Real is the not-conscious, which is neither conscious nor unconscious. The conscious and unconscious occur only after the divorce. The subject is then formed with both aspects. The unconscious is the act of divorce which is repressed in the subject – thus inaccessible to consciousness.[127] Consciousness as a state, is accessible – but consciousness as the subject, is governed entirely by the unconscious. This is precisely what the scientific *Libet* experiment (and its successors) have affirmed.

Further, the act of divorce is primary in the unconscious, and the drives are secondary. Therefore, Zizek argues that the unconscious is not a limitation of freedom or autonomy – but rather the repression itself hides the truth being the pure act of freedom mentioned. That groundlessness of the act of pure freedom is what grounds Being. One can even argue that the act is frightening because it is an act without a motive or programme – since it is groundless. It can be argued then humans are fearful of a lack of agenda, or causation or motive. Think of someone who kills another with no motive, just a random killing.[128] This is also the Hobbesian notion that the law is created by humans as a means of curbing acts of freedom by other humans; the state of nature he argued was miserable because of the dangers of humans. For Zizek however this 'lack' is the condition enabling Being. In other words, it is a constitutive lack of knowledge which enables Being. This also allows there to be freedom. This lack includes a lack of meaning too (as described above) thus enabling for the reconstitution of anything including reality itself.

6.3.13 Justifications – Freud and Lacan

The demonstration of meta-psychoanalysis, here is to elucidate the similarities between these models and the scientific ones – and the philosophical ones. This relates to my the theme I expressed -namely that all subjects are expressing the same questions and answers; just in different ways. In Subverting Foundations: (Un)Intelligent Atemporal Design I highlighted Freud's conception of the unconscious and its repressive role. It is a repression of its own aim – being the search for satisfaction. This is the primary repression; secondary repression involves those which comes after the primary one. These are those which are associated with the original repression – which Freud calls the 'choice of repression'[129] – wherein people 'choose' their psycho-structure and pathologies (via the unconscious which in effect determines the structure and content of mental life). The Lacanian subject of the unconscious speaks to the same notion – namely that the a-subjective unconscious gives rise to the contents and structure of consciousness. What Lacan also did was introduce the *objet-petit-a*. An object of desire – which is not an object but desire itself (see *Meta-symbiosis: The Beauty of Asymmetry and Failure*). What humans desire is to keep desiring, and what we are afraid of, is to lose that ability of desire (and go back into the abyss of pure freedom). This sounds *eerily* similar to arguments contra AI subjectivity – so the arguments go that AI cannot be a subject or a person because it has no inherent desire – and is just operating at the whims of humans as tools. The logical requisite of the transcendental act of pure freedom which founded the subject/consciousness as being repressed can be described in Kantian terms – the conditions for the possibility of experience cannot be experienced themselves directly. Thus, the transcendental ego of apperception cannot be experienced, nor have experiences. We can only deduce it – but it must exist within this framework – and seemingly, within the frameworks of science too. Zizek says the following –

> 'This primordial act of "repression" which opens up the dimension of temporality is itself "eternal, atemporal, in strict analogy with the primordial act of decision by means of which man chooses his eternal character That is to say apropos of Schelling's claim that man's consciousness arises from the primordial act which separates present-actual consciousness from the spectral, shadowy realm of the unconscious, one has to ask a seemingly naive but crucial question: what, precisely, is the unconscious here? Schelling's answer is unambiguous: the "unconscious" is not primarily the rotary motion of drives ejected into the eternal past; rather, the "unconscious" is the very act of Ent-Scheidung by means of which drives were ejected into the past. Or—to put it in slightly different terms—what is truly "unconscious" in man is not the immediate opposite of consciousness, the obscure and confused "irrational" vortex of drives, but the very founding gesture of consciousness, the act of decision by means of which I "choose myself"—that is, combine this multitude of drives into the unity of my Self. The "unconscious" is not the passive stuff of inert drives to be used by the creative "synthetic"

> activity of the conscious Ego; the "unconscious" in its most radical dimension is, rather, the highest Deed of my self-positing'.[130]

6.3.14 The libidinal economy and subjectification

For Zizek, thus groundlessness, and the in-equilibrium in the rotation of the drives caused by their differences – that cause the lack as the necessary link to subjectification (which is the process of creating and absorbing aspects into one's psychical arena). It is, in essence, the creation of identity, culture, and the like – I will describe this more later.

6.4 Conclusion

In this section, I discussed how the subject object distinction (in its various guises) is necessary for knowledge in idealist tradition. The last account of which was Schelling's which posited that the core of thought (and by extension knowledge) is that of a barred Real. Thus, knowledge is predicated on the Real – which is a pre-ontological *grund* for Being.

7 The Hegelian oeuvre

7.1 Hegel on Kant

By taking Kant to the very end of his Copernican revolution, Hegel ontologises Kant's epistemology. In doing so,[131] Hegel mends the gap between epistemology and ontology. Importantly, unlike Kant, Hegel embraces contradiction and antagonism and thereby fully embraces human reason, for it is reason that demonstrates antagonism. In *The Ticklish Subject: The Absent Centre of Political Ontology*,[132] Žižek says –

> 'We fail to grasp the Absolute precisely in so far as we continue to presuppose that, above and beyond the domain of our finite reflected reasoning, there is an Absolute to be grasped—we actually overcome the limitation of external reflection by simply becoming aware of how this external reflection is inherent to the Absolute itself. This is Hegel's fundamental criticism of Kant: not that Kant fails to overcome the external reflection of Understanding, but that he still thinks there is some Beyond which eludes its grasp. What Kant does not see is that his Critique of Pure Reason, as the critical "prolegomena" to a future metaphysics, already is the only possible metaphysics'.[133]

7.1.1 Verstand (understanding) and vernuft (reason)

Both idealists have different conceptions of reason and understanding. For Hegel, the understanding is responsible for imposing a conceptual grid on sensory experiences and intuitions – and thus organises them according to a flow of time. Through its own activity, the understanding itself creates a feeling that there is a gap in the sensuous experience of reality itself. This of course then also impacts reason and concept formation – which then results in the Kantian reason attempting to bridge this gap by critiquing the categories of the understanding to demonstrate that they are not suitable to deal with sensory experience.[134] Hegel's argument is then if one allows this bypassing of understanding in this way, the logical conclusion is a rejection of experiential reality itself – since reason is denouncing the categories of understanding. Thus, the role of understanding in its conceptual cookie cutting activities is fundamental for there to be a reality.[135] Zizek rightly points out that Hegel's proposition here is also a destruction of the myth of a 'vital fullness' existing before sensory experience.[136] This vital fullness does not exist – and thus Hegelian reason is that which accepts this fact – being the next evolutionary step of Kantian reason. The Hegelian cookie-cutter understanding is thus necessary for reality itself, *with Reason being absolute*.

Hegel makes another incredible dialectical shift here. Whereas Kant drew a distinction between them, Hegel argued that the Understanding (as the finite) gives births Reason (as the infinite). As I mentioned earlier, the infinite comes from within the finite. Reason comes into being, as a result of the contradictions within Understanding (thus, both Reason and the Understanding reach the Real itself). Reason grows and has as close to unlimited potential as possible. The distinction between them, is thus more like a soft membrane. The Understanding is also equated with self-consciousness for Hegel (discussed more below). He says –

> 'Above we indicated the significance of the Understanding in reference to the self-consciousness of substance'.[137]

He goes on to say –

> 'The Understanding's 'explanation' is primarily only the description of what self-consciousness is'.[138]

Herein lies the difference between Absolute Knowing, and Absolute Knowledge.[139] The

former is an act of the Understanding – wherein it realises that Reality itself is incomplete or full of contradictions because of this incompleteness. When one realises that, one achieves Absolute Knowing, or self-conscious Understanding. However, Absolute Knowledge, is self-conscious Reason, which is infinite. It continues to grow, forever, because Reality is incomplete, thus there will be endless contradictions and possibilities. *The circle never closes with Absolute Knowledge.*

7.1.2 The ding an sich: Essences and appearances

For Hegel, the *ding an sich* is just the formless or residue left after the activity of the understanding which voids phenomena of their phenomenal properties/features.[140] It is just a thing which exists in thought, and is nothing in its nature – which he calls the *gedankending.* For Zizek, this is important as it demonstrates that inconsistency/incomplete phenomena come first before reality, or limitation comes before transcendence. For me, chaos comes before order. It is the activity of the subjects understanding which creates noumenal holes in experiences and appearances. *All that exists, is phenomena*.[141]

Hegel points to the illogical nature of Kant's reduction of everything into appearances for consciousness[142] – because both concepts only exist in a dichotomy with their opposites (consciousness only exists if unconsciousness is posed for example). In this light, Hegel notes –

> 'No one knows, or even feels, that anything is a limit or defect, until he is at the same time above and beyond it... A very little consideration might show that to call a thing finite or limited proves by implication the very presence of the infinite and the unlimited, and that our knowledge of a limit can only be when the unlimited is on this side in consciousness'.[143]

All this means is that in order for there to be a limit, logically, one must have stepped past that limit[144] – thus one must have stepped passed appearances (via cognition) into the *ding an sich* for one to pose that there exists a limit (as Kant says we cannot know the *Ding an sich* via cognition). Hegel introduces the 'inverted world' in the *Phenomenology of Spirit.*[145] What he says, is that the *ding an sich* is not independent from the subject – and is itself a product of consciousness, wherein consciousness treats phenomena as appearances. The corollary of this is that appearances operate in a dichotomy – thus creating the impression that there exists an essence like the noumena.

7.1.3 Fantasy and the essence of essence

According to Hegel,[146] when one realises this, reality then becomes the Absolute. It is the essence of essence to appear, and thus appearances are essences in themselves. In making this argument, Hegel merges and subverts the dichotomy of essences and appearances. Now, phenomena create noumena instead, and the properties of things are now paramount. Appearances are now properties of the thing whilst also being an essence.[147]

In the *Hegel's Logic: The Encyclopedia of the Philosophical Sciences*,[148] Hegel says that – 'the things of which we have direct consciousness are mere phenomena, not for us only, but in their own nature'.[149] The appearance, which is also essence, is now the property of the phenomena, rather than phenomena being the property of the noumena. Essence is the appearance of essence, and the noumena is an illusion which arises from phenomena.

In *Science of Logic*,[150] Hegel reflects on Kant's stripping of objects of all there determinate and experiential characteristics; thus, he argues that Kant has made the *ding an sich* unknowable in this way. Objects just become an abstract nothing.[151] Hegel says[152] –

> 'Things are called "in themselves" in so far as abstraction is made from all being-for-other, which means simply, in so far as they are thought devoid of all determination, as nothings. In this sense, it is of course impossible to know what the thing-in-itself is. For the question: what? demands that determinations be assigned; but since the things of which they are to be assigned are at the same time supposed to be things-in-themselves, which means, in effect, to be without any determination, the question is thoughtlessly made impossible to answer, or else only an absurd answer is given'.[153]

Thus, the *ding an sich*, are understood to be an appearance of an appearance – with their being an inner essence hidden away within. The *ding an sich* is then a genetic outcome which are themselves created by the subjects consciousness. The subject hypostasises its own illusion and attitude towards phenomena.[154]

This is precisely what we find in the debates today. We see concepts like 'human nature',

'human essense' and 'the soul' which we then add as pre-requisites for subjectivity itself. What is effectively being done, is the hypostatisation as 'human' as being the essence of 'subjectivity'. Then when this false hypostatisation is challenged, the common argument is that reducing subjectivity to 'less than human' (meaning without human as being the essence) – this results in a devaluing of the human itself. However, removing the human essence within subjectivity is not the cause of the devaluation; rather the false equivalency of the human and the subject is the cause of the devaluation. Why is human the essence of subjectivity (like the notion of wanting to hold the human responsible for the actions of an AI) – but then an AI is excluded from being a subject? Surely, if the human is the essence of what it means to be a subject, and the human is also the essence of the AI, then an AI should also be a subject? Nevertheless, why does the noumena arise from the phenomena?

7.1.4 Essence as self-suturing of appearance

Hegel says that –

> 'The thing in itself, which has become so famous in the philosophy of Kant, shows itself here in its genesis, namely, as the abstract reflection into self which is clung to at the exclusion of different determinations as the empty basis for them'.[155]

Hegel's argument is that essences are posited to stabilise the influx of many different chaotic perceptions or contradictions. The creation of essence or transcendence is an attempt to unify and control these issues – this is known as the transcendental illusion. Consciousness tries to form order from chaos by positing false universals such as the noumena. Essence is thus an act of attempted self-suturing. If phenomena were stable and unified in themselves, there would neither be a subject nor a transcendental Thing. This is true for both the Real and Reality.[156]

In *Organs without Bodies*,[157] Zizek argues that 'transcendence' is a perspective illusion, which comes from the inconsistencies within immanence itself. As I will argue below, this is what Chalmers calls the first-person perspective, and awareness. As I have demonstrated already, contradictions within Reality itself causes transcendence in the form of subjectivity and awareness. The lack is therefore within immanence itself, and subjective reflection is the means in which the subject gives its Reality (and ontology) a coherence and consistency – unlike Kant who argued that subjective reflection is external to the 'Whole' – rather the 'Whole' is created by the subject itself. Importantly, this subjective reflection on things is part of the essence of observed things themselves – and thus not external to those same things. Key here is that Hegel is suggesting that apperception comes before perception. This is fundamental to the diffusion of Chalmers argument regarding the hard problem which I provide in *The hard problem, qualia, agency, intelligence, and Freud*. Apperception means that the subject is perceiving that he is perceiving; and it is because apperception comes first that the phenomena are designated the status of appearances. If you switch the order in this way, the hard problem does not arise. Hegel elaborates this as –

> 'The inner world, or supersensible beyond, has, however, come into being. it comes from the world of appearance which has mediated it; in other words, appearance is its essence and, in fact, its filling. The supersensible is the sensuous and the perceived posited as it is in truth; but the truth of the sensuous and the perceived is to be appearance. The supersensible is therefore appearance qua appearance'.[158]

7.2 Hegelian substance and/to subject

7.2.1 Subjectivity as negativity and the night of the world

In the *Hegel's Logic: The Encyclopedia of the Philosophical Sciences*,[159] Hegel once more analyses the *ding an sich*, and this time he says –

> 'The Thing-in-itself (and under "thing" is embraced even Mind and God) expresses the object when we leave out of sight all that consciousness makes of it, all its emotional aspects, and all specific thoughts of it. It is easy to see what is left—utter abstraction, total emptiness, only described still as an "other-world"—the negative of every image, feeling, and definite thought. Nor does it require much penetration to see that this caput mortuum is still only a product of thought, such as accrues when thought is carried on to abstraction unalloyed: that it is the work of the empty "Ego," which makes an object out of this empty self-identity of its own ... Hence one can only read with surprise the perpetual remark that we do not know the Thing-in-itself. On the contrary, there is nothing we can know so easily'. [160]

The *ding-an sich*, as the subject now - consists of whatever its own consciousness has posited

or created as the essence (the transcendental illusion) of itself. To this, Zizek says –

> 'Beyond the veil of the phenomena…consciousness only finds what it itself has put there…" …There is nothing behind this curtain of appearances'.[161]

He then says in *The Sublime Object of Ideology*[162] –

> 'The appearance implies that there is something behind it which appears through it; it conceals a truth and by the same gesture gives a foreboding thereof; it simultaneously hides and reveals the essence behind its curtain. But what is hidden behind the phenomenal appearance? Precisely the fact that there is nothing to hide. What is concealed is that the very act of concealing conceals nothing'.[163]

Zizek continues –

> 'To "unmask the illusion" does not mean that "there is nothing to see behind it": what we must be able to see is precisely this nothing as such—beyond the phenomena, there is nothing but this nothing itself, "nothing" which is the subject. To conceive the appearance as "mere appearance" the subject effectively has to go beyond it, to "pass over" it, but what he finds there is his own act of passage'.[164]

What Hegel uses here is an example of infinite judgement (the famous negation of negation in his dialectics) which Kant created in the *Critique*. Subjectivity is neither the affirmation of a predicate nor the affirmation of the absence of a predicate. Instead, subjectivity is the affirmation of a non-predicate. Thus, this no-thing, is not nothing – instead, it is the infinite build-up of knowledge or information within the subject of failures to identify itself. It is in this way, that the materiality of the subject arises – the non-predicate is the means in which the subject is able to maintain itself as subject. Importantly, the distinction between the noumena and the phenomenal world now falls away – as the subject is not stuck in between both worlds as with Kant – but the subject is now the universal suturing within the phenomenal world. *There is no longer a gap between essence and appearance.* This build-up of negativity comes from the negative aspect of the subject's imagination – namely to separate something from that which can only be understood and exist as part of a whole.[165]

7.2.2 The negative of the imagination

As I described earlier, the transcendental imagination for Kant is what makes knowledge and experience possible (harmonises the understanding and sensible intuitions). It is thus a mechanism of creation, unification, and harmonisation. This imagination is also responsible for ensuring continuity over time (of objects and self).

However, this constructive imagination is preceded by its negative counterpart – which deconstructs or breaks things apart. The Hegelian night of the world speaks to this destructive aspect of the imagination, wherein it breaks things from wholes into parts (disassembling reality and experiences themselves). This is also known as hermeneutics, and I have described this as –

> 'Given that everything is information, this also means that the laws we know of information applies to us too. Namely, information is expensive (energy wise)[166] to obtain. Additionally, information is expensive (energy wise) to store. To make the storage of information more efficient, it needs to be ordered, less random and attached to narrations, words or symbols[167]. It is also expensive to manipulate and retrieve, thus the way in which we store information needs to be efficient (this also explains the process of neural which is necessary in order to function in a specific kind of reality). Another instance of this, is that compression is fundamental to efficiency; we create tunnels as our narratives wherein we ignore vast chunks of information. Thus, when we're 'conscious', we're taking in selective information; patterns. Patterns are representations of information (known as knowledge) within information, as a matter of efficient storage and. One cannot store or utilise all the information available, thus one must look for useful bits as patterns to avoid this. Patterns are summaries, or compressions of information. Patterns, and rules are compact and require less energy expenditure. [168] Consciousness is thus the state of heightened perception I mentioned earlier. It is also the state of storing and processing patterns. Consciousness is reductionism itself. Thus, our reductionism, is also what results in us thinking the Universe and the world is less random than it actually is.[169] Compression and rule finding enables us to reduce the dimensionality of things to make them comprehensible. Knowledge is then compressed information which helps us make sense by abstracting/creating some order from randomness. The paradox is that rationality in all its intellectual guises is fundamentally irrational; knowledge is irrational. Media in the forms of books, magazines, plays, stories, arts and science are all based on this principle of compressed bits of information. [170] There is actually no real difference between knowledge and therapy when you look at it, both are there to help us make

> sense of things, and ourselves. This is one of the reasons why psychoanalysis is a key body of work to consider. The other of course being the fact that characterises modern humans is delusion'.

On the negative of the imagination, Zizek contends that –

> 'Kant's notion of imagination silently passes over a crucial "negative" feature of imagination: obsessed as he is with the endeavour to synthesize, to bring together the dispersed manifold given in intuition, Kant passes over in silence the opposed power of imagination emphasized later by Hegel—namely, imagination qua the "activity of dissolution," which treats as a separate entity what has effective existence only as a part of some organic Whole. This negative power also comprises Understanding and Imagination'.[171]

Thus, this negative aspect of the imagination is the spontaneous act of breaking things down (the concept of abstraction and analysing), which can also break unities. Thus, the negative imagination breaks down what our perceptions (into abstract things) which the Kantian imagination puts together, then the Kantian imagination activates once more to 'fix' or put together what the Hegelian imagination has deconstructed.

This negative imagination is responsible for the split (and the maintaining split) between substance and subject (especially within the context of the Imaginary register discussed later). Moreso, I would suggest that it is also 'stronger' than that of the Kantian imagination, since if they worked in equal proportions, it may impact our status as in-equilibrium systems. We see evidence of this in the refusal to incorporate other systems into the domain of subjectivity based on reductionist arguments such as consciousness. Apropos, I would also suggest this negative imagination tends be amplified in instances where there is already an existing bias (moral disgust which I described previously).

Within the framework I previously discussed, on an individual level this fits in perfectly with the abstraction capabilities of the PFC and rule/correlation finding. Furthermore, as I also discussed, infants form proper pictures and understandings of objects as time goes on – and they do so via abstraction. Meaning, they learn rules through abstraction which then 'corrects' their perceptions of objects. Abstractions then come before unity. A form of learning can be understood as a means of abstraction followed by re-construction. The negative imagination can also be an instance of disavowal of rules (such as renouncing a rule or correlation which is no longer coherent). This negative imagination is the power of the unconscious and its atemporal logic (see *Subverting Foundations: (Un)intelligent Atemporal Design*).

7.2.3 Freedom and the imagination

These autonomous acts of the imagination are what constitutes freedom for the subject. It is also what allows knowledge to be possible. Knowledge thus does not depend on a subject-object framing – since abstraction is possible from subject-subject interactions. Unless one views the subject-subject interaction as being a dialectic subject-object interaction in which they continuously swop. In either case, the subject-object distinction is no longer necessary for the possibility of knowledge – it is only defined by abstraction and creation. Furthermore, if one accepts the dialectic relationship, then a human can be an object in specific instances of knowledge creation (through transubstantiation), which also opens the door for an AI to be a subject in instances of knowledge creation. The separation between subject and object is permeable depending on the relationship. In this way, knowledge does not simply arise in a linear manner, nor does it arise through 'consciousness' alone. In the *Selfish Gene*,[172] Dawkins notes that –

> 'Even if we look on the dark side and assume that individual man is fundamentally selfish, our conscious foresight—our capacity to simulate the future in imagination—could save us from the worst selfish excesses of the blind replicators ... We have the power to defy the selfish genes of our birth and, if necessary, the selfish memes of our indoctrination. We can even discuss ways of deliberately cultivating and nurturing pure, disinterested altruism—something that has no place in nature, something that has never existed before in the whole history of the world. We are built as gene machines and cultured as meme machines, but we have the power to turn against our creators. We, alone on earth, can rebel against the tyranny of the selfish replicators'.[173]

To put it this way if one wishes to argue that AI cannot be a subject because it is not 'free' or 'autonomous' they would also be endorsing Kant since it is he who brought the notion into philosophy (in persons not cities like the Greeks). Consider as well, that his version of autonomy was spontaneity – namely actions

taken because of a lack of knowing what one is to do. All acts were free in this way for Kant. Autonomy is thus not based on whether one has consciously planned an action, or whether one desires a certain action or result, *it is just the action itself*. The Will *is an act*. Kant's moral philosophy equates autonomy with following the moral law – which again, *is in the action itself*. Thus, the argument about AI not planning their own actions, not having desires is irrelevant. Unless one argues then, that an AI's actions is akin to Kant's feared puppet non-freedom. If one chooses that line of arguing, then one must also drop the requirement of 'understanding' or 'knowing' from their arsenal. Why? Simply because Kant stating that we can be free only-in-so-far as we do not *know* what the Divine wants from us. If one chooses that line of arguing, *then one would be indirectly asserting that the AI knows or understands us*. In which case, there is a moral dilemma – why is it not a subject?

Importantly, this dual imagination also allows us the freedom to redefine concepts and understandings. Including that of the human category, and that of the subject category. Reality itself can be re-constituted. This includes the universals which the Kantian imagination posits to suture contradictions. The notion that the human comes before the subject is an example of this, which creates the illusion that 'human' is the predicate for the subject and not the other way around. This is an attribution of a false essence within the subject; the essence of the subject is 'human' or human related capacities (which are already erroneous since fictions like cognition are not individual properties). Both forms of the imagination can only exist in an open system – namely that there is no ontological closure. The subject must then be barred which it is due to the Hegelian negation of a negation, followed by a onto-transubstantiation or onto-transcendence of the subject (as arising from substance, but not being reducible to substance).

Why do these series of negations take place? We can turn to Heidegger's existentialist account of the Dasein in *Being and Time* as the starting point.[174] Heidegger's says that Being is a question for being – meaning, that which characterises being, is existentialism angst itself. From where does this 'conscious' angst arise? The answer is when something breaks, or stops working – namely when it no longer has a purpose.

As I have described already, within the Universe, information preceded biological life. It is a characteristic of the universe itself to produce primitive physical orders of information as a matter of statistics and time as described. Thus, a characteristic within the Universe, is that there exists oppositions and contradictions. Boltzmann's entropy also allows for an opposition to it – which although seemingly contradictory, is both the condition for information, and the cause of its destruction. Thus, it is an inherent characteristic of the Absolute to 'split' in this way. I have also described when consciousness is at its most palpable – namely, in the presence of contradiction.

7.2.4 External reflection

As Hegel ontologised Kant, this also changed the epistemological content of external gaze/reflection. Gaze now is something that inheres within substance and subject (and Reality and Being as an internal inflection).[175] The subject which looks at the object (or substance) is just substance looking at itself now. Zizek says –

> 'The external gaze of the Subject upon the inscrutable Substance is from the very beginning included in the Substance itself as an index of its disparity with itself'.[176]

The subject is an instance of self-alienation by the substance itself – whereby the substance externalises something to gaze upon it. This is a kind of transubstantiation of substance, by substance.[177] It is the self-subjectification of substance. Zizek says –

> 'Or, as he words it later elsewhere, Hegel's motto "one should conceive the Absolute not only as Substance, but also as Subject" means: "subject" is the name for a crack in the edifice of Being'.[178]

This subversion of the hierarchy between gazor (subject) and gazed upon (object) means that gaze is a property of substance or 'objects' themselves. One cannot now rely on the internal-external dichotomy. The internal-external dichotomy as described earlier is based on the posit of an essence as being internal, and not on the exterior – thus we seek out consciousness as being the source of subjectivity – because it must be an internal phenomenon which is not subject to our vision. So too the arguments of consciousness or awareness as being central to subjectivity fall away.

8 (De)materialising the registers

Briefly, the registers are the meta-frameworks for everything. The first is the Real – that which gives rise to Reality – it precedes Reality, but it is also ever-present and de-and re-constituting Reality. Reality is the world that we are known to 'know' and 'experience' – this includes classical mechanics and laws. The Symbolic Register is that which consists of memes which we created. The Imagination Register is the one situated within us which constitutes of subjectification. They will be explained in more detail below.[179]

8.1 The Real Register

Lacan's conception of the Real is unlike Schelling's, rather for him the Real is an excess which we create to fill in the gaps that subsist within the Symbolic. It is thus posited from within. Hegel's Real is that which comes after he mended the gap between Kant's epistemology and ontology is the shift from the transcendental perspective (the first person subjective) to the second person subjective.[180] A view from this perspective means that the Real is within Being – namely that the contradiction exists within Being itself – as a self-splitting. The gist of the Hegel shift results in the Real of substance being barred as a necessary condition for subjectivity to emerge from (a-subjective totality or the abyss of freedom) substance.[181] Without the Real being barred, the subject would not be subject, it would be the tragic Kantian puppet. I have already described my Real – it is something which precedes ontology, gives rise to ontology and Being, and subsists within Being too. I have also presented an information theory explanation as to how substance splits into substance and subject. Namely, information appears within the Real – it then grows and resists being usurped back into the Real. I have described meme theory (how certain things rise to the top and act as universals until they are displaced) and the cortical mosaicism. This will also be my explanation for the movement of subject through subjectification below.

8.2 The Symbolic Register

The Symbolic register is the immaterial 'thing' which arises from the material Being. I have described it in detail earlier. It includes all of our metaphors and symbolism – including meaning. It represents the movement from chaos to order – and often elements in the symbolic also demonstrate stubbornness as described (including resisting AI as a subject I have argued). Subjects within the symbolic are known as persons, once they have been through subjectification – meaning absorbed certain identities and distinctions. We create the symbolic not only as a means of orchestrating our collective cohesion in the pursuance of objective goals – but also because of and a means to suture the inherent 'lack' or in-equilibrium within Being. Subjectification gives Being a sense of corporeality or substantialness – which it otherwise lacks. It is the process of absorbing many different identities, rules, features, attributes and qualities.[182] Unfortunately, thereafter, the symbolic identities 'colonise' Being – in that Being feels it is reduced to these identities.

The symbolic also consists of operators including features, insignias, traits and marks.[183] The symbolic is barred too for the same reasons as the Real – if it were not, it would be unchanging – and there would be no subject or freedom to reconstitute the Symbolic. It is barred too because it comes from a barred subject.[184]

For Lacan, the symbolic is the order of the 'unconscious' in that it (1) it is determined by the Other – being dead subjects who came before the current subject. Thus, the current subject operates within a domain – and is in fact created (as below) by the Other. This is why Lacan says the subject, is the subject of the Other/or the unconscious. Lacan also states that the unconscious is structured like a language, namely that it acts as the thing which the subject is to internalise, and the framework of its operation – thus creating the scaffolding for the subject's behaviour, beliefs, understanding, relations, thoughts and the like. Thus, the unconscious is the symbols within the subject's operation.[185] The subject of the unconscious in language refers to the reflexive 'I' in language when one speaks – as demonstrated by Benveniste below.

Importantly, the ontology of the Symbolic is that of identity – namely contradiction and difference (reflecting the subject being barred). Symbolic meaning comes from contradistinction to something else. Instead of seeking similarities – the symbolic begins by looking for differences. The symbolic legal person in American positivist law may be a possibility currently.[186]

Relating back to subjectification – it always fails because of inconsistencies and contradictions that are presented to the subject (such as observing changes within their appearance, and noticing that what I am for others, is not what I actually am. However, subjectification seems to be primary in the symbolic realm. Only upon failure, once those identifications fall away, does the true subject appear for Zizek. For Lacan, desire is always the desire of the Other. This desire is seated within the unconscious – which is of course maintained by the Symbolic Register and its castration by way of introducing the Other into subjectification through language for example. The unconscious for Lacan is thus always the discourse of the Other and belongs to the Symbolic.

8.3 The Imaginary Register

8.3.1 First person perspective/subjective and the self

Lacanian ontology distinguishes between the *je* and the *moi*. The *je* is the subject (*sujet*) as subject of the signifier (the reflexive 'I'), and the *moi* is the imaginary reflected ego (the transcendental ego or the first person subjective in Chalmers' language). Lacan's conception of subjectivity aids me, because it does not require reflexivity as being an essential condition for subjectivity. The *moi* is formed in the mirror stage for an infant – although mirror stage hints at a visual cue, it is just a reflection based on an interaction with the Big Other (being a parent). This interaction with the big Other creates the *moi*, and the *moi* becomes an object consisting of a series of identifications throughout one's life. Thus, the core of self-consciousness and self-identity is based on this *moi*. Importantly, Lacan adds that is 'recognition' is actually a 'misrecognition', and so too every other recognition.[187] Agreeing with Lacan's theory of misrecognition, Badiou[188] further adds that there is both a power to this, and a purpose for it.

There are two important things to understand with Lacan's subject: (1) the subject is not the ego; and (2) the ego is responsible for identity via a series of empirical misrecognitions (the self) – therefore the self (as ego) is not the subject – and must not be reduced to such. When one removes the layers of subjectification, one ends up with *no-thing*, but this no-thing is not the same as nothing for Zizek, instead it is the subject as a complete (and always) failure to determine itself.[189] In summation – the subject is its own failure to symbolically represent itself as a metaphor. Thus, it is not a positive self-consciousness, but rather, a proof of an untruth or a falsity (in Gödel language). This is yet another reason why German Idealism is important – Kant was the first to a crack in the Universal. The subject itself, is its own obstacle. The claims of German idealism are thus not limited to abstract philosophy, further reifying the theory presented here.

8.3.2 The glue of the first-person perspective/subjective

In both his 1921 study, *Group Psychology and the Analysis of the Ego*,[190] and his 1923 *The Ego and the Id*,[191] Freud suggests that the ego and the individual psyche are formed by an internalisation of unique features (libidinal objects) from others which the psyche identifies with. The psyche is composed of a series of identifications through relations with others. Lacan builds on this idea in his *Eighth Seminar*,[192] where he notes that within the mirror phase, symbolic identification shapes and conditions the scaffolding of the imaginary order – which is prompted by the verbal and physical gestures of others (adults) with the child. *Thus, symbolic identification comes before the imaginary identification*.[193]

Lacan also introduces the concept of the unary trait.[194] This trait is a necessary *sinthome* (symptom), to ensure the structures are stable (the unary trait is the *grund* for the ego-Ideal as identity). The unary trait is the elementary form of the signifier as pure difference which allows for symbolic identification. It is the mark of the Big Other (the parents and family usually known as the key signifiers), which is encouraged and validated throughout development (this is the core of the ego-Ideal).[195] For Lacan, *the ontogenetic beginning of subject formation is that of anxiety or longing – which stems from the infant needing support from others to survive.*[196] This reliance on others is internalised by the infant which correspondingly leads to internalising the alienating identity given by others. The shift from the symbolic identification first, followed by imaginary identification second is key – the symbolic unary trait (the reliance and relation with familial Big Other) creates the scaffolding for the imaginary identity. However, this ego-

Ideal[197] can never achieve what it believes itself for reasons mentioned. The mirror itself, is the manner in which the subject is then given a phenomenal or experiential content of this identity.[198] This symbolic mark as the unary trait is what creates the relatability of other experiences to oneself, and the workings of perspective are too based on this.

8.3.3 Support for this conception

There is support from linguistics. Saul Kripke in discussing proper names argued they have nothing to do with the qualitative features of the named object (echoing John Stuart Mill).[199] They may at first be based on relational descriptions, however they become concretised (rigid designators) wherein proper names retain their function independently of the different qualities of the named objects. Proper names are not descriptions of qualitative properties of objects – if properties change, the name do not. For Kripke, prior to naming, there is no essential core or nature of a thing.[200] Kripke says –

> 'If a quality is an abstract object, a bundle of qualities is an object of an even higher degree of abstraction, not a particular. Philosophers have come to the opposite view through a false dilemma: they have asked, are these objects behind the bundle of qualities, or is the object nothing but the bundle? Neither is the case; this table is wooden, brown, in the room, etc. It has all these properties and is not a thing without properties, behind them; but it should not therefore be identified with the set, or "bundle," of its properties, nor with the subset of its essential properties. Don't ask: how can I identify this table in another possible world, except by its properties? I have the table in my hands, I can point to it, and when I ask whether it might have been in another room, I am talking, by definition, about it. I don't have to identify it after seeing it through a telescope. If I am talking about it, I am talking about it'.[201]

For Kripke, proper names are designators for things (the same thing) in all possible worlds – with possible worlds being characterised themselves by the descriptive conditions we have associated them with. When Kripe speaks of the identity of objects, he does not mean objects in the phenomenal world of experience, he means the trans-world of self-sameness. He also says that it is impossible for an individual to reach, this trans-world exists solely by its concept (by thinking about it and bringing it to language). Thus, anything is a thing, because of an understanding and rigid designation. This creates the appearance that there is an essence which irreducible to its qualities. On personal pronouns, Benveniste says[202] –

> 'Now these pronouns are distinguished from all other designations a language articulates in that they do not refer to a concept or to an individual. There is no concept "I" that incorporates all the I's that are uttered at every moment in the mouths of all speakers, in the sense that there is a concept "tree" to which all the individual uses of tree refer. The "I," then, does not denominate any lexical entity. Could it then be said that I refers to a particular individual? If that were the case, a permanent contradiction would be admitted into language, and anarchy into its use. How could the same term refer indifferently to any individual whatsoever and still at the same time identify him in his individuality? We are in the presence of a class of words, the "personal pronouns," that escape the status of all the other signs of language. Then, what does I refer to? To something very peculiar which is exclusively linguistic: I refers to the act of individual discourse in which it is pronounced, and by this it designates the speaker. It is a term that cannot be identified except in what we have called elsewhere an instance of discourse and that has only a momentary reference. The reality to which it refers is the reality of the discourse. It is in the instance of discourse in which I designates the speaker that the speaker proclaims himself as the "subject." And so it is literally true that the basis of subjectivity is in the exercise of language'.

The 'I' is thus then empty. It is an action (being the exercise of language – like Fichte's conception of subjectivity being in acts themselves). The 'I' is attached to referents, but never forms part of them.[203] Furthermore, the concept of 'I' never changes, despite any and all individual using it – it is a signifier which remains the same despite the change in signifiers. By this use of 'I' an illusion is created, and maintained, a unity of sorts in which there is continuity over time upon utterance. Benveniste calls these linguistic shifters – that which has no signifieds outside their immediate usages.[204]

The first-person notion of subjectivity (proper names and personal pronouns) thus assist in creating continuity through an illusory representation devoid of empirical content – a unary trait. This then sets the scaffolding of identity. The Lacanian Symbolic *je* underlies the imaginary *moi*. The unary trait is a mater operator undergirded the self, identity and language.[205]

For Lacan, the symbolic *je*, underlies the imaginary moi and its perception of the changing body. Thus, the unary trait can be understood as a master operator undergirding identity, the self and language. In the *Ninth seminar*,[206] he once more says this unary trait creates the feeling of subjectivity without the sense of any empirical features. His conclusion is that the effect (and identification with it) from the signifier creates the subject.[207] There is no *a priori* void of non-empirical subjectivity which comes before subjectification – but there is a non-empirical unary trait imposed as a mark which then creates the basis of subjectivity and identity. The predicate, comes before the subject.[208]

I have previously discussed what would account for a neurobiological formation of the 'ego'. I have also mentioned Piaget's work. To add more evidence to this and ego boundaries, my favourite book, *The Man Who Mistook His Wife for a Hat* by Oliver Sacks (a neurologist and psychiatrist),[209] demonstrated, in the chapter called 'A matter of identity', how patients who lose that fundamental unity of self-conception and how this destabilises identity – including patients creating completely false stories of themselves such as those watched on television or those of someone else (which they genuinely believe is them). We also see evidence of this from dissociative disorders which tends to show itself after childhood trauma.[210] The split-brain subject experiments by Sperry and Gazzaniga also demonstrate something similar[211] – where the *corpus callosum* region connecting the left and right hemispheres of the brain is severed, each side of the brain has its own differing perceptions, concepts, and impulses. Also importantly, the corpus callosum develops rapidly during infancy.[212] The unification of the self, in terms of the unification of the hemispheres, is demonstrably related to this. Thus, a singular ego formation seems to be based on the corpus (or the transcendental apperceptive 'I" or the subjective first-person experience). This does not mean that the corpus is the seat of the ego – it simply means that this is evidence that each hemisphere is able to create its own singular ego. Also, of note, the corpus is present in *all* primates and seems to have evolved with the neocortex.[213] Perhaps then, *there is something like it is to be a bat* in Chalmers or Nagel[214] parlance.

8.3.4 The secondary person subjective

The first and second person subjective involve the 'I's and the 'you's'. It is to differentiate between two subjects in communication. The 'you's' include the 'he's' and the 'she's'. The I automatically implies the you – in ordinary parlance unless one is speaking to oneself. 'I' is seen to be the predicate of 'you' as per Benveniste above. However, this is based on a specific modality of language – being the spoken word. There are other modalities of communication, including body language and behaviours, or chemical releases (pheromones for example) which also imply a first and second person subjective. Furthermore, there is inter-species communication in this way (and in ordinary language) which automatically denotes and 'I' and a 'you' – unless one chooses to view this kind of communication through the subject-object paradigm – in which case my point is made all the more secure. Programming is also language – python is coding language. It does not designate an 'I' or a 'you'. To conclude, the 'you' does not need to be another human – and depending on interpretation, the 'you' is understood as another subject-subject communication – despite what would ordinarily be understood as an object in the symbolic.

8.3.5 The third person perspective

I have briefly touched on this above. Benveniste is helpful once more. On this, he says –

> 'But in the third person a predicate is really stated, only it is outside "I-you"; this form is thus an exception to the relationship by which "I" and "you" are specified. Consequently, the legitimacy of this form as a "person"is to be questioned. We are here at the center of the problem. The form that is called the third person really does contain an indication of a statement about someone or something but not related to a specific "person." The variable and properly "personal" element of these denominations is here lacking'.[215]

He goes on to say –

> 'It only presents the invariable inherent in every form of a conjugation. The consequence must be formulated clearly: the "third person" is not a "person"; it is really the verbal form whose function is to express the non-person. This definition accounts for the absence of any pronoun of the third person-a fundamental fact that it suffices to notice-and the very peculiar situation of the third person of the verb in most languages, of which we shall give a few examples'.[216]

He goes on to list multiple examples of languages, and each of them have an issue expressing what this third person is. He says –

> 'Those which have just been cited suffice to make it obvious that the first two persons are not on the same plane as the third, that the third person is always treated differently and not like a real verbal "person," and that the uniform classification into three parallel persons does not fit the verb of these languages'.

This is precisely what the subject is. This is an example of infinite judgement once more – namely the affirmation of a non-predicate. This is precisely what subjectivity is – and everything we have tried and failed to attach to it. Intentionality for example in law is a third person view – since it is simply a metaphor – it does not designate the actual state of things. So too with agency.

8.3.6 The failure in the Imaginary register

The subject begins by 'internalising' the symbolic identities – following which the failure occurs. This failure is caused by the antagonisms within the subject itself – including an active resistance to full incorporation of the Symbolic (like de-aption). The constructive imagination created order through the Symbolic Register and its internalisation – but the negative imagination then spontaneously destroys. The negative imagination can be understood to be fuelled by the empirical experiences (temporal negativity arising from subjective finitude). Lacan also warns that the unary traits do not form a stable identity over time. The unary trait is that which creates repetition, and repetition itself is not a unification.[217] Lacan is of the view that a pure repetition[218] is impossible. Basically, constant or repetition gives rise to change – thus the only constant is change itself in time. Thus, this is another reason why identification fails. For Lacan, the signifiers are inseparable from time – only insofar as they occur within a diachronically operation of more than one signifier.[219]

8.4 Hegelian-Speculation on Spirit

8.4.1 Spirit's endeavour

For Zizek, Spirit is itself the wound that it tries to heal; *the self-inflicted wound of nature*. The self-alienation of spirit (by its radical negativity described earlier) must be understood along with the non-substantiality of spirit itself.[220] Spirit (in self-alienation) is solely the process of overcoming natural immediacy (via negativity). It is also the cultivation of this immediacy (withdrawing into itself or taking off from itself).[221] Before the self-alienation of spirit, there is no self; it is the process of alienation itself which generates the self. The generation of the self via alienation then co-incides with the Spirits return. This process of alienation (from the Other as nature) and then the return provides for Spirits own constitution.

As I elude to in *Beautiful Impotent Reason*, the point of 'interaction' between quantum states and classical states results in a supposed 'breakdown' in the quantum state which is known as decoherence.[222] This can be caused by many factors including temperature. Decoherence is thus the movement from quantum states to normal probability distributions. For Zizek, what this symbolises is that it is the Thing itself which is the obstacle (the transubstantiated subject as separated from substance is the obstacle between substance of the Real and subject itself). For me, similar to Zizek, this perfectly represents *a perspective problem*.

The Hegelian philosophy is that of the fall. Namely the fall itself creates a new perspective whereby the fallen can see the 'position' from which he has fallen.[223]

8.4.2 Spirit's resistance

Spirit, or *Geist* rather (spirit has religious notoriety) is an intangible movement that grows from within over time. In the first three chapters of the *Phenomenology of Spirit*,[224] Hegel discusses the more common conceptions of consciousness – demonstrating that they all amount to an *absurdum*. In doing this, he also argues that those Kantian categories of mind need not be static, they in fact can evolve over time. The Kantian 'consciousness' is one defined by finitude, temporality, and their discontents, whereas this is just a 'starting point' of a process which can go on *ad infinitum*. It will do so, for reasons I have already mentioned, namely Absolute knowing and Absolute Knowledge. In simpler terms, Absolute knowing is understanding that only change is certain. The *Geist* is not individual self-consciousness, it is a collective eventuation. Hegel's notion of 'Spirit/Geist as a bone' is given to demonstrate how the *Geist* will remain undefinable for eternity, because that is its only characterisation – its *resistance*.

The Geist is a force of resistance to being reduced into the bone from which it arose.

8.4.3 Non-computational Spirit (1)

Gregory Chaitin proposed something like Roger Penrose, namely that what drives evolution itself is *non-computation*.[225] For Chaitin, life is an ever-evolving software (or algorithm). Fundamentally I agree with this. Non-computational logic is a form of logic which is devoid of causality (like following steps or rules). This is because it is *atemporal*. In *Subverting Foundations: (Un)Intelligent Atemporal Design* I noted the following –

> 'By negating the initial negation, time becomes distinct from space. Hence time emerges as a means in which difference can emerge by stepping outside of space creating a point of actuality which emerges from the abstract. This means that the negation of the negation contains negation as its content – in other words, the content of time itself is negation. Time is then difference because of its content – and anything in time too will have negation as part of its own content. This negational content of time however, is *atemporal* since it preceded the emergence of time; time emerged from it, with negation as its content. This content of negation too is *atemporal since it existed before time*. Time thus has atemporal negation as its content – in other words, the spirit (as negation) itself is eternal, existing outside the birth of time. This is a determinate qualitative difference'.[226]

This means that time itself contains within it the atemporal negation which impacts information itself. It ensures that information (and its various forms as matter for example) contains within itself its own negation. Given the fractals (see Beautiful Impotent Reason), we can assume this is found on different resolutions. Namely, we can attribute the negation of negation to other systems including the psyche of consciousness (with the unconscious as atemporal). Spirit thus resides in the unconscious (see *Subverting Foundations: (Un)Intelligent Design*). At the biological level the experience of atemporality would be the emotions experienced and importantly the simulations produced by the limbic system in conjunction with the ventromedial pre-frontal cortex. In *The hard problem, qualia, agency, intelligence, and Freud* – I describe how the brain performs simulations of past histories in order to determine how 'I' would feel. The 'I' of course is the whole embodied human person, but specifically it is the unconscious emotions of the dorsolateral prefrontal cortex. *History runs forward*, and this is an instance of what Hegel would call the *setzung der voraussetzungen* – which means to posit the presuppositions. This is *abductive atemporal reasoning*. It is explicitly *self-referential* and *ontogenetic*.

8.4.4 Information as an entropic force

Information theory is, in effect, an entropic force. An entropic force is that which arises from within a system itself – in 'opposition' to the system. To be more accurate, it arises as the contradiction within the system itself. In a study, focusing on genetics and the Covid virus, Melvin Vopson and Serban Lepadatu demonstrated in digital systems that while entropy of systems increases (thermodynamics), the *overall* informational entropy decreases (or stays constant).[227] They called this 'the second law of infodynamics'.[228] This law works in opposition and is, in fact, created by the thermodynamic entropy movement – it is an *emergent force* (an entropic force). However, that is just in digital systems – Vopson and Lepadatu took it a step further and examined the genetics of the Covid virus. Their finding was the same! Namely, while the overall system moves towards higher entropy (thermodynamic), the overall informational entropy remained constant or decreased – thus, the viral mutations are *determinable.* It is thus not that mutational content can be predicted, but rather that mutations themselves *are not random*. They are a feature resulting from an underlying contradiction by both entropy systems.

8.4.5 Information and energy

Given that information is the internal contradiction to entropy or rather; equilibrium (as the lack of free energy) the information must too contain energy as its own contradiction.

Maxwells demon is a thought experiment, by James Maxwell in 1867, which hypothetically 'violates' the second law of thermodynamics. The experiment consisted of a demon which controls a small massless door between two chambers of gas. Each chamber is filled with a mix of fast-moving and slow-moving molecules. When individual gas molecules or atoms move towards the door, the demon opens quickly and allows only the fast-moving ones to pass through in one direction, and the slower moving ones to pass through in

the other direction. The kinetic temperatures of gases depend on the velocities of its constituent molecules – the actions of the demon cause one chamber to warm up and the other to cool down. *This results in a total entropy decrease of the system without applying work (energy exchange)* – hence violating the second law.

However, this does not actually violate the second law. It has been demonstrated that in order for the demon to store, maintain, and use information, it must either give up its own low entropy state or it must have access to an energy source.[229] This means that it must start with a low entropy which then increases, or the demon has an infinite reservoir of low entropy. Thus, the total entropy never decreases, and the second law is not violated.[230] What happens is that the demon uses information to drive a system out of equilibrium, which allows the system to then do work. Maxwells demon has been demonstrated in laboratories.[231] *Information can be converted into work.* This means that it is possible to replace the transfer of energy from a sender to a receiver by a transfer of information – and this information transfer can occur with a much smaller energy than what the receiver gets out of the information.[232] In March 2023, the piezoelectric effect in liquids was also observed for the first time.[233] It was previously though that piezoelectric materials could only be solids which had the necessary properties to enable charge and release when stress is applied. The researchers in the paper observed that ionic liquids, which consist of salts and unsymmetrical flexible organic cations and symmetrical weakly co-ordinating anions.[234] Electricity builds within them – and is released when they are pressed or squeezed. The amount of electricity released is also proportional to the pressure applied. The researchers also observed how the optical qualities of the liquid changed after the electricity was released; *the way in which the liquid bent light changed.*[235]

8.4.6 Non-computational Spirit (2)

Here, I will speculatively ideate and build on the first part of the non-computational logic of Spirit. The speculation I posit here is that Spirits origin is atemporal and non-local.

8.4.6.1 The origin of Time in the Universe

The Big Bang is the origin of the arrow of time – but it is not the origin of the Universe itself. In February 2023, it the James Webb telescope uncovered that there were supposedly six 'massive galaxies' which were formed and mature within 750 million years after the Big Bang. The mature formation of these galaxies do not fit in with previous models of the Universe since there should not have been able to mature to that point in such a short period of time (they are as mature as the Milky Way). The formation of galaxies, stars and the like are supposed to several orders more amounts of time to according to the standard models (the calculations which all universal models are built). Thus, these are called 'Universe breakers' since they effectively contradict previous models. As a result, physicists have been calling for a 'new physics'. The Big Bang in the current models is the start of locality.

8.4.6.2 Time and the brain

In *Beautiful Impotent Reason* I noted that –

> 'The brain has a few regions which 'process' time. Time processing is not centralised – there is no universal clock in the brain; and by 'process', I largely mean create. Robert Moore, Victor Eichler, Frederich Stephan, and Irving Zucker discovered the brain regions responsible for governing circadian rhythms. The key structure is the suprachiasmatic nucleus (the SCN) which processes information from the retinas about light and darkness. Damaged SCN's impair animal's rhythms. This is a general physiological processing of time, which is processing of information and lack of information. The other important time processing regions include the hippocampus, the entorhinal cortex, and the cerebellum. The 'networked' temporal relation is known as the *thalmo-cortical-striatal* circuit. I call this the internal timing relation and it involves processes of contingency and correlation'.

8.4.6.3 Information and determinism

The Second Law of Deterministic Computing states that all countable sets contain the same amount of information.[236] From an information point of view, functions tend expand/generate information (meaning that they generate more output more than their input would 'justify'). I would suggest that this is why mathematics tends to be seen as the structure of reality; since it produces more information than it would justify.

The Third Law of Deterministic Computing states that deterministic computing can conserve or discard information, but it *cannot create information*.[237] This has been proved. This is why there is a non-computational theory

of mind, and which is linked with consciousness and mathematics (since mathematics provides more information than is justifiable according to its input).

8.4.6.4 The Locus Coeruleus

Based on what I have mentioned about functions producing more information (and given the fractals which I have described in *Beautiful Impotent Reason*) we can reason that the stochastic modality of the brain wherein it generates alternative histories in the form of simulations (the how would 'I' feels) produces information; this domain is non-computational or non-deterministic. New information is produced only through the 'unconscious'.

In the context of time once more, some interesting research has come about on the *locus coeruleus*. In *The hard problem, qualia, agency, intelligence, and Freud* I said the following on the *locus* –

> 'Alertness is a function of the amygdala in conjunction with other regions. The amygdala activates a part of the brain stem called the *locus coeruleus* (LC),[238] which is like the brain's own SNS. This sends norepinephrine projections throughout the brain – including the cortex. If the LC is not 'excited', then the human is calm and unalert. If it demonstrates high activation, then this is a massive state of alertness in which *perception is amplified*.[239] It tends to be very excited in instances of fear, fight, flight, and sex. Importantly, this means that *the autonomic emotional patterns influence the intensity of feeling/state, but it does not determine the content of what one feels*. Both love and anger (positive and negative) work in fundamentally the same way – namely, heightening or lowering feeling. If I 'love' something very much, I tend to have a state of high alertness for that something – whether it is a person or observing the blue of the sky. If I hate something equally, like the blue sky, I will have the same state and intensity of experience'.

Thus, the locus provides for affective experience, however it does not designate what that experience is to be. In other words, it allows for *mediation or interpretability*.

The locus means the 'blue spot' in Latin. Which is brilliant considering that Carl Sagan also called the Earth the pale blue dot. However, this is not why the locus interests me. Recent research[240] has demonstrated that the locus is not just the vessel for the arousal stimulator of norepinephrine as described. The research describes how the locus receives input from around 111 distinct brain regions.[241] It is a relatively nucleus of neurons which project through the entire brain.[242] However, it is still largely unknown how these neurons in their partnership with the norepinephrine system is activated (during learned behaviours for example).[243] Some research studies have hypothesised that there is both a top-down, and bottom-up approach in the brain. The top-down approach involves input from the pre-frontal cortex and the central amygdala which modulate the intensity of the locus activation.[244] The bottom-up approach involves inputs from the sensory regions including the vestibular, tactile, and olfactory systems which then module activation of the locus. Hence the locus can module both external and internal (interoceptive) stimuli.[245] In wakefulness or vigilance, the neurons involved in the locus-norepinephrine system are active indicating a potential role in *spontaneous* and learned behaviours. Moreso, they are silent during REM-sleep and have lower activity during non-REM sleep.[246] The locus-norepinephrine system is as well subject to high level of photo-activation which enables the sleep-to-wake transition.[247] Lower photo-activation (deactivation) states are associated with an impairment of the power of the theta and delta frequencies requisite for higher activity. Hence the level of photoactivation and sensitivity of the locus-norepinephrine system enables sensory modalities to awaken (in tandem with other regions described in *The hard problem, qualia, agency, intelligence, and Freud*. The changes in arousal activation within the locus-norepinephrine system is correlated to novel or salient sensory stimuli. This activation scales with the behavioural actions associated with the stimulus.[248]

Arousal in this system alters attention by suppressing low-salience stimuli whilst also enhancing highly salient or goal-directed information. The locus is hypothesised as playing a critical function in this considering its large projection schema.[249] Older adults demonstrate a decline in locus connectivity which correlates with the inability to suppress non-salient information during arousal.[250] Furthermore, the locus mediated changes in arousal can alter attention via gain control (the finer workings of this mechanisms operation is unresolved at the time of writing). However, it has been demonstrated that (interventional) blocking the norepinephrine activity impairs membrane depolarisation (see *The hard*

problem, qualia, agency, intelligence, and Freud) of cortical neurons which would occur during high levels of arousal.[251]

8.4.6.5 Non-local/temporal Spirit

Non-locality and entanglement are often commonly linked. However non-locality is a property of a single quantum of light, while entanglement speaks to a joint property of two quantum particles which is described by the principle of *non-separability*. Non-locality is an essential requirement for the dual nature of light which functions as a wavicle (see *Impotent Beautiful Reason*)

Einstein was the first to understand that the most fundamental aspects of quantum theory (non-locality, entanglement as instantaneous action at a distance, wave-particle duality and the like) introduce indeterminism and *acausality* whenever matter and radiation interact.[252] This means it introduces the ability to act outside of causation on a variable scale. Acausality also includes instances where something is not affected by a change in the past. What this meant was that nature could not be described by any formal logic; even that of Einstein's very own equations contained in relativity and field theory. Nature conflicted with Einstein's vision of a 'local' reality (this is where cause and effects occur and they do so at or below the speed of light). For Einstein quantum theory was incomplete because it predicted faster-than-light correlations of properties between events in a space-like separation which violated his theory of relativity. It was the *faster than light transfer of energy which concerned Einstein*.[253] Hence, energy transfer at the quantum level is allowably able to be transferred *atemporally outside of causation*.

Sabine Hossenfelder also demonstrated that Maxwell's demon can operate remotely.[254] Potentially this could mean *non-locally.* The demon here can transmit information to a machine about extracting energy from a heat bath, instead of transmitting energy directly (as above). Thus, it can act as a downconverter. To do this, the demon must either have a low entropy state which it then reduces (or 'gives up') or have access to an energy source. *Information can be transmitted from a non-local source.*

We also know at this point, that information can be obtained from non-thermal radiation. The resolution of Hawkins black-hole-information paradox was that black holes do release information about the materials they absorbed, in the form of non-thermal radiation instead of Hawkins thermal radiation (the creation of which would effectively destroy information).[255] *Non-thermal radiation carries information about its source and the sources components.*

We also know that non-thermal radiation has biological effects. Whilst the negative effects have been detailed for some-time (such as radio waves from cell phones having an impact on fertility), the life-structing effects of non-thermal radiation has been understudied. However, recent studies have demonstrated that non-thermal radiation provides for the 'molecular code-script' which provides the necessary information to realise biological orders in life cells.[256] Perhaps now we have a more definitive answer to Schrödinger's order-disorder to order question. Non-thermal radiation also substantiates collective type of coherent wave behaviours.[257] Hence there is then a causal relation between both 'healthy' ordered states of biology and 'unhealthy' disordered states of biology. Hence non-thermal radiation is both life sustaining[258] and life destroying too.[259]

8.4.6.6 Oscillation and the (Un)iverse

Currently, there is no understanding as to what happened before the big bang, but the popular theory is that of cosmic inflation.[260] Inflation entails the rapid expansion of the Universe (prior to the Big Bang) due to an '*unknown energy*'. This expansion then result in the requisite conditions for the Big bang (the evidence for which we can see in the cosmic microwave background radiation).

Is the Universe thinking? In a 2020 study Vazza (an astrophysicist) and Feletti[261] (a neuroscientist) analysed the structures, morphological, memory capacities and networked properties of structures (varying in size and quality) of the neuronal networks and galaxy networks. What they found is both complex systems demonstrate the same self-organising shape which comes from sharing similar network dynamics principles. Despite the massively different scales which separate them, they were very similar. The study also mentioned that three quarters of the human body is water; and three quarters of the Universe is correlatively dark energy. This

means three quarters of both is inert. This dark energy they conclude is fundamental to the structure of the Universe itself.

So, is the Universe thinking? Answering this question in *Existential Physics: A Scientist's Guide to Life's Biggest Questions*,[262] Sabine Hossenfelder first notes that galaxies lump together due to the pull of gravity which forms clusters. These clusters can too then lump together to form superclusters. Between these clusters are galactic filaments which are the threads along which these clusters align. These clusters and filaments are surrounded by voids which contain very little matter. This structuring looks incredibly similar to neurons and their interconnected networks! So, she says, it is possible to hypothesise that the Universe is thinking – or rather *self-reflecting*. She then proceeds to discount the theory stating that the Universe *is just far too big to be thinking*. The laws of nature she continues are not scale invariant – thus being the size that it is, will disable the Universe from being able to do certain things. Each constant in the physical laws provides for the scales at which it no longer operates. She demonstrates with the example that friction is far more important for smaller organisms than bigger ones. It is what enables them to crawl up walls, while bigger organisms cannot (we have too much mass as compared to the friction we generate). Another important constant is the speed of light; the brains signals are much slower than the speed of light. Given the size of the Universe being around 90 billion light years in diameter, Sabine notes, it would take any thought from one side of the Universe to reach the other side the same 90 billion years. This then would mean that if the Universe was thinking, it would just have around 1000 messages exchanged between its nearest neurons (as galaxies) since its inception. Despite our brains being slower, our brain would have made the same 1000 exchanges in around 3 minutes. Thus, she concludes, if it is thinking – *it is not thinking much*.

So, is the Universe thinking? The answer is yes! What Sabine missed out on is the fact that we are part of the Universe – thus if we are 'thinking' so too is the Universe. It is not limited to 'thinking' at just bigger scales. Sir Roger Penrose in his thinking about the Universe came up with the *Conformic Cyclic Cosmology* model wherein he argued that the Universe is in a constant oscillation of death and rebirth – switching between them both.[263] This model is appealing given the recent discovery of the Universe breakers mentioned above.

In Subverting Foundations: (Un)Intelligent Atemporal Design, I described Hegel's dialectic of the finite and the infinite. On this I noted –

> 'When Hegel analyses the essential determination of the finite – he finds that it tends to pass beyond its limits (the ought) and hence negate it negates itself; creating the infinite. This infinite though is limited by the finite too; it is in fact negated when it is posited.[264] The infinite has its status as such because of the limits contained within the finite. It is infinite insofar as the finite has limits, and it cannot have these limits too since it would then be the finite. In other words, the limits of the finite are also the limits of the infinite. What the finite is not capable of, is what the infinite cannot include as positive content for its own constitution. This in turn would mean that the infinite too has limits which would then make it finite. These limits of the infinite must then too be surpassed (the ought) by passing over into the finite and constituting it too.[265] In both movements the finite is reproduced in its negation. This is a movement which closes on itself and merges with itself as it passes beyond itself by negation. When the infinite makes the movement of passing its limits (the ought) by negating itself, it also reproduces itself! This means that both the infinite and the finite are self-reproducing and referential/affirmative. This is the process of becoming – alienating oneself, and then returning to oneself.[266] This means that the infinite is not the negation of the finite, and vice versa. They are not the negation of each other; they are instead the negation of themselves (self-mediation) which results in a renewed positation, reproduction, or reaffirmation of themselves. This is the self-negation, or the negation of negation. Thus, the true infinite is that which returns to itself, or self-relates. Hence the infinite when self-negating (differing form itself) exhibits the otherness which constitutes being – which means fundamentally that the infinite is not an ethereal inaccessible entity which is beyond existence, but rather something which is in existence itself and accessible.[267] The old concept of finitude which was based on a single negation thus falls since the old conception makes infinity forever beyond access'.

What Hegel does here, is he makes the infinite accessible within the finite (Reason for Hegel); with both oscillating in their own self-constitution. Above I mentioned the 'un' in unconscious and its meaning; now we see the 'un' once more, but in (Un)iverse. From this, we can make a case for non-local consciousness

wherein apperception would take on a completely different meaning.

[1] Rene Descartes *Meditations on First Philosophy* (1641).
[2] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 37.
[3] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 37.
[4] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 37.
[5] Rene Descartes *Discourse on the Method of Rightly Conducting the Reason, and Seeking Truth in the Sciences* (1637) 19–20.
[6] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 37.
[7] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 16.
[8] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 17.
[9] Antonio Damasio *Descartes' Error: Emotion, Reason, and the Human Brain* (2005).
[10] Thomas G. West *Plato's Apology of Socrates: An interpretation With a New Translation* (1979).
[11] Kate St. John 'Crows can think recursively' 6 December 2022 *Outside My Window*, available at *https://www.birdsoutsidemywindow.org/2022/12/06/crows-can-think-recursively/#:~:text=According%20to%20Scientific%20American%2C%20after,olds%20in%20a%202020%20study*, accessed on 5 January 2023.
[12] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 13.
[13] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 13–4.
[14] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 101.
[15] Udo Thiel The Early Modern Subject *Self-Consciousness and Personal Identity from Descartes to Hume* (2011) 14.
[16] David Deutsch *The Fabric of Reality* (1997) 167–93.
[17] Robert Sapolsky Rocks 'Introduction to human behavioral biology' available at *https://www.robertsapolskyrocks.com/intro-to-human-behavioral-biology.html*, accessed on 29 October 2022.
[18] Robert Sapolsky 'Introduction to human behavioral biology' 1 February 2011 *Stanford*, available at *https://www.youtube.com/watch?v=NNnIGh9g6fA&t=1s&ab_channel=Stanford*, accessed on 7 December 2022.
[19] Robert Sapolsky 'Introduction to human behavioral biology' 1 February 2011 *Stanford*, available at *https://www.youtube.com/watch?v=NNnIGh9g6fA&t=1s&ab_channel=Stanford*, accessed on 7 December 2022.
[20] Robert Sapolsky *Behave: The Biology of Humans at Our Best and Worst* (2017) 11/1198.
[21] Robert Sapolsky *Behave: The Biology of Humans at Our Best and Worst* (2017) 12/1198.
[22] Karl Popper *The Logic of Scientific Discovery* (2005).
[23] Karl Popper *The Logic of Scientific Discovery* (2005) 38.
[24] Karl Popper *Conjectures and Refutations: The Growth of Scientific Knowledge* (2002) 347.
[25] See, Chapter 1, particularly Mill's discussion of the tyranny of the majority. John Stuart Mill *On Liberty* (1859).
[26] Karl R. Popper 'On the sources of knowledge and ignorance' (1962) 23(2) *Philosophy and Phenomenological Research* 292–3; Karl Popper 'Knowledge without authority' in David Miller (ed) *Popper Selections* (1985) 199 onwards.
[27] Ludwig Wittgenstein *Philosophical Investigations* (1953); Ludwig Wittgenstein *On Certainty* (1969).
[28] See the preface in Alain Badiou *Logics of Worlds: Being and Event II* (2006).
[29] Slavoj Žižek *The Parallax View* (2006) 165.
[30] Colorado 'Philosophy 3480: Critical thinking' available at *https://spot.colorado.edu/~tooley/LectureforExercise1Phil3480.html*, accessed on 3 February 2023.
[31] Terrence W. Deacon 'Shannon - Boltzmann — Darwin: Redefining information (Part I)' (2007) 1 *Cognitive Semiotics* 124.
[32] Norbert Wiener *Cybernetics* (1948).

[33] Norbert Wiener *Cybernetics: Or the Control and Communication in the Animal and the Machine* (1961) 2 ed 132.
[34] Claude E. Shannon & Warren Weaver *The Mathematical Theory of Communication* (1964).
[35] Claude E. Shannon & Warren Weaver *The Mathematical Theory of Communication* (1964) 31.
[36] Claude E. Shannon & Warren Weaver *The Mathematical Theory of Communication* (1964) 8.
[37] Claude E. Shannon & Warren Weaver *The Mathematical Theory of Communication* (1964) 31.
[38] Claude E. Shannon & Warren Weaver *The Mathematical Theory of Communication* (1964).
[39] Claude E. Shannon & Warren Weaver *The Mathematical Theory of Communication* (1964) 36.
[40] Kevin Hartnett 'How Shannon entropy imposes fundamental limits on communication' *Quanta Magazine* 6 September 2022, available at *https://www.quantamagazine.org/how-claude-shannons-concept-of-entropy-quantifies-information-20220906/*, accessed on 18 January 2023.
[41] Entropy nonetheless can increase without increasing disorder – one can also increase entropy by increasing the size of the system itself. If the size of the system increases, the possible multiplicity of equivalent states also increases.
[42] Claude E. Shannon & Warren Weaver *The Mathematical Theory of Communication* (1964) 406.
[43] Claude E. Shannon & Warren Weaver *The Mathematical Theory of Communication* (1964) 407.
[44] Manfred Eigen *From Strange Simplicity to Complex Familiarity: A Treatise on Matter, Information, Life and Thought* (2013) 310.
[45] Lawrence M. Krauss *A Universe from Nothing* (2012).
[46] Lawrence M. Krauss *A Universe from Nothing* (2012).
[47] Stephen Hawking *A Brief History of Time* (1988).
[48] Perfected by Einstein in later years.
[49] Erwin Schrödinger *What is Life? The Physical Aspect of the Living Cell with Mind and Matter & Autobiographical Sketches* (1967).
[50] Erwin Schrödinger *What is Life? The Physical Aspect of the Living Cell with Mind and Matter & Autobiographical Sketches* (1967) 77.
[51] See also, Claude Elwood Shannon *A Symbolic Analysis of Relay and Switching Circuits* (PhD Thesis, Massachusetts Institute of Technology, 1940).
[52] G. Nicolis & I. Prigogine 'Fluctuations in non-equilibrium systems' (1971) *Proc Natn Acad Sci USA.*
[53] Stephen Jay Gould & Elisabeth S. Vrba 'Exaptation - A missing term in the science of form' (1982) 8(1) *Paleobiology* 4–15.
[54] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[55] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 326.
[56] In the *Critique of Pure Reason*, the themes of the Transcendental aesthetic and the 'Transcendental dialectic' speak to this. Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998).
[57] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 471. See also, Paul Guyer *The Cambridge Companion to Kant's Critique of Pure Reason* (2010) 245.
[58] See, Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 538–43.
[59] John Lock *An Essay Concerning Human Understanding* (1860) available at *http://www.philotextes.info/spip/IMG/pdf/essay_concerning_human_understanding.pdf*, accessed on 18 January 2023.
[60] John Lock *An Essay Concerning Human Understanding* (1860) available at *http://www.philotextes.info/spip/IMG/pdf/essay_concerning_human_understanding.pdf*, accessed on 18 January 2023366.
[61] John Lock *An Essay Concerning Human Understanding* (1860) available at *http://www.philotextes.info/spip/IMG/pdf/essay_concerning_human_understanding.pdf*, accessed on 18 January 2023324.
[62] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 613.
[63] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 207.
[64] Antonis Coumoundouros 'Plato: The Republic' *Internet Encyclopedia of Philosophy* available at *https://iep.utm.edu/republic/*, accessed on 12 November 2022.
[65] John H. Smith 'Chapter 3: Religion and early German romanticism: the finite and the infinite' in Elizabeth Millán Brusslan & Judith Norman (eds) *Brill's Companion to German Romantic Philosophy* (2019) 60–96.
[66] Sigmund Freud *The "Uncanny"* (1919) available at *https://web.mit.edu/allanmc/www/freud1.pdf*, accessed on 18 November 2022.
[67] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 211.
[68] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 232–5.
[69] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 248.
[70] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 232.
[71] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 256.

[72] Samantha Matherne 'Kants theory of the imagination' (2016) *Routledge Handbook of the Imagination.*
[73] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 273.
[74] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 282.
[75] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 282.
[76] Samantha Matherne 'Kants theory of the imagination' (2016) *Routledge Handbook of the Imagination.*
[77] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 256–7.
[78] For example, thinking about an old car we used to own which we sold many years ago.
[79] Immanuel Kant *Anthropology from a Pragmatic Point of View* (1798).
[80] Immanuel Kant *Anthropology from a Pragmatic Point of View* (1798) 60.
[81] Like producing literary works.
[82] Immanuel Kant *The Critique of Pure Reason* (1787).
[83] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 364.
[84] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 256.
[85] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 239.
[86] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 237 onwards.
[87] Which are spread across space and time.
[88] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 239.
[89] This is similar to the empiricist association theory – namely Hume's conception of habit/custom.
[90] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 229.
[91] Samantha Matherne 'Kants theory of the imagination' (2016) *Routledge Handbook of the Imagination.*
[92] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998).
[93] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 271.
[94] Paul Guyer & Allen W. Wood (eds) *Immanuel Kant: Critique of Pure Reason* (1998) 272.
[95] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[96] Slavoj Žižek *The Abyss of Freedom* (1997).
[97] Slavoj Žižek *The Puppet and the Dwarf: The Perverse Core of Christianity* (2003).
[98] Immanuel Kant *Critique of Practical Reason* (1788).
[99] Peter Strawson *The Bounds of Sense: An Essay on Kant's Critique of Pure Reason* (2018).
[100] Johann Gottlieb Fichte 'An attempt at a new presentation of the Wissenschaftslehre' (2014) 31(2) *Sententiae* 97–107.
[101] Johann Gottlieb Fichte *Foundation of the Entire Wissenschaftslehre and Related Writings, 1794-95* (2021).
[102] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[103] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008). See also, Frederick C. Beiser (ed) *The Cambridge Companion to Hegel* (1993) 14.
[104] Johann Gottlieb Fichte *Foundation of the Entire Wissenschaftslehre and Related Writings, 1794-95* (2021).
[105] Frederick C. Beiser (ed) *The Cambridge Companion to Hegel* (1993) 14.
[106] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008) 71.
[107] F.W.J. Schelling 'Treatise explicatory of the idealism in the science of knowledge' in F.W.J. Schelling *Idealism and the Endgame of Theory: Three Essays* (translated by Thomas Pfau) (1994) 69.
[108] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[109] Slavoj Žižek *The Plague of Fantasies* (1997) 205.
[110] Johann Gottlieb Fichte *Foundation of the Entire Wissenschaftslehre and Related Writings, 1794-95* (2021).
[111] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[112] Friedrich Wilhelm Joseph Schelling *System of Transcendental Idealism* (1800).
[113] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[114] In short, it amounts to a category mistake.
[115] F. W. J. Schelling *Presentation of My System of Philosophy* (1800).
[116] Similar to Spinoza before them who argued that God was in nature itself.
[117] F. W. J. Schelling *Presentation of My System of Philosophy* (1802).
[118] Frederick C. Beiser (ed) *The Cambridge Companion to Hegel* (1993).
[119] F.W.J. Schelling *The Ages of the World: Third Version (c. 1815)* (translated by Jason M. Wirth) (2000) 12.
[120] Friedrich Wilhelm Joseph Schelling *Weltalter* (1811).
[121] Friedrich Wilhelm Joseph Schelling *Weltalter* (1811).
[122] F.W.J. Schelling *Clara: Or, on Nature's Connection to the Spirit World* (translated by Fiona Steinkamp) (2002).
[123] Slavoj Žižek *Organs Without Bodies: On Deleuze and Consequences* (2004); Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[124] See, Slavoj Žižek *The Indivisible Remainder: An Essay on Schelling and Related Matters* (1996).
[125] See, Slavoj Žižek *The Fright of Real Tears* (2001).

[126] Stephen W. Hawking & Roger Penrose 'The nature of space and time' (1996) 275(1) *Scientific American* 60–5.
[127] In Friedrich Wilhelm Joseph Schelling *Weltalter* (1811), Schelling describes a deed that cannot ever be brought before conscious awareness.
[128] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008) 111.
[129] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008) 111.
[130] See, Slavoj Žižek *The Indivisible Remainder: An Essay on Schelling and Related Matters* (1996) 33–4.
[131] Paul Guyer *The Cambridge Companion to Kant's Critique of Pure Reason* (2010) 17.
[132] Slavoj Žižek *The Ticklish Subject: The Absent Centre of Political Ontology* (1999) 84.
[133] Slavoj Žižek *The Ticklish Subject: The Absent Centre of Political Ontology* (1999) 84.
[134] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[135] Georg W.F. Hegel Phenomenology of Spirit (translated by A.V. Miller) (1977).
[136] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[137] G. W. F. Hegel *Phenomenology of Spirit* (1977) (translated by A. V. Miller) 33–4.
[138] G. W. F. Hegel *Phenomenology of Spirit* (1977) (translated by A. V. Miller) 101.
[139] G. W. F. Hegel *Phenomenology of Spirit* (1977) (translated by A. V. Miller) 479–500
[140] Adrian Johnston *A New German Idealism: Hegel, Žižek, and Dialectical Materialism* (2018)
[141] Slavoj Žižek *Tarrying With the Negative* (1993) 37.
[142] Georg Wilhelm Friedrich Hegel *The Difference Between Fichte's and Schelling's System of Philosophy* (1801).
[143] Georg Wilhelm Friedrich Hegel *Hegel's Logic: The Encyclopaedia of the Philosophical Sciences* (translated by William Wallace) (1975) 116 §60.
[144] Georg Wilhelm Friedrich Hegel *Science of Logic* (translated by A. V. Miller) (1969) 134.
[145] G. W. F. Hegel *Phenomenology of Spirit* (1977) (translated by A. V. Miller) 79–103.
[146] Adrian Johnston *A New German Idealism: Hegel, Žižek, and Dialectical Materialism* (2018).
[147] Slavoj Žižek 'Postface: Georg Lukács as the philosopher of Leninism' in Georg Lukács *A Defence of History and Class Consciousness: Tailism and the Dialectic* (2000) 181.
[148] Georg Wilhelm Friedrich Hegel *Hegel's Logic: The Encyclopaedia of the Philosophical Sciences* (translated by William Wallace) (1975).
[149] Georg Wilhelm Friedrich Hegel *Hegel's Logic: The Encyclopaedia of the Philosophical Sciences* (translated by William Wallace) (1975) 94 §45.
[150] Georg Wilhelm Friedrich Hegel *Science of Logic* (1812).
[151] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[152] Georg Wilhelm Friedrich Hegel *Science of Logic* (translated by A. V. Miller) (1969) 121.
[153] Georg Wilhelm Friedrich Hegel *Science of Logic* (translated by A. V. Miller) (1969) 121.
[154] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[155] Georg Wilhelm Friedrich Hegel *Hegel's Logic: The Encyclopaedia of the Philosophical Sciences* (translated by William Wallace) (1975) 231 §124.
[156] Zizek in Organs without Bodies says that 'For Hegel, the gap between phenomena and their transcendent Ground is a secondary effect of the absolutely immanent gap of/in the phenomena themselves. "Transcendence" is the illusory reflection of the fact that the immanence of phenomena is ruptured, broken, inconsistent. To put it in somewhat simplified terms, it is not that phenomena are broken, that we have multiple partial perspectives, because the transcendent Thing eludes our grasp; on the contrary, the specter of this Thing is the "reified" effect of the inconsistency of the phenomena...immanence generates the specter of transcendence because it is already inconsistent in itself'. Slavoj Zizek *Organs Without Bodies: On Deleuze and Consequences* (2004) 60–1.
[157] Slavoj Žižek *Organs Without Bodies: On Deleuze and Consequences* (2004).
[158] G. W. F. Hegel *Phenomenology of Spirit* (1977) (translated by A. V. Miller) 89 §147.
[159] Georg Wilhelm Friedrich Hegel *Hegel's Logic: The Encyclopaedia of the Philosophical Sciences* (translated by William Wallace) (1975).
[160] Georg Wilhelm Friedrich Hegel *Hegel's Logic: The Encyclopaedia of the Philosophical Sciences* (translated by William Wallace) (1975) 91–2 §44.
[161] Slavoj Žižek 'The parallax view: Toward a new reading of Kant' (2004) 8(2) *Epoché* 260.
[162] Slavoj Žižek *The Sublime Object of Ideology* (1989).
[163] Slavoj Žižek *The Sublime Object of Ideology* (1989) 193.
[164] Slavoj Žižek *The Sublime Object of Ideology* (1989) 195.
[165] G. W. F. Hegel *Phenomenology of Spirit* (1977) (translated by A. V. Miller) 10–2.
[166] Nassim Nicholas Taleb *The Black Swan: The Impact of the Highly Improbable* (2007) 68.
[167] Nassim Nicholas Taleb *The Black Swan: The Impact of the Highly Improbable* (2007) 67–9.
[168] See, Andrey Kolmogorov 'On tables of random numbers' (1963) 25 *Sankhyā Ser A* 369–75; Andrey Kolmogorov 'On tables of random numbers' (1998) 207(2) *Theoretical Computer Science* 387–95.
[169] Nassim Nicholas Taleb *The Black Swan: The Impact of the Highly Improbable* (2007) 69.

[170] Nassim Nicholas Taleb *The Black Swan: The Impact of the Highly Improbable* (2007) 69–70.
[171] Slavoj Žižek *The Ticklish Subject: The Absent Centre of Political Ontology* (1999) 29.
[172] Richard Dawkins *The Selfish Gene* (1976).
[173] Richard Dawkins *The Selfish Gene* (1976) 215.
[174] Martin Heidigger *Being and Time* (translated by John Macquarrie & Edward Robinson) (1962).
[175] Phenenology of spirit pg 320
[176] Slavoj Žižek *For They Know Not What They Do: Enjoyment as a Political Factor* (2002) 106.
[177] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[178] Slavoj Žižek *Organs Without Bodies: On Deleuze and Consequences* (2004) 45.
[179] Although I borrow these notions from Jacques Lacan, I differ slightly in my definitions, which are described in later sections. Nonetheless, explanations can be accessed at No Subject - Encyclopedia of Psychoanalysis 'Registers' available at *https://nosubject.com/Registers*, accessed on 18 October 2022.
[180] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[181] Slavoj Žižek *The Ticklish Subject: The Absent Centre of Political Ontology* (1999) 61.
[182] Slavoj Žižek *The Sublime Object of Ideology* (1989) 175.
[183] No Subject - Encyclopedia of Psychoanalysis 'The symbolic, imaginary and real' available at *https://nosubject.com/The_Symbolic,_Imaginary_and_Real*, accessed on 29 January 2023.
[184] See, Slavoj Žižek *Le plus sublime des hystériques (Le plus sublime des hystériques : Hegel avec Lacan)* (1988).
[185] No Subject - Encyclopedia of Psychoanalysis 'Jacques Lacan:The subject of the unconscious' available at *https://nosubject.com/Jacques_Lacan:The_Subject_of_the_Unconscious#:~:text=The%20unconscious%20manifests%20itself%20at,rupture%20in%20the%20symbolic%20chain*, accessed on 20 January 2023.
[186] See, Shawn Bayern 'Are autonomous entities possible?' (2019) 114 *NW U L Rev* 23–47.
[187] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008) 283.
[188] Badiou 2005c 76-77. See also, Oxford Reference 'Misrecognition' *A Dictionary of Critical Theory* available at *https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100201836;jsessionid=22D814D67FBB71CD865AD31451F6AC8C*, accessed on 6 November 2022.
[189] Slavoj Žižek 'Class struggle or postmodernism?: Yes, please!' in Judith Butler, Ernesto Laclau & Slavoj Žižek *Contingency, Hegemony, Universality: Contemporary Dialogues on the Left* (2000) 119–20.
[190] Sigmund Freud *Group Psychology and the Analysis of the Ego* (1921).
[191] Sigmund Freud *The Ego and the Id* (1923).
[192] Cormac Gallagher *The Seminar Of Jacques Lacan Book VIII: Transference* (1960–1961) available at *http://www.lacaninireland.com/web/wp-content/uploads/2010/06/THE-SEMINAR-OF-JACQUES-LACAN-VIII.pdf*, accessed on 4 December 2022.
[193] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008) 48 & 49.
[194] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008) 55; No Subject - Encyclopedia of Psychoanalysis 'Unary trait' available at *https://nosubject.com/Unary_trait*, accessed on 27 October 2022.
[195] No Subject - Encyclopedia of Psychoanalysis 'Unary trait' available at *https://nosubject.com/Unary_trait*, accessed on 27 October 2022.
[196] Hegel and Schelling propose similar apropos substance becoming subject due to internal discontent.
[197] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008) 213.
[198] See, Cormac Gallagher *The Seminar Of Jacques Lacan Book XIX: Ou Pire…Or Worse* (1971–1972) available at *http://www.lacaninireland.com/web/wp-content/uploads/2010/06/Book-19-Ou-pire-Or-worse.pdf*, accessed on 4 December 2022.
[199] See, Cambridge University Press 'Kripke on proper names' 5 June 2012 available at *https://www.cambridge.org/core/books/abs/an-introduction-to-the-philosophy-of-language/kripke-on-proper-names/423C15563147D819635918AE5298E90F*, accessed 24 November 2022
[200] Badiou says similar in *Court traite d'ontologie transitoire* where he notes that proper names are empty. Alain Badiou *Court traité d'ontologie transitoire* (1998).
[201] Saul A. Kripke *Naming and Necessity* (2001) 52.
[202] Émile Benveniste *Problems in General Linguistics* (1966) 226.
[203] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[204] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[205] See Lacan's ninth seminar wherein he links the unary trait to the philosophical conception of subjectivity as sameness over time. Cormac Gallagher *The Seminar Of Jacques Lacan Book IX: Identification* (1961–1962) available at *http://www.lacaninireland.com/web/wp-content/uploads/2010/06/Seminar-IX-Amended-Iby-MCL-7.NOV_.20111.pdf*, accessed on 4 December 2022.

[206] See, Cormac Gallagher *The Seminar Of Jacques Lacan Book IX: Identification* (1961–1962) available at *http://www.lacaninireland.com/web/wp-content/uploads/2010/06/Seminar-IX-Amended-Iby-MCL-7.NOV_.20111.pdf*, accessed on 4 December 2022.
[207] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[208] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[209] Oliver Sacks *The Man Who Mistook His Wife for a Hat* (1985).
[210] American Psychiatric Association 'Expert Q&A: Dissociative disorders' available at *https://www.psychiatry.org/patients-families/dissociative-disorders/expert-q-and-a*, accessed on 17 October 2022.
[211] Dina A. Leinhard 'Roger Sperry's split brain experiments (1959–1968)' 27 December 2017 *The Embryo Project Encyclopedia*, available at *https://embryo.asu.edu/pages/roger-sperrys-split-brain-experiments-1959-1968*, accessed on 3 January 2023.
[212] Andrea Goldstein, Benjamin P. Covington, Navid Mahabadi et al *Neuroanatomy, Corpus Callosum* (2022) available at *https://www.ncbi.nlm.nih.gov/books/NBK448209/#:~:text=The%20corpus%20callosum%20is%20the,left%20and%20right%20cerebral%20hemispheres*, accessed on 7 January 2023.
[213] Andrea Goldstein, Benjamin P. Covington, Navid Mahabadi et al *Neuroanatomy, Corpus Callosum* (2022) available at *https://www.ncbi.nlm.nih.gov/books/NBK448209/#:~:text=The%20corpus%20callosum%20is%20the,left%20and%20right%20cerebral%20hemispheres*, accessed on 7 January 2023.
[214] Thomas Nagel 'What is it like to be a bat?' (1974) 83(4) *Philosophical Review* 435–50.
[215] Émile Benveniste *Problems in General Linguistics* (1966) 197–8.
[216] Émile Benveniste *Problems in General Linguistics* (1966) 197–8.
[217] See, Cormac Gallagher *The Seminar Of Jacques Lacan Book XIX: Ou Pire…Or Worse* (1971–1972) available at *http://www.lacaninireland.com/web/wp-content/uploads/2010/06/Book-19-Ou-pire-Or-worse.pdf*, accessed on 4 December 2022.
[218] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008).
[219] Adrian Johnston *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity* (2008). Also, although both proper names (as per Kripke) and personal pronouns (as per Benveniste) are empty as independent of any particular characteristics or features serving as empirical referents, these unary traits (Sj) repeatedly take on, from moment to moment, a dizzying, shifting array of different (and differentially determining) relationships with other signifying elements (S2, S3…). Despite superficial appearances to the contrary, there is an amazing degree of fragile, unstable volatility to signifier-mediated subjectification. Over time—repetition cannot be separated from temporality as its necessary medium—all signifiers, including those elevated to the status of concrete universals organizing stages of subjectification, unavoidably are caught up in various destabilizing, transformative diachronic dynamics.
[220] S.C. Hickman 'Slavoj Zizek: Spirit as the Wound of Nature' *Social Ecologies* 19 November 2014, available at *https://socialecologies.wordpress.com/2014/11/19/slavoj-zizek-spirit-as-the-wound-of-nature/*, accessed on 2 March 2023.
S.C. Hickman 'Slavoj Zizek: Spirit as the Wound of Nature' *Social Ecologies* 19 November 2014, available at *https://socialecologies.wordpress.com/2014/11/19/slavoj-zizek-spirit-as-the-wound-of-nature/*, accessed on 2 March 2023.
[222] Guido Bacciagaluppi 'The role of decoherence in quantum mechanics' *Stanford Encyclopedia of Philosophy* 21 April 2020, available at *https://plato.stanford.edu/entries/qm-decoherence/*, accessed on 6 February 2023.
[223] Slavoj Žižek *Absolute Recoil: Towards A New Foundation Of Dialectical Materialism* (2014) 140–3.
[224] Georg W.F. Hegel Phenomenology of Spirit (translated by A.V. Miller) (1977) 58–79.
[225] M. A. Martin-Delgado 'On quantum effects in a theory of biological evolution' (2012) 2(302) *Scientific Reports* 1–8.
[226] Georg W.F. Hegel *Philosophy of Nature: Being Part Two of the Encyclopaedia of the Philosophical Sciences, 1830* (translated by M.J. Petry) (1970) §199–202.
[227] Melvin Vopson & Serban Lepadatu 'Second law of information dynamics' (2022) 12 *AIP Advances* 1–7.
[228] Melvin Vopson & Serban Lepadatu 'Second law of information dynamics' (2022) 12 *AIP Advances* 1–7.
[229] Sabine Hossenfelder 'The remote Maxwell demon as energy down-converter' (2016) 46 *Found Phys* 1.
[230] Sabine Hossenfelder 'The remote Maxwell Demon' *Back ReAction* 13 December 2014, available at *http://backreaction.blogspot.com/2014/12/the-remote-maxwell-demon.html*, accessed on 16 December 2022.
[231] Sabine Hossenfelder 'The remote Maxwell demon as energy down-converter' (2016) 46 *Found Phys* 1–11.
[232] Sabine Hossenfelder 'The remote Maxwell Demon' *Back ReAction* 13 December 2014, available at *http://backreaction.blogspot.com/2014/12/the-remote-maxwell-demon.html*, accessed on 16 December 2022.
[233] Iqbal Hossain & G. J. Blanchard 'Ionic liquids exhibit the piezoelectric effect' (2023) 14(11) *Journal of Physical Chemistry Letters* 2731–5.

[234] Iqbal Hossain & G. J. Blanchard 'Ionic liquids exhibit the piezoelectric effect' (2023) 14(11) *Journal of Physical Chemistry Letters* 2731–5.
[235] Iqbal Hossain & G. J. Blanchard 'Ionic liquids exhibit the piezoelectric effect' (2023) 14(11) *Journal of Physical Chemistry Letters* 2731–5.
[236] Pieter Adriaans 'A general theory of information and computation' (2016) *https://arxiv.org/abs/1611.07829* 10.
[237] Pieter Adriaans 'A general theory of information and computation' (2016) *https://arxiv.org/abs/1611.07829* 10.
[238] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 1–11.
[239] Robert M. Sapolsky *Behave: The Biology of Humans at Our Best and Worst* (2017) 44.
[240] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 1–11.
[241] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 2.
[242] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 2.
[243] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 2.
[244] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 2.
[245] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 2.
[246] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 2–3.
[247] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 3.
[248] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 4.
[249] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 4.
[250] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 4.
[251] Vincent Breton-Provencher, Gabrielle T. Drummond & Mriganka Sur 'Locus coeruleus norepinephrine in learned behavior: Anatomical modularity and spatiotemporal integration in targets' (2021) 15 *Front Neural Circuits* 4.
[252] Bob Doyle 'Nonlocality' *The Information Philosopher* available at *https://www.informationphilosopher.com/problems/nonlocality/*, accessed on 6 March 2023.
[253] Bob Doyle 'Nonlocality' *The Information Philosopher* available at *https://www.informationphilosopher.com/problems/nonlocality/*, accessed on 6 March 2023.
[254] S. Hossenfelder 'The remote Maxwell demon as energy down-converter' (2016) 46 *Found Phys* 505 *https://arxiv.org/abs/1408.3797*.
[255] Robert Lea 'Stephen Hawking's famous black hole paradox may finally have a solution' *Live Science* 30 March 2023, available at *https://www.livescience.com/stephen-hawkings-famous-black-hole-paradox-may-finally-have-a-solution*, accessed on 12 April 2023.
[256] Hans J.H. Geesink & Dirk K.F. Meijer 'A predictive model that reveals a causal relation between exposures to non-thermal electromagnetic waves and biological effects' (2021) *preprint*.

[257] Hans J.H. Geesink & Dirk K.F. Meijer 'A predictive model that reveals a causal relation between exposures to non-thermal electromagnetic waves and biological effects' (2021) *preprint*.
[258] J.H Geesink & D.K.F. Meijer 'Bio-soliton model that predicts non-thermal electromagnetic frequency bands, that either stabilize or destabilize living cells' (2017) 36(4) *Electromagn Biol Med* 357–378.
[259] J.H Geesink & D.K.F. Meijer 'Bio-soliton model that predicts non-thermal electromagnetic frequency bands, that either stabilize or destabilize living cells' (2017) 36(4) *Electromagn Biol Med* 357–378.
[260] Jennifer Chu 'Putting the "bang" in the Big Bang' *MIT News* 24 October 2019, available at *https://news.mit.edu/2019/putting-bang-in-big-bang-1025*, accessed on 3 April 2023.
[261] F. Vazza & A. Feletti 'The quantitative comparison between the neuronal network and the cosmic web' (2020) 8 *Front Phys* 1–8.
[262] See, Sabine Hossenfelder *Existential Physics: A Scientist's Guide to Life's Biggest Questions* (2022) chapter 8.
[263] Paweł Nurowski 'Poincare–Einstein approach to Penrose's conformal cyclic cosmology' (2021) 38(14) *Class Quantum Grav* 1–21.
[264] Dean Moyar (ed) *The Oxford Handbook of Hegel* (2017) 287.
[265] Dean Moyar (ed) *The Oxford Handbook of Hegel* (2017) 287.
[266] Dean Moyar (ed) *The Oxford Handbook of Hegel* (2017) 287.
[267] Dean Moyar (ed) *The Oxford Handbook of Hegel* (2017) 287.