On the subject part III: what is the subject's end?

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Abstract

This article inquires into the end of the emergence of the subject from the objective world. Ultimately, there are two possibilities, one of which satisfies the fundamental law of logic that out of nothing, nothing comes, while the other satisfies the fundamental law of physics that entropy must always increase until it reaches its maximum in equilibrium. The first possibility is explained by a theory that was put forward independently by philosopher Johann Gottlieb Fichte and physicist John Archibald Wheeler. In this picture, a final endpoint of emergence posits the first creation of causation. The second picture is displayed by connecting Hugh Everett's "many worlds" interpretation of quantum decoherence to the law of increasing entropy.

This article extracts the science-philosophical conclusion that it is impossible to decide between the two as either one seems compulsory depending on whether one starts from the subject's law to emerge or from the object's law to dissipate structure. However, abstract philosophical speculation about the end of time and emergence is defended as fully legitimate. Though neither side is falsifiable and there are no conclusions to be drawn practically, it is not "bullshit" since it is based on thorough philosophical reasoning and takes into account all that we know about the place we inhabit scientifically.

Keywords: Consciousness, Subjectivity, Transcendental philosophy, Evolution, Cosmological evolution.

Introduction

This is the final article of a trilogy of articles on the subject, on subjective awareness and agency, and on what the subject does in the objective world. Like the other two, this article can stand on its own as an independent piece of scholarship. In other words, the reader does not need to know the first two articles to be able to follow the argument and the results can stand on their own.

To lead into this article, however, it will be convenient to briefly recall the main arguments of the first two articles and especially of the second article, which ties in with this article much more closely than the first (Frauen 2023a, 2023b). To briefly summarize, it has been argued that subjectivity is a continuum among species, which varies greatly in both extent and kind.[1] It has been argued that wherever there is objectively a process of semiosis in animation, i.e., semiotic signals representing the outside internally, evaluation of these signs and output action following this evaluation, it is consecutive to assume that this awareness is subjectively experienced also. Subjectivity, then, is essentially this process of an "inner life" made of internal awareness of the outside and agency following from evaluations based on this awareness. The "freedom" of organisms to act upon their environment, accordingly, increases with increasing awareness, understanding and agency. Awareness and agency undoubtedly do something: the subject performs work on the object following the subject's "*urge*" to maintain its ongoing emergence from the object. In this cybernetic process, the subject attempts to understand the causal structure of the outer world to alter it according to its will. After an action, the altered state of the outer world becomes the new input state, as Figure 1 displays.

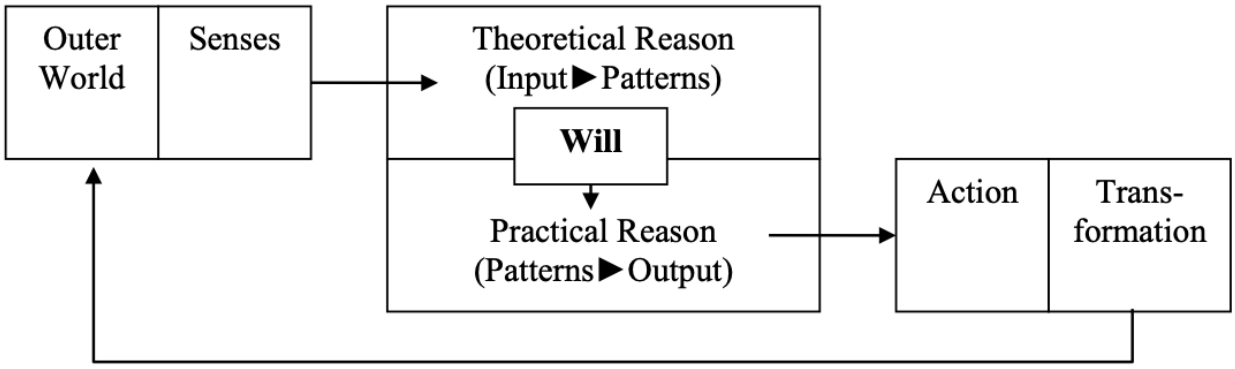

Figure 1.

It has been noted that the urge that drives individual organisms can create dynamics that lead to the emergence of "super-agents" of a higher order of subjectivity from connectivity like the complex cell from primitive cells or multicellularity from complex cells. It has been displayed that structural similar scaffolding mechanisms by multilateral pressure dynamics are increasingly connecting human individuals. The ideas of a "human meta-system transition" and a "global brain" have been introduced in this context. With reference to Pierre Teilhard de Chardin and Valentin Turchin, it has furthermore been speculated that there may be a final sense for evolution seen as the emergence of the subject from the object in the future, as Figure 2 displays. It has been argued that practical reason is analytically urged to posit ideological sense in human action, be it as sense for the individual in otherworldly religious pictures or sense for society in utopian ideologies (see also Frauen 2022a). It has also been pointed out that the transcendental ideal of a practical end or purpose of emergence is inherent in all animation as the urge for survival, which signifies an impossible absolute in the spatiotemporal due to the object's dissipation of structure following the second law.

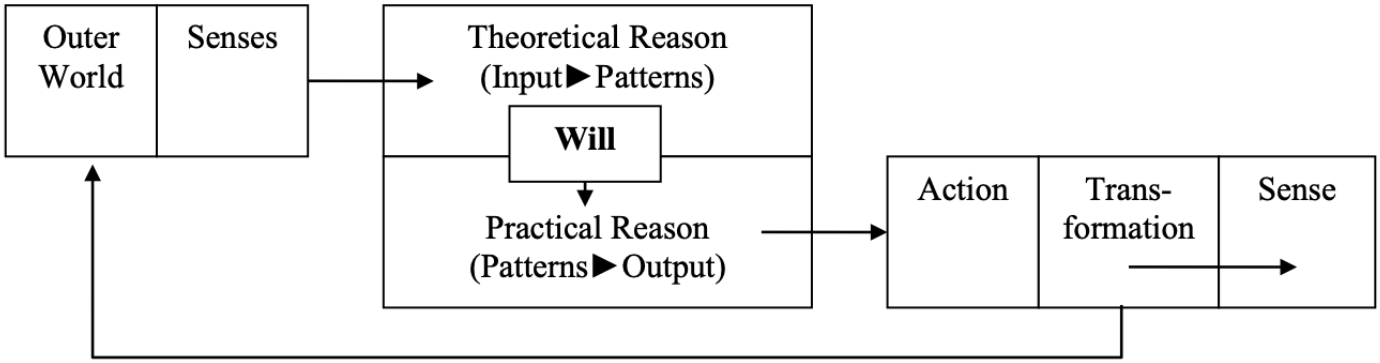

Figure 2.

This final future sense for practical reason and the subject mirrors a first past cause of the object in theoretical reason, which is oftentimes referred to as the "cosmological argument," as displayed in Figure 3. The final sense for the subject and the first cause of the object are the answers to the binary "why do I exist?" question consisting of the practical "what for?" and the theoretical "how come?" (see also Frauen 2022b).

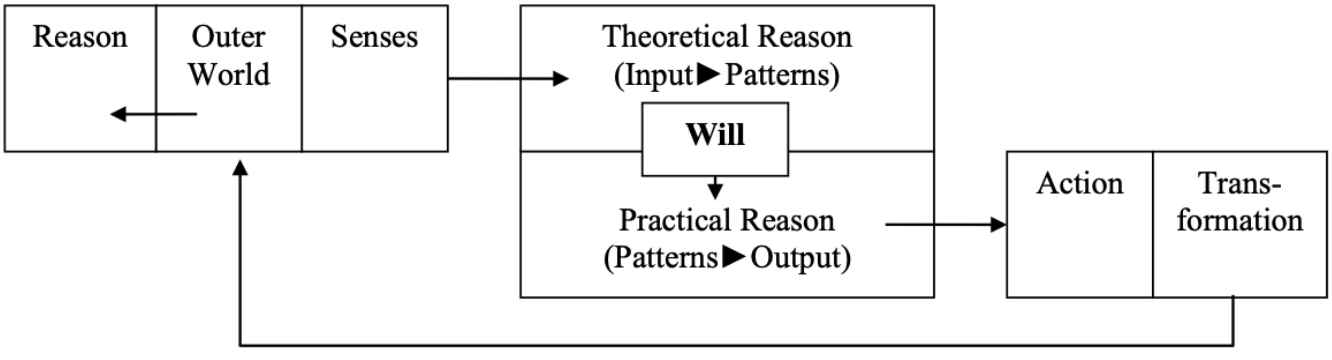

Figure 3.

This first reason, however, has been falsified as faulty logic by the great philosopher Immanuel Kant in his *Critique of Pure Reason* ("*First Critique*," 1781, revised edition 1787). Kant showed that the idea(l) of the cosmological absolute leads to an "antinomy" of "pure" or theoretical reason, in which contradictory claims turn out to be equally true (Kant 1998). Consequently, the cosmological absolute is an "inevitable illusion," a mirage of the mind that perceives. It resides in the structure of perception alone and there is no correspondence to it in the world as it actually is beyond our mechanisms of perceiving it, beyond the categories of appearance or "phenomenal" reality. Causality, Kant shows, is a tool of the mind to perceive the world. The occasionally overlooked crux of this compromise between "empiricism" (materialism) and "rationalism" (idealism) is that the laws of nature (e.g., causation, locality, etc.) are thus phenomenal laws and hence illusory regardless of whether one starts from the mind or from the outer world when theorizing them. Consequently, an inference from the causal law to a reason for this causal law is illegitimate, as Figure 4 illustrates. The world as it actually is beyond our way of observing it is entirely different.

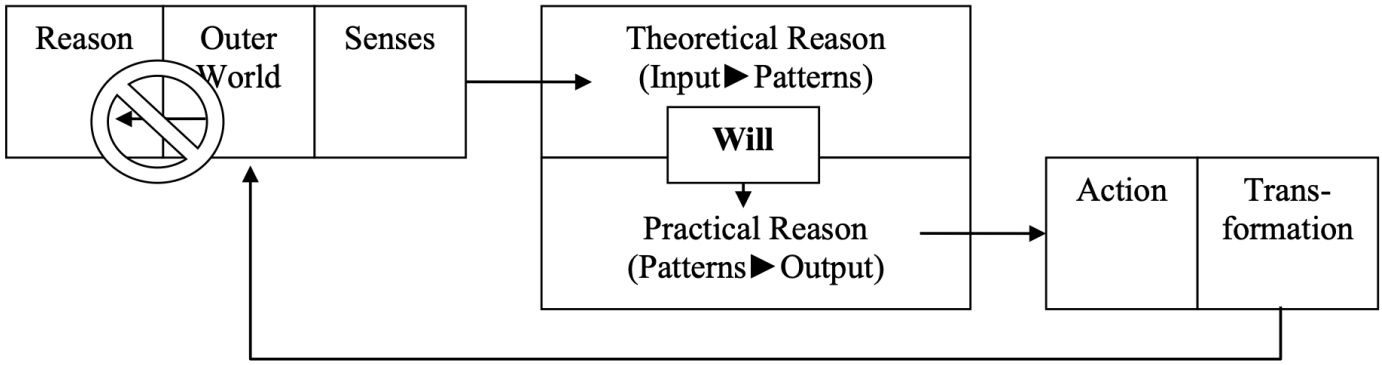

Figure 4.

The Kantian antinomy is the antinomy of the object. It falsifies a transcendental illusion that follows from an analysis of the outer world and traces its causal chains back into the past to find an unmoved mover that transcends the causal law itself and includes all of causality in this first unconditioned act. It has been displayed in the second paper of this series that there is a second antinomy that appears when the subject is connected to the object.[2] As Kant highlighted in his *Critique of Practical Reason* ("*Second Critique*," 1788), the "fact of reason" imputability shows that it is impossible in practical reason to feel like a determined object (Kant 2003). The subject, any subject individually and thus the law of emergence itself, cannot but understand itself as substantial.

The only road from our frame of reference to make this picture work, however, leads into idealism, which voids the outer world and reduces its ontological status to a mere "phenomenon" of the senses. If I posit the outer world in my imagination, I am free and substantial since what appears to me as physical causality is actually my own will. However, we feel immediately through the urges of the physical body that the self runs on that the material world is substantially real. If one took the physical substrate away, the self itself would vanish. Therefore, the physical must be substantially real. However, if one accepts the ontological primacy of the physical, this voids the subject and reduces its ontological status to a mere "epiphenomenon," a specter that hovers senselessly over the physical. But, as has been said, it is impossible to feel like this subjectively in practical reason.

Thus, both sides of the subject-object divide must be and cannot be substantial, as we feel immediately that both are substantial but each of the two loses its substantiality in terms of the other. This is not merely a theoretical antinomy. It displays the fundamental struggle that makes phenomenal reality along the front lines of the subject-object split, of being in the world. Emergence is urged in animation to make the subject an absolute and overcome the object, entropy is determined to make the object an absolute by ending the emergence of the subject in equilibrium, in a state where there is no more free energy available to the subject to sustain its ongoing emergence.

All animation is urged to survive, which is a transcendental ideal of an absolute of viability and an impossibility in the binary, spatiotemporal structure of phenomenal reality. Like the antinomy of theoretical reason, the ideal of the practical absolute has four manifestations: survival derived from viability, consciousness derived from awareness, freedom derived from agency ("fight"), and transcendence derived from security ("flight"). The ideal, in all of its manifestations, derives from an illegitimate inference of practical reason from the law of animation, subjective will, into an absolute of this law that swallows all of creation in the subject and thus overcomes the object. But like the object's absolute, i.e., the cosmological argument, is an illegitimate inference of theoretical reason into an unconditioned condition in the first past, the absolute of the subject in practical reason's inference of a liberating end of emergence in the final future is an empty mirage of meaning that must not exist in the world as it actually is beyond the way it appears to us, as Figure 5 displays. That one feels the substantiality of the subject is the structure of feeling oneself as a subject. Therefore, it is "appearance" that results from the subject-object split that makes "phenomenal" spacetime. "Noumenal" reality is beyond the subject-object split.

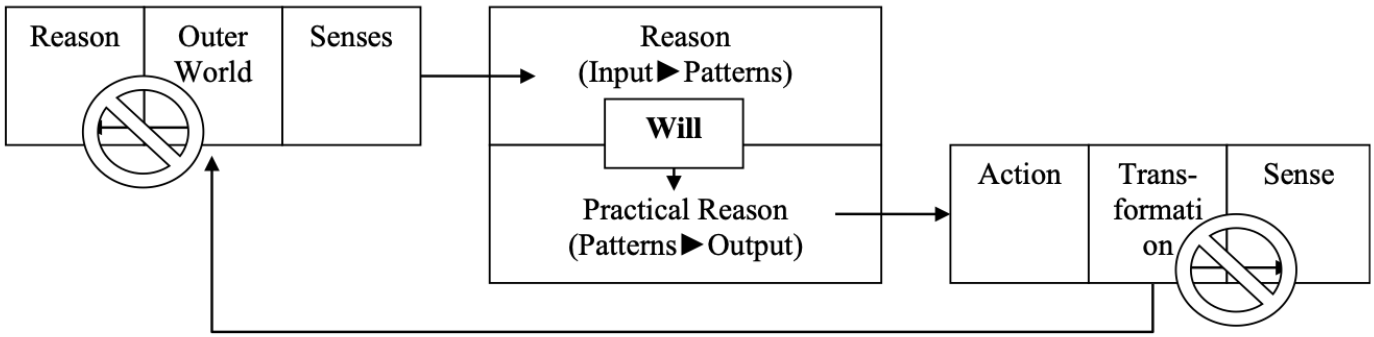

Figure 5.

1. Emergence

At least this is what a steady-state understanding of reality would urge us to assume, as individual mortality cuts each separate emergence of subjectivity off from ever reaching the ideal. In the convulsions of the object following the second law, the emergence of the subject must come to an end and the transcendental idea(l) that all animation is urged to work towards is an inevitable illusion. This, however, is only the practical argument. The Kantian argument, of course, is that the derivation of an absolute in which reason completes the chains of causation leads into antinomic self-contradictions, from which follows that causation itself is a "phenomenal" law of appearance, detached from reality as it actually is. The absolute on either end of time thus turns out to be a mirage of the mind that perceives not merely practically, but also theoretically and fundamentally.

And yet, the ideal is in the individual organism's strife to sustain its own life. And it is equally in the emergence of collective structures. Ultimately, the ideal is the end of the binary structure that makes phenomenal reality, as Table 1 displays. Beyond the subject-object split, being in the world becomes oneness.

IDEA(L) OF ABSOLUTE	**UNIFICATION OF ANTINOMY/DICHOTOMY**	
SURVIVAL	WORLD (OBJECT)	SELF (SUBJECT)
FREEDOM	"CPMPATIBLE" FREEDOM FROM (SECURITY)	"COMPATIBLE" FREEDOM TO (AGENCY)
CONSCIOUSNESS	AWARENESS OF OBJECT (OBSERVED)	AWARENESS OF SUBJECT (OBSERVER)
OMNIPRESENCE	SPATIOTEMPORAL CONTINUUM ("BLOCK")	INDIVIDUAL MOMENT ("OBSERVATION")
REASON	THEORETICAL REASON	PRACTICAL REASON
SENSE	WHY I AM (PAST)	WHY I ACT (FUTURE)
NOUMENON	**ABSOLUTE (BEING)**	**TRANSCENDENCE (NON-BEING)**

Table 1.

The ideal is behind the reciprocal pressure dynamics that result from individuals connecting themselves out of self-interest and it is behind the emergence of downward causation through the institutions and norms of semiotic agents that scaffold themselves into an organized structure (Frauen 2019a, 2019b, 2020). In a way, one could say that the altruism of the individual is fully understandable when seen as the selfishness of an emerging trans-individual agent (Frauen 2021b). The temporal person, far from being substantial, is more like a mirage in this process as the "self" is reconstructed anew situationally at every instant "in the face of whatever pressures I am under" by the genes and ideas that the individual is made of (Ó Nualláin 2010, 81; Chadha 2019; Nichols; Frauen 2021b, 2021a). Thus, the "self" fades away ever so often on the organism's predetermined way from conception to the grave. It is a tool for the organism, its genes and ideas, social systems, and in final consequence for animation and emergence itself. Additionally, it is well-known that almost all of the cells that make the organism regenerate constantly (though neurons do not). Regarding Plutarch's structurally similar "The Ship of Theseus" paradox, Noam Chomsky suggested that the problem arises from our externalist tendency to assume that what is true in our minds must be true in the world as well. While the mind regards a ship the parts of which have been completely exchanged over time as the same ship still, the actual

ship(s) in the temporal world couldn't care less about how the human mind structures its understanding of the world. Likewise, then, my understanding of myself as a temporal person may be important to my situational self to organize my life. The law of emergence in the temporal world, the actual self(s), couldn't care less if this is actually true. Scientifically speaking, it does not make all that much sense to analyze animation as made of separate subjects. More accurately, the subject is the law of animation and emergence from animation itself. What I call my "self" may be a mere shade of this process.

Both the natural or genetic and the social or semiotic side of being human are inhabited by evolutionary units, by genes and ideas, which survive and spread through the animation of the physical body (Dawkins 2016; Luhmann 1987). Certain species may thus construct individual specimens that go on suicide missions to pass on their genes following the sex drive. Semiotic structures may construct human individuals that go on suicide missions to pass on an idea following an ideological drive. These are not contradictions but display that evolutionary principles work on the sub-organism and trans-organism levels as well. Darwin, of course, thought that only the organism matters as a unit of selection. In his reductionist view, Dawkins believes that the gene is the primary unit of selection (Dawkins 2016). Other biologists like the late Stephen J. Gould favour a multi-level approach, in which the organism, kin and even group selection dynamics play a role as well (Sterelny 2007). The first article of this series has argued that it is still organisms that must be regarded as the main unit, albeit seen as all organisms, including those that make multicellular organisms. Genes and ideas can be *described* accurately as evolutionary actors. While the description is sound, however, it overlooks the fact that both merely "ride on" the internal urge that only organisms possess, even if they shape its content. Semiotic systems, after all, do just what genes do, albeit in much-increased scope and velocity: the transmission of information among individual specimens.

However, it is most remarkable that the emergence of higher-order subjectivity from information exchange in tightly scaffolded networks of lower-level organisms is possible, as in the unification of simple cells into complex cells and in the unification of separate complex cells into multicellular organisms. Without it, the increase in complexity would hit the wall eventually. There is a reason why organisms that discard unused features and thereby reduce their complexity get selected by evolution: not only do these features waste energy, but excessive complexity also leads to an increased risk of malfunction. While multicellularity increased greatly in complexity since it first appeared, it really has not done so for quite some time now (with some arguing that it never again increased to the same extent as it did in the Cambrian explosion). There seems to be an upper limit to the complexity of the individual multicellular organism just like there is a limit to the complexity of the single complex cell. Cancer sadly reminds us that we must be close to that limit (though, oddly, blue whales are less likely to get cancer than humans while mice are more likely).

Of course, parasites may reduce their complexity to benefit from the newly created environment of emerging structures of higher complexity. Moreso, organisms that get scaffolded into emerging structures of higher complexity might actually *get forced* by the emerging super-structure, their environment, to reduce their own complexity.[3] The size of individual specimens tends to slowly increase over time, but certainly, not all species are increasing in either size or complexity. And yet there seems to be a universal drive towards information transmission in animation from which larger structures and ultimately trans-individual super-agents can emerge, though strong emergence is the exception. Bacteria, procaryotes not greatly more complex than they were billions of years ago, exchange information by horizontal gene transfer in the "bacterial world wide web" on a global scale and yet this never resulted in a leap comparable to what the emergence of eukaryotes made possible (Hoffmeyer and Stjernfelt 2016).[4] They are, however, crucial for the workings of the multicellular body. That they are embedded in these networks, however, does not mean that they increase in complexity. It is the multicellular structure of which they are part that makes the increase. Other than a universal increase in complexity, it rather seems to be the interplay between the different levels of evolutionary agents that pushes toward further emergence.

The evolutionary urge in animation is real and it is always pushing towards survival, which due to mortality can only be thought of as an increase in understanding and control into an absolute. Before humanity, however, the urge was blind and frequently found itself pushing into dead ends. Being the tragic species it is, humanity may well push itself into extinction in spite of our extended awareness of the planetary and cosmic challenges that we are facing (Frauen 2020). Obviously, the problem is that we are well short of strong emergence: the individual can merely understand a fraction of these challenges in theory and feels little compulsion to care practically as individual mortality cuts it off from the consequences.

In any case, without the urge in animation, the subject, none of the circuses of life and emergence would happen. The point is not whether the diversity of species is increasing, which on the one hand it is and on the other, it has never again to the same degree as it did during the Cambrian explosion. The point is not whether the "complexity" of individual species is increasing over time. On the one hand, it seems it is overall as long as environmental circumstances remain stable. On the other, this must be filtered out from a fossil record marked by frequent setbacks and countless counterexamples. This discussion is intricate, with complications arising from the ongoing debate about whether the primary driver of evolution is life responding to the environment or life's internal dynamics.[5] In the first case, changes in the environment drive evolution "from the outside" as the fittest are not the fittest any more. Extinction events due to changes in the environment open up gaps to be filled. Undisturbed, however, ecosystems stay largely in equilibrium in this picture. In the second case, natural selection forced upon species by Malthusian pressures drives evolution "from the inside" even in stable environments. It is not necessary for the purpose of the present paper to take sides. To at least some degree, it is certainly an interplay of the two anyhow. In any case, the point is that systems of higher complexity do emerge driven by the individual urge within all animated agents on all levels to control and shape their environment. Control limits the uncertainties of change for the subject. In the case of ideas and genes, animation is mediated through the animation of the organisms that make them and are made by them. And yet, without the urge, their evolution, also, would not happen. It is a multi-layered, complex process, but it *is* happening: the subject, animation, performs work on the object, the outer world. It longs to control it, to make it part of its workings, to overcome it.

2. What does urge “want?”

The emergence of subjective urge, assuming that life emerged from the object as it must have, must likewise be a natural law within the object.[6] Else, it would be a “miracle,” which is just another way of saying that we have given up on understanding it, as is calling it an “epiphenomenon.” But it is neither a “miracle” nor an “epiphenomenon.” Subjectivity must be underpinned by a universal law of the physical place we inhabit and its emergence does something to this physical place. Looking at a giant tree that grows towards the light, one cannot but wonder what it “wants.” Of course, the tree does not consciously “want” anything. It is just driven, urged to do what it does to survive, be this in sustaining the organism’s viability, in passing on its genes or in fulfilling its function in the larger network of what has recently been popularized as the “wood wide web.”[7]

And yet, one cannot help but wonder what all the ado is all about. What does this natural law that is behind animation and the emergence of awareness from animation in yet unknown ways “want?” What is it good for? All other natural laws, constants and forces fulfill a function for the universe to be what it is. The strong nuclear force, for instance, “wants” atomic nuclei to stay together. The second law “wants” diversity to increase. The fine structure constant – the “hand of God,” as Richard Feynman once termed it, that makes it possible for the second law to increase not merely diversity but also complexity – “wants” structure to emerge from elementary particles. But what is animation good for? A tree, surely, will never reach the sun. Neither will it survive. Neither, in the long run, will the genes it passes on or the forest it stands in. It seems that the natural law that underpins animation “hangs in the air:” for all we know, the universe would look almost exactly the same without it. But is this urge towards the transcendental ideal of survival in animation and emergence, perhaps, also the object’s natural law to “survive” in some way?

3. The evolving phenomenon

One thing that can be observed without doubt is that the subject is a “looking glass.” Through its emergence, the object builds a “reflection” of itself in the subject. There is a world “out there” and there is my internal representation of it. In its subjective experience, any organism merely moves through the world of its own subjectivity. What is actually “happening out there” could be entirely different. Somewhat echoing Plato’s allegory of the cave, Immanuel Kant’s aforementioned “critical philosophy” caused a revolution in thinking by displaying this insurmountable barrier between the “phenomenon,” which is our subjective experience, and the “noumenon” or “thing in itself,” which is objective reality. A more recent way of interpreting biology displays the same distinction. According to biosemiotics, organisms navigate the world by moving through their “Umwelt,” which is their internal semiotic representation of their environment or, in simpler language, their subjective experience (Hoffmeyer 1996, 2004, 2009; Frauen 2021b).[8] One could thus say that an organism’s “environment” is what is actually “out there” and identify its subjective “Umwelt” with the Kantian “phenomenon,” with the outer world or object as it appears to the observer or subject. Accordingly, one can identify the actual “environment” of the organism with the Kantian “noumenon,” with the “thing in itself” as it actually is beyond appearance. Many biosemioticians, however, are unaware of the fact that when they interpret animals’ behavior in their “environment” by analyzing what animals experience in their “Umwelt,” this “environment” is merely our “Umwelt.” What is actually “out there” could be entirely different yet.

In Kantian philosophy, the subject is stuck forever in its “Umwelt” or phenomenal experience with no way to break through into noumenal reality. While this is certainly true for the individual, one must likewise note that the cybernetic process in evolution builds “Umwelten” of steadily increasing complexity and accuracy. Accuracy gets selected naturally as it increases the utility of actions in the feedback loop from object to subject. Complex information processing systems like multicellular organisms are aware of more than single cells. The multicellular organism is aware of much more, in fact, than the combined experience of all of its lower-level constituents, which makes the increased awareness of a super-agent “strong emergence” (Chalmers 2006).[9] The subjective experience of the outer world in animation “moves towards” more encompassing semiotic representations of the elements that surround the organism in its environment. Thereby, subjectivity extends gradually further into the spatiotemporal realm to encompass more of the object in the subject. The surplus of semiotically represented features of the environment in the subject’s Umwelt enables the subject to increase its understanding of the object by the use of theoretical reason. Then, the subject is free to establish increased control over the object in agency through the employment of this increased awareness of pattern causality in practical reason. Knowledge, as the old saying goes, is power, at least potentially. Naturally, practical control is likewise a feedback loop on the ability to produce knowledge in theory. The “compatible freedom” of the subject grows. It is urged to grow by the transcendental ideal of freedom: an absolute freedom in a final future.

As Terrence Deacon explains, what he terms the “sentience” of humankind extends one big step further into the spatiotemporal continuum than the sentience of animals (Deacon 2012). It has been pointed out in detail in the first article of this series that this is so because our awareness and agency are intersubjective, with science and technology playing key roles in knowledge production and rule administration. The difference from less collectivized species is noteworthy. Humanity, to a unique extent among all known species for all we know, “knows” things about the object that are far beyond what individual specimens experience in their subjective “Umwelt.” This is possible through the use of collective learning and intersubjective knowledge production in science, made possible in turn by the essentially intersubjective nature of linguistic rationality. Humanity utilizes and acts upon the object in ways that go far beyond what the individual specimen or even a group of specimens could do. This is possible by the employment of our theoretical knowledge in technology, made possible in turn by a sophisticated apparatus of collective rule administration based on contracting and social institutions. We are far removed from reality in our subjective experience, but, unlike any other species, we know this, including mind-bending features of reality beyond appearance that cannot possibly be experienced subjectively by human beings like the relativity of spacetime and quantum mechanics. And we do not only know about quantum mechanics. Increasingly, we are learning how to utilize this knowledge. One must marvel at this discrepancy. Perhaps, an emerging super-human super-agent could actually experience what we know in theory subjectively analogous to the way in which the I can actually see while the cells that make the eye

cannot.

4. The end of animation

Even so, however, this emergence would be way short of the transcendental ideal. While it is unimaginable for us what "it would be like," it is yet perfectly conceivable without contradiction that there may be some state of more encompassing subjective being in the world. After all, who says that such a super-agent doesn't already exist somewhere in the universe? A transcendence of the binary that makes being in the world, on the other hand, is beyond anything that could possibly be experienced by any subject, which is precisely what makes the ideal an illegitimate inference of reason into an impossible absolute of subjective will. There cannot be a subjective being without an objective world. But can a logical solution be found that establishes the freedom of the subject and yet keeps the object as a substrate by turning being in the world into being the world?

It has been displayed that this illegitimate ideal of practical reason is mirrored by what Kant showed to be an illegitimate ideal of theoretical reason that goes beyond anything that could possibly be included in the causality of the object. Thus, the ideal of an absolute freedom of the subject in an imagined final future is mirrored by an imagined absolute freedom of the object in a first past. Creation undoubtedly satisfies the criteria for freedom beyond compatibilism: the unconditioned cause of reality entails all material causation and subjective agency alike. The latter, after all, emerges from and is fully determined by the former. Whatever this something that is not nothing that we call the cosmos comes from, accordingly, is free, i.e., it is not part of the determined causal structure of reality. Indeed, the object's origin in what is currently thought to have been a big bang is the only freedom for which we have objective or empirical evidence, while evidence for the subject's future liberation relies merely on a subjective factum (Kant's "fact of reason"),[10] i.e., on non-empirical and thus unscientific evidence.

The absolute freedom of the future liberates the subject from the object by "flight" turned into absolute freedom from the "pressure situation" that is being in the world. This may be termed "transcendence." Other than a spiritual journey inward to satori, however, the cybernetic process driven by animation that leads to increasing subjectivity establishes this freedom through an imagined ideal of its completion in total control: "fight" turned into absolute freedom to impose the subject's will upon the all of creation. This ideal is therefore equivalent to the condition for causality as an absolute freedom in phenomenal reality's origin: both are absolute causality. The first absolute freedom of the past is derived by theoretical reason's illegitimate inference from the object or outer world into an unconditioned condition for the totality of creation. The final reflection of the future is derived by practical reason's illegitimate inference from the subject or urge into a liberation from the object in a totality of unrestrained will.

Both, therefore, entail the other: all that subjectivity will ever become by a determined increase in compatible freedom into a final absolute freedom is included in the absolute freedom of creation through chains of causation. Likewise, all of the object and therefore also its first origin in what appears to be the past from our frame of reference is included in the transcendental ideal of the subject's absolute awareness and agency. As both are beyond the subject-object split and thus "noumenal" beyond spatiotemporal separation, would one not have to conclude that they are the same and only appear to be on the opposite ends of time phenomenally? If so, is there possibly a key to be found in this strange symmetry of theoretical reason (object, past) and practical reason (subject, future) that dissolves both antinomies by bilaterally affirming each other's illegitimate inferences of an indivisible absolute?

5. Factual impossibility

There is something remarkable about the practical antinomy. On the one hand, it urges reason to transcend its boundaries into an illegitimate inference of an absolute that has no existence outside of the mind that perceives. On the other, it undoubtedly does something in the world. It urges animation to perform work on the object. Accordingly, it has a very real, physical effect on the world. It is not an epiphenomenon, even if the ideal be empty. Something that is immaterial, a mirage of the mind, does something that is very real, a fact in the world. How far it will go and how limited its emergence is spatially and temporally is not for the here and now to decide. We do not know how fine-tuned the natural law that emerges subjectivity by animation is but the Fermi paradox suggests a high degree, at least when it comes to the emergence of human-like states (contrary to popular belief, the Fermi paradox does not say anything about life itself or post-human forms of emergence). Most likely, it is not us in any case who will get very far (Frauen 2020, 2021a). Cyberneticist Valentin Turchin – known primarily for his concept of "meta-system transitions" to higher levels of control that is somewhat similar to "biosemiotic emergence" – cautiously considered the possibility of a "spiritualization of the cosmos" in *The Phenomenon of Science*, a book entitled with a nod to Pierre Teilhard de Chardin's *The Phenomenon of Man* (Turchin 1977).[11] Likewise, however, he cautions his readers to curb their enthusiasm on the closing pages of his undervalued treatise. What, after all, would make one embrace such an outrageous idea?

Perhaps the universe as we know it is a speck, a tiny bubble of existence that must burst ("big rip") or, more likely, fade out ("heat death"), possibly amidst an eternally boiling soup of inflation without either beginning or end. This soup may locally "cool off" to semi-stable conditions like our universe but overall runs off into an eternally inflating infinity beyond not merely our physical laws but possibly beyond the laws of logic. Let us note that for this "soup" there is neither time nor space, which in itself entails the logical contradiction of an inflating bubble expanding into something that is non-spatiotemporal (and itself expanding at a *much* faster pace than our bubble within it).

The question is thus whether spacetime, which is mere "phenomenal appearance" for Kant, is needed for logic. As Einstein's theory of relativity teaches, spacetime is an emergent phenomenon since massless particles do not "experience" it due to time dilation and length contraction. In the very beginning of the universe, massive particles

did not exist. It is the alleged equivalence of this state with maximum instead of minimum entropy at the end of the universe that Roger Penrose builds CCC on (a highly controversial assumption) (Penrose 2012). In this "crazy theory" then, the logical laws reinstate themselves through the compulsory reemergence of spacetime as soon as it disappears. The "bubbleverse" multiverse picture, on the other hand, is derived from the idea of inflation at the beginning of the universe, which is a theory championed by many astrophysicists but rejected by Penrose. In this case, then, there is no centre of the universe in a big bang and the Penrose cycles become impossible in theory. Our spatiotemporal reality is a botch that appears from the "symmetry breaking" of the unified universal quantum field through the Higgs mechanism.[12] It is like a bolt that is stuck in the gears of the machinery of inflation. And this anomaly may be bound to get grinded down when the multiversal machine reasserts itself in another phase transition that brings our bubble back to the original state of the run-away-inflation non-place that surrounds it.

The question it comes all down to, thus, is whether our fundamental laws of*logic*, as opposed to physical laws that are mutable, merely represent the physical laws of our "bubbleverse" or if they are universal beyond our local universe. If they are local, the eternally inflating infinity beyond our cosmic horizon – and beyond the beyond – works according to completely different laws. Then, the inference of a reason for being from the object or cosmos through theoretical reason and the inference of a sense for being in the world from the subject or self through practical reason are empty, as Figure 5 shows.

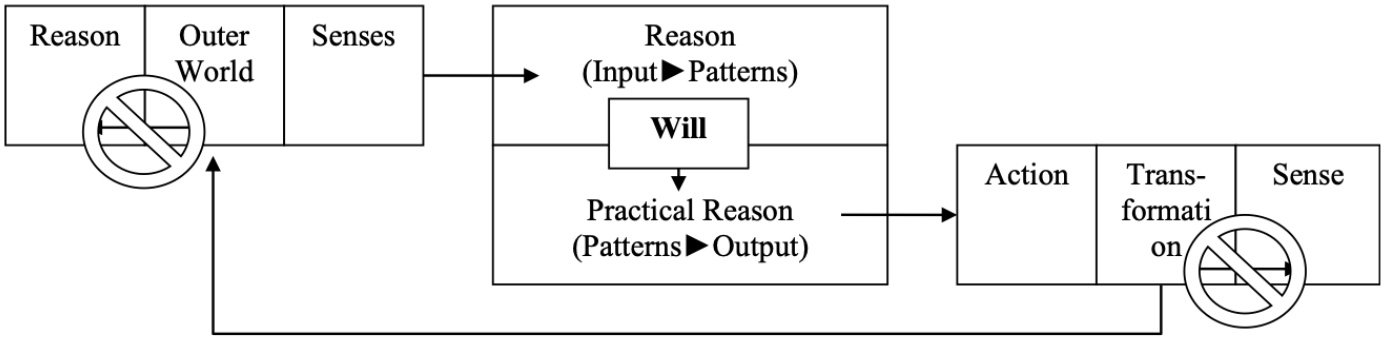

Figure 5.

The ideal may thus be what an antinomy, something that is not consistent in itself, must be: an empty illusion, a mirage of the mind that perceives. Maybe, probably, it is nothing. The cybernetic process that drives evolution from animation runs into only its own end and there is no end to creation.

It must be certainly so if what has been said earlier about entropy is true. While eternal inflation and future phase transitions are highly hypothetical, the second law rules supreme in nature and no theory should attempt to mess with it, as Arthur Eddington famously stated. If life defies entropy locally but increases it overall, there is hence no hope beyond the here and now. If overall entropy in all its forms is always increasing, the universal end in a future far away is gravitational singularities that ultimately, in a future yet much further away, evaporate away and leave little but extremely low-energy photons in ever-expanding darkness (Hawking 1975).

Being in the world, then, is the perfect death trap, not only for all subjects individually, but for the subject seen as emergence as such. It is, as a matter of fact, not merely a death trap but a suicide trap. Biosemiotician Terrence Deacon sees the origin of life in structures of "maximum entropy production (MEPs)" that create constraints, which ultimately enable self-organization (Deacon 2012).[13] It seems very sensible to suggest that strong emergence like life from matter, in analogy to weak emergence like gas from particle movement, must somehow "ride on" the second law. After all, it is the second law that rules supreme in nature and all of emergence must thus be a byproduct of it. And indeed, the subject is more than merely its byproduct but one of its ultimate mechanisms and manifestations.[14] Deacon starts from the well-known observation that structures of Rayleigh-Bernard cells emerge in fluids to dissipate heat as fast and efficiently as possible (lava, for instance, cools off this way). What is true on the lowest level of proto-abiogenesis is true also for all further steps in the emergence of the subject, which lead from "morphodynamics" to "teleodynamics" and ultimately result in the biosphere and global human society. The emergence of all higher levels in this process, however, can be described as the object's way to produce evermore entropy even faster, with global human society standing at the pinnacle of entropy production, unprecedented by any species in the long history of evolution. In animation and emergence, then, the second law is turning onto itself and into darkness: the subject itself is a self-undermining process on the largest, universal scale. To maintain its far from equilibrium structure, it makes future structures that are far from equilibrium increasingly impossible. The machinery that defies entropy to maintain its ongoing emergence in the cybernetic process inherent in life does so only to assist the object to reach thermodynamic equilibrium as quickly as possible. The nature of life is antithetical: the emerging will of the subject is urged to establish structure, to bring it all together in an absolute of control, but likewise, as a physical mechanism of the object, self-undermines its vain hubris by maximizing entropy compulsively and dissipating the foundations for structure.

The subject is a suicide machine. Its end, on the biggest scale, is its own destruction, the end of emergence. Its own annihilation, then, is what it is good for. If, in the ultimate end, there is no way for entropy and complexity to increase hand in hand, this must be so.[15]

6. Logical compulsion

However, if we demand our fundamental logical laws to stay valid on whichever scale they are applied to, the absolute is everything (not too surprisingly, really). If the phenomenal "Umwelt" of the subject gets gradually closer to the noumenal "environment" that it is actually part of, the big question is if it can eventually break through the phenomenal wall into the "thing in itself." Kant's heir Fichte, while not knowing about Darwinian (or any other) evolution, certainly thought so. Indeed, he did not merely think that it *can*, but that it *must* be so for the universe to be logically consistent. In his philosophy, there is an ultimate, final feedback loop that posits the objective world out of the subject's reflection of it. This "final reflection of absolute knowledge [letzte, das absolute Wissen ausmachende Reflexion]" is preceded by a progressive series of "reflections," each one more encompassing and accurate than the one preceding it (Fichte 2012a, 102).[16] The "true spirit" of "transcendental idealism," Fichte claims, is to understand that objective knowledge of the subject, which is the completion of subjective knowledge of the object, is the same as being the world and thus posits this world in the first place (Fichte 2012a, 51–53). Fichte's famous "solipsism" or "idealism," however, refers only to the reference frame of this all-encompassing non-spatiotemporal observation in the "final reflection." The distinguishing feature of his theory is that material causation *is just as real* (see esp. Fichte 2012a, 130–32, 2017, 112). This clearly distinguishes "Wissenschaftslehre" from Spinoza's static pantheism or panpsychism, as Fichte explicitly highlights (Fichte 2012a, 93, 113-115, 137-139). Furthermore, he turns Kant upside-down: while for Kant both object and subject are "phenomena," for Fichte both are made real by their bilateral "affirmation" of each other, which makes the Kantian "noumenon" disappear in theory. Materialism and idealism, to Fichte, are bilaterally constitutive since the one creates the other to posit the former, as Figure 6 shows.

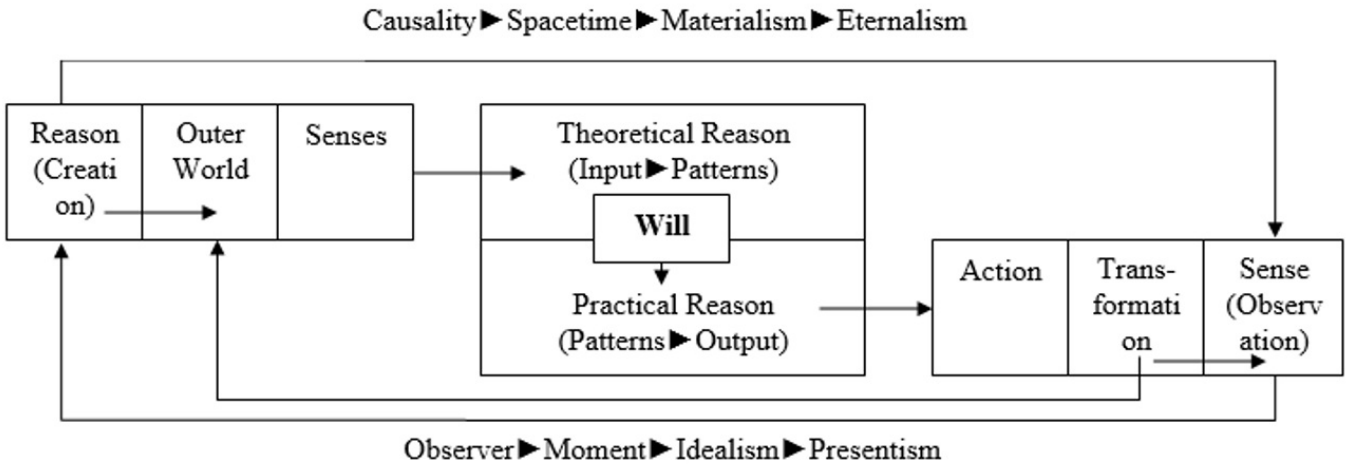

Figure 6.

With Fichte, idealism and materialism reach an evolutionary "synthesis," derived from the insight that each needs the other to be logically consistent itself. Formerly, the two were characterized by duality, by the fact that all perception can be explained in terms of either the one or the other, and by mutual exclusion, by the fact that *everything* must be part of either one or the other (Fichte 2017, 111). This fact has been called an "antinomy" in this article. After Fichte, one could think of explaining the all of reality by a process unfolding between the two and everything as part of both and nothing as part of neither.[17] The antinomy appears by logical exclusion: within the process, there can be no substantial subject if there is a substantial object (materialism) and no substantial object if there is a substantial subject (idealism) in spite of our immediate awareness of the substantiality of both. Fichte dissolves the paradox by showing that in terms of what he calls a "synthesis" of "transcendental logic" there can be no substantial object *without* the substantial subject and no substantial subject *without* the substantial object (Fichte 2017, 110–12).

In his failed attempt to establish a theoretical synthesis between empiricism (or materialism) and idealism, Kant had displayed how our perception of the world is made by our categories of perceiving (Kant 1998). In this regard, Kant sided with idealism: what I perceive is made by the mind. Thus, it is mere "appearance" or "phenomenon." However, I likewise could not have this illusion if there was nothing "there" to perceive. Thus, Kant equally sided with materialism in that underlying the world as it appears to me, there must be something that is actually "there." This something, however, must include "myself" in some way as I am by needs always "appearance" to me when I "look" at myself. Furthermore, spatiotemporal dimensions are on the side of appearance as "pure intuition," from which follows that the "noumenon" (the something that actually exists as a "thing in itself") cannot be internally divided or temporally fluctuating.

Thus, as Kant arguably realized to his own discomfort in his later writings, we are left with a picture reminiscent of Eastern philosophies, in which the binary of self (subject) and world (object), reminiscent of Atman and Brahman, is the root of a spatiotemporal "veil of illusion" imposed upon a reality of non-spatiotemporal oneness beyond the binary. Thus, the "noumenon" as a theoretical refuge for God and human souls becomes problematic since this would entail separation in the non-spatiotemporal, which is a logical contradiction. Thoroughly thought through, Kant's philosophy is thus an idealist system, in which only the non-spatiotemporal singularity of an indivisible noumenal spirit is real. Therefore, it is not a synthesis between idealism and materialism, as he had attempted. This synthesis should only come with Fichte.[18]

Holding on to its Christian agenda, Kantian philosophy also offers no hint as to how the "veil" appeared or how it can be lifted. Like the Christian worldview, the Kantian system is fundamentally a "steady state" philosophy.[19] In Eastern religious belief systems, however, the breakthrough can be achieved by tackling the illusion of a self that

is separate from the world in the mind by detachment and meditation. This detachment may be conceived as a hermetical inner progress towards satori: a step-wise decoupling of the subject from the object and thereby from itself by a decoupling of the subject from the desires and aversions of its physical body until the urge that makes the self is extinguished (“nirvana”).

Fichte, without knowing about Eastern philosophy, developed a “doctrine of science [Wissenschaftslehre]” that shows that it is impossible to tackle the binary structure of being in the world that makes phenomenal reality by *internal* reflection on the subject. The evolutionary process of the material realm that builds up the “final reflection” by control over the object is indispensably necessary, though Fichte struggled to understand what may constitute this process. The “final reflection” entails the entirety of this process beyond spatiotemporal separation. In the “solipsism” or reference frame of the “final reflection,” everything including our here and now is in the non-spatiotemporal point of an idealist “singularity.” In *our* reference frame, however, we are here and now, stuck in the middle of the process, and there is no shortcut through the phenomenal wall. The cognitive limitations of a very real biology restricting our “Umwelt” to what we are currently evolved to see, to a certain spatiotemporal scope way short of “consciousness” seen as an absolute, do not permit a breakthrough. Fichte, already in the first brief outline of his agenda, emphasized that his philosophical project was to put the “edifice of science” on a “solid foundation,” to make it immune to wacky pseudo-science and misguided enthusiasm that feed on the ontological inconsistency and incompleteness of the scientific worldview (Fichte 2012b, 14).

It should be noted that Fichte, who lost his professorship in Jena because of his radical atheism, thus closes the Kantian gap for God and the immortal, individual human soul. If the universe grows out of itself, there is not only no need for a creator God but also no “noumenon” in which this transcendent being could reside (because, contrary to Kant’s claim, the phenomenal law is not antimonious but affirms itself at the point of contradiction, which makes the “noumenon” superfluous in the same way in which Einstein showed that there is no need in theory to assume the existence of a luminiferous aether).[20] It is only the law of emergence that remains. The two “why am I here?” questions consisting of theoretical reason’s “why is there something rather than nothing?” and practical reason’s “why do I act?” converge in a single point, a singularity that appears to be at the end and at the beginning of the binary from our frame of reference, but from its noumenal frame of reference comprises the entire process in-between also, as Figure 6 has shown graphically.

This picture can be described as a “self-excited circuit” of the world creating itself through will. The great physicist John A. Wheeler, in his rather eccentric interpretation of the “Copenhagen interpretation” of quantum mechanics, developed a theory reminiscent of Fichte, in which the universe is a gigantic “quantum computer,” a cybernetic process, computation to be affirmed by “observation” (Wheeler 1974b, 1975, 2018; Wheeler and Ford 2000). Indeed, even Wheeler’s iconic sketch of the U(niverse) affirming its own creation by observation seems strongly reminiscent of Fichte’s “eye closed into itself [in sich geschlossenes Auge]” (Fichte 2012a, 55), as Figure 7 demonstrates by contrasting Fichte’s description with the sketch (Fichte 2012a, 119; Wheeler and Ford 2000, 333). And yet, Wheeler likely never read Fichte or any of the other “German idealists.”[21] He does mention Schelling in a footnote (actually two, but I wasn’t able to retrieve the second source) but likewise states that he was made aware of the connection only by a philosopher friend of his (Wheeler 2018, 334).[22] Neither of the “German idealists” is mentioned in his autobiography in spite of long passages on the topic (including the final two chapters) or in the bodies of text of his articles on the “participatory universe” and “it from bit.” Like Fichte, Schelling and Hegel, Wheeler likely saw humanity as the pinnacle of observer participation in what has been termed his “existential stance on the primacy of the sphere of human subjectivity” (Nesteruk 2013, 14). This paper, of course, has argued that even a “super-human” observer emerging from humankind’s communication acts would still be far removed from the transcendental ideal of consciousness as an absolute.

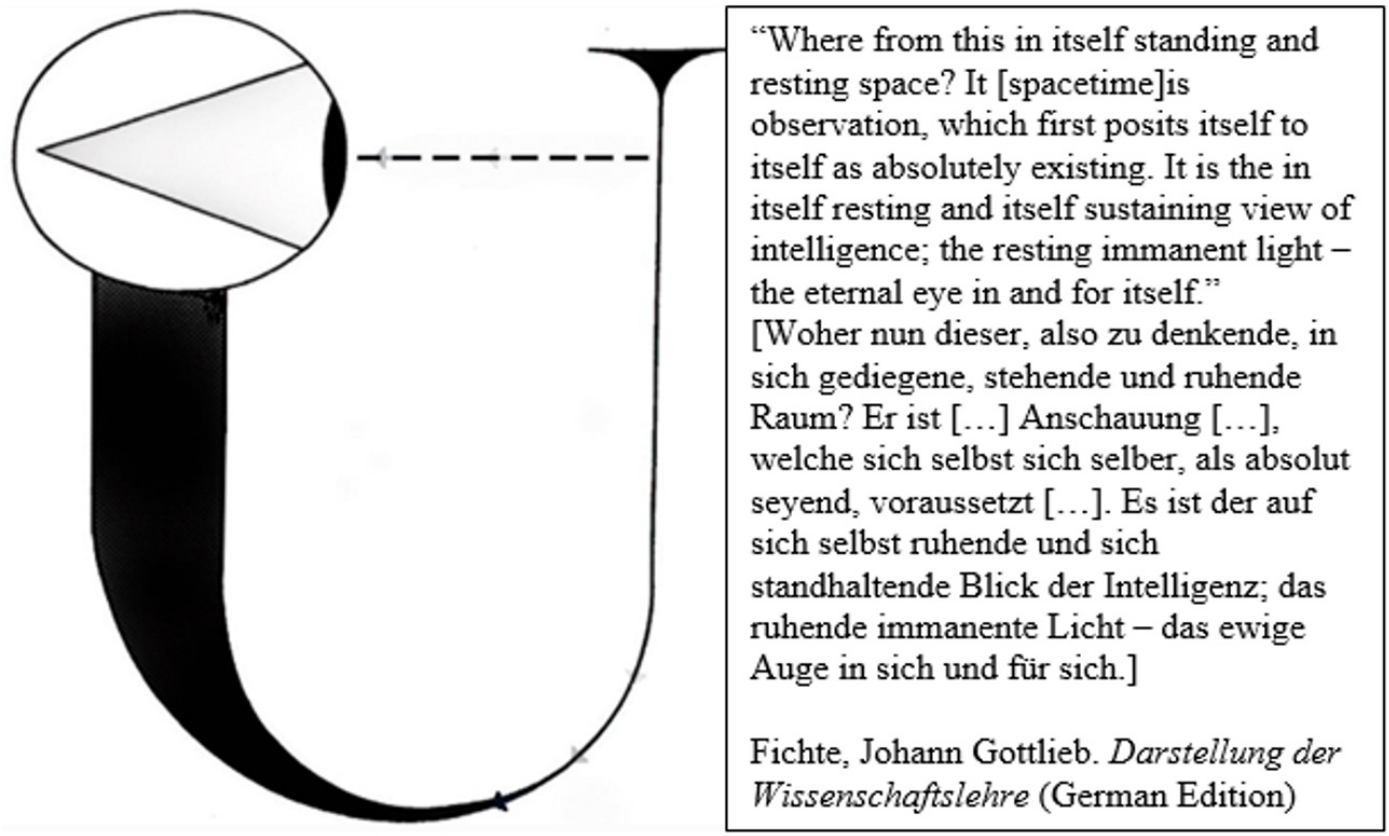

Figure 7.

The idea of a "self-excited circuit" in a "participatory universe" is certainly "crazy." And yet, it does solve the logical problem that a "something" that exists does not owe the perfect symmetry of nothing, as Leibniz famously remarked. If there was nothing, there would be no reason why there shouldn't be nothing. But there is something, undoubtedly. Logically, then, this "something," whatever it really is that is not nothing, can come from either a negation of nothing, which cannot be, for how could nothing negate itself? Out of nothing nothing comes, the ancient saying goes. Parmenides' famous "ex nihilo nihil fit" states that all things come from pre-existing things, which may ring more familiar to natural scientists as the first law of thermodynamics, which states that energy can neither be created nor destroyed in a closed system. Existence as an absolute, of course, must be imagined as a closed system. Furthermore, there would be *no time* for creation by negation if there was nothing.[23] Logically the only alternative, then, is that "something" must affirm its existence somehow. Seen as a totality, an absolute, existence must come out of itself, for where else would it come from? This is not the same as an eternal recurrence. In CCC, for instance, we still have a timeline that goes on and on and on. This eternal recurrence is still just there, it does not affirm its own existence. It does not own the perfect symmetry of nothing. No theory of a flat eternity that does not posit its own existence or curve into a self-excited circuit does. It still "hangs in the air" in our logical understanding, even if it was always there and will always be there. Logic demands more than physics: eternity may satisfy the first law of thermodynamics. However, it does not satisfy its logical equivalent, which urges a reason for all that is, including existence itself. It does not stand reason that it should just "be there."

But for an affirmation, there must be dynamics. And for dynamics, there must be a fundamental binary. Opposition is essential to create progress, to turn being into becoming being. A bloc, the spatiotemporal continuum, and an idealist observer hang equally "in the air" without their affirmation by each other, logically speaking. It is like the alleged paradox of the chicken and the egg. A chicken out of nothing would be a paradox. An egg also. If there are both, however, it is not a paradox, but a riddle. The egg comes from the chicken and the chicken from the egg. Seeing the two side by side, an antinomy appears that can only be resolved by rethinking our understanding of time and causation. Subject and object, perhaps, are the chicken and the egg out of which the universe makes itself.

The first article of this trilogy stated that the subject is an active force for change and that its workings are not epiphenomenal. They follow from a natural law of emergence of the physical realm that creates subjectivity and increases subjectivity by further emergence from the connectivity of lower-order subjects.

Though the subject transforms the object, it was added in the second article, it is determined by the object in all it does. From compatible freedom, one cannot derive imputability. In a steady-state universe, the only way to satisfy the subject's understanding of itself as substantial is through idealism. But this voids the object and our understanding of the substantiality of physical causation. An antinomy appears.

If, it is added here, the emergence of consciousness posits the emergence of the object and therefore the law of material causation itself in final consequence, it is equally valid and void to say that either one has the primacy over the other. They are bilaterally constitutive and thus, beyond appearance, congruent and identical. The only logical

way to dissolve the antinomy is by a synthesis of the object's freedom creation and the subject's freedom liberation, which bilaterally affirms both of them.

7. Quantum "craziness"

Or it is all totally different. John Wheeler's Ph.D. student Hugh Everett, in his Ph.D. thesis, came up with the "many-worlds interpretation" of "quantum decoherence," which makes a "collapse" of the quantum wave function as proposed by the "Copenhagen interpretation" redundant (Everett 1956).[24] While naturally taking a fancy to his own "crazy" theory, Wheeler defends Everett's "crazy idea" and the importance of philosophical reflection on physics vigorously in his autobiography.[25] In a highly interesting passage, he distinguishes "crazy" theories – like the "participatory universe," Everett's "many worlds" and Penrose's "CCC" – from "pseudo-science" like parapsychology, which he unsuccessfully attempted to get removed from the American Association for the Advancement of Science (AAAS) (Wheeler and Ford 2000, 340–43). "Crazy theories" follow the belief that the universe is a strange place in which any idea that is theoretically sound and physically possible should be taken seriously, even if it seems a counter-intuitive stretch of the imagination. Perhaps, this is where science turns into philosophy. Though Karl Popper's shadow lingers large over the philosophy of science and Penrose and other "crazy" theorists are keen to state that it may be possible to find empirical evidence for or against their crazy theories, the truth is that many of them are neither testable nor falsifiable and are likely to remain so in perpetuity for all practical purposes (Popper 2002).

However, philosophical reflection on the nature of reality and the deep-structure of being is not "pseudo-science." "Pseudo-science" is superstition without a scientific foundation, which must not be given a platform to spread by scientists. Perhaps, then, in philosophy, falsifiability is not that important. More important may be to take everything we know scientifically about the universe into account and to try to come up with a coherent explanation of how things may fit together. Since analytic philosophy came to dominate the field, it has become fashionable to make problems disappear by the redefinition of terms as in the substitution of the traditional definition of "freedom" as an action independent of the law of causation with a reductionist definition of "freedom" as causally determined and therefore "compatible" with causation. However, the vague and inconsistent idea of freedom in its original definition is still a priori in our minds and twisting words around does not make it disappear any more than it makes consciousness disappear to call it an epiphenomenon. Should one not inquire into the strange link between compatible freedom and this strange ideal that we somehow strive for but cannot comprehend upon analysis? To do so while taking all we know scientifically into account is not "pseudo-science" or "bullshit," i.e., lacking concern for truth, even if it may never satisfy Popper's criteria for proper science (Moberger 2020).

Wheeler writes that he feels especially intolerant towards "pseudo-science" precisely because he takes the far-fetched and counter-intuitive seriously where it actually is a serious possibility. According to Wojciech H. Zurek, "Wheeler's last blackboard" from a two-year class he taught on quantum measurement at the University of Texas featured seventeen statements he intended to discuss with his students (Misner, Thorne, and Zurek 2009, 44). These start with the observation that we "don't understand how the universe came into being" and move on to the claim that "we will first understand how simple the universe is when we recognize how strange it is." The final statement seventeen claims that "philosophy is too important to be left to the philosophers." Indeed, one gets the impression that for a long time now the most important philosophers have been individuals from outside the academic discipline of philosophy, people like Wheeler and the long list of famous Ph.D. students and postdoctoral researchers who worked with him.

After all, what is considered "crazy" today may sometimes be taken seriously tomorrow. The "Everett interpretation," while considered too "crazy" for a long time after its initial publication, is actually the more literal interpretation of the Schrödinger equation: the "collapse" of the wave function that is central to the "Copenhagen interpretation" is an external addition not included in the equation, which was deemed necessary to account for the macroscopic world that we perceive. Everett shows that it is not. For some time now, "many worlds" has gained momentum. It is tempting to see an analogy in the evolution of the universe by an increase in entropy following the second law and the evolution of the "wave function of the universe" into exponentially multiplying "branches" of universes: the more diversity there is in the universe we observe, the more universes there are in the multiverse. This seems in line with the increase of entropy as formulated originally by Boltzmann as the number of microstates that the same macrostate can be in, the "macrostate" here being the "wavefunction of the universe" and the "microstates" the states encapsulated in it (Boltzmann 1995). And one can connect this picture to von Neumann entropy, the measure of quantum information or entanglement, which the great John von Neumann thought underlies all other definitions of entropy: if pretty much everything in our universe is entangled with each other (unless we make an effort to isolate elementary particles from their environment[26]), our world would naturally appear classical to us. However, the large set of universes in the wave function that are now invisible to us due to decoherence leads to a very high and steadily increasing von Neumann entropy. In terms of Gibbs entropy, which is a measure of our ignorance, the number of inaccessible other universes that we cannot connect to and therefore cannot collect information from due to decoherence is multiplying and thereby steadily increasing our ignorance. And, of course, this multiplies the Shannon entropy or information content of the system: just like rolling a die has more possible outcomes than flipping a coin, a Hamlet who can be a Danish prince, plumber, psychologist etc. or dead can convey more information than a Hamlet who can only be a dead or alive prince.

A "collapse of the wave function" – suspicious to begin with as the only occurrence in the universe that is not time-reversible and leading to a non-deterministic outcome – seems to do the opposite: it seems to reduce the entropic diversity of possible states encapsulated in the wave function to one certain state, which can be thought of as a reduction of entropy. If the second law is "multiversal," it seems one must pick Everett over Bohr and Heisenberg.[27]

With the Everett interpretation, of course, the picture seems back to an infinitely multiplying branching of worlds that cannot possibly result in a circuit. There would be no mechanism for a circuit either. It is probably, likely, almost definitely idle to speculate about the one or the other. It is philosophy without practical purpose, driven by a love

for abstract thinking about the nature of reality as an end in itself.

However, it is worth noting that there is something in animation, in the processing of the object by emerging subjectivity, that is not trivial and not reducible. It is also worth noting that through subjectivity there is a process in the physical world and that it works according to very general, almost simplistic, principles towards a "transcendental ideal" that may well be empty, but nevertheless has a real-world impact. Thus, the process is not nothing. Be it toward everything or into the void, this is a remarkable fact in itself, if nothing else.

Footnotes

[1] With reference to Whitehead and Heidegger, it has also been mentioned that one may make a case that proto-subjectivity starts from the point of spatiotemporal identity or certainty on, which is the proper starting point of emergence.

[2] Kant's steady-state philosophy does not know an absolute of practical reason because of its Christian worldview, which is ignorant of evolution and sees the "summum bonum" as something that is located in the afterlife for moral individuals. It is for this reason that Nietzsche rejects Christianity so strongly: the "superhuman" as a final goal for human becoming in the future cannot be reached if religion numbs aspiration by promising otherworldly salvation after death for the individual.

[3] The increase of complexity is another topic on which Dawkins and Gould disagree, Dawkins generally believing in an increase while Gould was skeptical about it. See Sterelny 2007.

[4] There is furthermore the paradox that simple cells that scaffolded themselves into multicellularity cut themselves off from the "bacterial world wide web" by doing so.

[5] Genetic drift must be taken into consideration as a third factor in small populations.

[6] This, at least, is what reductionists like Dawkins, Dennett and Skinner insinuate when they claim that a "machine," "zombie," or "computer" would do exactly what we do without having a subjective experience of doing it: if human behavior is fully accounted for by natural, physical laws *without* subjectivity, then subjectivity must emerge according to a missing law. Else it would either not be there or it must be a metaphysical miracle. The first claim is obviously nonsensical, the latter is utterly unscientific.

[7] For this latter claim, however, there is scarce scientific evidence and many biologists and ecologists are skeptical of the picture.

[8] Originally, the term was coined by Jakob von Uexküll.

[9] The higher-order subject that emerges from information transmission between lower-order organisms, however, is not aware of everything that the organisms that make it are aware of but merely of complex tasks that require conscious action or evaluation.

[10] To Kant, causation is the law of the object while freedom is the law of the subject. Fichte realized that the free and absolute condition of the object can therefore be identified with the absolute, liberated subject.

[11] Teilhard de Chardin, a priest and palaeontologist thinking about the future course of evolution, envisioned a "noosphere" of global consciousness and a final "Ω point" of absolute consciousness. His book was written already in the 1930s but published posthumously in 1955. See Teilhard de Chardin, Pierre 2011. In the sixties and seventies, the visionary work of Marshall McLuhan connected Teilhard de Chardin's idea of the "noosphere" to technological progress in a concept he termed a "technological brain for the world." See McLuhan and Gordon 2003; McLuhan 1997. In 1982, "New Age" philosopher Peter Russell picked up the idea of the "technological brain" in his book on a future "global brain." See Russell 1983. Russell's "New Age" philosophy has been picked up by transhumanists and turned into an imminent advent of a "New Eden." See Heylighen 2015.

[12] Through this "symmetry breaking" the field loses its uniformity. Prior to it, it is precisely the same everywhere, which means that there is no spatiotemporal separation; the field can be described as a point or infinity alike. This is the quantum mechanical description. In terms of relativity, certain particles are impeded from moving at their natural speed of causation by the Higgs, which first introduces spatiotemporal dimensions.

[13] This theory is also put forward by Jeremy England. See England 2013.

[14] The ultimate mechanism, one could say, are black holes, which carry most of the universe's entropy now, will carry all of it at one point in a very far away future, and ultimately transform "BH entropy" into thermodynamic equilibrium by Hawking radiation.

[15] As has been said earlier, the second law *does* increase complexity locally and this is perfectly permissible as long as this local reduction of entropy entails an overall increase in entropy. But is an increase conceivable without a concurring increase in our ignorance of the universe ("Gibbs entropy")? Quantum computing offers an interesting paradox. Conventional computing always produces more ignorance than knowledge because it, like refrigeration and animation, runs on a machine that produces entropy. Any surplus in computing power is therefore directly correlated to an increase in entropy production with the latter always outrunning the former. However, it does appear at first sight that the increase in computing power by qubits could, indeed should, be able to outrun the entropy production of the machinery the operation runs on.

[16] The positing of the spatiotemporal, empirical world is described as a "quantizing [Quantitiren (sic)]" of the absolute (i.e., the final reflection). See Fichte 2012a, 99, 102.

One has to note a certain similarity to Bishop Berkeley's omnipresent observer here: the idea that though observation makes reality what is not observed still exists because everything is observed by God. However, there is no process in Berkeley, which makes his "idealism" as static as Spinoza's "pantheism."

A more recent idea draws from the often-noticed similarity of the brain's neural network and the structure of galaxies in the universe. If the universe itself is seen as a thinking, learning entity, one may perhaps argue that it is in a process of "awakening." See Vanchurin 2020.

[17] In Fichte, the shift from the Aristotelean either-or logic to Hegelian dialectics is thus already clearly present.

[18] Ironically, the German view is that Kant is yet a blend of materialism and idealism and "German idealism" proper only begins with Fichte. The anglophone world regards both of them and Fichte's intellectual heirs to be part of German idealism.

[19] Of course, there is a genesis in the beginning and an apocalypse of the end. However, there is no evolution in-between the two.

[20] Not knowing how to close his circuit, Fichte turned to the moral law in humanity as the mechanism. His insistence that what people call "God" is merely this law itself without a transcendent being led to Jacobi's accusation of "nihilism." Indeed, one of the characteristic features of Fichtean philosophy is its fundamental this-worldliness. Already in the article from the publishing coup devised by Kant that made Fichte famous – Kant intentionally evoked the impression that he was the author of the article by having it published anonymously with his publisher – Fichte had argued that revelation has no validity in an enlightened society based on scientific inquiry and rational moral action as prescribed by the Kantian "categorical imperative." He occasionally labels the "eyeball of light" of the "final reflection" "a god [Gottheit]" but likewise insists that what is meant by the term is an affirmation of nature by itself, not a supernatural being. See e.g., Fichte 2012a, 169.

[21] An umbrella term for philosophers, mainly Schelling and Hegel, who attempted to resolve the Kantian subject-object split via progressive (Hegel, history) or proto-evolutionary (Schelling, nature) pictures following Fichtean philosophy. Ironically, Fichte is today possibly the least well-known of the three, while Hegel clearly occupies the top spot. However, Schelling and Hegel, as dormmates in Tübingen, set out to explain Fichte's philosophy to a broader audience without any intention of developing their own systems. It seems highly questionable if one can understand them at all without having thoroughly worked through both Kant and Fichte first. An excellent collection of writings from Hegel and Schelling's student days as dormmates and of their life-long correspondence can be found online at https://hoelderlinturm.de/sonderausstellungen/hegel-hoelderlin/#freundschaften-in-briefen.

[22] In Schelling's work, the Fichtean picture may be even more clearly articulated when he writes of the "final reflection" and the "affirmation of the affirmation." See esp. Schelling's lecture manuscripts in Schelling, Friedrich Wilhelm Joseph 2018, 2011. Also, Schelling displays a proto-evolutionary picture by shifting the focus from humankind to humanity as part of an evolving nature. However, Schelling likewise sees humanity as the end of this process. Furthermore, Schelling's philosophy, other than Fichte's, changed fundamentally at least a couple of times during his long life, which makes him a difficult author.

[23] Some popular scientists like Lawrence Krauss hold that *"out of nothing nothing comes*' has no foundation in science." See Krauss 2012, 174. This, however, is not true. True is that "virtual particles" (Feynman) or "quantum foam" (Wheeler) jump in and out of existence in a vacuum. These particles, however, *appear* out of nothing but they do not *come* from nothing. They come from the quantum nature of an existing reality, which is not nothing. Without quantum mechanics, there would be no virtual particles either. Wheeler saw this clearly when he rearticulated the question he sought to answer from "How come existence?" to "How come the quantum?" late in his life.

[24] A discussion by Wheeler of Everett's theory can be found in Wheeler's essay contribution to the edited reprint of the dissertation. See Everett 1973, 151–55. See also Wheeler 1974a.

[25] Richard Feynman, Wheeler's postdoc at Princeton and his life-long close friend, is said to have joked that people got it wrong when they think that Wheeler went a little "crazy" in his later years. According to the rather orthodox Feynman ("Shut up and calculate!"), Wheeler had always been "crazy," it just started to show more obviously once he started to care less about what other people thought about him. See Halpern 2017.

[26] This is not quite true, of course. Electrons "orbiting" the atomic nucleus, for instance, are in superposition.

[27] As a third possibility, "hidden variables" theories like Bohmian mechanics should be mentioned here. However, each interpretation of quantum mechanics seems to force us to embrace some kind of counter-intuitive quantum weirdness. As an ontological theory beyond "shut up and calculate!" the Copenhagen interpretation seems to point at the impossibility to have an observer-independent reality (at least according to Wigner and von Neumann; see Wigner 1997), "many worlds" deprives us of even our spatiotemporal uniqueness (and thus contradicts the logical law of identity!), and "hidden variables" only works if we abandon locality (according to Bell's theorems).

However, there is a way to make "hidden variables" work without abandoning locality through "superdeterminism" since the Bell inequalities, besides locality, make the assumption that the choice of quantum measurement is random or "free." The main problem with superdeterminism, to my mind, is not that quasars billions of years in our past seem to "conspire," which philosophically considered may just display the absolutely determined causal structure of reality. The problem is that it is just *so boring*. Something within us just doesn't want to disenchant our recently reenchanted quantum world again. The task, however, is not to slide into "quantum woo," which may be best ensured by categorically starting one's thoughts from the premise that no *philosophy* of quantum mechanics can make a practical difference in our everyday lives.

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