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On the subject part II: what does the subject do?

Jan-Boje Frauen¹

¹ Xiamen University

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Abstract

This article analyses the “subject” as a cybernetic process driven by animation’s urge towards a “transcendental ideal:” an absolute of “survival,” “consciousness” and “freedom” that completes and transcends our spatiotemporally limited, causally compatible experience of “vitality,” “awareness” and “agency.”

The dual nature of subjective awareness made of awareness of a subject (“self”) and awareness of an object (“outer world”) results in an “antinomy” (contradiction or paradox) in the mind’s construction of reality: both subject and object must and cannot be substantial. Practically, this antagonism of a bilateral claim to absoluteness leads to a struggle between the subject’s law to emerge and the object’s law to fall apart. Instinctively and analytically, all subjectivity is inherently “urged” to overcome this “antinomy.” Through the work that the subject thus performs on the object, local organisms interlink and higher levels of subjectivity, i.e., awareness and agency, can emerge from organization and connectivity.

However, the idea that the subject is thus striving towards appears from the split of subjective being from the objective world in animation and emergence. As an “antinomy of practical reason” causing a “transcendental ideal,” it resides in the phenomenal structure of subjective perception alone. In analogy to Kant’s “antinomy of pure reason,” it is a mirage of the mind that perceives and the “urge” it causes in subjective being is an “inevitable illusion” of animation.

Jan-Boje Frauen, Ph.D.

Xiamen University, Xiamen, China

Email: jbfrauen@gmail.com

ORCID ID: [0000-0002-3427-2587](https://orcid.org/0000-0002-3427-2587)

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Introduction

This is the second article of a trilogy of essays 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. The reader does not need to be familiar with the first article to be able to follow the argument and the results can stand on their own without the third article.

The aim of the first article, however, was to provide a sound theoretical foundation of what subjectivity and the subject essentially are based on elementary scientific and philosophical principles. To lead into this second article, it will hence be convenient to briefly recall its main arguments. It is not claimed that all of these are my original thoughts and a wide array of sources has been cited in the first article, which will be omitted here for brevity's sake.

Essentially, it has been argued that subjectivity is a continuum among species, which varies greatly in both extent and kind. Wherever there is objectively a process of semiosis in animation, i.e., semiotic signals representing the outside on the inside, internal evaluation of these signs and output action following this evaluation, it is consequent to assume that this objectively measured awareness is subjectively experienced also. Subjectivity, then, is fundamentally this process of an “inner life” made of internal awareness of the outside in animation 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. It has been pointed out that this is not an “epiphenomenal” interpretation of consciousness because this awareness and agency undoubtedly does something: it performs work on the object following the subject's “*urge*” to maintain its ongoing emergence from the object.

It has been noted that this urge, which 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. The subject, it has thus been concluded, is not merely the emergence of urge in individual organisms. Likewise, it is a law of emergence of higher-order subjectivity from connectivity between organisms. This law is driven by the urge and self-interest that is experienced individually by each organism. It has been stated that this line of argument does not imply anything mystical or metaphysical like a “life force.” It simply states that where there is awareness and agency in animation by semiotic processes there is also subjective experience in the universe and that structured information transmission at rapid rates between subjects grows this subjective experience by the emergence of higher-order subjects.

The emergence and extension of subjectivity, it has been concluded, does not contradict or alter any physical laws, but must likewise be seen as a natural law in itself. Rather a statistical law than a universal law in analogy to the second law of thermodynamics that states that entropy overall always increases, the law of emerging subjectivity states that animation overall increases control which can lead to further emergence of higher subjectivity. That this must indeed be a natural law beyond what the known laws can account for can be seen in the fact that the emergence of subjective awareness, the observer, cannot be derived from our known laws.¹ This process defies the second law locally but does not contradict it universally. Awareness and agency in animation, even if completely determined by known physical processes, always comes as subjectivity. Likewise, then, this means that subjectivity is just this awareness and agency and as such causes change in the world. This article analyzes what this change consists in. Change, of course, starts from agency, which in

turn starts from awareness.

1. Dichotomy: the subject-object split

Upon analysis, or introspection, one notes that the all of appearance, i.e., all I am aware of, is fundamentally divided in two: awareness of my “self,” the willing entity that looks out, which I have immediately as “being me,” and my awareness of the outside, or the physical realm surrounding me, which I am aware of through sensual input and through my processing of this sensual input. In-between stands the part of the object, of the physical or material, that I am aware of in a more unmediated manner, which is my animated physical body, the direct linkage to which’s urges is the substance of the self or subject. Figure one displays this double nature.

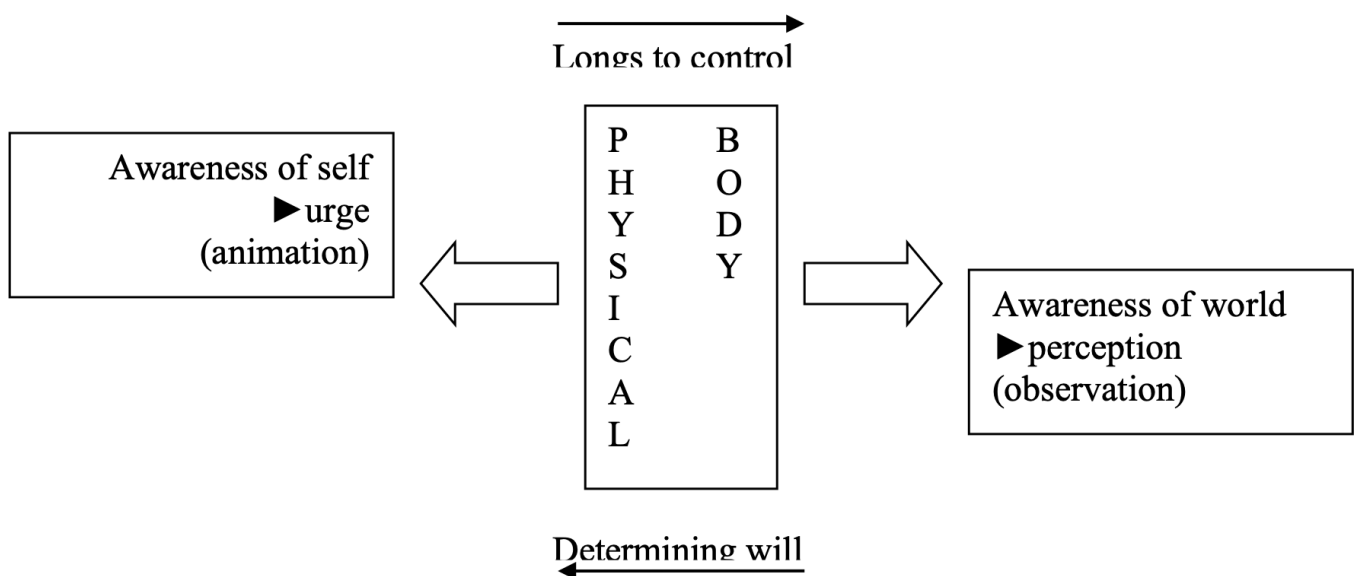


Figure 1. the double nature of awareness

The subject or self, under the premise of urge resulting from its immediate connection to the combustion engine it runs on, can hence be characterized cybernetically as an information processor. It is subjected to input or impacts from the outside and, as a computing entity, makes sense of outside appearances in theoretical reason by producing patterns of causal connections. Then, under the premise of will resulting from its direct linkage to the physical part of the outside which is the animated “far-from-equilibrium” structure it runs on, it turns this information into output actions according to practical reason as the subject of inside-out causality it sends out into the world (Kaila & Annila, 2008; M. J. Russell et al., 2013). The process aims at changing the outside according to the self’s will as a subject. The altered state of the environment, then, leads to new sensual input, deliberation and output actions to perform further work on the object, as figure two shows.

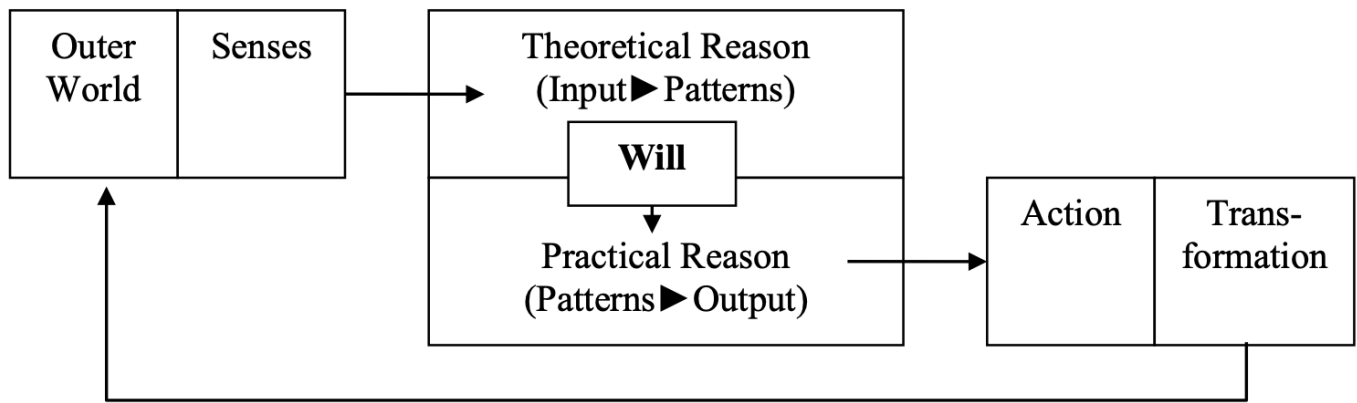


Figure 2. the subject as a cybernetic process with feedback loop

The essential nature of the subject, seen as a world-transforming computing machine, is hence to understand the causal structure, i.e., patterns, of what is outside of the self through the use of theoretical reason, and, through the employment of this information by practical reason, to transform this outside causal structure according to the subject's will.² The subject, as an over-individual entity then, is animation performing work on the object, the inanimate world. Famously termed "negentropy" by Erwin Schrödinger, the subject attempts to defy the second law of thermodynamics and impose order upon the outside,³ or to bring it under the control of its will, which is to say it attempts *utilize* it (Schrödinger, 1992). Indeed, Heidegger, echoing Aristotle, thus defined human cognition as a mental process of taking outside objects as "tools" (Heidegger, 1995). We perceive objects in terms of what they are "good for." Roger Penrose describes his inspiration for his "Conformal Cyclic Cosmology" (CCC) in a way that displays that this Aristotelean-Heideggerian principle holds for an inference to the all of perception as well. When looking at the empirical universe as an absolute, one cannot but wonder what it is "good for" either (Penrose, 2012). The process of increasing entropy, according to Penrose, will in final consequence create a new big bang that starts a new era or "aeon" of existence.

Cybernetically seen, however, "consciousness" is a continuum measured by its capabilities to control, to impose order upon the outside. Proto-subjectivity might possibly have its most simplistic emergence already in the spatiotemporal identity that Heidegger's "things" display when they refuse to get taken as "tools" (Heidegger, 1995). Once an object inhabits a *certain* position and state within the spatiotemporal continuum or "phenomenon," it is unique and can therefore be said to have an identity, i.e., a place and properties from and by which it interacts with its environment. On the most fundamental level, this creates a subject-object split of sorts.⁴ Subjective awareness starts with the eukaryotic cell at the latest, which is separated from the outer world by a double cell membrane and sends information about the outside to an internal nucleus, where this information is processed and triggers output reactions (Frauen, 2021a; Hoffmeyer & Stjernfelt, 2016). Interestingly, Penrose and Stuart Hameroff's "orchestrated objective reduction" (Orch OR) theory of consciousness, which is gaining experimental momentum lately, relies fundamentally on the microtubules that are essential to the eukaryote's composition (Penrose & Hameroff, 2011). Oddly though, Penrose's second obsession consciousness "hangs in the air" unused and apparently useless in CCC. While Penrose and Hameroff claim that CCC "has some relevance to the issue" of Orch OR, this "relevance" seems to be restricted to the possibility that "sentient life

could exist in the aeon [preceding ours]" (Penrose & Hameroff, 2011, p. 17). Either way, however, it is not "good for" anything. If the object seen as a totality is "good for" something, should the subject not likewise be a "tool" that is "good for" something?

However, it seems obvious that all life that navigates its environment in one way or another has some sort of awareness of its environment, including the plant that grows towards the light (Calvo, 2017). It ends, or theoretically would end, only widely beyond human subjective awareness in an ideal point of objective knowledge, of seeing the world "as it is." Since it seems a little awkward to speak of the "consciousness" of cells or plants, this article will use the term "consciousness" for this ideal of subjective-objective knowledge and use the less emotionally charged term "awareness" for subjective experience.

2. Duality

The "sense-making machinery" that is the physical body produces awareness of two things. Firstly, I am aware of my "self" through the urges of the combustion engine that my subjectivity runs on. Beyond understanding myself as a mere observer, I feel myself as a creative force through my will to cause change. This is more than the mere execution of the physical urges of my body because it is paired with the evaluative understanding of patterns produced by my "self." Thus, the observer that looks out is equally aware of a world outside of the subject, which it attempts to understand (theory; theoretical reason) and control (agency; practical reason). But what can be inferred analytically from the double structure of awareness (or "consciousness") as awareness of a self, a subjective being, and awareness of an outside, the object that impacts the subject and is to be acted upon to sustain the subject's ongoing emergence?

2.1. Idealism

Imputability follows from the self's awareness of its causality and from the self's awareness of what its deeds will cause in the world, i.e., from the awareness of agency and choice as the creator of understanding and change. There is something in subjectivity that shows that there is a subject, which is really a tautological truism. Before we know anything else, we know that there is awareness and agency in the world. Certainly, this is a sign for "compatible freedom," an indicator that agency is real though what an agent wants may be determined. Immanuel Kant, in the *Critique of Practical Reason* ("Second Critique," 1788), went as far as to derive "noumenal," unconditioned freedom from this "fact of reason" (Kant, 2003). According to Kant, the feeling of imputability shows that in some mysterious way the self must be part of its own determination.

In idealism, the subject is "free" and thus imputable for its actions because it is the creator of the outer world, which it posits in its own spirit. In the subjective frame of reference that I am by needs always in, I cannot be sure whether there was a big bang that made me through chains of cause and effect or if I posit this big bang in my imagination from and thus in the "singularity" that is my subjectivity (Frauen, 2021b, 2022a). The spatiotemporal continuum of the physical or material world view is thus an illusion in idealism and only the "singularity" that is the observer is real. In idealism or

“solipsism,” *all* phenomena must be constructions of *one* indivisible spirit. If there were separate substances, that would be materialism hiding behind an idealist terminology, as can perhaps be said of some of the interpretations of panpsychism that have become somewhat fashionable as of late. Separate objects that causally influence one another is the very definition of materialism, from which follows that every “idealism” that holds on to separation is materialism in disguise. One cannot think separation without thinking spatiotemporal dimensionality and one cannot think causation without thinking “matter in motion”⁵ and thus temporality and spatiality.⁶

In materialism, all that is and all that will ever happen was decided 13.8 billion years ago. The pressure of subjective choice and agency disappears in theory (a very comforting thought to my mind). Idealism works more like Schrödinger’s infamous cat: the subject makes reality from the present moment. In fact, it makes it *in* the present moment, as spatiotemporal division is a mere illusion that the subject imposes upon the undivided oneness of its own spirit by imagination. In idealism, my phenomenal mind is a shade of the one all-encompassing spirit, while in “solipsism” it is seen as the partly conscious super-mind. However, this is a mere linguistic difference. In Hinduism, to cite one example for idealism, and in solipsism the all-encompassing, indivisible over-soul is to be found *within* the singularity of the individual subject. It is never “out there” because “out there” does not exist. There are very few consistent idealist philosophies in the Western tradition. This, however, does not mean that idealism cannot account for being in the world just as well as materialism. Neither one can be falsified as empirical phenomena look exactly the same in both theories.

2.2. Materialism

Idealism thus solves an inconsistency by constructing reality from, and in fact *in*, the subject. However, physical *existence* of the material realm follows from the world’s status as the creator of awareness. While it is analytically, logically true that there could be no apperception without a subject that perceives, it is equally compulsory that there must be something to perceive in order to perceive anything, which is really a tautological truism also. To know anything there must be something to know. In one form or another, it is always matter, the object, that is perceived by the self, even when referring to the internal urges of its physical body, which make the subject most immediately. The physical body that urges, after all, is just that: a physical body and thus part of the object, of the material world. As such, it must be fully determined in all it does by spatiotemporal causation. Subjectivity, then, merely reflects on this machinery.

More accurately, of course, it is the representation by lower-order subjects in the brain of lower-order subjectivities from other parts of the physical body that make the higher-order, emergent subject (Hoffmeyer, 1996, 2008, 2009, 2015). Many neurons representing signals from many more cells combine into “my” experience. The pain I feel happens in the brain, not in the injured body part. What I see is a distorted representation that happens in the brain, the outside that is thus represented is very different from what I see. The experience that I have, however, is not in the brain, even if what makes it happens there. It is fallen out of the physical in awareness. And yet, it always ties back to the physical, the object, without which there would be no *substrate* for subjectivity or “consciousness.” Without the physical body there would be no subject. My subjective experience is a combination of the “body swarm” of trillions of subjective experiences of my animated constituents represented by billions of neurons in the brain, which are physical even if the awareness that emerges from them is not. It is thus compulsory to conclude that “I” would vanish without “them.” Other than the physical

eye, the I that is looking out into the world is intuitively concentrated in a point, as can be “seen” when one tries to focus towards where one’s “self,” the observer that feels the physical body and looks into the outside, actually is. Euclidean speaking, it is therefore not part of the physical, dimensional world.⁷ Neuroscience today likewise tends to take the view that consciousness is an emergent, thus strictly speaking immaterial, surplus to the physical structure of the brain, which is nowhere to be found within this structure in particular (Tononi et al., 2016). We tend to say that photons or electromagnetic waves of the visible spectrum are “light” but this only explains what happens up to our eyes. It is meaningless as an explanation for the light that we actually see in subjectivity. Ironically, the electromagnetic signals transmitted between neurons in the brain are not in the visible spectrum. The light of apperception emerges out of the darkness inside of our skulls in unknown ways.⁸ The self seems to be some sort of “singularity” into which information collapses when a certain threshold of transmission rate between the animated parts of a highly organized “far-from-equilibrium” structure is reached (Frauen, 2021b).

This “singularity” is behind both the “combination problem” for idealism and the “emergence problem” for materialism, albeit in different contexts. It is an unsolved riddle how the different constituents of my experience combine into my undivided subjectivity and how this subjectivity emerges. However, there must be some substrate for the information transmissions that collapse into subjectivity that actually *exists*. Matter, then, always makes mind, which is but a reflection of the causal workings of a material world. Consequently, it must be a fully determined “specter” that has no role in these workings. Accepting that matter is real, which it must be because there would be no subjectivity without it, one cannot escape the conclusion that we live in a “clockwork universe.” If awareness is the reflection of the workings of a physical body, it must be fully determined by the physical realm.

3. Antinomy: theory

The result of awareness twofold, divided into awareness of the self or subject and awareness of the outer world or object, is an “antinomy” of consciousness, which might be termed its “theoretical antinomy” because it refers to a fundamental inconsistency in our construction of reality. There would be no subjective experience of the object without both the subject and the object, from which follows that both must exist. But paradoxically, each side of the divide loses its substance on terms of the other.

3.1. The subject’s freedom

Firstly, it is impossible to keep the subject’s substantial attribute *imputability* on materialist terms since it is not “me” who acts if it is not “my choice” to act, which reduces the self’s status to an “epiphenomenon” (Skinner) despite our immediate awareness of our agency: it is *me* who acts!

This does not necessarily mean that the “freedom” I feel is incompatible with causality. That I want what my biological urges make me want on the one hand and what the semiotic systems, ideas or collectives that construct me make me want on the other is not merely compatible with causal determination, it essentially *is* causal determination. According to

what the majority of scientists and philosophers believe these days, however, the self is a “surplus” that has no role in the workings of the world, including the actions of its physical body, which would be performed by a “computer” or “zombie” in the same way (Bringsjord & Govindarajulu, 2018; Kirk, 2003). But this we cannot understand practically. Even if one agrees with the counter-intuitive picture in theory, one will still feel practically that for all so-called “voluntary actions” one has to do something to do something. Ironically, it is impossible to feel like an epiphenomenon practically even if one believes that one is an epiphenomenon theoretically.

According to the computational, reductionist view of mind, it is not clear why or how awareness exists at all because it does not do anything. This contradicts our immediate feeling of personal agency in practical reason. It is widely ignored by proponents of the reductionist, epiphenomenal view of consciousness – be it biologists like Dawkins, psychologists like Skinner or philosophers like Dennett (Dawkins, 2015, 2016; Dennett, 1993; Skinner, 1974) – that it would be perfectly possible to subjectively experience the insubstantial “specter-like” kind of consciousness they describe. However, “being me” does not feel like passively watching the movie of my life, which is the subjective experience I would have if I was an epiphenomenon. After all, it is obviously possible to have a conscious experience of watching a play or movie without feeling agency. However, I cannot help but feel choice and agency in practical reason. In fact, the specter-picture also contradicts our feeling of insight when understanding something theoretically. Upon an *insight*, we can base our actions or further evaluations only *after* having understood it. It is, however, the “self” or subject that understands in our experience of understanding, not the physical body that makes the subject.

Thus, one has to conclude that the emergent non-spatiotemporal subject is congruent with the awareness and agency of the organism, which Dawkins, Dennett, Skinner and co. seek to reduce to something that is not subjective but objective and physical in nature. If subjectivity is essentially the same as the awareness and agency of the organism, however, its emergence clearly does something to the object or physical world. Accordingly, subjectivity or “consciousness” has to be taken seriously as a compatibly determined force for change in the world at the very least.

Furthermore, there is yet the feeling of *imputability* that Kant thought proves a substantiality of the subject beyond determinism. In other words, it hints at the subject as a cause, not an effect, the subject as something that is more than a part of the causal chain, but a condition of the chain in some mysterious way, which for Kant was located in the “noumenon” beyond appearances.⁹ In Kantian terminology, materialism is “phenomenal” apperception opposed to “noumenal” reality: time and space are a distorted illusion that emerge from an underlying reality hidden behind the categories of human understanding (Kant, 1998, pp. 93–112).

However, according to materialism, the theory that constructs the universe from matter, the subject is an impossibility that should not exist, an “epiphenomenon.” It must not have the substantiality that we immediately feel it does through our awareness of agency in practical reason.

3.2. The object’s existence

It is equally impossible to keep the physical world’s substantial attribute *existence* on terms of idealism, as matter by

definition is not matter if it is not material, which reduces the world's status to a mere "phenomenon" (Kant) of the senses, despite any given agent's immediate awareness: the urges of my physical body are real!

Intuitively, it is clear to everyone that one could not be aware of anything if there was nothing to be aware of. It is insufficient to say that the subject merely reflects on itself because it is constituted substantially by the external. All impressions I have are either directly derived from the immediate link to the external that I feel as the urges of my physical body, or indirectly from sensual impressions of the outer world that is not the animation of my own body, or from abstract reflection on relations that could not exist without separation. Take away the substrate the self runs on and this self *itself* will disappear. Even a "Boltzmann brain" builds its idealist universe on a volatile physical substrate that is momentarily real.

However, according to idealism, the theory that constructs the universe from spirit, the object is an impossibility that should not exist, a "phenomenon." It must not have the substantiality that theoretical reason's inherent logic of causal coherence demands.

Both materialism, which regards the object to be real and the self to be an "epiphenomenon," and idealism, which regards the subject to be real and the physical world to be a "phenomenon," can fully account for reality as it appears on their respective terms. However, we feel immediately through awareness – i.e., internal being in a subjective state of being and awareness of the outer world, divided into unmediated awareness of the physical body and sensually mediated awareness of the world outside – that *both* the subject and object exist substantially and thus more than merely (epi-) phenomenally. In other words, we are immediately aware of existence as a cybernetic process between the self and the outer world, which, unsurprisingly, is the very definition of "being in the world." The physical laws of the object, in whichever way, create animation. The inner urges of subjectivity, on various cybernetic levels according to a species' level of complexity, constitute the point of awareness that has been called the "hard problem of consciousness" (Chalmers, 1995). This self, however, likewise seems to control or "steer" the physical body. This body's actions thus transform the physical or material outer world according to the physical body's urges transformed into the subject's will through theoretical and practical reason, as figure three illustrates.

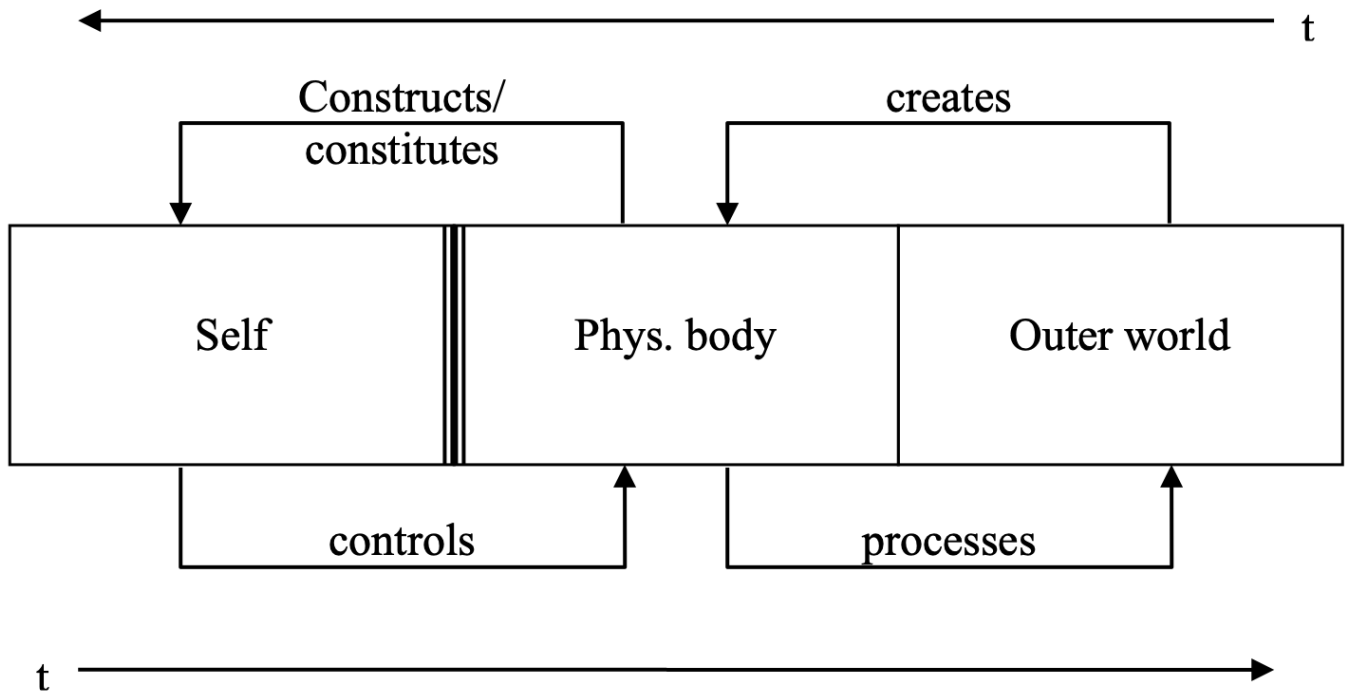


Figure 3. phenomenal reality as made of both sides of the subject-object split

3.3. Antinomy: mortality

The theoretical side of the antinomy is the paradox that each side of awareness must be absolute on its own terms and void on terms of the other. Practically, this adversary claim to totality manifests itself as a struggle between the object's increase in entropy or "disorder" and the subject's emergence from the object by organization, which is the etymological root of the word "organism." One could term this the "practical antinomy" of subjectivity. It refers to the apparent emptiness of practical reason, of the question "why" I act. Each self's nature resides in its *unicity*, which is its separation from the outer world that causes urge. In other words, it follows from its immediate connection to its physical body, which is part of the outer world. As such, it relies in its emergence on a highly sophisticated structure in the arrangement of its animated constituents. In fact, the emergence of an ordered, dynamic arrangement of matter makes animation itself in the first place (Deacon, 2012).¹⁰ Consequently, the self is subjected to the outer world or object's nature, which resides in its spatiotemporal fluctuation, or *transience*, which will not allow this high level of "far-from-equilibrium" organization to last. Combining the subject's "singularity" with the object's spatiotemporal nature under the restriction that the arrow of time does not permit the self to remain in the local spatiotemporal environment that constitutes its emergence from the object, then, the antinomy is practically called "mortality" in the following definition: "All life by definition wants to live, but by necessity must die!"

One could also express this as follows:

[continuum(spacetime)^{time_arrow}(2nd law) →transience] ^ [local_organisation(Φ¹)→emergence] →mortality.

4. The transcendental attractor

Steve Jobs once held a lecture at Stanford University, in which he praised “death” or mortality for making progress possible, calling it the “best invention of life” (Jobs, 2011). There seems to be something profound in this simple observation. If there was no death, there could be no progress indeed. There would be neither need nor time for progress. The end of mortality entails the end of the subject-object split. Due to mortality, subjective being in the world is essentially a “pressure situation.” From this, the urge in animation to maintain its “far-from-equilibrium” structure against the second law arises. Take away the pressure, the urge disappears. Without internal urge, there is no self. Photons hitting the eyes of corpses do not translate into internal experience. Without mortality, there would be no pressure and thus no urge. The subject disappears. The end of mortality is the ideal of an indivisible absolute, be this in a point of all-encompassing consciousness (idealism) or in a spatiotemporal block void of local awareness (materialism).

Neither an all-encompassing consciousness nor a spatiotemporal block would experience time as neither being the world (idealism) nor a world without beings (materialism) would be subjected to the antinomy. Time only appears from the split between the two, from fragmented becoming and fading away of subjective experience that constitutes “world lines” of emerging subjectivity in a certain and limited spatiotemporal position within the object. As absolutes, the distinction between the two becomes purely linguistic: a moment (presentism) that posits the entire spatiotemporal continuum (eternalism) in it is the same as this block itself. The problem, i.e., mortality or “death,” is that neither one is an absolute: the antinomy appears from the fact that both idealism and materialism, while likewise sound as a description of reality in theory, are unable to account for the in-between, for *being in the world* for subjective being that emerges and fades away within the spatiotemporal continuum (the object). Without mortality there would be no urge in organisms to maintain their structure against the natural law of the object to ensure the ongoing emergence of the subject. Thus, the cybernetic process that makes being in the world would dissolve because there would be neither “input from” nor “acting upon” any more. Subjective experience of time is essentially this process though. Take subjectivity out of the world and time disappears other than as a dimension like any other in the spatiotemporal continuum. Beyond the binary, beyond being in the world, the concept of “time” as we experience it loses all meaning. The laws of the spatiotemporal continuum, the object, do not know the arrow of time, which appears only through the “singularity” of subjectivity emerging within the object; a “persistent illusion,” as Einstein put it, which is another way of saying that it is a subjective impression that has no objective reality, or that it is an (epi-) phenomenon (Rovelli, 2019).¹²

Jobs’ claim that “death” is an “invention of life,” however, is a bit misleading. Evolution “invented” *aging* and sexual reproduction to increase diversity, thus building up resistance against diseases (Fabian & Flatt, 2011; Goodenough & Heitman, 2014).^{13,14} However, it did not “invent” mortality, which has always been the substance of “being in the world.” The loss of local organization levels in the object’s tendency towards disorder following the second law is not something that is limited to the aging process. Though some jellyfish may be immortal in the sense that they do not age, one will not find a jellyfish from the pre-Cambrian floating in today’s oceans because jellyfish are *not* immortal: changes in their environment kill them like any other organism. Perhaps, then, the “invention” of death is driven towards its dissolution by the urge in animation: the end of progress. Perhaps one should stop to focus on individual mortality and lay the focus on

the emergence of the subject seen as a natural law that creates progress toward increasing subjectivity by its spatiotemporal interplay within the object, which is driven ultimately by the urge to defy mortality, or, to overcome the object.

Following from awareness's double nature of self, the internal urge, and sensual input, the external world, human nature can be defined as theoretical rationality, which understands outside-in, and practical rationality, which pairs this understanding with its internal urge and turns it into will: inside-out actions that are designed to materialize a possible future world that is advantageous to satisfy the subject's desires. The agency of the subject performs work on the object, which makes a new input state for a repetition of the process. This has already been displayed graphically in figure two.

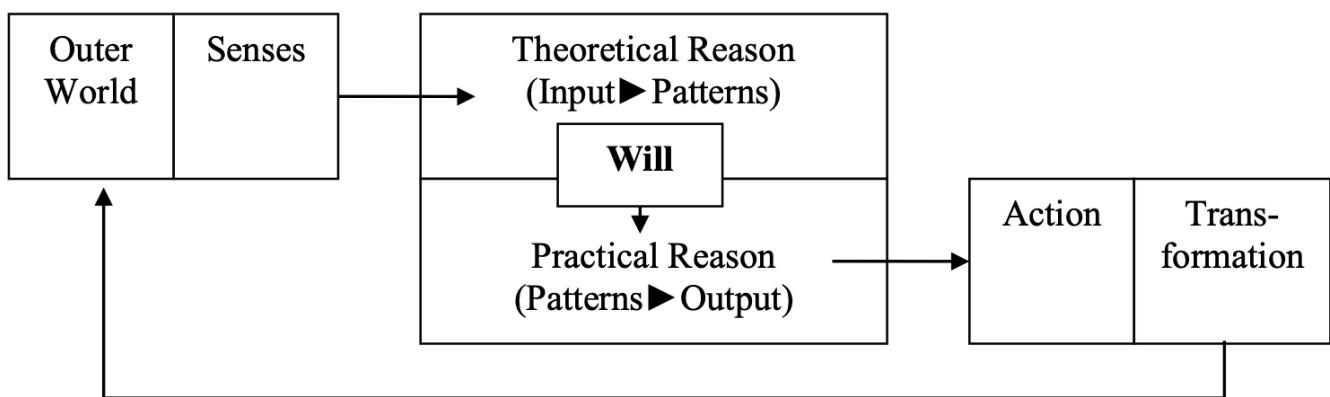


Figure 3. the subject as a cybernetic process with feedback loop

Ultimately, however, this process works towards the ongoing existence of what constructs the process, be it the organism, genes, ideas or social systems. In the interplay of evolutionary agents, all of them driven by their own “self-interest” individually, dynamics develop that emerge more subjectivity from information exchange and semiotic scaffolding. Separate islands of emergence connect and make more than the sum of their parts. But what is this process “good for?”

In 1651, Thomas Hobbes's *Leviathan* theorized a laboratory state of human nature characterized by individual, rational pursuit of desires and avoidance of aversions (Hobbes, 1996). The definition of human beings as rationally willing individuals displays theoretical reason's sense-making of sensual input from the physical realm and practical reason's processing of this knowledge in action to alter agents' environments according to their will. Though this state is purely analytical and has never been a historical reality as human beings are by definition made of both sides of being human, Hobbes's thought experiment shows that the human ability to transcend the immediate would be a cause for misery in a pre-social state. While a tiger, according to Hobbes, is harmless when it is neither threatened nor hungry, human beings see potential future danger in each other and potential future shortage in every resource they do not own.¹⁵ This increased awareness compared to animal life leads to “a perpetual and restless desire of Power after power that ceaseth onely in Death [sic]” (Hobbes, 1996, p. 70). In this hypothetical “state of war,” all rational agents attempt “to master the persons of all men he can, so long, *till* he see no power great enough to endanger him [my italics]” (Hobbes, 1996, p. 70). The reason for the war, in other words, is the idea of an idealized end of the cybernetic process in animation that

establishes *permanent security* through *total domination*. As figure four illustrates, this ideal is derived by an imagined completion of the cybernetic process inherent in animation. Obviously, this ideal is impossible for the individual organism due to mortality. But seen as a natural law of emergence of the subject out of the object?

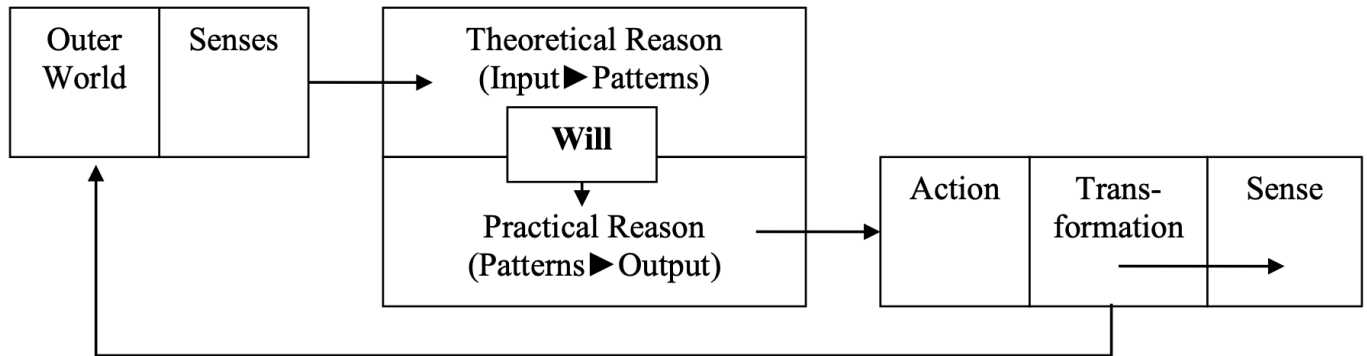


Figure 4. the transcendental ideal of practical reason

However, it is a “transcendental” idea: an idea that stems from the mechanics of human reason and understanding, which has no correspondence in the empirical world. In the creative act of imagining the idea of an ideal completion in this “*till*,” human reason has the unique ability to transcend possible scenarios of future states into a totality that is not part of the empirical any more. This ideal transcends the theoretical antinomy at the ground of understanding. Materialism makes idealism by dissolving the practical antinomy through progress and emergence: *survival* beyond the practical antinomy, *freedom* beyond causally compatible freedom as undetermined will in the unification of freedom from the object’s transience and unconditioned freedom to causation, a subjective *omnipresence* that transcends the arrow of time by imposing itself upon the totality of all that is. The transcendental idea – signifying an ideal of reason beyond the empirical derived by inference from determined localities to an unconditioned totality – entails the unification of the binary opposites at the ground of phenomenal reality by making the subject absolute.

Subjectivity, however, is not in humanity alone. Today, with the knowledge that there is no substantial difference between species of animation, no soul that was given by God to humans alone as the pinnacle of creation, it is certainly more reasonable to assume that awareness is a continuum, as has been said. Thus, it is neither justified to say that other forms of animation are not “conscious” at all nor does it seem sound to say that human beings are fully “conscious.” Rather, humans are aware in a different, and arguably more advanced, way than “lower” forms of animation. Consequently, one may wonder if the antinomy, the idea of the absolute and its impossibility, is present in the phenomenal experience of “lower” forms of animation likewise. And indeed, it has to be understood that the urge to get out or dominate is analytically inherent in all of animation, in every emergence of a willing entity separate from the objective world.

The transcendental ideal of reason, upon analysis, corresponds to the basic impulse of animation to dissolve pressure situations by either fight, which translates to freedom to dominate, or flight, which translates to freedom from danger. In the case of linguistic-rational beings that are aware of their own mortality, these basic impulses are transferred to being in

the world itself as a “pressure situation.” This is an inference into a totality, an absolute. However, it is merely the abstract representation of a *factum* that is present in all animated matter, a “fact of reason” derived from a deeper and more substantial “fact of animation.” All life wants to live, which is an impossible transcendental urge for *survival* and thus an ideal unattainable, no matter whether the organism’s awareness of it be analytical or merely instinctive. Freedom, survival, and consciousness, after all, are not an abstract concept of something we can comprehend rationally; they are the urge to get out. “Transcendence” is but a fancy word for an ultimate escape. Thus, there is a transcendental urge inherent in the emergence of animation itself, which long predates human, rational or analytical understanding, as figure five illustrates. Table one displays the different levels of the ideal.



Figure 5. the ideals of reason (right) corresponding to the urge in animation (left)

	Conflict: space & time (fragmentation)		
Evolution ↓	Instinctive (animation level)	Fight (end pressure situation)	Flight (escape from pressure situation)
	Analytical (understanding level)	Freedom to (agency)	Freedom from (aversion)
	Ideal (transcendental level)	Omnipotence	Transcendence
		► Beyond spatiotemporal categories ◀	
			Awareness ↓

Table 1. Levels of the transcendental ideal of practical reason and animation

Due to mortality, it is an impossibility for the individual subject, of course. But could the urge that every organism feels individually perhaps be a natural law that urges the physical itself towards animation and emergence? Is the “subject” perhaps something that emerges fragmented in various, separate spatiotemporal positions at first, but is driven by a natural law of emergence to unite through communication, through the transmission of information that higher-order consciousness emerges from, as can be seen in the complex cell and in the multicellular organism?

Pierre Teilhard de Chardin, a Catholic priest turned paleontologist, certainly thought so. Incorrectly assuming from a fragmentary fossil record that complexity was per se increasing, Teilhard envisioned a global “noosphere” of planetary consciousness coming in *The Phenomenon of Man* (Teilhard de Chardin, Pierre, 2011). Some decades later, the

visionary work of Marshall McLuhan connected Teilhard de Chardin's idea to technological progress in a concept that he termed a "technological brain for the world," an idea that should get picked up by "New Age" philosopher Peter Russell in his book on the "Global Brain" in 1982 (McLuhan, 1997; McLuhan & Gordon, 2003; P. Russell, 1983). The idea of the "Global Brain" has been connected to the transhumanist idea of a "technological singularity" that is imagined to lead into a "New Eden" at some point around 2050 (Goertzel, 2002; Heylighen, 2015; Heylighen & Lenartowicz, 2017). With a nod to Teilhard de Chardin, cyberneticist Valentin Turchin attempted to put his ideas on a more scientific footing in *The Phenomenon of Science* (Turchin, 1977). The "noosphere" becomes a "meta-system transition" here that is explained through revolutions in our scientific and philosophical machinery of sense-making. More recently, philosopher Cadell Last has further elaborated on these ideas and introduced the more specific term "human meta-system transition" (Last, 2017).

A global super-subject, however, is hardly the end of the subject-object split measured by the ever-expanding infinity of the object. Taking his incorrect idea of a universal increase of complexity to the cosmic extreme, Teilhard de Chardin theorized that there must be a final " Ω point" at the end of creation that is pulling all of evolution towards and ultimately into it (Teilhard de Chardin, Pierre, 2011). Being a Catholic priest, Teilhard was quick to identify this point with the Christian God. Somewhat unsurprisingly, however, the church's authorities were less enthusiastic about the idea and put his heretical treatise on the blacklist. *The Phenomenon of Man* eventually got published in the 1950s, posthumously and twenty years after its initial composition. Without having to agree with the more mystical aspects of Teilhard's work, one has yet to note the strange symmetry between Teilhard's "evolutionary argument" for God's existence at the end of time and the traditional "cosmological argument" for the existence of a creator God at the beginning of time. Though much more carefully than Teilhard de Chardin and with the disclaimer that humankind and life on earth might yet be a dead end, Turchin also speculated about what he termed a possible "spiritualization of the cosmos" in *The Phenomenon of Science* (Turchin, 1977). But are we justified to derive an absolute from a fact of animation and from an ideal of reason?

5. Analytics

The ideal is derived by an inference of human reason from the particular to the absolute that transcends the categories of human understanding into an unconditioned wholeness. This absolute is not and cannot be part of our experience because it by logical needs includes the observer, which makes it impossible to look at it from the outside. It is an inference that is not computational, it goes beyond algorithmic thinking. However, it is illegitimate. It mirrors an equally illegitimate totality of the object in an unconditioned reason for the outer world's appearance or creation.

Immanuel Kant, in his *Critique of Pure Reason* ("First Critique," 1781, revised edition 1787), termed his "antinomy of pure reason" in its four manifestations a "natural and inevitable illusion [natürlichen und unvermeidlichen Schein]" (Kant, 1998, p. 525). The Kantian antinomy derives from the desire of human reason to complete the categories of human understanding into an unconditioned absolute ("world") or cause ("nature"). However, the categories of human understanding are "transcendental,"¹⁶ which means that they are the structure of perception, the way by which the object, the outer world, appears to the subject. In other words, they are nowhere included in the world that is actually "out there" beyond our mechanisms of perceiving it. Accordingly, a totality or absolute of this transcendental structure has no

correspondence in the “real world” beyond appearance either. The “absolute” as an ideal, then, is in the structure of human understanding and reason alone, according to Kant. It is in the way the rational mind perceives, not in what we perceive. The illusionary nature of the absolute is verified by Kant through proving that the antinomy, in all of its four manifestations corresponding to the four fundamental categories of human understanding, leads to contradictory proofs of both its logical necessity and logical impossibility. Kant thus falsified the “cosmological argument” for the existence of a “prime mover” as an empty mirage, which appears from the structure of human understanding and theoretical reason that illegitimately reaches beyond the empirical into a completion of the causal chains of creation (Kant, 1998, pp. 677–690). It is not part of the real world, or “noumenon,” beyond our mechanisms of perceiving. Reason’s inference from the causality of the senses to a reason for this causality, displayed in figure six below, is thus illegitimate. It is only in the mind that perceives.

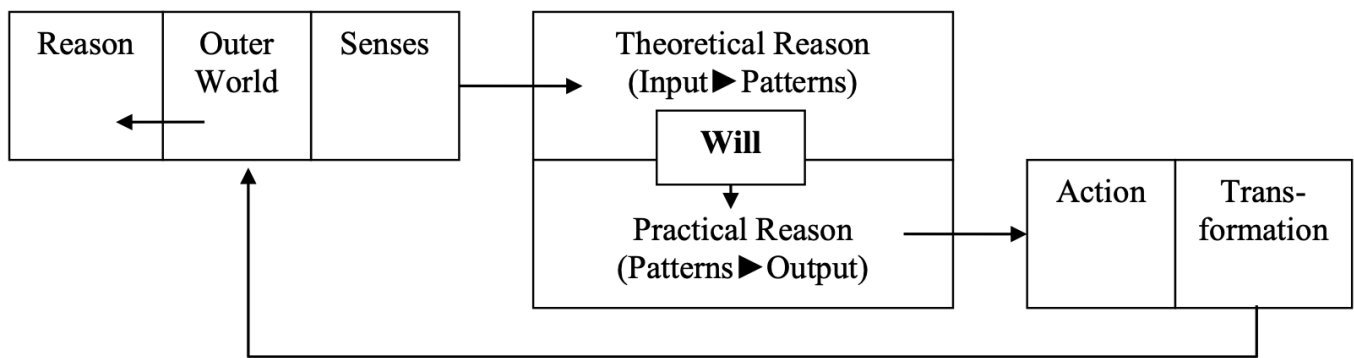


Figure 6. the transcendental ideal of theoretical reason

Other than the Kantian antinomy, the antinomy that this paper has dealt with in its previous sections, in both of its manifestations as a theoretical inconsistency and a practical impossibility, appears by connecting the subject to the object. Kant’s antinomy is an antinomy of theoretical (or “pure”) reason alone that deals with the origin of appearances and therefore the past. It is the antinomy of the object. The “practical antinomy” introduced here deals with practical action and thus with the future. It is the antinomy of the subject. In its theoretical variation as an inconsistency in the mind’s construction of reality, it is structurally analogous to the Kantian antinomy in that two contradictory claims must be equally true: in idealism, subjective awareness of agency makes the subject an absolute and thus voids the object (outer world).¹⁷ In materialism, theoretical reason’s demand for internal consistency makes material causation an absolute and thus voids the subject (substantial self).¹⁸ Thus, reason creates the paradox of a necessity and impossibility of both sides of the fundamental divide of being in the world to be absolutes. Practically, this dichotomous necessity and impossibility results in death despite life’s analytic will and inherent urge to live.

There is no corresponding antinomy of the subject in Kantian philosophy: the *First Critique* does not deal with practical reason and the *Critique of Practical Reason* (“*Second Critique*,” 1788) aimed at filling the noumenal gap Kant had opened up in the *First Critique* with God, moral choice and the soul. It is too often overlooked that Kant only deconstructed the traditional Christian world view in the *First Critique* to reconstruct it on what he thought was an improved foundation in the

Second Critique. This paper, however, is concerned not with the foundations of faith but with the foundations of science. As has been pointed out, this really means the foundations of progress, which is the urge in the subject to see the object as it actually is in theoretical reason in order to overcome it in practical reason following a “fact of animation” that drives emergence towards a “transcendental ideal.” This “transcendental ideal” of practical reason is an absolute end for subjective becoming. It corresponds to the Kantian “inevitable illusion” of theoretical reason as an absolute condition for the object. It has been shown that the transcendental ideal of practical reason, also, rests on an antinomic structure in which two contradictory claims both must and thus cannot be true. The ideal emerges from this structure alone but is an empty mirage in the world as it actually is beyond our mechanisms of making sense of it. Sense is in the subjective mechanism of sense-making but not in objective reality on either end of time and reason, as figure seven displays. There is no absolute in the beginning of the object and there is no end for the subject. What is actually “out there” beyond the subject-object split that makes phenomenal reality is entirely different.

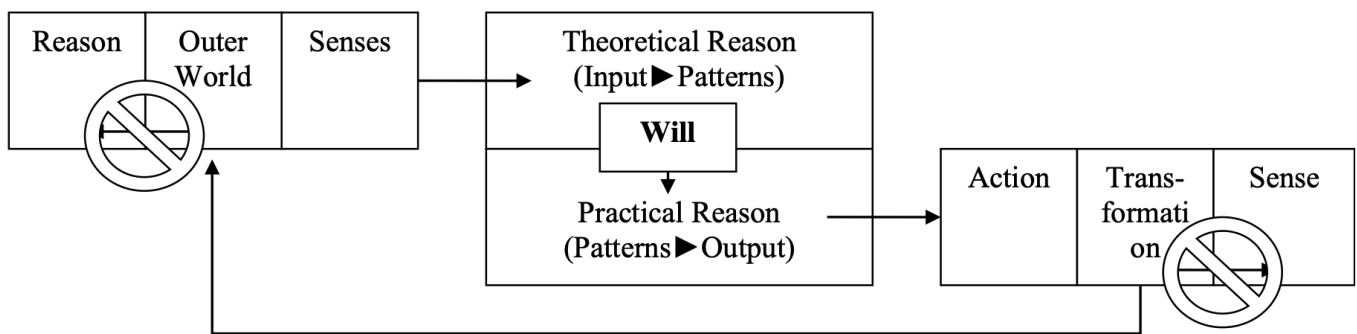


Figure 7. Critical solution to the antinomies of theoretical and practical reason

Conclusion

The “transcendental ideal,” an illegitimate inference of practical reason beyond its domain and an empty antinomy upon analysis, is the driving force behind the cybernetic process in the subject. It consists in processing of input from the object in a transferal process from theoretical reason that understands patterns in the outer world to practical reason that mixes this understanding with predictions of future worlds when the object is altered according to the subject’s desires, and subsequent output action. Then, there is a feedback loop that restarts the process, with the altered state of the world as the new input state. Ultimately, this cybernetic process leads to the emergence of more complex structures of increased awareness and agency with the subject’s increased capabilities to process the object. Evolution, then, is working towards the empty ideal of an unconditioned absolute to dissolve mortality following from the unicity of will in spatiotemporal transience. The subject longs to complete the struggle that is inherent in animation: the urge to “control” or “escape,” to “understand” and “live.” The human mind can put these fundamentals of animation into transcendental terms that signify absolutes: “freedom,” “transcendence,” “consciousness,” “survival.” This is an astonishing fact in itself, even if the subject’s becoming is directed ultimately into the void and there is no end to animation other than the inevitable end of animation. The absolute beyond the binary is an ideal that appears like a mirage of meaning, an illegitimate inference of

reason into territory that does not exist outside of the mind that perceives. Nevertheless, it is this “inevitable illusion” that humans strive towards, though they are seldom consciously aware of it. Much in the same way in which plants grow towards the light, human beings are part of evolution’s never-ceasing strife to extend locally limited, “compatible” awareness (knowledge) and agency (control) into “consciousness” and “freedom.” Science and technology are the trans-individual, human-level manifestations of this urge, which scaffold individuals toward the next stage of emergence.¹⁹ One could hence say with some justification that the subject, the urge to awareness and agency, to understanding and control, is the foundation of science.²⁰

About the Author

Jan-Boje is interested in the evolution of subjectivity, both as a driver of change and as something that is undergoing change itself. Some of his more recent publications have appeared in the journals *Cosmos & History*, *Utopian Studies*, *World Futures*, *International Journal for Philosophy of Religion*, *Journal of Posthuman Studies*, *Clio* and *Journal of Aesthetic Education*.

Footnotes

¹ This fact has been popularized lately by Chalmers and others through the thought experiment of the “philosophical zombie.” The natural laws that we know of would leave us with a sentient zombie that has awareness but no subjective experience.

² One may object to the term “reason” here when referring to animals since reason is usually seen as a uniquely human capacity. The same structure and process, however, applies for pre-rational agency in animation.

³ It should be noted here that this local entropy reduction does not contradict the second law of thermodynamics. Like a refrigerator, a local entropy reduction by life is perfectly permitted by the second law if it leads to an overall increase in entropy. To explain *how* a local reduction of entropy in a refrigerator is possible, however, “is not enough to explain *why* refrigerators were invented,” as Eric Smith observes. See Smith (2013, p. 203). I have elaborated on this fundamental difference between the “why” of theoretical reason that can be reduced to “how” and the irreducible “why” of practical reason in detail in Frauen (2022b).

⁴ Whitehead, in his “process philosophy,” describes interactions of particles in a language that reflects this picture of proto-subjectivity by spatiotemporal “identity” or “certainty” also.

⁵ “Matter” is meant in a very broad sense here including “particles proper” that are not in a superposition, even if these are mere excitations of quantum fields. Most philosophers would probably use the term “physicalism” for this broad interpretation today, but I aim to keep my terminology as simple as possible to make the article as accessible as possible for an interdisciplinary readership. “Physicalism,” after all, is really just a new name for an old concept.

⁶ If there was only one “thing,” there could be no movement.

⁷ It is for this reason that the “von Neumann-Wigner interpretation” of quantum mechanics postulates that consciousness is needed to collapse the wave function: von Neumann realized that the “wave function of the universe,” like any other wave function, needed something outside of this wave function to cause its collapse into the spatiotemporal continuum of our subjective experience. Thus, it needs something that is not part of the spatiotemporal continuum described by it to cause this collapse. This something that is not material, according to Wigner and von Neumann, can only be consciousness.

One cannot help but notice a certain similarity to Gödel’s second “incompleteness theorem” in von Neumann’s argument, which states that the consistency of an axiomatic system cannot be derived out of the system itself. Interestingly, von Neumann derived the theorem independently from Gödel.

However, the argument entails a paradox: consciousness, immaterial surplus it may be, emerges from a highly organized structure of matter, which, according to von Neumann and Wigner, only emerges from the quantum mechanical wave function through this consciousness by collapse of the wave function. See Wigner (1997).

It should be mentioned that “registration via entanglement” collapse-interpretations run into a similar paradox: even if it is spatiotemporally separate objects (“particles proper” not in a superposition) that collapse the “wave function of the universe” by interacting, these would have to be “particles proper” in a *certain* state to do so, which they are not before they have done so. See Heisenberg (2000).

Finally, it should be mentioned that these paradoxes only arise in the Copenhagen Interpretation, which assumes that the collapse of the wave function actually occurs.

⁸ One person who might have had the answer was John A. Wheeler’s Ph.D. student Peter Putnam. Like Wheeler, I cannot pretend to understand Putnam’s ideas, which can be found in the excellent online collection of his work at <https://www.peterputnam.org/>.

⁹ It should be noted here that Kant, contrary to popular belief, did not believe in freedom of choice. In the *Groundwork* and the first edition of the *First Critique*, a noumenal urge of moral obligation occasionally overrules causal determination in moral action *without* the subject being able to choose between the two. Later, he abandoned this picture of a noumenal law having causal impacts within the spatiotemporal, phenomenal realm, as it entails the contradiction that the phenomenon, which is but a distorted reflection of the noumenon, is governed by two separate laws (think of it as watching a movie; then a fly from your living-room flies into the TV-screen and starts to pester one of the film’s characters). Instead, he derives the noumenon from only the “fact of reason” and the “feeling of awe” when agents perform causally fully determined moral actions. In other words, there was never any freedom of choice in Kantian philosophy and after the revision of the *First Critique* and the substitution of the *Groundwork* with the *Second Critique* it became a philosophy entirely compatible with an empirical world fully determined by natural, physical causality.

¹⁰ According to Deacon, the process starts from a simple hexagonal structure that develops to disperse a maximum

amount of thermodynamic energy when a liquid is heated up. Eventually, emerging structure finds itself far “far-from-equilibrium” with its environment. This “original urge” to satisfy the second law and disperse energy is basically still the same: global society produces a staggering amount of entropy in order to maintain and grow its “far-from-equilibrium” structure. In animation, the second law “turns on itself” through mortality. All animation is action to defy the second law in order to satisfy the second law.

¹¹ Tononi’s measure of integrated information in a system. However, it is nonsensical to believe that information without animation has subjective experience, as has been pointed out in more detail in the article preceding this one. See Koch (2012); Tononi et al. (2016).

¹² One does not necessarily need to agree with Rovelli’s “World without Time.” However, in “The Crumbling of Time” he gives a very well-written overview of Einstein (and co.) and time. Echoing Kant, Rovelli emphasizes that time emerges from our inability to see the world as it is.

¹³ The problem with having all specimen of a species exactly same is that a major pandemic may wipe out the entire population.

¹⁴ Aging might rather be a by-product, as Fabian and Flatt point out.

¹⁵ It should be noted here that the Hobbesian cause for misery in the “state of nature” is thus the scarcity of resources that Thomas Malthus later traced to population growth outrunning food production capabilities. Darwin, in turn, identified the Malthusian driver of misery in the Hobbesian “state of nature” as the driving force behind evolution through “natural selection.”

¹⁶ “Transcendental,” i.e., knowledge concerning the a priori nature of any knowledge, is not to be confused with “transcendent,” i.e., knowledge outside of what can possibly be known.

¹⁷ There is still a world. However, it is not outside of the subject, but posited in its imagination.

¹⁸ There is still a self. However, it is not substantial, but completely determined by material causation.

¹⁹ This, however, does not mean that strong emergence will happen, which, it has to be kept in mind, is the exception. I have argued elsewhere that progress consists of social and technological progress. If the latter is outrunning the former, as I believe there is good reason to assume, self-destruction is the most likely outcome. See Frauen (2020).

²⁰ The insight that the subject is the foundation of science was put forward for the first time possibly by Johann Gottlieb Fichte in *Wissenschaftslehre* [doctrine, school or teaching of science]. Fichte realized that Kant’s antinomy appears because Kant employs the classic Aristotelean either-or logic under a steady-state premise in his line of argument. Fichte sought to overcome the antinomy and the subject-object split in theory by establishing a proto-evolutionary synthesis between the two. In Fichte, an evolving “phenomenon” leads to a bilateral affirmation of subject and object in a single and indivisible point at the opposite ends of phenomenal time. Both the antinomies and the Kantian “noumenon” disappear in his theory. The final third article of this trilogy will visit *Wissenschaftslehre* and connect it to concepts from biosemiotics

and quantum mechanics.

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