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HOW THE WORLD MAKES ITSELF UP

When my foot hits a rock, I feel the foot and the rock. I am conscious of both. But only the foot feels like it is mine. My senses extend into it (even if I might only be assuming that this foot is an appendage that belongs to me). I can also feel one with my thinking about my foot and even my unitary sense of myself. I am conscious of my own consciousness. A thought represents something. I think about something. It can be anything—if I short-circuit the process it is the thought itself. On the opposite extreme, the thing I'm thinking about can itself be merely a further reference to something else, a sign.

Signs are tools that make it possible to represent conscious and unconscious thought. We can never be sure whether someone else who is talking about their sense perceptions or reflecting on their own thoughts is at all conscious of them. As concerns our understanding of everything that isn't the domain of our own personal consciousness, we don't have to bother about phenomena of consciousness in the first place, all the more so since while we are in a position to ascertain enduring laws and principles in the world as we perceive it, we experience perception itself, via the detour of the perceived world, as something incomplete and distorting. *Subjective* thus becomes a synonym for *untrustworthy*, *objective* for *trustworthy*. As everyone only has access to their own consciousness, it is, strictly speaking, not a valid subject of scientific study.

Still more strictly speaking, we don't have anything like a trustworthy objectivity either, because it always has to become conscious to us first. But that kind of fundamental skepticism—which reaches from Plato's Allegory of the Cave through Descartes's dream argument and Kant's unknowable thing-in-itself to the functional concept of truth in radical constructivism—remains a philosophical luxury. The march of scientific progress over the past centuries seems too far-reaching and too continual for that.

In fact, I can be as little sure as I am of other consciousnesses—the plural is itself linguistically awkward—that something outside my own consciousness exists at all, but this would also make impossible any shared body of scientific knowledge. This is why solipsism, which only acknowledges the truth of one's own consciousness, may be irrefutable but is philosophically relevant at most as a final counterargument. And likewise, the question of what consciousness actually is, aside from a linguistic and protolinguistic process of logical thought, has practically no significance when I begin studying philosophy in 1988 at Freie Universität Berlin. According to standard psychological assumptions, consciousness is generally considered to be an emergent phenomenon of certain neuronal synchronization processes whose workings are not yet well understood. But how is it possible for conscious sensations to exist at all (Leibniz's gap)? How is it possible for a loose neuronal network to create a multiplicity of homogeneous sensations (the palette problem and the grain problem, respectively)? And how is it possible not only that these sensations are perceived as connected (the binding or combination problem) but also that the sense of their unity can be consciously reflected on (the problem that self-consciousness is not only epiphenomenal but can be articulated and thus have material effects)? Anyone who questions the emergence thesis and continues to ask such questions is considered an incurable metaphysician who still believes in the soul, if not in a pantheistic world soul.

Physics is not in a position to give us any answers, either. Since the big upheavals that came with the theory of relativity and quantum mechanics, physics has managed to

persist in a stage of "normal science," one of consolidation after a paradigm shift, as described by the philosopher of science Thomas Kuhn. The theoretical assumptions behind the paradigm shift are confirmed with ever more complicated experiments, and are at best expanded on through unverifiable speculations, such as string theory or the many-worlds interpretation. Physics as such declares the question of the nature of consciousness to be outside its purview, and thus, without looking further into the matter, aligns itself with those theories that deny the elementary nature of consciousness.

I dodge the question, turn to literature, and become fascinated by the conditions under which visions of entrepreneurship either succeed or fail. In the '00s, I start developing new visions for nation-states, too, which become the Solution book series. I call what I do "speculative nonfiction" and discover a principle that will become very useful for me: to find the answer to a problem in another problem. I soon begin to ask myself: Could the mysterious thing that is consciousness offer an answer to Goethe's Faust when he wonders, "What holds the world together in its innermost self?"

As reckless as this idea appears to me, I am not alone in having it. In the meantime, David Chalmers has managed to attune a new generation of philosophers to the Hard Problem of figuring out a physical explanation of consciousness, and I learn about approaches (which go back to William Kingdon Clifford, William James, and Bertrand Russell) to understanding what is actually described by physics equations—what Stephen Hawking calls the "fire in the equations"—as basic sensory phenomena. (Clifford speaks of a world composed of "mind-stuff" or "faint beginnings of sentience"; James invokes "primordial mind-dust.") The binary opposition between matter and spirit is resolved in favor of the latter.

To assume that everything that exists is conscious does not by any means necessitate a return to animism, which, although it also grants consciousness to all things, nonetheless does so, in keeping with an anthropocentric approach, only in conjunction with intelligence and life. Thanks to cybernetics we have already decoupled life and information processing; now we can also decouple consciousness and higher intelligence in order to understand the former as an elementary physical phenomenon.

The usual term for the idea that consciousness is an elementary phenomenon, *panpsychism*, can easily be misunderstood, since it customarily encompasses pantheistic or panvitalist beliefs that are close to animism. Terms such as *panexperimentalism*, *panprotoexperimentalism*, and *panprotopsychism* have been introduced in order to signal distance from such positions. Those who want to emphasize that a world made up of nothing but consciousness still follows the laws of physics—such as Grover Maxwell, Galen Strawson, and David Pearce—speak of physicalistic idealism.

The big questions surrounding such approaches are, with the exception of that of Leibniz's gap, the same as those surrounding the idea that consciousness is an emergent phenomenon. How can continuity arise if there is so much space between the elementary particles? Where does the variety of sensory perceptions and thoughts come from, given that there is such a small number of different elementary particles? How do we understand an object of perception, or our own selves, as unitary?

It is tempting to turn to quantum physics for a solution, since it maintains that the world is not made up of discrete elementary particles but of wave functions of probability amplitudes that can be interconnected across unlimited distances. Yet

quantum phenomena do not appear to make themselves noticeable in our everyday lives, since chaotic interactions between wave fields almost immediately disrupt any coherent interference patterns (in what is called decoherence). A neuronal network functions on a level where all quantum phenomena appear to cancel one another out, with the effect that it practically follows the laws of classical particle physics.

At the end of the ’00s, I am reading about quantum coherences that last as long as hundreds of femtoseconds in photosynthesis—even at room temperature—which make it possible to ascertain the most efficient means of energy transmission, and I begin to seriously ask myself if this can also happen in the brain. But I still can’t grasp how coherences that last femto- or picoseconds before they dissipate would be sufficient to create a sense of temporal unity for processes that need to last at least milliseconds for us even to notice them. What we process as the present moment—a sequence of words, a bodily gesture, a melody—can last several seconds. Of course, it’s also possible to process a moment like that in a much shorter time; why not in femtoseconds? But while a spatial representation can be scaled down at will without necessarily resulting in glitches in the sensory feedback required (for example, in the coordination of bodily movements), consciousness, which is faster, would have to repeatedly synchronize anew with real time. It would either have to skip the gaps or repeat the sense impressions again and again (in this case, millions or billions of times). And even if the new sequence doesn’t need to be conscious of the previous gaps and repetitions, coherences that dissipate over and over again would raise the question: Why doesn’t our consciousness flicker?

I could now speculate wildly about whether longer quantum coherences of minutes or even hours might be hidden in other dimensions, or in dark matter, for instance. Instead, I try first to get to the bottom of the challenges posed to our physics-based understanding of the universe by a world that is made up of nothing but consciousness. If everything is consciousness, it is not enough to find a place for consciousness as well. On the contrary, the question is rather how our previous physics-based understanding of the universe accords with everything that is phenomenologically provided by consciousness. And voilà: in 2015, the American physicist Matthew Fisher publishes a study claiming the possibility that entanglements of the spins of phosphorus ions in a Posner molecule can last for a whole day in a living cell.

Philosophers who believe that consciousness is something physically elemental usually support their ideas only with arguments ex negativo. In order to steer clear of the charge of esotericism, they merely attack the emergence thesis by giving examples of strikingly incompatible phenomena of consciousness, which they themselves are unable to explain. But as a writer I stand outside these debates and don’t have an academic reputation to lose. I use this freedom to start out from consciousness to try to understand the world in a new way.

David Pearce puts it succinctly: physicalistic idealism turns “Kant on his head” because what reveals itself to us directly through introspection is exactly the thing-in-itself that Kant maintained was unknowable. We only have to put aside the question of the concrete meaning of thoughts, following Edmund Husserl’s phenomenological reduction (also known as bracketing, or *epoché*), for the “whatness”—the qualia—of our feelings and thoughts to intuitively reveal the physical world. In keeping with such an approach, I try to further reduce the phenomenological reduction until I can avoid the

anthropocentrism of conventional panpsychism and only take into account the elemental properties of consciousness. All other phenomena need to be derived from that basis, also in a physical sense. The idea is not that modern physics runs counter to our intuition but that our intuition corroborates and complements it.

Of course, when we observe our consciousness as such we are shaped by linguistic and cognitive patterns just as much as when we focus on the meaning of the contents of consciousness. But at least phenomenological reduction means we are continually conscious of such distortions, while even radical constructivists cannot help but lapse into a naive direct realism in their perception of everyday phenomena. Phenomenological reduction is only insufficient according to scientific criteria, since it cannot be recorded in a standardized way and is not reproducible. Its results may be but need not be true. In other words, they are part of the world of fiction. So the following speculations concerning a "theory of everything" should be situated in the domain of literature. That these speculations should then have an effect on academic research is science fiction in the literal sense.

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What of my consciousness can I bracket off as extraneous to it? First of all, my own self. I think myself when I become conscious of experience as such, which is to say, when I experience myself experiencing. But I also remember a simple, unreflected experience of whatness that I only associate explicitly with myself through the act of remembering.

Space and time can be bracketed off in the same way. Many perceptions such as sounds, shapes, pleasure, and pain imply space or time, but moods don't give any indication of their spatiotemporal dimensions, nor does experience as such. I locate my consciousness somewhere in my head because I know it's where my brain is, and that its exterior is where the sense organs are that dominate my consciousness when my body is at rest—those for seeing, hearing, smell, and taste. Sensory data comes in from three sides, and in the middle is my brain.

I need only shut my eyes, as in meditation, and concentrate fully on some abstract principle in order to conjure up a state of consciousness that brackets off space, time, and myself. In religious thought, this is what gives rise to the idea of partaking in an infinite and timeless world spirit. Instead of consciousness being premised on the existence of space and time, it could be the other way around. Accordingly, the ancient philosopher Plotinus understands space, time, and matter as the lower manifestations of an emanating world consciousness (*nous*). But why should this emanation have begun? Here I struggle for an answer as much as with the question of why consciousness exists at all.

Let's first stick with the question of what consciousness can be on the most basic level: when I experience something without sensing the presence of my self, space, or time, then perceiving (*wahrnehmen*) means taking the qualia as true (*für wahr nehmen*). I (no longer bracketed off) can only claim that what I have perceived is false—i.e., incongruent—in relation to an assumption that is beyond the scope of my concrete perception. Negation (like nontautological affirmation) implies a spatiotemporal dimension.

Although qualia are characterized by continuously variable degrees of more-or-less and as-well-as, we understand true and false as discrete conditions. This logic comes out of our visual and tactile experience of a world that is—for evolutionary reasons—dominated by clearly delineated objects. At the same time, Heisenberg's uncertainty principle—the cause of endless headaches for physicists and philosophers, and generally considered highly counterintuitive—is, in terms of our mental experience, the most common thing in the world: I waver between attraction and repulsion, pleasure and pain, and in the next moment it becomes totally clear that only one of them holds and not the other, while I have already stopped properly perceiving whatever it is that this emotion relates to. The more I concentrate on a specific detail, the less clearly I apprehend the rest. When I'm reading, I see only a few words in focus at any one time. When I look at a whole page at once, I can see all the words in focus but I cannot read them. And when I understand a longer sentence as a whole, it doesn't appear as a whole in my mind's eye.

The intensity of my experience might depend on how sensitive I am or the strength of the stimulus—I can't distinguish between the two. If I understand *attraction* and *repulsion* literally, which is to say physically, they refer to things that draw me closer or push me away. *Pleasure* and *pain* are the words for the corresponding feelings if I cannot move in relation to whatever it is that attracts or repels me.

Still, I don't think that music is louder or pictures are brighter if my love for them increases. Conversely, their volume or luminosity need not affect my enthusiasm for them. Many of our perceptions are intense but not accompanied by feelings of either attraction or repulsion. I assume the explanation is that various attractions and repulsions largely cancel one another out. As we get older, our feelings become, on average, steadier and more subdued. But if I'm under hypnosis or the effects of psychedelic drugs, I can happily immerse myself in a spot of red as effortlessly as a child, and the more intense its color becomes, the more it lifts my spirits.

I have the impression that I can feel only a few feelings at the same time. It might even be the case that I actually only have one feeling after another, yet condense the sequence into a single moment in the act of self-reflection, in the same way that I assume my field of vision is far bigger than the things I can really see at any one time.

The point is not only that consciousness can be understood without space and time: it is also in a position to overcome space and time to some degree, in that it perceives spatiotemporal dimensions as unitary. Multiple spatiotemporal units can be perceived as belonging together as a single unit, or a single spatiotemporal unit can be taken to be made up of several distinct units. That is the basis for thoughts structured in sentences and logical operations. The phenomenological unit that encompasses more than any other is my own consciousness as such.

Even if I manage to bracket off the meanings of my perceptions, and on encountering a tree no longer think of my ideas (Husserl's *noema*) of trees, roots, trunks, branches, leaves, the changing seasons, etc., but only see various browns and greens; if I manage to see two fields of vision instead of one, and instead of a three-dimensional space I see just one or more unconnected levels, then I still identify them as patches that are more or less similar to each other, and I relate them to one another as more or less similar.

As for the intensity of my perceptions and feelings, the shift in their belonging can be gradual. In a color gradient I can't say for sure where one color ends and the next begins. I take my field of vision as unitary without knowing exactly where it ends. Without registering it visually, I can sense that somebody is standing next to me.

Because my perception has an infinite resolution, everything I perceive is subject to an endless compare-and-contrast. This enormous feat of mathematical calculation—which quantum computers are now starting to become capable of—must be the reason why I experience a simulation of my surroundings at all. Presenting this simulation in precisely such a way as to make it perceptible in a coherent way is complicated, and so I become conscious only of a small fragment of the sense impressions that my body receives.

I try to think of everything I perceive as part of a spatiotemporal continuum. My feet are hidden behind my bent knees. I can sense a couple of pressure points, and I connect them in my imagination as two feet, or I incorporate the pressure points into how I imagine the feet. Without being able to visualize what things look like from the back, I can nonetheless think it, just as I can locate feelings in certain parts of my body or know where everything is in the dark when I am in a familiar environment. Husserl speaks of things being copresent in what he calls appresentation. It exists in time, too, such as when I summon to mind the preceding and subsequent sounds when I am listening to music. Husserl here speaks of retention and protention, respectively.

My imagination not only completes gaps in my sensory perception but goes beyond it as well. It is, under the aspect of time, the basis for reconstructions and prophecies, while, under the aspect of space, it is the basis for an inner cartography of the world as well as for self-consciousness. By accompanying my perceptions with the thought of myself as the one perceiving, I can bring into doubt all the things I perceive. I can assume the things I imagine are truer than those I perceive with my senses, or I can dismiss what I imagine as mere fantasy.

If you look into the reflection of a mirror, an infinite regression appears. Wouldn't my consciousness likewise have to replicate itself in ever smaller forms in my imagination? But it seems to me fundamentally impossible to imagine something mirrored in space if every point on the object that is to be reflected doesn't come with information about how far away it is from the mirror. And I believe this impossibility is what has driven us to shy away from thinking about what our consciousness is capable of, just as cats shy away from their own reflections.

To be continued.