UNIT 14.3 THE SPECTRUM OF CONSCIOUSNESS

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I. **Ways to consider consciousness' Spectrum.** The term "spectrum of consciousness", conventionally, is taken to mean the different modalities of our human consciousness; how these arise and their inter-relationships to the world "out there". In a sense, it is a classification of different states of consciousness. Although the definitions of consciousness are as many as the conscious entities that define it, in our current scientific, materialistic, framework consciousness is considered an epiphenomenon of brain function. So, the main attempt was to categorize this spectrum via the brain states that produce it. And here arises one of the greatest conundrums of modern science: brain functions cannot access the content and context of living experience. What we now understand is that consciousness correlates with brain function. But correlation is not causation, brain states do not cause consciousness states, they are just related to a certain degree.

II. **Where is Consciousness?** To ascribe thinking or consciousness to the brain where it applies to the whole animal is committing a form of the so-called "*mereological fallacy*". That is to assume that a whole is a mere addition of its constituting parts and that studying a part in detail can tell us all about the whole. It is a hidden assumption uncovered by Bennett & and Hacker in the case of the brain/consciousness debate. A wholistic approach, on the contrary, would attribute consciousness not to an organ or behaviour but to the animal as a whole. Then the question arises as to where to draw the line in the animal kingdom. Are our pets conscious? The lower mammals? The animals without a brain or even nervous system, like Physarum and Amoebas? Or is it legitimate to attribute consciousness or pre-consciousness to all physical entities in the universe, as the many schools of panpsychism try to? if so do non-physical entities qualify too?

III. **Why Consciousness?** The brain assumed as producing consciousness is in pair with the reduction of the utility of consciousness as a mechanism for survival in a Darwinian setting. According to that view different brain circuits are responsible for fight or flight, exploration or exploitation of the surroundings, instincts as feedbacks for satisfying needs etc. Most of the faculties for survival though belong to the automatic nervous system responses, which are not necessarily conscious ones. So this spectrum cannot account for higher consciousness functions such as decision making, abstract concept formation, feelings, and above all cannot account for meta-consciousness: i.e. the fact that we are aware of our own awareness. The survival value of self-reflection and the sense of a lived experience (quale), a meaning, is questionable at least if not contradictory with strict reductionism. After all, an organism could possess all these abilities strictly in an automated fashion without being conscious that they are there as inner states or qualia. The fact that consciousness gives meaning to self and others is not a question that can be answered within the spectra of reductionist and/or emergence theories of consciousness.

IV. **Being conscious about consciousness.** The one that asks for a definition of consciousness is necessarily conscious. No machine, from AI (artificial intelligence) or otherwise can question its own functioning. Self-reference will break down any such feedback mechanism. Any AI, implemented in software or hardware, would have to construct its frame of operation in such a way as to define at least, not even to reflect upon, its own framework of operation. This an instance of the so-called 'framework problem', in old-times cybernetics and now in AI. Actually, it is an 'unsolvable-in-principle' mathematical problem as Gregory Chaitin has proven, extending Kurt Gödel's work to include programmable (deterministic)

algorithms. In a way, the creation of an “I” a self-conscious entity requires and provides for non-determinism.

V. **One, Two, many.** Another way to approach the spectrum of consciousness, not in a strict reductionistic-materialistic sense would be to start from a wholistic, inclusive view of a double-aspected monism. Starting from an undifferentiated Oneness, (the “suchness of reality” where no-thing exists and all exist and where Whitehead puts his elemental instances of proto-consciousness), the first subject-object distinction can be made, by an act of will. And once is made the first dual-pair comes into existence. This pair is a third aspect of the aboriginal one. Consciousness in this setting arises primordially, and with it a dialogue sets in via synthesis forming the first thesis-antithesis pair (as in Hindu philosophy the first three Gunas: *Sattva*, Rajas, *Tamas*). Then each new synthesis brings forth the complexity of the interconnected many. Their relationships reveal what the ancients called “Logos”, the ratio of things, and from this outer order in quantity, numbers (mathematics), ensue along with their inner qualities of experience (mathesis, gnosis). With this approach the the spectrum of consciousness unfolds as the universe unfolds.

VI. **Process and the Learning Cycle.** A variety of inner lived experiences, in principle private and unobservable, as well as outer behavioural experiences, in principle public and observable, can be accessed and understood as learning cycle(s). Embedded in the process of folding and unfolding, the primary spectrum of consciousness is at the same time a necessary and sufficient condition inherent to it. It is the dual aspect of apprehension (going out to grasp ‘it’, to learn) and comprehension (going in, to include ‘it’, to understand). The learning cycle is present at all scales; from the cosmic unfolding-enfolding down to our personal growth; with in-between, life’s processes and societal evolution as part of the great learning of self and cosmos. This great learning cycle is reflected in the way consciousness objectifies the world. We will follow this road and we will be guided by Whitehead’s ideas of process philosophy, Bouratinos proposal of self-locking and self-releasing as the main polar objectification process, and we will see the variety of spectra of consciousness as Jung saw it in the psyche, inside, and Young in the universe, outside.

VII. **Objectifications: Self-Locking and Self-Releasing.** Whitehead’s take on the ‘process of being’ considers the building blocks of the universe as ‘actual occasions’, which are at the same time mental and physical. Or, as often expressed, they are “no more exclusively physical than they are exclusively mental”. One actual occasion with a dual aspect of ‘conscious occasion’ and of ‘objective events’ These are the primary polarities, a dynamic and dialectic equilibrium of which produces temporal equalizations. These are two infinitely opposed powers, the powers of habit and novelty. This is reminiscent of Spinoza’s polar monism, Leibniz’s Monads, and Schelling’s ‘Actants’ or even Indra’s Net and Tao’s Ying&Yang. Habit is the result of self-locking objectification, a negative feedback towards reducing actual occasions to already known objects/concepts. Novelty is the opposite. It is the result of self-releasing objectification, a positive feedback towards deducing actual occasions to newly created objects/concepts. These two prevailing modes prescribe different representations. For example, a self-releasing reality described with a self-locking precept will be as paradoxical as describing processes in structural terms.

VIII. **Dualities and Complementarity.** So it happens, and now we can see that dualities are complementary pairs arising from a primary oneness. Moreover, it follows that the oneness of dualism and monism is why we can know consciousness; why consciousness can know us; and why our reality and our consciousness are literally names of the same entity. This is an echo of the Parmenidean dictum “understanding and being are one and the same.” Also, we arrive at the realization that Consciousness, in all its spectrum, determines not just

our personal existence, but the universe as a whole. As we see, so we are. Bringing back the discussion in modern times complementarity took the place of a foundational principle in quantum physics with the most renowned instances of it the wave-particle duality, the observer-observation duality, and its famous consequence, the Heisenberg uncertainty principle. The latest one exemplifies the fact that none of the two dual aspects can ever completely incorporate the other. Like the faces of the same coin, they coexist in an "undivided wholeness", as David Bohm would have put it.

IX. **Spectrum or Spectra of Consciousness?** This "undivided wholeness" although can be accessed by our deeper reflection, it is not something that can be fully demonstrated experimentally or conceptually. The emphasis is on 'fully'. For the One, like the Tao, "the Tao which can be spoken of may, or may not, be the real Tao", as Tew Bunnag clarified it. This "may or may not" depends on how deeply infused by the Tao is the one who spoke. Depending on the point of anchor, a different stream of consciousness would flow and different kind of interconnections and complexity would appear. So it is more precise to talk about the 'spectra of consciousness'. Each anchor-point determining the content, the relations, and the context of a particular mode of consciousness. For example, for human consciousness, Karl Jung's theory of four basic pairs of psychological functions (extroversion vs. introversion, sensation vs. intuition, thinking vs. feeling, and judging vs. perceiving) provide one such spectrum of 16 psychological types. From an ecological and societal point of view, the individual vs. collective can provide another. From a physiological point of view, the neurological and brain states provide another spectrum. From a behavioural point of view, various set of patterns of behaviour, yet another. The more aware we are of what duality, or mode, our mind is in, the more freedom of thought and choices for investigations we have.

X. **Science encounters subjectivity and inevitably Consciousness unfolds further.** Leaving its historically first, and by now old, era of strictly objective conceptualization science has exhausted its one-way, self-locked, objectification mode of reducing everything to material objects (material-monism). We are now entering a new era where the science of the outer reality meets the reality of the subjective as a requirement for any further advancement of our understanding. A self-releasing objectification takes place in science at large, from going beyond the brain, beyond genetics, beyond local interactions to the other side. The other side is made obvious by now; the other side is the 'inside'. We have arrived at a point where the new science should not only study nature, but also study the nature of its studies. This would not be surprising since the scientific consciousness, from its origins, is the ceaseless investigation of (any) reality, unconstrained by dogma, authority or popular belief. This special form of "informed ignorance" permits us to look into the abyss of the unknown and the unknowable and expand to new spectra of consciousness without fear. ._

"Thoroughly conscious ignorance, that is the prelude to every real advance in science"
– James Clerk Maxwell

"When one analyses the pre-conscious step to concepts, one always finds ideas which consist of symbolic images!"
– Wolfgang Pauli

"[This] Science cannot solve the ultimate mystery of nature. And that is because, in the last analysis, we ourselves are a part of the mystery that we are trying to solve."
– Max Plank

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