Physical Sciences | Peter Verheyen

Reality, information, and consciousness

The universe as a cosmic quantum computer

How does the world around us work, and what is real? Such questions are not only central to scientific and philosophical discourse but have been circulating since the dawn of human existence. Peter Verheyen of the Sola Society and Academy at Vienna University, Austria, explores the notion that the conscious reality we experience as human beings is drawn from the information constantly emitted from the real physical world. Thus, it may be argued that the real physical world is akin to a giant quantum computer that gives rise to consciousness itself.

Questions concerning reality have plagued human consciousness since the dawn of our existence. Philosophical and scientific researchers toy with questions such as ‘what is real?’ in a variety of ontological and epistemological manners, using a broad array of methods. Such questions, of course, only give rise to subsequent questions pertaining to the reality of consciousness itself. Is consciousness a product of the human body (i.e., the brain), or is it perhaps a deeper, even spiritual, matter?

Peter Verheyen of the Sola Society and Academy at Vienna University in Austria focuses his research on the idea that the conscious reality we experience every day as human beings is a product of the information continuously emitted from the real world that must adhere to the physical laws of the world. Thus, he argues that the real physical world in which we live is analogous to a giant cosmic quantum computer that enables the existence of human consciousness itself. Here, we explore Verheyen’s ideas.

The universe as a cosmic quantum computer

THE BUILDING BLOCKS OF REALITY

Quantum mechanics was born out of the intense quest for a description of the infinitesimal, to find smaller and smaller measurements of physical reality. It was Niels Bohr who eventually perfected the interpretation to create a virtuality of the real world. The universe may have created more of these worlds, which always exist separate from one another.

Information is the building block of reality. It was John Wheeler who first started the notion of information to describe reality. He argued that the universe is characterised by ‘it from bit’. In other words, a physical object (‘it’) always consists of ‘bits’. It is argued by many scientists that bits of information (or qubits) are a more fundamental building block of reality than quarks and electrons. Although a qubit is not a physical object, it contains information about the physical object. According to Verheyen, this insight alone has significant consequences for our understanding of reality.

ENTROPY AND HUMAN LIFE

Verheyen explains that, according to the second law of thermodynamics, the entropy of an isolated physical system can never decrease. This law is regarded as the physical law with the greatest impact outside the realm of physics itself. Based on this law, Claude Shannon introduced the concept of entropy as a measure of information content in 1948. ‘The second law of thermodynamics could therefore be redefined thus: entropy, a measure of the amount of information in a system, must always increase.’

Verheyen claims that ‘the universe is consistently learning for an increase in entropy and information processing’, in order to keep it moving along. This increase makes the universe a bustling place where life such as the one we experience can arise. The biochemistry of our life, and indeed all life that we know, has an essential basic property in the known universe, which succeeds in keeping its entropy low. It is Verheyen’s belief that ‘life is therefore capable of violating the second thermodynamic law of entropy’.

To elaborate, Verheyen illuminates the fact that life miraculously manages to prevent equal distribution of matter and energy. Should this occur, all biochemical processes would stop, and life would cease. Being alive means retaining energy within the body and using it when we interact with the world, as opposed to constantly sharing it with the world through the process of entropy. ‘Growing old and dying, for every living thing on Earth, means no longer being able to keep entropy low’, writes Verheyen.

‘There is a biological malfunction in the biochemical machinery of the human body; its fundamental processes fail and lead ultimately to death.’ Then, the familiar second thermodynamic law of entropy reasserts order as energy and information is transmitted from the decaying human body. Therefore, keeping a low entropy is a basic, fundamental property of life itself.

INFORMATION AND CONSCIOUSNESS

Verheyen acknowledges that the average human body contains around seven
Behind the Research

Peter Verheyen explores the idea that the universe is a quantum computer.

References


Personal Response

Can we ever know and perceive the ‘real’ emitted information of the world, and not merely the illusory perceptions that the brain creates in order for us to have an awareness of our environment?

As Carl Sagan put it, ‘We are a way for the universe to know itself’. From the very first moment humans had language, enabling them to think and imagine things, we were speculating on reality and our origin. Gradually we became more successful at it. The ultimate goal of the game is finally discovering our origin and giving it all a meaning, including the universe and its emitted information.

Peter Verheyen

Bio

Peter Verheyen is co-founder of Sola Society and Academy. He is a lecturer in postgraduate education in laser physics and treatments. He is also author of scientific articles, case reports and books, a reviewer of medical journals, and co-organiser and lecturer of international conferences and congresses.

Research Objectives