

Review of: "Modern Monads: Leibniz, Continuity, and the Stream of Consciousness"

Mika Suojanen

Potential competing interests: No potential competing interests to declare.

Jonathan Edwards: Modern Monads: Leibniz, Continuity, and the Stream of Consciousness

Reviewed by Dr. Mika Suojanen, Finland

Jonathan Edwards' article "Modern Monads: Leibniz, Continuity, and the Stream of Consciousness" deals with Gottfried Wilhelm Leibniz's (1646–1716) famous monadology, especially with the perceiving entity, i.e. the subject or monad, and its identity over time. Edwards asks whether it is possible to combine Leibniz's theory of monads with modern biology and physics. His response is affirmative. I will start with some general points about his article, and then I will introduce it in details.

General Remarks

Jonathan Edwards clearly tries to show that modern natural sciences, especially physics and biology, can support Leibniz's theory of monads: he interprets Leibniz' theory in terms of modern biophysics. However, he has to leave out essential things from Leibniz's philosophy, which do not correspond to modern scientific understanding. According to Edwards, the identity and change of the perceiving subject, the monad, in the continuum constitutes a central contradiction that Bertrand Russell (1900) noted in his exposition of Leibniz. Despite the centrality, Edwards does not explain why this contradiction is so central. Overall, I think the article claims a lot but provides less reasons, justification, and evidence. For example, it would be essential to know on what basis Leibniz asserts something as he asserts. Furthermore, it would be important to give reasons for the conclusion that Leibniz's theory of monads can be understood in terms of modern biophysics.

Leibniz's theory of monads can perhaps be connected to modern biophysics, as Edwards argues. However, it is certain that modern theories of natural science have not been created to be combined with the theory of monads, because they are not theories of mind, consciousness, or perception—or even of souls. There are, for example, quantum consciousness theories, but the quantum theories themselves are not theories about consciousness but about quantum particles. On the other hand, why consciousness is not a physical (quantum) phenomenon causally caused by the brain, i.e. not identical to brain activity, assuming that reality is physical, is a meaningful question. (Bohm, 1990, A new theory of the relationship of mind and matter; Hameroff and Penrose, 2014, Consciousness in the universe: A review of the 'Orch OR' theory; Suojanen, 2019, Conscious Experience and Quantum Consciousness Theory: Theories, Causation, and Identities; Wendt, 2015, Quantum Mind and Social Science) Therefore, modern biophysics does not imply a theory of monads.

Edwards does not present how perception occurs in Leibniz's monad. It would be interesting to know how Leibniz justified perception in monads. In fact, this is certain, modern theories of perception in psychology and philosophy do not really assume the existence of monads. The brain is a necessary condition for perception, but so is consciousness. Furthermore, theories of perception, some of them, include the concept of causality. This causality in perception implies identity problems: the perceptual experience is not identical to some brain activity, and the perceptual experience does not necessarily directly reach some object in the outside world. I would also say that the perception of continuity, the continuity of an object and temporal continuity are different things. For example, to perceive the same object at different times requires memory. (Churchland, 1984, Matter and Consciousness; Eysenk, 2021, Fundamentals of Cognition; Gibson, 1950, The Perception of the Visual World; Gregory, 1998, Eye and Brain: The Psychology of Seeing; Grice, 1961, The Causal Theory of Perception; Koffka, 1922, Perception: An Introduction to the Gestalt-theory; Macpherson, 2012, Cognitive Penetration of Colour Experience: Rethinking the Issue in Light of an Indirect Mechanism; Marr, 1980, Vision; Neisser, 1976, Cognition and Reality; Suojanen, 2020, On Perceiving Continuity: the Role of Memory in the Perception of the Continuity of the Same Things) Thus, modern science does not consider the subject of perception to be a monad.

The concept of subject, or of self, remains unclear in Edwards' article anyway. That concept, in fact, is central, because he considers it a problem how the subject maintains its identity in constant change. For some reason, he does not present a substance-attribute metaphysics. Leibniz also has his own definition of substance, but Edwards does not mention it either (Look, 2020, Gottfried Wilhelm Leibniz; Russell, 1900). Substance-attribute metaphysics states that substance is not its attributes. Thus, the attributes of the substance may change over time, but the substance itself remains the same. Leibniz's analysis of substance is similar: a substance differs from another substance in that it has certain past, present, and future properties that other substances cannot have. A substance cannot be derived from any other substance, and a substance is not a property of something. For example, during Jill's life, she has different stages and characteristics, but she is still the same subject. (Kim, Sosa, and Rosenkrantz, 2009, Substance; Look, 2020, Gottfried Wilhelm Leibniz; Lowe, 1998, The Possibility of Metaphysics: substance, identity and time; Robinson, 2021, Substance; Russell, 1900) Edwards does not mention Roderick M. Chisholm's argument against the material person and the argument for the existence of the self, which could be analogous to Leibniz's monad (Chisholm, 1976, Person and Object; Chisholm, 1991, On the Simplicity of the Soul; Chisholm, 1996, A Realistic Theory of Categories; Feldman and Feldman, 2021, Roderick Chisholm). George Berkeley also stated that perception, desire, thought, and the like have a subject, and this is the mind (Berkeley, 1986, Three Dialogues Between Hylas and Philonous).

Overall, I am not sure how well Leibniz' theory of monads fits modern biophysics. Next, I will examine Edwards' article in more details.

Remarks on Details

Edwards begins his introduction with a challenge: "A challenge to any theory of the nature of perceiving subjects or 'souls', whether in 1700 or in the context of modern biology, is what would constitute something that could be the 'same thing' over time and yet be subject to constant change". According to him, we do not know whether to regard conscious experience as a separate "pearl" or as a continuum. Moreover, we do not know the "the *identities of the interacting units* or

elements involved". My first point is that conscious experience is certainly not the same as the interacting units or elements involved, and that these units or elements involved are not the same as the perceiving subject. Thus, right from the start, it is confusing what is dependent, causal consequence, and identity (Suojanen, 2017, *The Immediate Object of Perception: A Sense-datum*; Suojanen, 2019, *Conscious Experience and Quantum Consciousness Theory: Theories, Causation, and Identities*).

Edwards and a few other scholars (Arthur and Jorgensen) are of the opinion that Bertrand Russell himself erred in his criticism of Leibniz. That is to say, in that the perceiving soul, which is actually a mind-type entity, can both be an indivisible unit and move from one event to another. Firstly, Russell did write about the subject in his later writings. Edwards bases his views only on Russell's research from 1900 *Critical Exposition of the Philosophy of Leibniz* Secondly, psychological concepts like "perceptual experience" and "imagination" are not temporal concepts like "now" and "after."

Edwards has a fundamentally optimistic view of the suitability of Leibniz's theory for modern natural science: "Many of his ideas re-surface in modern physics, even if practical implications are not quite as proposed". The introduction continues with an interesting interpretation. Perceiving souls, e.g. monads or "perceiving dynamic units, are the basic constituents explaining the behavior of material things. Then he states: "As Jorgensen says, the picture is a naturalistic one, explicitly relating mentality to physical dynamics: something recent biology has fought shy of. For Leibniz (1765, pp236-7) 'real physical identity' is the level of soul; his metaphysics is the fundamental level of physics, not something other". Quite a few philosophers state, however, that Leibniz's monads are mind-type entities, created as such and in relation to the omnipotent, which implies that monads are not identical to material entities. (Antognazza, 2016, *Leibniz*; Look, 2020, *Gottfried Wilhelm Leibniz*; Simmons, 2001, *Changing the Cartesian Mind: Leibniz on Sensation, Representation and Consciousness*) Nowadays, there is a weird desire to "force" great philosophers to conform to contemporary ideas, which will lead, if there is no proper evidence, to *anachronism*.

The goal of Edwards' article is to explore how Leibniz's framework might help us work out what conscious perceiving subjects could be within modern biophysics. Let us see how he succeeds in his goal: "... the focus will be on the potential paradox of temporal indivisibility".

Statements like this "The conscious subject or soul is treated as something 'non-extended' that nevertheless perceives or monitors interactions between incoming signals and structures within a clearly defined domain." should be given justification. How does that introspection or perception occur in a monad? It is not really obvious because introspection does not show them. Leibniz's Mill argument would be relevant here, for example. (Lodge, 2014, *Leibniz's Mill Argument Against Mechanical Materialism Revisited*)

Other studies present this differently: "Leibniz's (1714) monad was defined as a single indivisible unit of power, action or force...". (See, for example, Antognazza, 2016, *Leibniz*; Look, 2020, *Gottfried Wilhelm Leibniz*; Simmons, 2001, *Changing the Cartesian Mind: Leibniz on Sensation, Representation and Consciousness*) Are these "modes", "units of change", "particles", and the like really the same things as mind, consciousness, perceiving subject, soul, ego and such? I doubt that Leibniz would have linked these together. Edwards states next: "It is not certain whether he sees a soul as relating to one vibrating membrane or many". It would be nice to know how the "soul" actually perceives, for example, vibrating

membranes or cellular structures. If mental life is reduced to brain activity, then what or where is the subject or monad that perceives? Edwards does not answer. I would say that Edwards' interpretation is not coherent with Leibniz research.

Edwards says “No doubt, as Leibniz (1714, §75-77) implies, complex nervous systems can provide perceiving subjects with highly collated information about the world”. Is it the case, then, that complex nervous systems causally cause perception or consciousness, or are these identical, as the mind-brain identity theory states (Feigl, 1958, The "Mental" and the "Physical"; Feyerabend, 1963, Comment: Mental Events and the Brain; Place, 1956, Is Consciousness a Brain Process?; Rorty, 1965, Mind-Body Identity, Privacy, and Categories; Smart, 2007, The Mind/Brain Identity Theory)? “In summary, with a major proviso about immortality and perdurance through bodily transformations, Leibniz’s principles seem to translate rather well to a modern context.” On the other hand, modern natural science does not use Leibniz’s ideas in its theories. The complex nervous system and the perceiving subject or soul are not distinct entities. The essence of the person, i.e. the subject, remains obscure.

“This frees dynamics from the prison of Descartes’s extension in which, moving through space one thing suddenly starts as another stops.”, according to Edwards. One may argue Descartes and Leibniz thought about minds (souls) in the same way: mind is a substance. According to Spinoza, there is only one mind, and Berkeley argues for many minds, and, in fact, there are only minds in reality for Berkeley. It seems to me Edwards considers that there is matter, and therefore, mind is matter. But what a perceiving subject or monad is, is unclear. Is it physical? “The body is an aggregate of monads.” and “The soul is then a higher monad that inherits the non-trivial aggregate domain (s) as a single distributed indivisible action unit with a similar trivial or confused relation to the rest of the universe.”, says Edwards. This is a hypothesis, at most, and Edwards should provide evidence, empirical evidence. At least modern natural sciences do not describe mind or consciousness like that. There really are not any mathematical equations for mind or consciousness.

“It is this continuity of a unity over time that gave Russell trouble.” Not necessarily because Russell later wrote on this subject from the perspective of language analysis: the subject remains the same even though its predicates change over time. Immanuel Kant admittedly denied the existence of time; time is just a category, a concept (Kant, 1999, Critique of Pure Reason). Today there are also physicists who doubt the existence of time; time would be an illusion (Buonomano, 2017, Your Brain is a Time Machine; Reichenbach, 1956, The Direction of Time; Rovelli, 2017, The Order of Time; Unruh, 2001, Time and Modern Physics; Yougrau, 2004, A World without Time). Furthermore, the perception of continuity, or of interruption or cessation, is different from the continuity of a substance or phenomenon in itself (Suojanen, 2020, On Perceiving Continuity: the Role of Memory in the Perception of the Continuity of the Same Things). Edwards, perhaps a little uncritically, tries to interpret Leibniz's theories as suitable for the field of contemporary natural sciences.

“The former is equated with the future being fixed and the latter with it ‘not yet determined’. Leibniz (1686, §13) sees the options differently. He claims the *rules* (reasons) cannot be rigid. They must allow a variety of sequences of events.” That is clear. However, Spinoza seems to disagree with Leibniz: people think they are free because they do not know the causes for their behavior (Kisner, 2011, Spinoza on Human Freedom; Spinoza, 1985, The Collected Works of Spinoza, Vol. 1). Is a monad free in Leibniz's theory? In the next paragraph, Edwards seems to answer that it is not. In fact, I do not understand how he appeals to photons, since the monad is a conscious subject. Photons are not agents; therefore, they

cannot be free.

“But unlike a photon a human soul seems dynamically divisible in that we can observe repeated interactions with world as time goes along.” Can we? How does a human soul perceive? Again, I say the same thing: Edwards should give reasons, justification, and evidence for his statements. Same thing with Leibniz: it would be good to hear his arguments, not just descriptions. “It seems either there are boundaries between each ‘pearl’ of perception or not, and Leibniz wants both.” Sensing and perceiving are different phenomena, because perceiving is sensing with memory and interpretation (Neisser, 1976, *Cognition and Reality*; Suojanen, 2020, *On Perceiving Continuity: the Role of Memory in the Perception of the Continuity of the Same Things*). Perception1 is the tree, and perception2 is Jill, for example. We are, that is to say, aware of different mental acts. The essence of perception is more challenging to understand than Edwards' prepositions suggest.

Next Edwards wonders “... it is hard to see why it does not just have one experience reflecting its entire spacetime domain.” One thing, I would say, is a dynamically indivisible unit is finite, like every person is. Another is whether a conscious mind or self exists as a dynamically indivisible unit. There is little research on, for example, quantum consciousness theory (Bohm, 1990, *A new theory of the relationship of mind and matter*; Hamerof and Penrose, 2014, *Consciousness in the universe: A review of the ‘Orch OR’ theory*; Suojanen, 2019, *Conscious Experience and Quantum Consciousness Theory: Theories, Causation, and Identities*; Wendt, 2015, *Quantum Mind and Social Science*) or on Chisholm's theory of the non-material self (Chisholm, 1976, *Person and Object*; Chisholm, 1991, *On the Simplicity of the Soul*; Chisholm, 1996, *A Realistic Theory of Categories*; Feldman and Feldman, 2021, *Roderick Chisholm*). Edwards continues by talking about perception: “In operational terms we have the same for a photon; measurements indicate that it has arisen from influences or necessities provided by local environment. It behaves as if informed by a lens or a pair of slits in a screen.” These propositions do not imply a photon perceives. Nor do they imply a conscious mind is like a photon.

Edwards is doing a bit of speculation. He could give quotations in which natural science studies argue like this: “On this basis it might seem that all fundamental units could only have one indivisible relation of perception to the world that could contribute to history and be known about.” In fact, Edwards acknowledges: “I am aware of little discussion of how these matters are best resolved in the context of identifying individual units that could be perceiving subjects. My own view is that Leibniz's concept of fundamental dynamic units, associated with condensed matter ‘bodies’, capable of undergoing sequential relations of perception to world is plausible within modern physics.” Maybe so, but modern physics does not examine mind or consciousness—on the other hand, consciousness can be a physical phenomenon instead of being something essentially different from other physical reality (Suojanen, 2019, *Conscious Experience and Quantum Consciousness Theory: Theories, Causation, and Identities*). To my mind, the concept “Leibnizian soul” is quite hypothetical, even speculative.

“What is up for debate is whether a perceiving subject lasts just one percept, to be replaced by another, or endures from percept to percept as Leibniz claims.”, says Edwards. What is the subject perceiving? I doubt it is a soul or a particle, although some philosophers have argued this way, such as Descartes, Berkeley, and Chisholm. And what is more, how does one recognize that this is not the same perceptual experience, but a completely different perceptual experience

(Suojanen, 2020, On Perceiving Continuity: the Role of Memory in the Perception of the Continuity of the Same Things)? I admit that Edwards is not now thinking about the essence of perception, but the identity of the observer. However, if the subject is not identical with its states as with its perceptions, then the subject's identity endures over time as perceptions change from one to another. The analogy with quantum physics amazes me, because there is no time necessarily but it may be an illusion produced by the brain.

The analogy between Leibniz's statements and the views of modern physics should be shown more clearly. Now the readers should check for themselves whether they match each other sufficiently.

"The compatibility between distinct perceptions and continuity argued above may not quite satisfy a Leibnizian (1714, §14) conception of monad moving from percept to percept, especially if compared to the logical steps of a computing automaton. In some ways our thoughts do seem discrete." A monad is not identical to its perceptions because it is the monad that endures even though perceptions are distinct. Monad, if I rightly understand, is a substance in Leibniz's theory.

"Even in a computer the logical steps need not break the dynamic continuity." I guess there are breaks in the reality, as an interruption of continuity or uniformity? As there are also different events, then they do not form continuity. For example, the Second World War ended and did not continue. In other words, continuity as a property of time is different from the continuity of an object or phenomenon.

"The ability to sense a whole tune in a specious present might tempt us to think that apperceptions have time frames running into seconds. The content they represent might, but then we can also contemplate much longer durations. Maestro Antonio Pappano likely contemplates Tristan and Isolde in entirety (5 hours) while conducting. Introspection suggests that our sense of a tune consists of a sense of the whole, or even a next answering phrase, *simultaneously* with a sense of a passing note." That is clear. However, who are these "us", "we", and "Maestro Antonio Pappano"? Are they monads, a Leibnizian soul-like entities? Edwards does not tell.

"This would explain why in *New Essays* he suggests human understanding is mediated by a vibrating membrane. Leibniz realized that human souls perceive through a local relation to brain tissue." The assumption is human souls exist. Are there souls who perceive? The concept of soul hardly belongs to the vocabulary and ontology of modern sciences as little as angels and demons.

"Attributing subject status to a whole human body was always problematic. In material terms, there is no justification for including kidneys or toenails when neither appear to house subjectivity. Moreover, in terms of functional interaction with information from the world not only do kidneys seem uninvolved, but why should we exclude a blind man's stick or 'Otto's notebook' (Clark, 2008)? Nothing in biology points to the whole body being the basis of a subjectivity." This is an interesting question: what is meant by subjectivity? Why does not Edwards already discuss and define the "subject" in the introduction if it is the central focus of the whole article? Why is a subject not a cause causing mental acts (Melamed, 2017, The Causes of Our Belief in Free Will: Spinoza on Necessary, 'Innate,' yet False Cognition)?

“Behaviour might seem to be a different matter from subjectivity but at least for Leibniz (1714, §14) there was a belief that the two were inextricable.” Is a monad and behavior inextricable? If a monad is a subject, and the subject is behavior, then, therefore, the monad is behavior.

Edwards states as follows: “... since nerves appear to bring things to be perceived together in brain?” He is contradictory because a monad is the entity that perceives. It is unclear how perception takes place in some soul-type entity, according to Leibniz.

“Leibniz does not make it clear whether he is proposing a soul that perceives through many vibrating membranes or one.” Here I recommend studying Leibniz's Mill Argument. It may reply ambiguity—or not to reply. (Lodge, 2014, Leibniz's Mill Argument Against Mechanical Materialism Revisited)

Edwards concludes “Of recent commentators, both Arthur (2018) and Jorgensen (2019) emphasize Leibniz's link to natural science. I would go further; Leibniz was a scientist, who, like Feynman, understood that grasp of fundamental concepts is part of the toolkit.” Leibniz's philosophy probably has a connection with the natural sciences, even though there is much in it that does not fit into the world view of modern science. Furthermore, there is no consensus that perception is representational (Villarroya, 2017, Neural Representation. A Survey-Based Analysis of the Notion), as Edwards claims: “He took the representational nature of perception of a ‘material’ world into account, as modern neurobiologists do.” Neurobiologists, that is to say, rather talk about the “neural representation”, for example.

“Leibniz's quest for the nature of individual perceiving dynamic units is as valid today as it was then. There must be such units since we find ourselves as examples.” These statements do not imply souls as selves, i.e. as the “particle egos”.

“Perception cannot belong to aggregate networks of nerves.” Why not? Edwards did not define what he means by the concept of perception. Moreover, next statement is very hypothetical: “The suggestion is that our perceptions belong to indivisible dynamic units associated with complex ordered structures within brain...”.

“This brings us back to the core of Leibniz's (1686) metaphysics – the ways we attribute predicates to subjects in propositions and how dynamic elements within the universe can acquire information about the truth of those propositions.” At least we do not acquire any information about the truth of Edwards' propositions. For example, we do not acquire information about self through introspection (See, e.g. Hume, 2000, A Treatise of Human Understanding).

“We know the general form of individual dynamic units.” is an untrue statement.

Conclusions

Edwards has tried to show that Leibniz's theory of monads fits the current natural scientific context. In my opinion, he needs to further demonstrate the coherency and analogy by referring to Leibniz's theory and modern physics and biology. However, the theories of modern physics are not theories about the mind or consciousness, but about particles, for example. Also, the essence of time is still an enigma.

