**My question to the Philosophy Club is what does it mean to think in terms of Leibniz’s Monad?**

Last summer, I read the physicist, Lee Smolin’s book, Einstein’s Unfinished Revolution (2019), where he drew a strong connection between Leibniz’s concept of the monad and quantum mechanics. Here is the insight that sparked my interest:

We shall call the elements of a relational model of the universe *nads* because they are only partially in accord with Leibniz’s elements, which he called monads. Nads have two kinds of properties, which depend on several of the nads. A nadic universe may be pictured as a graph, with relational properties represented by labels on links that connect pairs of nads. It is not a coincidence that so far this picture accords with the description of the world given in loop quantum gravity. There, a state of the world is described by a graph with labels on it, each nad has a view of the universe, which summarizes its relations with the rest…. Let us posit that our relational universe obeys Leibniz’s principle of the identity of indiscernibles. Leibniz posited that the actual universe is distinguished from many possible universes by “having as much perfection as possible. …what Leibniz is doing is positing that there is some observable quantity which is larger in the real universe than in all the other possible universes. This is shockingly modern, as it anticipates a method for formulating laws of nature that was developed later and only came into fruiting during the twentieth century. The Quantity that is maximized, which Leibniz called “perfection,” we call action” (Smolin 2019, 242-243).

This led me to read Maria Rosa Antognazza’s biography of Leibniz (2009), after which, I contacted Brian to ask for his help. I needed to understand more about Leibniz’s monad. Leibniz wrote Monadology in 1714, two years before he died. It was intended to explain an idea, which is amazingly complex.

By 1700, the influence of Galileo, Descartes, and Newton, on Western metaphysics had already begun to take hold. Modern science is still enamored by the mechanical view of the world. Descartes believed that animals could not feel pain, their screams were simply like metal scraping together; nothing to pay attention to. Newton believe the world was set in motion by God, but stayed apart. He was the master clockmaker. As Antognazza writes, Leibniz believed, “God was not only the creator of what exists but also the source of its conservation in being and the very root of possibility. Leibniz claimed the omnipotent and omniscient God of the Christian tradition could not be reduced to an unskilled clockmaker who continuously needed to mend and rewind this handiwork” (Antognazza 2009, 536).

Dividing the world into thought and matter did not make sense to Leibniz. Leibniz posited the world to be a society of living monads. Although monads are not material, they make substance possible. While Galileo, Descartes, and Newton celebrated the telescope, Leibniz was interested in the vast new world opened up by the microscope. God had to be in the smallest things and these tiny creatures were alive.

The calculus he invented was based on infinitesimals, (Newton focused on derivatives), and if God was in the smallest of things he was then everywhere embedded in this material world. This was a more organic view of the cosmos. We now know that all macroscopic living entities are made of societies of cells and that they are organized at many higher levels, such as organs within bodies. Therefore, at the very time that Newton launched his mechanistic view of the world, Leibniz was negating it. The monad influenced Vico, Bergson, Heidegger, Von Uexkull and Deleuze and many others, who wanted to find a way to think of the world as a process or as an organism. It may have helped launch the advances in biology in the nineteenth century.

Leibniz’s organic, relational view of nature and his deep belief that God is not separate from substance explains his deep interest in the early Taoist Book of Changes. Here the cosmos is presented as a unity of harmonious relations, or *hun-tun*. Of Leibniz’s correspondence with the Jesuits who had lived in China, “the most intellectually fruitful was with the Frenchman Joachim Bouvet, (1656-1730)” (Mungello, 67). When Bouvet read Leibniz’s writings on the relationship between the binary arithmetic and the hexagrams of the *I Ching*, he sent to Leibniz a woodcut diagram of the Fu-Hsi arrangement. Bouvet believed that the I Ching would reveal the deep connection between mathematics and music, similar to the Greek secret society of Pythagoras.

The Leibnizian monads relate not by reacting with one another but rather by a cosmic resonance, which is similar to the organic worldview of the mysterious Tao of the I Ching, which “goes back to the cosmogonic theme of the great beginning (the *t’ai ai-ch’u*). This was the creation time before heaven and earth were separated, the period when there was only an undifferentiated condition of wholeness (*t’ung*) without any particular sound, form or substance” (Giradot, 58). Is this the origin of Leibniz’s monad?

Carlo Rovelli writes in Helgoland: Making Sense of Quantum Mechanics (2021) that Newton and Leibniz disagreed on the nature of space and time. Newton claimed that space was the container that held the contents of the universe, if we pulled out all the stars and the planets, the space and time would remain. Leibniz claimed that space and time were nothing more than the sum total of all distances and durations between objects and events of this world. If we remove all the objects of the universe there would be no space and time. This is the relational view of space and time that Einstein proposed. In this view, space and time exist only as the spatial and temporal relations between objects and events.

The world is a dense world of interactions.

Is this how we should think of the monad?