The Relationship between Subject and Object in Classical Mechanics

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It is sometimes said that Buddhist intuition and the scientific way of thinking have little in common. Suzuki Daisetsu (1870-1966), for example, emphasized religion’s superiority over modern science. He wrote, “Religion transcends science, if we regard intellect or reason as the essence of science, it is impossible to make science the foundation of religion”.

One reason why Daisetsu felt that Buddhism and science are incompatible is the strict subject-object dualism that apparently exists in the scientific worldview. Daisetsu felt that this fundamental dualism makes it impossible for science to capture the ultimate nature of reality. To come close to true reality, Daisetsu argued, one needs to overcome the view of objectivity existing without subjectivity.

It is possible, however, that science is not as strictly dualistic as Daisetsu believed. We must ask the question: Is modern science really founded on a strict dualism between subject and object? To respond to Daisetsu’s challenge to modern science, I would like to clarify the nature of the relationship between subject and object by taking an example from Newtonian mechanics.

The second law of motion describes the relationship between three factors, that is, force, mass and velocity, expressed as direct and inverse proportions. Differential calculus is essential here. To arrive at a specific velocity at a given time instead of an average one over some length of time, the infinitesimal calculus divided time into infinitely small quantities – infinitesimals.

To bring the concept of infinity into the study of motion, Newton carefully examined the concept of limiting value which is crucial to give calculus (or, methodus fluxionum as Newton called it) a mathematical coherence. Although he was not entirely clear about this concept, he was well aware of the difficulty involved in dealing with an infinite division of time.

It was Cauchy (1789-1857) who first proposed a clear expression of the concept of limiting value. I shall employ Cauchy’s formulation of limiting value and infinitesimal.
According to Cauchy, an infinitesimal is a variable which has 0 as its limiting value. This means that the value of the infinitesimal approaches 0 as close as one likes, but, it does not become identical with it. For then dividing by it would be undefined. Thus, it can be said that the definite value of velocity which is given by calculus is posited by it, rather than inherently existing in nature. Thus, one of the most fundamental objects of mechanics, namely, velocity, is a subjectively posited construct. Herein one can see that classical physics is not nearly as strictly dualistic as Daisetsu believed.

In closing, I would like to note that my intention is not to refute Daisetsu. Rather, I want to propose that science may not be as antithetical to Buddhism as Daisetsu suspected.