

I. The Time in the Natural Space

1. The Idea of Time

The widely common opinion is that a phenomenon in physics takes place in space and time. This view I will not question. However, I ask; what is space and what is time? Immanuel Kant pointed out that space and time are conditions for human cognition; concepts of space and time cannot be experienced empirically. Immanuel Kant categorised: SPACE is a necessary external condition for the observation of the physical world, and TIME is required as an internal condition for keeping track of phenomena in physics.

- The passage of time cannot be measured as time has passed while.
- The form (structure) of space cannot be known by measurement as the structure is a condition included in the measurement concept.

This paradox, that space and time cannot be perceived empirically, Immanuel Kant called a transcendental property. The property with which we intuit the world.

Space and time are thus necessary a priori concepts of human cognition.

General cognition – a priori – the TIME and the SPACE – are transcendental concepts.

Since René Descartes, it has been commonly accepted to consider the world as divided into the inner subjective and outer objective.

Later, I will define the difference between the inner local and the outer world. I would just here anticipate that not only ‘the one’ but also ‘the other’ is *local* and has its own interior, and all the rest of the exterior is in the *global* world. All this participates in a universal Nature.

First, some thoughts on the concept of time and its apparent subjective inner character, then some about the objective nature of space as an external condition for cognition in an epistemology.

1.1. Primary Quality⁵

- **Primary quality** of time comes from the *causal action*. (action is the cause)
- The memory can register change and distinguish ‘the one’ from ‘the other’ and then ‘the third’. memory is an internal local capability.
- **Primary quality** of space is the *chiral extension* (hand-turned extent⁶).
- The conscious awareness can distinguish the left from the right side, like the exterior from the interior (also called the front-to-back relation⁷).⁸

These definitions of **primary quality** for time and space, which involve memory and awareness, can be deepened.

- The memory records the historical events locally.⁹
Time has a **direction**: The memory can remember past events, the memory cannot remember the future.
- A conscious awareness places the events locally in space. Our consciousness distinguishes between our own inner location and a second outer local event.

⁵ **Primary quality** is by Galileo, Descartes, Newton, Locke, etc. an attribute of the thing in itself, while a *secondary quality* is the perceived attribute.

⁶ Hand-turned extent requires multiple **grades** and dimensions of space volumes. This is described further in the later chapters below.

⁷ When you see yourself in the mirror, your right hand is seen on the right side and your left hand on the left side of the picture, but the interior is hidden behind the exterior masks of your face. Your back is hidden, as well as your interior.

⁸ One could also mention here a difference between up and down, but it is already implicitly given the difference between right and left, as it also is a transversal property (circling around a path between the inner and outer). The up-and-down concept is usually associated with gravity. Here in the first place, we will keep gravity out of the pure concepts of space and time.

⁹ In addition to our own memory, the content text in a book or other dataset is also memory. The memory is internal and therefore inside a locality.