

How Time Flies: On the Velocity and Subjectivity of Temporal Flow

Abstract:

In philosophy of time, there has been a long debate around A-Theories and B-Theories of physical time. According to A-Theories, physical time has three dimensions: past, presence and future. Time *flows*, insofar as each dimension has a different content at every moment. By contrast, B-Theories argue that the physical time in Relativity Theory does *not flow*, given that the simultaneity there depends on the velocity and the gravity at a certain location. For this reason, the physical time in B-Theories is considered as possessing only two dimensions: earlier and later.

Two considerations are essential for this debate. One is raised by C. D. Broad: if the time in A-Theories flows, then one is obliged to define the *rate* at which it flows; otherwise, it would make no sense to speak of temporal flow. But if the velocity of temporal flow is measured against another time, then it risks falling into infinite regress. The other is the *subjective contribution* to temporal flow. The experiential time seems to be flowing, and there seems to be a connection between the subject and the presence, as the zero-point of temporality. Hence, it is intriguing to say that A-series are 'more subjective' than B-series.

As a framework, I establish a four-leveled stratification of temporality from Husserl: the original process, the phenomenological time, the environmental time and the idealized time. Each higher-level time is the constancy identified through the variants at the lower level.

Inspired by the psychologist Johann Friedrich Herbart, who is one of the first authors that attempt to mathematize the mind, I propose that the velocity of temporal flow is *the vector of the total exerted powers at a certain moment*. This definition predicts that if all manifested power in general become *stronger*, or if the relationship between the manifested powers becomes more *harmonious*, then the time would speed up. This is confirmed by psychological evidence: mania patients experience a faster temporal passage, while depressed ones experience a slower; the passage of time is faster in the flow state than in routine situations, and even slower in conflicts or unfamiliar situations. I argue that this definition also applies to the environmental time, whose velocity remains relatively constant. In this way, the velocity of temporal flow can be defined without reference to a meta-time against which one measures a certain time.

I explore the subjective contribution to temporality by focusing on Husserl's notion of absolute individuation: it is the relationship to the subject rather than the spatiotemporal position that is the ultimate principle of individuation. The relevant sense of subject can be interpreted as absolute non-repetitiveness. Neither the non-repetitiveness nor the power manifestation is *per se* temporal; rather, temporal flow derives from their *interlock*. This explains the apparent simultaneity between the perceptual experience and the perceived object. The time in Theory of Relativity seems to be non-flowing, because a *common 'everyone'* with whom every dweller in local environments can identify himself with does not exist. It lacks a global definition of velocity.

Keywords: passage of time; velocity; power; subject; individuation