

POPULAR SCIENCE SUMMARY

The aim of the project is to develop a metaphysics of presentism which is based on the notion of *dynamic existence*, proposed by the author (the leader of the project) in his earlier works. The notion of existence which is used in a standard way in presentism—existence in fixed moments of time—has a static character and cannot be used to formulate such a form of presentism which is vital enough to be defended against severe critical arguments such as: “what does the passage of time consist in and what is the rate of time’s passage?”; “why there is no physical theory of the passage of time?”; “how to reconcile the flow of time with the theory of relativity?”; “how to express presentism in a nontrivial way?”; and “why do sentences which refer to the past and to the future have no truthmakers in the present?”. The author tries to show in his papers that not only does the conception of dynamic existence make it possible to refute these objections but it is also able to lead to the explanation of some other interesting metaphysical issues, such as the ontological status of the past and the future, that is, what is the difference, firstly, between them and, secondly, between them and non-existing fictitious objects; what is the relationship between existence and time (why does the existence of physical objects have a temporal character and what does this temporality consist in); why does the world exhibit so strong a temporal asymmetry (the past is fixed while the future seems to be open; we have traces of the past and no traces of the future; causes precede temporally their effects) although the fundamental physical interactions which are involved in everyday phenomena, that is, the electrodynamic, strong and gravitational interactions, are invariant under time reversal (the weak interactions are not time reversal invariant but these are very rarely involved in such phenomena). The project’s objective is to show that the problems mentioned above can be solved with the aid of the concept of dynamic existence. These are difficult but at the same time fundamental metaphysical problems which need further studies.

The proposed strategy, based on the concept of dynamic existence combined with the presentist tradition of identifying the present with what exists, also makes it possible to generate an interesting metaphysical hypothesis according to which the so-called proper time of theory of relativity can be assumed to be an entity constituted by dynamically existing objects. This hypothesis proposed by the author, whose aim is to explain the origin of time, needs further research.

Research in the project will proceed in two directions: firstly, it will be an analysis of both fundamental conceptions of static and dynamic existence which will also especially comprise the way the latter of these notions affects the ontological status of the past and the future. Secondly, it will be an analysis of detailed problems to which the proposed notion of dynamic existence can be useful, such as: persistence of things over time; dynamic processes explored by empirical sciences (for example, the evolution of the universe investigated in cosmology, and evolution of biological systems investigated in the theory of evolution); the asymmetry between the fixed past and the open future; the asymmetry of traces; and the temporal asymmetry of causation which holds although the electrodynamic, strong and gravitational interactions are invariant under time reversal.

The justification of the proposed research is a strong desire to revive a dynamic vision of reality, such as it was proposed, *inter alia*, by Heraclitus and Bergson, and to show that it is possible only if we change our approach to the notion of existence in an essential way and—therefore—to metaphysics. In the introduced project, a key role is played by metaphysics and its aim is to explain what is the origin of the dynamic variability of the world. Admittedly, some scientific theories describe this variability (for example, the Big Bang theory in cosmology or the theory of evolution), nevertheless, scientific theories are unable to explain what is the source of this variability; science—as we know it—is not able to propose a theory which will be able to explain what the flow of time consists in.