

THE CONCEPT OF TIME

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Abstract: In New Physics, the so-called hyperphysics, Time is a primordial basic concept used to help in the understanding of physical reality. On the other hand, Space plays a minor role secondary to Time, remaining an important notion nonetheless.

Keywords. Time, space, Hyperphysics, subquantum medium, principle of eurhythmy, frequency, complex interaction, alteration, becoming.

1. Introduction

In this note, it is intended to show that Time is an utterly basic concept albeit being an important tool which helps to integrate the diverse interaction that one experiments in a relatively comprehensible yet global picture.

In classical physics (meaning relativistic physics and orthodox quantum mechanics) the concepts of energy and momentum play a most fundamental role whereas in Hyperphysics¹ the basic concepts are the concept of frequency, both temporal and spatial. Moreover, this new physics aims at describing the system's complex and nonlinear interaction at its upper and diverse scales of organization. The formalization of this New Physics is done mainly through the organizational principle of eurhythmy².

2. The concept of time

One is familiar to the categories of both time and space as something that is of assistance so to understand the multiplicity of interactions one is confronted with. The same is to say to aim for the understanding of this global interaction process we call reality.

Naturally, outside organized³ regions (the ones that we are able to conceive) it is not possible to talk neither of time nor of space. The most we allowed to do is to state that an indefinite medium exists ... the subquantum medium, or the Apeiron if one likes best. In this picture the most important concept is the one of subquantum medium, where the concepts of space and time are only mere derivate concepts.

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The problem, nonetheless, is to decide whether if one of these concepts, either the one of time or the one of space, has primacy over the other. If one does, it should be the concept of Time.

Could it be that when we speak about space we are implicitly speaking about Time?

In the context of Hyperphysics, Time is to be understood as a measurement ... as an evaluation of change and of the alteration that is the modification of the complex interacting systems. We know that “change” has the utmost relevance in New Physics, being deeply connected with the interaction.

On the other hand, we also are aware that interaction means alteration, modification ... change, that is. So, if there are no modifications there cannot be any interactions, for interaction implies modification. Without modifications there are no interactions and vice-versa. Overall, interaction is essentially a modification.

Considering these conditions, our world (the only one we can truly understand being a simple section of the subquantum medium) is nothing more than what endures the change, or the alteration. Our world is in permanent becoming.

At this point we must stress that this change must be validated by Time. Hence, it follows necessarily that, in the context of the New Physics and in this sense, the primary concept is the one of Time. Without Time we cannot begin to understand change, so no physics would be possible at all.

3. The concept of space

All in all, the primacy of Time has been established.

Now, the problem is to understand the role played by space.

Knowing that in Hyperphysics the most basic concept is the one of interaction, of change, of the alteration of the becoming (in other words, the one of Time), it follows that the notion of space must somehow be derived from this primary concept.

Given this, everything leads us to believe that the notion of space has to do only with the necessity of identification, or with the conceptual separation of the emergent subquantum beings at the diverse scale of description.

In these conditions, and according to the scale and process of observation, different beings may occupy the same region in space. So, the conclusion to draw is that space is nothing more than a mere tool, more or less useful, however devoided of any privileged ontological status.

4. Conclusion

These new developments in the meaning of time and space, in the light of New Physics, the Hyperphysics, open a whole new realm of possibilities for understanding Nature.

References

1 - The Greek name HyperPhysics for the new global physics that promotes the true unification of physics was suggested by M.M. Silva.

2 - The Greek name Eurhythmy for the basic principle of Nature was suggested by Professor Gildo Magalhães Santos. J.R. Croca, *The principle of eurhythmy a key to the unity of physics*, Unity of Science, Non traditional Approaches, Lisbon, October, 25-28, 2006. In print.

3 – J.R. Croca, *Hyperphysics, The Unification of Physics*, Chapter in the present work.