
Preface

This book is a revision and expansion of the concept of a physical theory as developed in [1].

In this book, we introduce the following:

- A concept of basic language; a descriptive language of simple form in which it is possible to formulate recorded facts. The semantics of this basic language make it possible to clarify the links between linguistic, conceptual, and real entities of the application domain of a physical theory.
- A new concept of idealization. We know that practically all mathematical theories used in the physical theories can only be approximations of the reality, i.e., that they can be applied to an application domain of a physical theory only under the assumption of allowing for some degree of approximation or degree of inaccuracy.

We propose a review (related to the new concepts introduced above) of the “notion of relations between various physical theories,” and of the “process allowing to find new concepts” developed in [1].

The analysis presented here will be less of a description of the current state of physics than a suggestion to modify this state. The authors think that a solution can be found amongst the many difficult problems of physics such as the interpretation of physical theories, the relations between various theories, and the introduction of physical concepts, when the theories are under the form of an axiomatic basis. The analysis presented here does not claim to be definitive. It should, on the contrary, encourage the reader to continue the development of the fundamental ideas of this work. Such a development should contribute to highlight the durable core and growing strength of physical knowledge about the real structures of the world, in addition to the process of the historical development of physics.

If this book was to suggest such a development, it would then have achieved its goal. The authors also encourage the reader to correct any possible faults

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in the text and are convinced that the correction of such errors will not call into question the fundamental ideas of this work.

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