

**PSYCHOLOGICAL  
AND  
SOCIAL STRUCTURES**

**Sandor B. Brent**

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**Sandor B. Brent**  
Wayne State University



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Finally, it goes without saying, that I alone am responsible for those defects that remain in this text.

*Sandor B. Brent*

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# General Introduction

*The object of all science, whether natural science or psychology, is to co-ordinate our experiences and to bring them into a logical system.*

Albert Einstein (1922)

The present work integrates a broad range of psychological and social theory and data within a single, supraordinate system of thought.<sup>1</sup> By making explicit those concepts and relationships they share in common, this approach also highlights what is distinctive about each.

## The Common Concept-Field of the Modern Sciences

We refer to the point of view from which we approach this task as the common concept-field of the modern sciences. This point of view is derived from the observation that there is a set of verbal concepts that is widely used throughout the modern sciences. This set includes such concepts as structure and function, form and content, levels and stage, growth and development, and certain dynamics underlying the relationship between microscopic and macroscopic processes. Whereas each of these concepts has a specific meaning in each particular science, each also has an underlying core of meaning that is common to its usage in all the sciences. We describe this set as a concept-field because each concept in it defines and is

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<sup>1</sup>In this work we are not primarily interested in social "institutions" as functionally autonomous structures in their own right. We are rather interested in the macroscopic form and function of groups of individuals as they emerge from the activities of and relationships among the individuals who constitute them. We therefore treat the activities of such groups as emergent macroscopic forms of psychological structures and frequently refer to them as such, except where such a generic reference is liable to cause confusion. To this extent our present treatment of social structures is basically psychological rather than sociological.

defined by its relationship to others in that same set. It is this shared network of verbal concepts, and certain metatheoretical issues implicit in it, as much as their shared goals and methodology, that defines the modern sciences collectively as a coherent body of knowledge.

*Advantages of This Approach.* There are several advantages to studying psychological phenomena from this general standpoint. First, it makes explicit certain important linkages between modern psychology and the other modern sciences. Second, it highlights those points at which new psychology-specific concepts must be introduced to account for phenomena that appear only with the emergence of complex organisms. These concepts cannot be shared by those sciences concerned with simpler systems. For example, the notions of effort and attention, which are essential for understanding the behavioral patterns of complex organisms, have no meaningful place in the sciences dealing with less-complex structures. Finally, approaching our subject from this standpoint helps to clarify certain communalities and differences between various specialized domains within the field of psychology itself. For example, a common metatheory of structure appears to underly various specific theories employed in psychology (Werner, Freud, Piaget, Erikson), as well as those employed in such allied fields as psycholinguistics (Chomsky, Miller), cultural anthropology (Levi-Strauss), ethology (Schneirla, Lerman, Lorenz, Scott, Tinbergen), field-theoretic social psychology (Festinger, Lewin, Heider), sociophysical modeling theory (Prigogine, Weidlich), and the philosophy of symbolic processes (Cassirer, S. Langer). Therefore in the present work we draw examples from all these fields.

*The Focus on Structure.* The common concept-field has, as we see, a high degree of logical symmetry. Therefore any of a variety of its elements could have served as an integrative focus for the present work. I selected the concept of structure for this purpose because it refers specifically to just those stable elements of any science that are themselves capable of such processes as functioning, growth, organization, activity, and development.

## THE PLACE OF PSYCHOLOGY IN THE HIERARCHY OF THE SCIENCES

Although we approach our subject from the point of view of the common concept-field and draw examples from a broad range of sciences, our primary focus in this work is on psychological and social structures (see Footnote 1, earlier). Let us therefore consider next the place of individual and social psychology in relation to the other sciences.

*The Traditional Positivist Ordering of the Sciences.* During the first half of this century, some philosophers of science proposed a so-called hierarchy of the sciences (cf. Danto & Morgenbesser, 1960). The ordering of the sciences in this hierarchy was determined by criteria derived from late 19th- and early 20th-century logical positivism. In this hierarchy physics, the most precise and rigorous, was considered the "queen of the sciences." Then, in order, came chemistry and biology. Beyond that point came certain "stepsisters"—Cinderellas of the sciences, so to speak—the legitimacy of whose birth was at best uncertain, hence whose names were mentioned in polite company only in hushed, somewhat embarrassed whispers. These unfortunate sister-sciences included, again in hierarchical order, psychology, sociology, and anthropology; and, somewhere in among those, such disciplines as economics, political sciences, and linguistics.

Starting at the turn of the century, however, two classes of events began to undermine the solidity of the boundary that previously appeared to separate these two classes of sciences. Within the domain of physics itself, the discovery of new, essentially stochastic phenomena such as the quantum mechanics, the uncertainty principle, and dissipative structures raised questions about the precision, although not about the rigor, of the principles underlying our understanding of physical phenomena (cf. Prigogine, 1980). On the other hand, within the so-called social sciences the increasing use of formal structural models in psychology, sociology, anthropology, and linguistics gradually increased the rigor, although not necessarily the precision, with which phenomena in these fields could be described. As a result of these changes the old positivistic hierarchy of the sciences began to crumble, and the names of the various fields of scientific investigation began increasingly to assume compound interdisciplinary forms such as biophysics, psychohistory, and sociobiology.

### A Structural Ordering of the Sciences

This tendency to cross the traditional boundaries between sciences has created the need for a new less-pejorative set of boundary conditions that, at the same time, allows us to identify more clearly the proper domain of each partner in these interdisciplinary marriages. Accordingly, the older, positivistic distinctions are gradually being replaced with a new set of distinctions based on structural criteria. These criteria are not concerned with the relative rigor and precision of each discipline per se, but rather with the form, function, and levels of analysis of the structures that are the focal subject matter of each.

This point of view begins with the assumption that every structure can be broken down by some appropriate method into a set of functionally independent constituents that can, in turn, be investigated as structures in their

own right at some lower level of analysis. At the same time, the unique properties of each such structure are understood to be the result of a particular arrangement of those microscopic constituents: Different arrangements of the same constituents will in general have different macroscopic properties.

On this basis it is possible to establish a hierarchy in which each science specializes in investigating elemental constituents at a different level of analysis. Particle physics, for example, deals with elemental structures that are currently at the lowest level of scientific analysis. The task for particle physics is to describe both the definitive characteristics of these particles as elementary entities in their own right, and the properties that result from their various combinations and arrangements (i.e., the electrons, protons, and neutrons). These more complex entities are, in their turn, the constituents of atoms, whose properties are the traditional subject matter of atomic physics. The differences among the atomic elements are then accounted for by different combinations and arrangements of these subatomic particles. Chemistry, on the other hand, deals with the 92-plus macroscopic atomic elements themselves, and the properties that emerge with their various arrangements (i.e., with the emergent properties of molecules). Similarly, molecular biology deals with those complexes of simpler molecules that constitute the simplest subcellular biological structures, and the functional properties that emerge with their various arrangements.

It is of course not the geometric size but the organizational complexity of its defining elements that determines the place of each science in this hierarchy. Thus, for example, the study of astronomy is much closer in its methods and theories to the study of particle physics than it is either to the study of cell biology, or cultural anthropology.

*The Unique Domain of Individual and Social Psychology.* Within this structural hierarchy, psychology is that science that investigates the behavior of individual organisms, as individuals and in social groups. From the structural point of view this implies: (1) that each such organism is constituted of a particular arrangement of each of the lower order structures that are possible (i.e., those studied by sciences such as physics, biophysics, cytology, and neuroanatomy), and (2) that each is at the same time embedded as a constituent in particular arrangements of each of the higher order structures (i.e., those studied by sciences such as sociology, anthropology, history, economics, and political science).

Whereas the ordering of the sciences according to these structural criteria is similar to that arrived at by the positivistic criteria, the logical basis of that ordering, hence its implications for subsequent development of the sciences, is quite different. The positivistic ordering was determined by epistemological criteria for evaluating the various sciences as abstract systems of

knowledge. The structural ordering, in contrast, is determined by formal and functional criteria that are grounded in the definition, description, and explanation of the empirical phenomena themselves. It is this shift from an epistemological to an ontological criterion that makes possible the interdisciplinary fields that have emerged in recent years, for it is in the empirical phenomena themselves that the points of view represented by the different sciences find their ultimate unity.

## THE ORGANIZATION OF THE PRESENT WORK

This work is organized in three parts. Each part consists of several related chapters. Each chapter explores the assumptions and implications of a closely related group of concepts in depth.

Part I, *Form, Function, and Organization*, explores what a structure is (i.e., what we mean, or imply, when we refer to something as a structure). Here we consider such notions as content, context, constraint, unity, integrity, and the hierarchical and nucleate forms of organization.

Part II, *Energy, Activity, and Change*, critically explores the dynamic (energetic) conceptualization of psychological and social phenomena. Thus, in this part we consider such notions as energy, entropy, activity, conformation, discrepancy, and resistance, as they apply to and affect the stability, activity, and changes observed in psychological and social structures. The relationship among the biological (metabolic), psychological, and social levels of analysis are explored from a rather simplified thermodynamic point of view.

In Part III, *Growth and Development*, we bring all these earlier considerations to bear upon the processes by which these structures grow and develop. We explore the concept of development itself, and such related issues as the levels-by-stages model of development, the distinction between intrastructural and intergenerational development, the orthogenetic principles, the processes of primordial differentiation and integration, development as a dialectical process, and the relationship between growth and development.


In the *Epilogue* we indicate briefly some of the implications of the present thesis for future empirical and theoretical investigations.

In addition to this sectional organization, several major themes run through the work longitudinally, cutting across the boundaries that separate chapters and parts. These include the relationship between energy and information, between microscopic and macroscopic processes, between growth and development, between differentiation, specialization, and integration, and between form and information.

## The Choice of Examples

Throughout this work we draw upon a broad range of data for our examples. This variety is intended to illustrate the generality of each concept over the entire domain of data fields with which psychologists have been primarily concerned: language and thinking; learning, remembering, and forgetting; motivation, feeling, and emotion; individual cognitive, social, and emotional development; and group processes. However, in selecting these examples we also had two other purposes in mind: to make the concepts they illustrate readily accessible to readers with only a general knowledge of traditional psychology and, at the same time, to provide the basis on which readers with more specialized knowledge could relate these general concepts to their own fields.

Finally, many of the issues treated in this work have roots deep in the history and philosophy of Western psychology. No attempt is made to explore that history or philosophy here. Rather, where it seems appropriate we merely refer the reader to exemplary works that we believe to be seminal with respect to each such issue.



# FORM, FUNCTION, AND ORGANIZATION: THE STATICS OF STRUCTURAL THEORY

*Form is nothing but emptiness. Emptiness none other than form.*

Buddhist Sutra

The present work is concerned primarily with how psychological and social structures function, grow, and develop. We begin therefore by exploring more precisely what we mean when we speak of structures, in general, and of a psychological and social structure in particular. Part I is devoted to these basic concepts. Exploration of how structures function, and of the processes of growth and development themselves, constitutes the second and third parts of this book.



