

Postmodern Systems Theory

A Phase in the Quest for a General System

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POSTMODERN SYSTEMS THEORY:
A PHASE IN THE QUEST FOR A GENERAL SYSTEMS THEORY ²

INTRODUCTION

While formulated in the context of arts, architecture, literature and practical philosophy, these movements are only harbingers of a paradigm shift that will probably have major consequences in ontology and epistemology. The key elements of the shift are discussed and their implications are formulated for systems theory. A post-modern systems theory could lay the formal foundation for theory construction in the life and social sciences, which were until now only loosely grounded in teleology and hermeneutics.

The shift is from an ontology of void to an ontology of experience; from an epistemology of form to an epistemology of indefiniteness; from logical positivism opposed to phenomenological and hermeneutic subjectivism to a complementarity of logical objectivism and subjectivism; from statics to historicity; from noetic and axiological universalism to noetic and axiological particularism; and from intellectual arrogance and imperialism to intellectual pluralism and modesty.

On the following pages I attempt to present a comprehensive, although extremely condensed, view of postmodern systems theory.

THE QUEST FOR A GENERAL SYSTEM

The concept I present arose over many years from my interest in general systems theory. Gradually I attempted to outline an age long quest for a general system that seemed to parallel the main stages in the evolution of Indo-European metaphysics or worldviews.³ The different stages in the development are formulated as apex systems.⁴

I consider apex systems to be not only generalizations of the results of the natural sciences of the time, but also to reflect the then prevalent view of the  87 nature and structure of society. As such, they are not only descriptions of the general nature of the world, but also include the essence of the ideology and the axiology of the time. Successive apex or

² Original page number in: Endre Kiss (Hg.). Postmoderne und/oder Rationalität. Kodolányi János Főiskola, Székesfehérvár, H. Pp. 86-93.

climactic general systems are considered to constitute a cladistic taxonomy.⁵

THE SIX CLIMACTIC SYSTEMS

In the sense described above, I distinguish six climactic general systems. Their description is beyond the scope of this essay. To place the subsequent discussion into context, I present here only their labels. They are: 1) Dream and wakefulness; 2) Between the fire and the shadows; 3) Paradise lost and bacchanal gained; 4) The pre-established hierarchy; 5) The haunted house of toys; and 6) Ephemeral islands of experience in a boundless sea of indefiniteness.

It is the most recent climactic system, the sixth above, that I consider to be an attempt to formulate a postmodern worldview.

FOUNDATIONS OF POSTMODERN SYSTEMS THEORY

ONTOLOGY OF EXPERIENCE

Unlike the other climactic general systems that are based on the assumptions that the ultimate reality is, e.g., matter, energy, form or void, postmodern systems theory is constructed on the ontology of actual, immediate experience.

SURFACES OF SYSTEMS

A general conception of a system with mechanical links between parts (based on a metaphor of the steam engine), or of an empty black box with formal input-output relations, is replaced by a conception of a system distinguished from its environment by a boundary.⁶ The boundary of the system is formally a set of points that are neither inside nor outside a system. It does not need to be only thought of as a physical membrane; it may as well be regarded as a region where the validity of certain concepts changes, or where there occurs a major change in the probability of certain kinds of events. We may also conceive it as the surface of a system.

Surfaces of systems undergo deformations as the result of external and internal loads and of their own internal dynamics.⁷ An interpretation of the processes comprising the variations of the surface of the system (including the oscillation around its optimal form or the rupture of the surface) as physical (mechanical, chemical or physiological) is the experience of the system viewed objectively. An interpretation of the same events as semantic changes in the un  88 certainty, tension or risk experienced by the system in its environment is the experience of the system viewed subjectively.

FRAMES OF INTERPRETATION

Events at the surfaces of systems are interpreted within each system's own frame of interpretation. These are idiosyncratic frames or spaces, produced and modified by the systems as a part of the ongoing defor-

mations of each systems surface. For each system we can construct a physical spacetime that is its own. In it can be described the extension, displacements and vibrations of the system as a *res movens*. The events at the surfaces of systems can be equally described in an idiosyncratic semantic state-space. In it we can specify the system's realm of intension and its behavior and agonies as a *res agens*. Both frames (spacetimes) allow the construction of external as well as internal environments of systems.

The frames are constructed from attributions of events at the boundary of the system to interactions with loads from the external or internal environment of the system. The validity of the spaces so constructed is limited and their descriptive power rapidly declines as it reaches beyond the immediate vicinity of the system. They are therefore considered as local frames.

Attempts at the construction of interpretative frames whose descriptive power encompasses several systems consist in the invention of transformation procedures between systems that identify certain covariances in the experiences of the different systems. This process is often discussed as typification of experiences.

A global frame consists of procedures that identify a similarity of a definite kind of experiences in all systems of a certain kind. Global frames are, in postmodern systems theory, entirely formal and ontologically empty.

EPISTEMOLOGY OF INDEFINITENESS

Epistemology of postmodern systems theory substitutes for an epistemology of the geometry of global frames a search for knowledge beyond, but akin to, what is immediately experienced (actual). It regards whatever is not immediately experienced as indefinite. Its central problem is how to extend knowledge from its locus at the boundary of systems into elsewhere and elsewhen. It seeks to describe the reduction of indefiniteness in physical as well as in semantic space, *i.e.*, how definite objects emerge in physical spacetime and definite subjects in semantic spacetime.

Entities, to which characteristics of objectivity (e.g., extension in physical spacetime) or subjectivity (intension in semantic spacetime) can be predicated, emerge as synopes (contractions, lacunae) in indefiniteness. These may act as mutual attractors, occasioning through interaction further condensations of systems of matter or of meaning.

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Thus mass may serve as a gravitational attractor, while observation as an informational attractor. Living systems can be seen as attractors of other non-living or living systems into webs, and elements of life (e.g., genes) as physiological attractors of other elements into individual systems. Once a subject is organized, its Self may be seen as an attractor, attributing meaning to elements previously not part of its semantic spacetime. Other Selves are modified by social interaction, which is

among the mechanisms underlying the epidemiology of memes, *i.e.*, their spread through semantic contagion. Local semantic spacetimes are thereby transcended and integrated into global ones, denoted as culture.

BEING IN TIME ⁸

The volume of a system in spacetime is defined by a — often-fuzzy — surface, limiting its extension and intension. The environment of the system is experienced as an inner and an outer world, and its surface as its Self. These are indefinite. A system exists only if it has extension and intension in time. Postmodern general systems are seen as inherently dynamic and temporal. Among their most significant structural characteristics is their historicity, referring not only to a system's past, but to its future as well. Synchronicity cannot be established for any set of events at or outside the boundary of a system. The analysis of temporal structure of a system occurs in terms of the diachronicity of influences in physical or in semantic time. In functional analysis, references to future and past states on the trajectories in physical spacetime are explicit. In descriptions and analyses of action in semantic spacetime, references to anticipations and recollections are ubiquitous.

The life history of a system, instead of the classical representation as a segment of world line in a definite light cone, is in a postmodern treatment represented as *a swath* in indefiniteness. A system (especially a living system) can be conceived of as a modal converter, transforming indefiniteness into actual objects or subjects. These stand out as gaps in indefiniteness only ephemerally in a specious here and now. Within the future cone of the system's swath, indefiniteness is converted into successive modal categories such as potentiality, possibility, ideality, permissibility, necessity and eventually reality. At the origin of the swath, in the here and now, uncertainty, risk, and tension are maximally compressed to actuality. The origin of the world swath is the site of definite objects and subjects. Both the World and the Self become experienced as actual only then and there. As the swath extends behind like a contrail, a real, necessary, permissible, ideal, possible and potential past of the World and the Self are experienced.

The Self is a space-time traveler. The niche of the *Itinerant Self* is a bubble in space-time. Its world is not only in modal and substantive flux; its own locus is in a specious here and now. Experience can thus be seen as the reflection of the system's metabolism (anabolism as well as catabolism) of indefiniteness.

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PARTICULARISM AND PERSPECTIVITY

An acceptance of the postmodern general system has among its consequences the dismantling (perhaps deconstruction) of the unitary view of the physical, social and psychological environment. It is reminiscent of previous rejection of unitary pictures in ancient Indian philosophy as *Maya*, the veil of illusion created by an uncritical projection and globalization of local frames of experience onto the world and the Self. Global

representations are seen as a result of an uncritical ignorance, described already in the Vedanta as *avidya*⁹, and of intellectual and social arrogance, *hubris*, based on a belief, manipulated by social control and mediated through popular culture, of an access to reliable knowledge.

Global accounts of history are rejected or subjected to critical review and perspectival reconstruction. Even particular summations of events and experiences over personal histories can be differentially constructed, dependent on which and when an outside observer or a temporary Self is the source of the account. Following the gradual disintegration of what was previously regarded as a universal structure of advanced social systems — the city state, the nation state, the empire — accounts of social systems in postmodern form emphasize the volatility of market and military associations, and the foundations of regionalism (subsidiarity) in the particular experiences of the individuals involved. Federalism and globalism is analyzable with reference to covariances in the experiences described earlier. On the other hand, the rhetoric of anarchism and anti-globalism emphasizes individual experience as exclusively epistemically and axiologically valid.

Postmodern systems theory recognizes individual identity as the reflection of the continuity over a limited time span of the surface of a system in physical or in semantic space. It conceives of the Self as the center (or locus) of subjectivity of the individual system. It does not assume its exclusive, unique and uninterrupted location at some (hierarchical) node in the structure of the individual system. Rather, it conceives of an Itinerant Self that is distributed over space and time in a heterarchy within the individual and is partly newly constituted and partly reconstituted from the elements of other (previous) Selves of the individual. This conception is not consistent with a cognitive psychology based on a computer analogy of a determinate mechanical mind. It denies the possibility of introspection as a reliable method of knowledge of the inner environment. It approaches Buddha's recognition as expressed in the doctrine of *anatta*: the deeper is the introspection, the more indefinite are its results.¹⁰ It is also consistent with Freud's conceptions of unreliability of memory and the generally motivated illusory nature of self-representation, exemplified by notions such as the unconscious, the primary process, repression, screen memory, rationalization and intellectualization.

Constructions of the future, transcending possible scenarios and boundary conditions of future states and processes are rejected as projections of invalid representations of the past into illusory images and *fatae morganae*. Formulations about the meaning of individual or collective histories and manifest destinies derived from them are discarded as myths.

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OPENNESS, PLURALISM AND MODESTY

There appears in postmodern systems theory no possibility to construct a universal axiology, ethics, morality or ideology. Instead there is an acceptance of the inevitable existence of multiple local possibility spaces and multiple local futures (local scenaria). Thus an epistemological, ontological and axiological pluralism is intrinsically associated with postmodernity. Also consistent with it is epistemological, ontological and axiological modesty.

SUMMARY

EPHEMERAL ISLANDS OF EXPERIENCE

IN A BOUNDLESS SEA OF INDEFINITENESS

Postmodern system theory constructs individual as well as collective being as transitory¹¹ lacunae in indefiniteness. It regards experience, formulated as deformation of the surface of a system, as a substratum of being. It conceives of the search for knowledge as a modal metabolism of being. The postmodern general system is seen as a formal epistemological device for transformations of experiences.

DUAL DESCRIPTION

Postmodern systems theory as envisioned above would enable the overcoming of the *Methodenstreit* about the proper ‘method’ for the social (human) sciences. This debate is still continuing, after the issue was clearly formulated almost a century ago. It reflects the continuing process of gradual emancipation of biology, psychology and sociology (including economics) from their origins in theology, moral philosophy, or theories of social control and education. If an epistemology of dual description of phenomena — all the way down the tree of life — would be accepted, arguments over materialism, mentalism or parallelism would appear pointless and based on unwarranted assertions about the ontology of organisms, minds and societies. The activity of living objects could be equally analyzed as physical systems of matter/energy or as semantic systems of meaning. The formal equivalence and complementarity of the subjective and the objective approaches, obscured since Descartes, could be exploited and methods of logical objectivism and logical subjectivism developed and employed¹², replacing the current remnants of positivism, humanism and hermeneutics.

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A HETEROETHIC ECLECTICISM AND OPPORTUNISM

Postmodern systems theory includes previous formulations and adds some new ones. One of the differences from the earlier ones is that it explicitly disclaims being the only “general” system. It is better regarded as one of several general systems, an alternative metaphysics newly available for the intellectualization of recently apparent physical and social environments. It is not nomothetic¹³, but heteroethic, *i.e.*, it

assumes that a multiple description of reality is not only possible, but also necessary to do justice to its complexity. It seeks to distinguish between local and global phenomena, and views various general systems as differentially suitable for distinct objects of interest. Thus it is relativist or perspectivist, not only, as generally assumed, with respect to the different subjects of knowing¹⁴, but also with respect to the objects of knowing¹⁵. It is reflexive in assessment of its own descriptive power. Therefore it is compatible with eclecticism and opportunism in the use of different general systems.

ÜBER DIE AUTOREN:

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ENDNOTES

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 - ² A revised version of a part of the invited paper presented at *Erstes Alba Regia Forum*, Postmodernezentrum, Universitäts-Hochschule Kodolányi, Székesfehérvár H, 26.5.2002. The basic theses of this paper were originally presented in a lecture titled "Toward a postmodern system theory for the life sciences" concluding a series of my invited lectures titled "Experience and action" to the *Symposium on Trends in Non-Classical Psychology*, a joint public conference of The Giambattista Vico Institute for Cybernetics and Applied Epistemology, Amsterdam NL, Center for the Foundations and History of Psychology, and the Department of Psychology, University of Groningen NL, sponsored by The Psychon Foundation, Amsterdam NL. Groningen NL, 16-19.11.1989.
 - ³ Five other stages were described in Groningen in 1989 (see endnote 2) and are analyzed in a manuscript titled „The quest for a general system: An interpretation of Indo-European thought“.
 - ⁴ The term is used as an analogy to its use in ecology. It is a system that has reached its maturity in a given environment and remains stable, undergoing mainly internal differentiation. It changes when its environment changes. The change of its environment may be itself the result of the existence of the system in it.
 - ⁵ The cladistic school of phylogenetic systematics, whose original proponent was primarily Hennig, seeks to base taxonomy of genealogical relationships on the appearance of advanced traits.
 - ⁶ Cf. pp. 163-164 in JUNG, 1983. Levels and boundary conditions in the theory of action. In: A. PEDRETTI & G. DE ZEEUW (EDS.), *Problems of Levels and Boundaries*. London UK & Zürich CH: Prinzelet Editions, 163-164.
 - ⁷ Cf. JUNG, 1989. Stress and related concepts in physics and the social sciences. *International Journal of Systems Research and Information Science*, **3**, 2: 59-72.
 - ⁸ For an extended treatment of the topic cf. especially pp. 286-297 in: JUNG, 1995. Communication and Control in Time. Special Issue of the *Journal of Communication and Cognition*, **28**, Nr.2/3, (1995): 275-308.

- ⁹ In the Vedanta: ignorance (*avidya*) that sees the illusory multiplicity of the world as real.
- ¹⁰ *Anatta* asserts the absence of a permanent, underlying Self (*atman*).
- ¹¹ Cf. the Buddhist concept of *annicca*, impermanence.
- ¹² I have argued for the equivalence of logical subjectivism and objectivism already in JUNG, 1962d. "Formal analysis of ideological components of behavior." Paper. *Annual meeting of the American Association for the Advancement of Science*, Philadelphia PA.; JUNG, 1964. "The theory of orientation as a special theory of action." Paper. Columbia University Seminar on Contents and Methods of the Social Sciences, New York NY. And in JUNG, 1965b. Systems of orientation. In: M. KOCHEN (ED.), *Some Problems in Information Science*. New York NY & London UK: The Scarecrow Press, 67-93.
- ¹³ See reference to Windelband and the development of the relevant taxonomy based on his idiographic - nomothetic distinction in: RICHARD JUNG. *Analysis of Psychosocial Development: A Study of Adult, Educated Women*. A thesis presented to the Department of Social Relations in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the subject of Sociology. Cambridge MA: Harvard Univer-

sity, April 1962. Chapter II: The Conceptual Scheme, p. 81 (Footnote 18) and p. 83 (Table 2. Concepts for the study of change.).

¹⁴ In phenomenological terms: the noetic poles of experience.

¹⁵ In phenomenological terms: the noematic poles of experience.