

Naturalism, Humanism and the Theory of Action

Richard Jung¹

Department of Sociology
and
Center for Advanced Study in Theoretical Psychology
University of Alberta

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¹ Kouřimská 24, CZ - 284 01 Kutná Hora, Czech Republic;
+420 607 587 627, Richard.Jung@post.Harvard.edu . www.RichardJung.cz

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INTRODUCTION

Two issues seemed to intrude upon most discussions in the Center for Advanced Study in Theoretical Psychology at the University of Alberta, since I have had the pleasure to participate in them. One is a constant covert tension, and sometime an open conflict, about the correct way of being a psychologist, which is reminiscent of the conflict about the proper method for the social sciences that plagued Europe at the turn of the Century. The second is an almost religious difference of opinion about the fundamental nature of man. This ontological schism does perhaps underlie the epistemological tug of war, and certainly has deeper emotional and historical roots. Both may reflect the current attitudes among psychologists.

NATURALISM AND HUMANISM

MAN: FACT - CONSTRUCT - ARTIFACT?

Since antiquity, two formulations of the basic nature of man have co-existed in most major cultures. One is the conception of man as one fact of nature, in no fundamental way outstanding among the myriad varied facts of the natural world. This conception, in recent times articulated within the framework of the historical account of Big Bang cosmology and archeological anthropology, has the theoretical under-

² Original page number in: J.R. ROYCE AND L.P. MOS (EDS.), *Humanistic Psychology: Concepts and Criticisms*. New York NY: Plenum, 1981. Chapter 10, pp. 235-249.

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pinning of thermodynamics and Darwinian - Mendelian biology. Currently, its limits are being stretched by the attempts of some sociobiologists to reformulate hitherto sacrosanct notions about man.

The second formulation is of man as a special entity in the cosmos, where if not unique, he certainly is a member of an exclusive club, and resides near, if not at, the apex of non-natural excellence. This ontology gives us man as a construct possessing some particular, usually inner properties, such as consciousness, freedom of the will, responsibility, and various other special sensibilities, propensities, qualities, or faculties. This formulation is so pandemic in religions, theologies, and philosophies that it has been dubbed 'the perennial philosophy.'⁴ In the European tradition, the medieval formulations of Augustine and Aquinas exert a major influence on phenomenology, Heidegger, existentialism, and the British philosophy of mind and action.

In modern times, a third conception of man is being articulated, perhaps in connection with such broad historical trends as the rationalization of production and administration. This is the view of man's nature as essentially an artifact. Man himself is seen as being fundamentally a product of the artificial symbolic and concrete environment that he has created, of his socialization, of the social control inherent in every social interaction, of the elaboration of social order (including laws, customs, and manners), and most fundamentally, of self-imposed subjugation of his activity to rules of conduct. These are rules not only of practical reason (*Zweckrationalität*), but also of belief, valuation, and expression. In this view man is, can only exist as, and actively strives to be, an artifact of culture, which is of rules of intelligibility and warrantability of action. Contemporary utopian or apocalyptic anticipations of genetically engineered and artificially conceived test-tube babies, raised in Skinner boxes on pharmacological and biochemical dietary regimes and on programmed instruction to qualify as specialized cyborgs in a telecommunicating technocratic state, are popular, though not entirely fictional, articulations of the third conception of the nature of man.

While adherents of these three views generally engage in polemics with each other, occasional attempts are made to incorporate elements of the other views into one's own. This makes it difficult to erect humanism on simple slogans, such as *homo mensura res*, since a sleight of hand is required to deliver on the claim: *Ecce homo!*

THE CONTROVERSY ABOUT UNDERSTANDING AND EXPLANATION

I shall attend to the differences between models of man later. In the present context, however, I would like to draw first on the distinction between naturalism and humanism as it arises out of the culture of the Enlightenment and, more specifically, as it was formulated during the conflict about the appropriate epistemology of the moral sciences (*Geis-*

⁴ HUXLEY (1950).

teswissenschaften) in the late nineteenth and early twentieth centuries in Central Europe.

This debate, referred to variously as *der Methodenstreit* or *die Er- 237 klären: Verstehen - Kontroverse*, starts with reactions by German idealists (e.g., Schleiermacher, Droysen, Brentano, Scheler, and Dilthey) to inroads by Newtonian conceptions of science into the hitherto securely humanist disciplines of economics, history, psychology, and sociology. Vico, Durkheim, Marx, and Weber reflect it in the controversy surrounding the birth of psychoanalysis, as well as of modern economics out of the Austrian school, the founding of modern psychology by Wundt, and of modern sociology.

Far from resolved, the issue is still the primary concern of current authors, both in the continental tradition (e.g., Betti, Gadamer, Habermas, Apel, Ricoeur), and in the British tradition (from Wittgenstein to von Wright; from Ryle, Strawson, Anscombe, Kenny, Chisholm, and Winch to present day speech act and functionalist philosophers). The issue is also prominent in the psychological and sociological writings of authors as diverse as Merleau-Ponty, Parsons, Lévi-Strauss, Piaget, Chomsky, Harré and Fodor. Unfortunately, even in its present form, most of the formulations reflect a fusion of ontologies of man (such as the three discussed above), which in my view need to be distinguished. To a significant extent they are ontological statements about the nature of man, which lie beyond the limits of scientific concern, rather than epistemological statements about the sources of man's curiosity concerning man, and about possible methods of satisfying the different kinds of curiosity.

THE HUMANIST PERSPECTIVE

I shall now briefly outline my conception of what may constitute a humanist perspective in science, drawing the best I can on the various relevant traditions of thought, yet emphasizing an epistemological (and psycho-sociological), rather than an ontological (and philosophical) approach to the issue.

One source of man's curiosity about himself (and the rest of the world) is his own experience of himself. The central theme of this experience is communication: to himself, to others, from others. The classical polarization of communication into expression and understanding gives rise to most of the concepts, problems, and methods associated with the humanist perspective. Among these are: meaning; accessibility of experience; subjectivity and inter-subjectivity; autonomy and responsibility; givenness, thrownness, and alienation. A European academic 238 tradition has developed around these concerns in theology, jurisprudence, history, and the arts, eventually giving birth to a methodology of understanding based on a theory of activity as an expression of meaning (hermeneutics), and to a philosophical approach to the conceptualization of experience and meaning (phenomenology and common language philosophy).

It seems to me that the humanist perspective could be distinguished from the naturalist perspective by

- the model of the ideal discipline (history, jurisprudence, literature, or art *vs.* biology and physics);
- the type of reduction (eidetic or phenomenological *vs.* physiological);
- the most advanced formulations from each perspective (economic decision theory or generative grammar *vs.* genetics or thermodynamics of open systems); and
- the nature of curiosity, *i.e.*, by the fundamental questions being asked about individual and aggregate phenomena.

The difference results in divergent attempts to conceptualize: in the naturalist tradition as systems of energy; in the humanist tradition as systems of meaning. The two perspectives emphasize different kinds of scientific entities: the naturalist realizes physiological and ecological systems; the humanist realizes psychological and sociological⁵ systems.

As a mode of inquiry, the humanist approach to human studies has, over the last fifty years, developed into a fairly coherent and articulated method. The method starts with the attribution of meaning to human activity (Marx and Freud); meaningful activity, *i.e.*, action or conduct, is 'formalized' as ideal types (Weber); and these are linked together into 'formal' structures (Piaget, Lévi-Strauss, and Chomsky). This mode of inquiry appears to be epistemologically grounded in

- phenomenology, in that the elements that enter into the configurations called 'ideal types' must be elements of basic categories of human experience, in order to serve as tools of understanding (*Verstehen*), and in
- structural hermeneutics, in that the explication of the structures linking the ideal types represents an advanced stage in the hermeneutic process of interpretation (be it in Freud or Marx, Weber or Lévi-Strauss, Piaget or Chomsky), but falls short of theoretical explanation (*Erklären*).

VERSTEHEN IS NOT ENOUGH

At this point, I would like to avoid semantic and ideological arguments. I acknowledge that 'science' is not the only acceptable mode of social cognition, indeed, for some purposes other modes might be superior. Nor do I see it linked as closely with technology and the artifact view of man as many would. There are, of course, different conceptions as to what science is or ought to be. Personally, I think of science as a recently institutionalized human activity regulated by norms favoring systematic inquiries into domains of concrete phenomena, replicable interpretations of these phenomena within abstract conceptual systems,

⁵ In this paper I am using consistently the term sociological in its broad sense, including economics, technology, institutions, ideology, and language.

and theoretical explanation of — and deduction of generalizations about — interpreted actual occurrences in the domain of inquiry.

Within this conception of science, only minimal logical or syntactic requirements are placed on conceptualization. There is ample room for special requirements arising from the humanist perspective. Not only phenomenological characterizations of human experience, such as intentionality, temporality, granularity, and reflexivity, but also common notions such as purposivity, sense of freedom or constraint, *etc.*, can be easily accommodated. It is on the abstract level of conceptualization that phenomenology and language philosophy can make contributions to science. Similarly, hermeneutics is compatible with this conception of science, and in fact helps to satisfy empiricist norms.

The stumbling block of humanist science is the problem of scientific explanation. I employ the term ‘explanation’ in this context as it has been stabilized since the 18th century. The usage equates explanation, or theoretical explanation, with the subsumption of interpreted empirical generalizations under covering laws. The laws themselves are interpretations (to the same conceptual system as the empirical generalization) of necessary relations in a formal, logical system.

This conception of scientific explanation, which I, for one, see as a *sine qua non* of any science, is clearly formulated by Kant⁶

Denn wir können nichts erklären, als was wir auf Gesetze zurückführen können, deren Gegenstand in irgendeiner Erfahrung gegeben werden kann.

as well as by Comte.⁷

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L'explication des faits ... n'est pas désormais que la liaison établie entre les divers phénomènes particuliers et quelques faits généraux.

However, the formal structure, from which necessity is attributed to the explanandum, need not be causal. The critical normative feature of scientific explanation is the logicity of deductive inference, rather than the ontological interpretation of the logical implications employed.

Yet even with this relaxation, structural hermeneutics does not provide an acceptable form, or equivalent, of scientific explanation. It is at best the humanist equivalent of naturalist modeling or simulation. A humanist scientific theory must have a formal, logical structure that is readily interpretable to a phenomenologically grounded conceptualization of hermeneutically reconstructed human activity.

One mode of scientific explanation seems particularly appropriate. It maps logically valid formulations on the subjective experiences of

⁶ (1785): 120.

⁷ (1830): Leçon I. Sect. 2.

purposivity, autonomy, and constraints; it fits readily the phenomenological characterizations of experience discussed above; and it formalizes the requirements of *ai'sthesis* (situational appreciation) and of the defeasibility of general (instrumental or expressive) propositions by context, that are so dear to humanists' hearts. I shall characterize this mode of scientific explanation in the second part of the chapter.

NATURALIST, HUMANIST, AND TECHNICAL METAPHORS

In my present view, the range of scientific curiosity about the activity of living systems can be exhaustively represented by four internally coherent, semantically exclusive, yet formally compatible and empirically complementary conceptual systems. Each of these systems encodes a different kind of curiosity into a distinct fundamental conceptual paradigm or metaphor.

The first well articulated metaphor depicts the individual as an organism composed of input-output relations; the activity of the system is construed as its behavior. The second equally articulated metaphor represents the individual as a mind, with volition or intentions as its central content, whose activity is interpreted as action.

While these two well known metaphors reflect clearly the differences between the naturalist and humanist perspectives as well as between the ontologies of man as a fact and as a construct, two other as yet less articulated metaphors are of equal significance. The third paradigm conceives of the individual as a machine, whose  241 content can best be thought of as dispositions, and whose activity is interpreted as performance. The fourth as yet least developed paradigm, envisions the individual as a semantic plexus, wherein each nexus of meanings constitutes a rule, a convention, or a constraint, which enables the interpretation of the activity of the system as conduct. Whereas differences between the third and fourth metaphor reflect the differences between the naturalist and the humanist perspectives, both metaphors encode the key features of the ontology of man as an artifact.

HUMANISM AND THE THEORY OF ACTION

The theoretical program of the life sciences may well consist of the distinct realization of all the four conceptual systems, and the formulation of their theoretical compatibility and empirical complementarity.

But further discussion of the metatheoretical problems in the science of life is beyond the scope of this chapter. In the second part of the chapter I shall illustrate my approach to the integration of humanist curiosity with the scientific method, by focusing on the second metaphor and by outlining the metatheoretical aspects of my attempts to contribute to the formulation of a theory of action.

THE UNIFIED THEORY OF ACTION

To construct a unified theory of action, I am using a method, which I call phenomenological systems analysis. Phenomenology is used as a

method of conceptualization, while systems analysis (not in the sense used by the 'social systems analysts' or the 'general systems analysts', but in the sense used by computer scientists and engineers), is used as a method of explanation.

The unified theory of action consists of three general theories. Each is concerned with a different fundamental problem, employs a different method for its solution, has its own special concepts, and invokes different systems of explanation. The three general theories are, however, unified by a common conceptual space, by a theory of structuring of action, and by a theory of aggregation of action.

One domain of inquiry, currently the primary concern of psychologists, micro-economists, and theoreticians of automata, is the activity of individuals, be they humans, animals, or machines. I call the method  242 employed for its conceptualization cybernetic phenomenology. The explanatory system invoked is the logic of functional analysis (in the sense used in modern physics) and its elaborations in the calculus of variations and the various models of cybernetics. The proposed formalization of this domain is called the general theory of action.

Another domain of inquiry is the activity of groups of humans, other living entities, and machines. Groups are systems with all individuals and relations of interest identified. The subject is currently dealt with primarily in social psychology and in theories of the firm, corporations, and games. The method employed for its conceptualization is structural phenomenology. The explanatory system invoked is primarily derived from set theory and its various elaborations and applications, such as graph theory, lattice theory, and matrix algebra. The proposed formalization of this domain is called the general theory of interaction.

A third domain of inquiry is the activity of collectives. Collectives are aggregate systems in which all individuals and/or relations of interest cannot be meaningfully identified, either because of the number of elements and relations, or because of the heterogeneity that is of interest. The method employed for its conceptualization is called probabilistic phenomenology. The explanatory system invoked is probability theory. Since this is a domain of inquiry largely abandoned by the present generation of sociologists, the models available are to be found primarily in macroeconomics, population genetics, and epidemiology. The proposed formalization of this domain is called the general theory of transaction.

THE GENERAL THEORY OF ACTION

The general theory of action attempts to explain systems of actions, holding an individual actor constant as a point of reference and allowing situations to vary. While this statement is a technical abstraction, it reflects a naive curiosity about the activity of individuals, *i.e.*, humans, other living entities, and machines.

Cybernetic phenomenology

There are two radically different, yet complementary modes of analysis of any system. The identical element — a living or non-living individual — may be equally appropriately analyzed either as a physiological system through the application of concepts and principles of physics,  243 chemistry, and biology, or as a psychological system through the application of concepts and principles of psychology, economics, and sociology. Its complement, *i.e.*, its environment, may be similarly analyzed either as an ecological system, or as a system of situations, *i.e.*, as a sociological system. The criterial difference between the two modes of analysis is whether the phenomena under study are conceived of as systems of behavior or as systems of action, *i.e.*, are fundamentally construed either as systems of energy or as systems of meaning.

The choice between the two modes of analysis does not require a particular belief about the nature of men or machines, but a particular kind of curiosity about their activity. In my case, it is not based on an ontological commitment, but on an epistemological preference. Since my interest here is in the meaning of action, and not in the thermodynamics of behavior, I am led by the above distinction as well as by other reasons to a choice of phenomenology as the method of conceptualization. The terms actor, action, and situation will, therefore, indicate that individuals, their environments, and their activity in these environments have been conceptualized phenomenologically.

The fundamental abstractions, actor, action, and situation, imply a choice of a particular mode of explanation with a long, illustrious, and troubled tradition in philosophy, psychology, and social science. This mode of explanation is focused on the presence or absence of regulation in the systems under study. Within this tradition, actions are simply those exchanges between individuals and their environments that are actually or hypothetically regulated. Actors (or situations) are those aspects of individuals (or environments) that are analyzed as sources of regulation or disturbance.

Actors, situations, and actions are terms for individuals, environments, and exchanges between them that have been conceptualized phenomenologically as systems of meanings and explained cybernetically as systems of regulation. This conception of action is compatible with two of Parsons's⁸ conceptions of action that codify the basic terms of the classical tradition: Action is interchangeably conceived by Parsons as the relation between the actor and the situation, or as the distribution of energy, subject to specific constraints. My attempt to construct a general theory of action draws on the classical tradition of action analysis wherever possible. However, given the basic intent of such conceptualization (*i.e.*, the abstraction of the meaning of activity), I accept phenomenology as the only method  244 of conceptualization appropriate in the construction of the theory. In the same vein, I adhere

⁸ PARSONS AND SHILS, W. THE ASSISTANCE OF OLDS (1954): 53-68.

to the idea of constraints as the sole source of explanation and refuse to introduce any additional, incompatible, and empirically untenable explanatory ideas, such as purposivity and goals, exemplified in a definition of action which pervades most current psychological and sociological theory, namely: '*Actor seeks goals in situations.*'

Thus, the analysis radicalizes conceptualization of action by accepting phenomenology as its sole method. At the same time, it rejects pre-scientific, introspective, and romantic functionalism (with its teleological fallacy) as a method of explanation of action. Instead, it substitutes functional explanation based on variational principles.⁹ This is a step that took 2000 years in physics: from the formal structure of Hero's explanation of the activity of light rays as prescient and purposive — to the logical structure of modern quantum, electromagnetic, and relativity theories. In social science, the logical form of functional explanation has been applied only in decision (and game) theory.¹⁰

The formal structure of functional explanation is extremely simple. Given a set of boundary conditions (values of a set of independent variables), the activity of a functional sub-system (a system of intervening variables) is internally constrained so that the value of an essential (dependent) variable is extremum. Extremum is a general term for either maximum or minimum values in a range, or for constants. While the concept 'extremum' permits further formal elaboration of great explanatory power, it also imposes a rigorous epistemological and methodological restriction. Functional explanation can be applied only if an essential variable with an extremum has been specified.

The general method of meaningful functional analysis of activity is also simple. First, disclose an essential variable, the value of which is an extremum. Next, identify the necessary and sufficient set of variables that maintain the essential variable at the extremum. Third, discover through naturalist observation, or by violation through laboratory experimentation,¹¹ the set of necessary and sufficient boundary conditions under which the phenomenon occurs, and without which it  245 disappears. Functional analysis is the foundation stone of cybernetics — the rest is a combination of functional chains through loops, and the analysis of interaction between various sources of disturbance (variance).

THE FUNDAMENTAL PROBLEM AND ITS SOLUTION

The general theory of action conceptualizes activity of individuals in environments phenomenologically as actions constrained by systems of meanings. It constructs actors and situations as the sources of mean-

⁹ Cf., for example, YOURGRAU AND MANDELSTAM (1955): Chapters 2 & 3.

¹⁰ Decision theory has been mistakenly upheld by some as the substantive (conceptual) basis of psychology, because of the superiority of its formal structure. Similarly, game theory has been held as foundational for sociology.

¹¹ Testing to destruction.

ings, and explains action cybernetically as the mutual disturbance and regulation by a situation and an actor. Thus conceived, the fundamental problem of the general theory of action becomes: How is action regulated by an actor and a situation?

To solve the problem, the theory provides:

- conceptualization of *boundary conditions* that act as sources of disturbance;
- specification of systems of *intervening variables* by formulating various processes into which ongoing activity can be meaningfully analyzed;
- construction of a set of *essential variables*; and
- postulation of a set of *principles* stating the propensities of the essential variables to assume extremum values. The principles regulate — which also means explain — the various processes.

The general theory of action posits that separate conceptualization and analysis of three special processes is necessary and sufficient for complete analysis of action. Each of the three processes expresses a different fundamental propensity of action. While embedded in the common conceptual and explanatory format of the general theory, the analysis of each process requires also special concepts, mechanisms, and principles. Thus, the actual analysis of action is accomplished by the three special theories of action.

The three special theories are:

- the special theory of *orientation*;¹²
- the special theory of *motivation*;¹³ and
- the special theory of *decision*.

The general theory provides the concepts, mechanisms, and principles necessary for the description and explanation of the interplay of the three special processes. It thus becomes the theory of integration or disintegration of action.

Each special theory is formalized by the employment of a different schema. The theory of orientation employs a schema derived from information theory, the theory of motivation a schema derived from  246 the theory of elasticity, and the theory of decision a schema derived from the economic theory of decisions under risk. Each theory postulates a different principle regulating (*i.e.*, explaining) the relevant process. The form of the principle is the same in all three special theories, as well as in the general theory, but its content differs with each theory.

The form of the principles derives from the logic of functional explanation described above: the value of an essential variable is maintained

¹² R. JUNG (1965a).

¹³ R. JUNG (1965a).

at an extremum by a system of intervening variables only under a given set of boundary conditions. The variational (extremal) principle in each case is of the form: reduction of the maximum possible amount of e , e being the value of E , *i.e.*, of the relevant essential variable.

The content (meaning, interpretation) of the principle varies with each theory and depends on the conceptualization of the respective process and the specification of the respective essential variable E . The essential variables of the three processes of orientation, motivation, and decision express the fundamental propensities of action, *i.e.*, to manage uncertainty, tension, and risk.

The special principles of action are:

- for the process of *orientation*, the reduction of the maximum possible amount of *uncertainty*;
- for the process of *motivation*, the reduction of the maximum possible amount of *tension*; and
- for the process of *decision*, the reduction of the maximum possible amount of *risk*.

The general theory as a theory of integration and disintegration of action

The general theory of action is composed of the three special theories. Each describes an analytically distinguishable process of action, expresses a different fundamental propensity of action, and postulates a special principle regulating action. It is a fundamental postulate of the general theory that all three processes are not only sufficient, but also necessary to regulate (*i.e.*, to explain) action. This represents a radical departure from prevalent monistic thinking. The form of the principles is also decisively different from the form of current functional principles in sociology, economics, and psychology: the values of the essential variables are not constrained to possible minima; rather each action of the system is constrained to the maximum possible reduction of essential values. Furthermore, the processes are postulated to be mutually independent within systemic limits - thus, the processes are as likely to be mutually antagonistic as  247 they are to be mutually irrelevant or solidary. *The vital balance*, as Menninger¹⁴ has called it, is an important characteristic of life and a partial subject of the general theory of action. Yet, it is *THE VITAL IMBALANCE* that temporarily gives rise to the phenomenon called life.

The general principle of action

Having delegated most of the task of explaining regulation of action to the three special theories, the fundamental problem for the general theory of action becomes: What principle governs the interplay of the three special processes? Or, stated differently, under what conditions

¹⁴ MENNINGER, W. MAYMAN AND PRUYSER (1963): **81**, 88-9, 417.

does action, (*i.e.*, meaningfully constrained activity) occur, and under what conditions chaos, meaningless activity, or death? The salient features of the proposed solution as follows: A constraint must be imposed on the independent operation of the three special processes. Their interplay is seen as a general process, which manifests a propensity toward authenticity.¹⁵

Stating the constraint in the format explained earlier, the general theory explains action as governed by a general principle of *REDUCTION OF THE MAXIMUM POSSIBLE AMOUNT OF INAUTHENTICITY*. This principle governs the complex dynamic interplay of the three processes. When systemic limits on the independent operation of the three processes are exceeded, it imposes constraints, which are reflected in experiences such as guilt, shame, or anxiety when *inauthenticity* is increased and in relief, when it is decreased. When the general principle operates, systemic limits are actually experienced.

Another way of stating the general principle of action is as a categorical imperative: Above all, action must reduce, as much as possible, any discrepancy between the state of the individual as an organism and his definition as an actor.¹⁶

Clearly, there are two simple ways of reducing such a discrepancy. The state of an individual as an organism can be changed to correspond to his definition as an actor, or his definition as an actor can  248 be changed to correspond to his state. The difference between the two ways is partly illustrated by the distinction between some mechanisms of adjustment, such as learning, and the mechanisms of defense; it is also relevant to socialization, deviance, and social control.

SUMMARY

Cybernetic phenomenology is the method used to construct a general theory of action, one of three comprising a unified theory of action. General theory of action pertains to activity of individuals; general theory of interaction to activity of groups (systems with all individuals and relations identified); and general theory of transaction to activity of collectives (systems without meaningfully identified individuals and their relations). The three general theories are unified by a common conceptual space, and by formal operations of structuring and aggregation. Each general theory, however, is concerned with a different fundamen-

¹⁵ The term authenticity is intended in its dictionary meaning, and as used in phenomenology and existential philosophy. A cybernetic system (a regulator) is authentic if: (1) logically, it equilibrates around the set value; (2) phenomenologically, it experiences strain when dislodged from that value; and (3) existentially, if unable to reach the set value, can reset (and thus maintain its coherence and functioning).

¹⁶ Among the results of the process of orientation is precisely the continuing generation, evaluation, and acceptance or rejection of the two constructs: the state of an individual as an organism and his definition as an actor. Cf. R. JUNG (1965b).

tal problem, and employs for its solution a different formalization schema and different key concepts.

The general theory of action draws on traditions of action analysis in psychology, sociology, economics, and philosophy. However, it radicalizes conceptualization by employing phenomenology and explanation by employing cybernetics. Phenomenology describes action as a system of experienced meanings, while cybernetics accounts for regulatory features observed. Jointly, they permit the employment of a mode of functional analysis, commonplace in physics, but unused in sociology. Instead of a teleological conception, action is seen as governed not by future goals, but by present constraints on the (extremum) values of the essential variables that represent the fundamental propensities of action.

Three such fundamental constraints are postulated, each giving rise to a special theory of action. These are:

- the special theory of *orientation*, governed by the principle of the reduction of the maximum possible amount of *uncertainty*;
- the special theory of *decision*, governed by the principle of the reduction of the maximum possible amount of *risk*; and
- the special theory of *motivation*, governed by the principle of the reduction of the maximum possible amount of

Processes of orientation, decision, and motivation are mutually *independent* with systemic limits, thus accounting for the *vital imbalance* ²⁴⁹ *ance* that is the distinguishing characteristic of the activity of living systems. The operation of systemic limits, and thus the integration of action, is accounted for in the general theory of action by the general principle of *action*, *i.e.*, the reduction of the maximum possible amount of *inauthenticity*.

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