

STATE, LAW, AND ECONOMY AS AUTOPOIETIC SYSTEMS

REGULATION AND AUTONOMY
IN A NEW PERSPECTIVE

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AUTONOMY AND REGULATION IN THE AUTOPOIETIC PERSPECTIVE: AN INTRODUCTION

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The relationship between law, politics and the economy has become once again the grist for scholarly controversy. While traditional jurisprudence and legal sociology tend to view law, politics, and the economy as semi-autonomous spheres, two contemporary schools of thought reject hard and fast distinctions between these fields. The law and economics movement (« law is economics ») and critical legal studies (« law is politics ») insist that law, politics, and the economy are essentially intertwined. Against both the traditional and contemporary views, the theory of social autopoiesis rejects the notion of intertwinement as well as the notion of relative autonomy. It claims that politics, law, and the economy are discourse formations that are radically autonomous and inaccessible to each other in their self-production. Autonomy and heteronomy of social fields are not seen as a zero-sum-game relation, but as mutually reinforcing. The *pointe* of social autopoiesis is that law, politics, and the economy do not possess simply a relative autonomy of their internal structures, but produce and reproduce autonomously their very components and are thus operationally closed. Autopoietic theory also claims that these social spheres do not exchange information between each other but rather produce information of their own under the impression of external « noise ».

This theory is a rather radical departure from accepted positions. It is based on theoretical and epistemological premises that are worked out in detail in the first volume of « Autopoiesis in Law and Society » (TEUBNER, 1988). The present volume offers a more elaborate discussion of the autopoietic approach to the relationship between law, politics and economics. The book's first section examines the foundations of autopoiesis in social theory and epistemology. The second section defines each of these fields in terms of autopoiesis and develops some concepts about their interrelations. Political-legal regulation of the economy in light of the idea of « reflexive law » is explored in the third section. The final section looks at specific regulatory strategies suggested by the autopoietic approach.

I. THE PARADIGM OF AUTOPOIESIS IN THE SOCIAL SCIENCES

In his contribution to this volume, ALBERTO FEBBRAJO tries to distinguish the different meanings of autopoiesis, each of them connected to a typical form of social and juridical theory ('radial', 'linear', 'triangular', 'circular'). The fully fledged concept of autopoiesis appears thus not so much the result of the influence of fashionable biological paradigms as the product of a logical development in social and juridical thinking. Such development emerges in a relatively new model, the 'hypercyclic' one, which could encompass all the previous theoretical forms and conceptual contents, as well as combine the static moment of system 'closure' and the dynamic moment of the opening up of a system to other systems. But the 'hypercyclic' model can be in turn further developed, so as to lead to an even more complex model, the 'network' one, which enables us to relativize the ambitions of relativization shown by the mature autopoietic approach connected with the hypercyclic model.

Autopoiesis can be used in a variety of ways in the social sciences. While some scholars doubt the application of autopoietic theory to the social sciences and prefer to speak

of organizational closure in social contexts (e.g., VARELA, 1981: 15), others analyze human societies as autopoietic systems of a higher order, namely as « systems of coupled human beings » (e.g., MATURANA and VARELA, 1980: 118). This perspective has been elaborated by HEJL (1984), who describes social systems in terms of « synreferential systems ». A different approach is represented by STEIN BRATEN's contribution to this volume. He argues that two positions must be combined for the analysis of social systems: symbolic representation and organizational closure. The problem of organizational closure, according to BRATEN, is that it cannot account for the interaction of closed systems. « Beginning with monads, we are likely to end up with monads ». To break up this closure of the monads, BRATEN proposes the idea of dialogue and shifts between modes of dualities, including shifts between the two points described above. In this way, FEBBRAJO and BRATEN attempt to resolve a problem that appears throughout the book, especially in those contributions concerned with legal regulation: if the concepts of organizational closure and circularity can be seen as advances in the analysis of social and legal systems, how does one account for the mechanisms of openness, of exchange, and of interaction between these systems?

While circularity and closure of autopoietic systems are the very premises of FEBBRAJO's and BRATEN's sociological analysis, they are the target of DANILO ZOLO's epistemological critique. ZOLO examines the epistemological status of autopoietic theory and its application to the social sciences. He reconstructs and criticizes the epistemological assumptions and consequences of autopoiesis as a biological concept, as presented in Humberto MATURANA's and Francisco VARELA's original formulation. In his view, MATURANA and VARELA arrive at a *coincidentia oppositorum*, at the (impossible) co-existence of « idealistic metaphysics » and « gnoseological realism ».

This epistemological flaw in autopoietic theory, ZOLO contends, is not corrected in Niklas LUHMANN's complex and sophisticated extension of autopoiesis to the social sciences.

ZOLO points to an oscillation between idealistic and realistic outcomes in LUHMANN's social theory. When LUHMANN (1984: 648) asserts that « reality is structured circularly, independent of cognition », ZOLO replies that this typically « realistic » proposition contradicts the basic thesis of circularity and closure in the cognitive process. ZOLO extends this epistemological critique into a general attack on the methodological adequacy and theoretical utility of LUHMANN's attempt to metaphorically apply autopoiesis to general sociology, political theory and legal theory.

ZOLO proposes to distinguish and clarify diverse « circular » concepts in the autopoietic lexicon. He highlights four different theoretical areas: (1) logical circularity in the form of paradoxes of self-reference; (2) linguistic and epistemological reflexivity in the sense of language speaking about language; (3) mechanisms of self-regulation, particularly homeostasis, feedback and self-catalysis; and (4) psychological self-reference as an « interior experience ». On the basis of this conceptual clarification, ZOLO examines the practical political question of whether autopoietic theory can clarify and rationally formulate the legal policy problems that lie at the centre of the reflexive law debate.

Humberto Maturana and Niklas Luhmann have replied to Danilo ZOLO's critique. In his essay, « Closure and Openness: On Reality in the World of Law » in the first volume of the Florence-conference on « Autopoiesis in Law and Society » (in Teubner, 1988: 335, 347ff.), Niklas Luhmann characterizes ZOLO's discovery of a « grave contradiction » between metaphysical and constructivist elements in autopoietic theory as a « grave misunderstanding ». Luhmann claims that the discoveries of autopoietic theory can be applied to the theory itself. The statement that « autopoietic systems exist », Luhmann maintains, means nothing other than that the theory of autopoietic systems is built upon this assumption. This universalistic position presupposes that the observer's own contribution is inseparably bound up with his system structures and his autopoiesis.

Humberto Maturana, in his « Restatement », restates the basic concepts that make up his biological theory of autopoiesis. These concepts include (1) the criterion of acceptability; (2) organization and structure; (3) the observer; (4) the living system; (5) social systems; (6) explaining and self-reference; (7) the praxis of living; (8) observation; and (9) the biology of cognition. His main thesis is that if one does not explain the observer and observation as biological phenomena one fails to explain cognition as a biological phenomenon and is forced to assume cognition as an unexplainable given.

II. STATE, LAW, ECONOMY AS AUTOPOIETIC SYSTEMS

It is one thing to describe society as a whole in terms of autopoiesis (see Hejl, 1984; Luhmann, 1984; Maturana and Varela, 1987, for diverse attempts). Under this approach, social phenomena are analyzed through concepts of organizational closure, cognitive openness, self-reference and self-observation. In its most radical form, society is seen as a closed network of communications, while human actors are part of society's environment. It is, however, quite another thing to apply the idea of autopoiesis to social spheres *within* society. Are the state, the law, the economy autopoietic systems of their own? If so, classical ideas of functional differentiation take on a very different shape. The autonomy of social spheres like the economy, politics, law, science, education is radicalized to a hitherto unknown degree if they are seen as autopoietic systems within the autopoietic system of society. Modern societies are then viewed as fragmented into discursive practices that are closed off and inaccessible to each other in their self-reproduction. Models of exchange between social spheres are rendered pointless. Political regulation of social fields would then have to deal with the organizational closure of the political process and of the regulated field. More generally, specialized social system must confront the problem of how to cope with polycontextuality.

Polycontextuality is the problem which NIKLAS LUHMANN addresses in his essay, «The Coding of the Legal System». Although the title suggests an analysis of law, the real subject concerns how autopoietic subsystems of society — state, law, economy — can interrelate despite operational closure. If autopoiesis means that social subsystems develop a high degree of separation via the specialization of a binary code, how can they simultaneously take account of the autopoiesis of other social subsystems which have likewise developed their own specialized code? How can binary coding cope with polycontextuality? This dilemma substitutes the new question of how different social discourses relate to each other for the old question of exchange between different social systems (PARSONS and SMELSER, 1956).

LUHMANN starts with the assumption that binary coding organizes the autopoiesis of a functional subsystem of society. He posits a circular closure of the reproductive connections of all operations oriented by a particular code (legal/illegal in the case of law; government/opposition in the case of politics; having/not having property in the case of the economy). In the course of social evolution, these codes reach a high degree of formality and technicality and thus exclude the perspectives of other social systems. They exclude the polycontextuality of social life. To reintroduce polycontextuality, a society that provides binary coding for different functional systems must provide rejection values that reject the criteriality of the codes, but not the relevance of their valuations. One technique for this reinstitutionalization of the richness of social context into highly technical discourses is the «liberal» solution of building multilevel structures (legislation and adjudication in law; quantity decisions and distribution decisions in the economy). Since these solutions are increasingly under assault today, contemporary attempts of re-contextualization are searching for new forms. In the case of law, LUHMANN points to ongoing experimentation with the distinction between code and program. While the code legal/illegal remains intact, programs are increasingly altered in order to take account of social polycon-

textuality. This apparently successful strategy, however, has its costs: an increasing vagueness of the law, a phenomenon that, under the label of indeterminacy, has been the object of a recent fervent critique.

BOB JESSOP is also concerned with the interrelations of the great functional subsystems of society, but he approaches this theme from a different angle. He attempts to confront two different paradigms: Marxist theories of the relative autonomy of law and state in capitalist societies and the autopoietic theory of closure and openness in social systems. Among the Marxist theories, he distinguishes between the capital-theoretical, the class-theoretical and the state-theoretical approaches. He then criticizes them by focusing on their insufficient accounts of input-output or representational models, of the «internal-external» dialectic, and of articulatory practices. He proposes to rethink the problem of relative autonomy in autopoiesis terms. This tactic would establish the conditions not only for the institutional separation of law and the state in capitalism, but also the conditions for their autopoietic take-off into radical autonomy.

JESSOP then provides a concentrated and concise account of the relations within and among the political, legal, and economic system in terms of autopoietic theory. JESSOP's own contribution consists in developing the concept of «third order autopoiesis». If first order autopoiesis refers to general communication in society and second-order autopoiesis to the differentiation of autopoietic subsystems, third-order autopoiesis, JESSOP argues, concerns contingent articulation among differentiated subsystems in a social formation. He goes on to suggest a possible synthesis of Marxist and autopoietic approaches. While no functional subsystem could occupy the apex in a single hierarchy, that subsystem with the highest degree of organized complexity and flexibility — today still the economy — would tend to dominate society. This occurrence would allow a redefinition of the «external-internal» dialectic in Marxist thinking about the dynamics of law and the state.

In a sense, MICHAEL HUTTER's paper can be read as an elaboration of JESSOP's concept of «third order autopoiesis». Using three important innovations in patent law as a case study, HUTTER develops ideas about «how the economy talks the law into co-evolution». HUTTER constructs the intersystem relations bridging economy and law as autopoietic systems in their own right. These «conversation circles» penetrate and stretch in web-like fashion between both autonomous systems. Internally, conversation circles develop an *Eigendynamik* through the interaction of «cases» (vehicles of communication), «codes» (forms understandable to both systems), «media» (transporting mechanisms) and «context» (the mapping of new horizons into the self-interpretation of the autonomous systems). Using this model, HUTTER analyzes those processes in which the economy produces new cases of conflict and reorganizes the actors that converse with the law. These processes lead to changes in the form of conversation that induce a reinterpretation within the law and in turn change legal self-reproduction.

While HUTTER's analysis focuses on the relation between economy and law, BERND MARIN's essay on «Contracting Without Contract: Economic Policy Concertation by Autopoietic Regimes Beyond Law» deals mainly with the precarious relations between the economy and politics, treating law as only a background factor. MARIN argues that the economic policy necessary for macroeconomic management typically takes the form of risky, highly precarious exchanges without the legal protections that support analogous business transactions. Examples of successful attempts at interest mediation demonstrate that these practices constitute institutions without bureaucratic organizations, while inter-organizational transactions can be neither understood as political markets relations nor be regulated by modern law and contract. MARIN, parallel to JESSOP and HUTTER, also examines the potential of «third-order autopoiesis». He focuses on empirical cases of cooperative economic policy mediating between the political and the economic spheres. This inves-

tigation leads him to the query of whether the transaction chains structuring generalized political exchange can be fruitfully interpreted as autopoietic regimes.

III. REGULATION AND AUTONOMY: THE CONCEPT OF «REFLEXIVE LAW»

What can autopoiesis contribute to dealing with the regulatory crisis, a crisis that affects the relations between law, politics and the economy? Regulation is one of the fields in which the new paradigm shows its fruitfulness. Autopoiesis opens new perspectives in three areas of research. (1) The regulatory crisis can be viewed as a problem of social closure, that is, as a resistance against regulation in terms of the regulated field's self-referential circularity. (2) «Regulatory law» can be identified as a type of legal structure that challenges the internal reproduction of law. This challenge leads either to excessive strain or to new forms of legal self-reflection. (3) New forms of societal guidance through law can be developed which are reflexive, decentral and poly-contextural. Under the title «reflexive law» the following contributions aim to work out the consequences of autopoietic theory for the political-legal regulation of social fields.

HELMUT WILLKE raises the central question of «reflexive» legal regulation: if autopoietic systems re-organize themselves and adapt to operational criteria which they define themselves, how is mutual influence, intervention or even regulation possible? He concentrates on the crucial mechanisms linking openness and closure and discusses three types of interrelations: (1) Epigenesis, a co-evolution of different autopoietic systems based on the mechanism of «structural coupling» (MATURANA); (2) Planning, a form of controlled structural change bound to transform the system's complexity into a «hypercomplexity» which turns out to be uncontrollable; and (3) Guidance, those «transferrential operations» which make it possible for the legal system to shift between self-referencing and other-referencing and thus

produce a perspective that goes beyond autonomy and self-observation. WILLKE develops a typology or intersystemic instruments: interreference, modulation, conditioning, and reflexion.

NIKLAS LUHMANN seems to have « Some Problems with Reflexive Law ». In his view, concepts like legal autonomy, self-reference and reflexivity should not be related to traditional liberal or neo-critical ideas of freedom, but rather should be founded on new theoretical and epistemological principles. Following SPENCER BROWN (1972), VARELA (1979), and FOERSTER (1981) he redefines the concept of autonomy as « self-indication », that is, the application of a distinction to itself. This move leads him to his main thesis that modern society's nature as a plurality of self-referential systems leaves no alternative but self-referential law. The only relevant question then becomes to what extent the conceptual apparatus of the law is capable of perceiving and taking into account autopoietic systems in its environment. LUHMANN claims that this is nothing but an observation process internal to the law. « Reflexive law can only be self-reflexive law ». To illustrate what these general considerations could mean LUHMANN discusses three examples: the concept of « action » in legal doctrine, evasive behaviour of the norm addressees as a problem of legal policy, and the role of argumentation in legal theory.

GOTTHARD BECHMANN's argument follows similar lines. He doubts the evolutionary elements of reflexive law as well as the possibility of maintaining a control perspective. For BECHMANN, reflexive law is neither a theory of legal evolution nor a theory of social guidance through law, but rather a self-description of the legal system that reacts to the « positivity » of law, that is, its own societal contingency. Reflexive law is the theoretical reflection and reconstructive analysis of the failure of other theories. It is the explication of a state of society where the legal system develops theories about itself and thus regulates its relationship with the environment.

PAUL VAN SETERS criticizes, like LUHMANN, the attempt to synthesize, different theoretical traditions in the concept of reflexive law. He demonstrates that what separates strands of « responsive law » (NONET and SELZNICK, 1978), « emancipatory theories of law » (HABERMAS, 1985) and « self-referential law » (LUHMANN, 1985) is more essential than what they have in common. His main point is to defend purposive orientation in law against its replacement by a purely procedural orientation.

SETERS supports his argument by drawing on empirical evidence about certain trends in administrative law.

HANS-GEORG DEGGAU's paper on « Reflection and Control in the Legal System » can be read as a refinement of the concept of reflexive law. He interprets reflexive law as underscoring the gradation of intervention in social fields in forecasting subsidiary consequences or in calculating costs. DEGGAU suggests making use of the distinction between autopoiesis and the identity of a social system. While autopoiesis refers to the basic self-reproduction of operations, identity refers to the self-description of those operations. Reflexive law, DEGGAU contends, has mainly to do with this second idea. The limits of regulation with which reflexive law is concerned is not the autopoiesis of the regulated system, but the operative and effective identity of the social system that has emerged from the self-description process. On this basis DEGGAU uses the identity concept to distinguish four different stages of intervention: (1) absorption, (2) integration, (3) digression, (4) disintegration. DEGGAU uses these distinctions to discuss various empirical cases of legal regulation.

IV. LAW IN A WORLD OF AUTOPOIETIC SYSTEMS

The last set of contributions focuses on problems within specific regulatory fields. The chief concern here is how to develop autopoietic theory to illuminate regulatory failures and to help design alternative regulatory strategies.

WILLIAM CLUNE's contribution aims to reformulate implementation theory in terms of autopoiesis. In his model — « Implementation as Autopoietic Interaction of Autopoietic Organizations » — the regulatory law, as well as the regulatory agency and the regulated field, appear as autonomous discourses obeying the logics of their own self-reproduction. This view allows CLUNE to integrate divergent perspectives of informalism and formalism, normativism and realism in law as well as in organizational theory. CLUNE's *pointe* is to construe the interactive discourse of implementation itself as an autopoietic system of structured interaction determined by the rival rationalities of the participating systems. This leads him to new « reflexive » modes of regulation that would concentrate on influencing implementation interaction and to a new « design of politics », namely a strategy concentrating on political structures and political consciousness rather than on sophisticated policy instruments.

In contrast to CLUNE's attempt to apply the concept of reflexive law to problems of legal regulation, PETER NAHAMOWITZ, in his paper « Difficulties with Economic Law », criticizes the whole concept of reflexive law as theoretically unusable, politically naive, and socially dangerous. With its declared goal of combining state and market organizational principles, reflexive law, NAHAMOWITZ contends, points normatively in the right direction. In its practical application, however, the concept has a false neoliberal and market-oriented tilt. The systems theory on which « reflexive law » is founded does not analyze sufficiently well the inherent instability of the economy. The theory leads to what NAHAMOWITZ calls an « unfounded steering nihilism ». As an alternative, NAHAMOWITZ suggests the concept of « organized capitalism ». This idea adopts from Marxism the analysis of the inherent instability and exploitative character of the capitalist economy, from system theory the concept of self-regulatory mechanisms, and from critical theory the idea of the (potential) steering ability of the state.

ECKARD REHBINDER's essay on « Reflexive Law and Practice - The Corporate Officer for Environmental Protection as

an Example » can be read as a case study of reflexive law in the context of economic organizations. REHBINDER uses the example of a German statute that introduced an intra-organizational *ombudsman* into economic firms to demonstrate how the abstract notion of reflexive law can be translated into regulatory designs and to examine the practical consequences that follow. The picture that emerges from the empirical data suggests that while the creative role of this *ombudsman* has not been well developed, his supervisory function and representative function seem to work at a satisfactory level. REHBINDER concludes that the example of the environmental officer shows that the institutionalization of special representatives of public interests in the enterprise can be useful to stimulate, strengthen and channel the endeavours of the enterprise to take external interests into account.

« Law regulates society by regulating itself » — this is the paradox by which GUNTHER TEUBNER, in his concluding essay, attempts to synthesize two competing constructs in the « galaxie auto ». According to TEUBNER, « order from noise » (von FOERSTER) and « organizational closure » (MATURANA) can be seen as complementary if one defines autopoiesis as a combination of self-reproducing and self-observing operations. In his view, social autonomy as a regulatory problem is characterized by three qualities: (1) circular causality in « non-trivial machines »; (2) the emergence of cumulative self-referential relations in the regulated field; and (3) the resistance of system maintenance understood as maintenance of autopoietic reproduction. TEUBNER's main thesis is that this social autonomy is inaccessible to direct legislative intervention. « Reflexive » forms of legal regulation rely instead on indirect mechanisms based on three types of inter-system-relations: mutual observation, coupling through interference, and communication via organization. They represent the main directions for « reflexive law » — a legal system that identifies itself as an autopoietic system in a world of autopoietic systems and draws operational consequences from this self-identification.

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II.

THE PARADIGM OF AUTOPOIESIS
IN THE SOCIAL SCIENCES

THE AUTOPOIETIC APPROACH AND ITS FORM

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1. INTRODUCTION

Autopoiesis appears to have made a substantial impact on the fields of sociology and socio-legal theory. In both contexts it is seen as a theory inspired by recent developments in biology. As such it is supposed to contain a truly new concept, to imply the mutual closure of various areas of society, and to represent the most advanced variant of general systems theory.

I shall try to show, however:

a) that autopoiesis is the product of a logical development of a set of requirements inherent to sociological theory, and consequently is not a truly new concept, because its novelty lies merely in the synthesis and application of previous models;

b) that autopoiesis is not so much a static theory concerned with system closure as a dynamic theory concerned with the way a system changes and opens up to other systems;

c) that, seen in this light, autopoiesis represents an intermediate stage of development which already contains within it the seeds of its obsolescence.

In what follows I will start from the hypothesis that, seen as a specific 'form' of thinking, autopoiesis easily finds its place within a series of different models already popular in social and legal sciences.

The ideas behind autopoiesis, as in many other theoretical models, are expressed in a language which implies a certain 'form' of thinking. It is thus not surprising that in this

case also, both partisans and opponents seem, albeit surreptitiously, to adopt the same argumentation which is typical of the theory criticised.

2. SOME THEORETICAL MODELS

Having focused on some typical forms of thinking currently adopted in social science, I shall draw a distinction between 'radial', 'linear', 'triangular', 'circular' and, finally 'hypercyclic', 'theoretical models'. The latter seems to encompass the concept of autopoiesis better than the others.

a) *The 'radial' model*

The 'radial' model is based on one of the simplest theoretical forms in social sciences. As its name implies, this model establishes, from a 'central' point, connections between the various conceptual elements that enter its field of relevance. In this context a central point explains everything that is derived. This theoretical movement from a 'centre' to a 'periphery' is typical of every interpretation of social reality which starts from the identification of an element considered to be original as well as essential. The researcher's task, therefore, consists in the discovery of as many 'peripheral' elements as possible being connected with each other in terms of their relative 'distance' from the centre. Thus, if we consider that, within the framework of a particular concept of history, a certain set of concepts is relevant, it is not sufficient merely to determine their source. We have also to trace their path back to their central point of origin. So, 'materialist' or 'idealist' theories can be seen to be equivalent. They differ only in respect of which element is seen as central. They share the same explanatory project, that is of subsuming all the peripheral elements within the central one.

It is here, however, difficult to set non-contingent limits to the connections between the various elements. For though we can stop at elements which we cannot break down

further, and set pragmatically acceptable limits, within these there is no rational limit to interconnection. Concretely it is true that this theoretical boundlessness is reduced by having regard to the contingent requirements of the particular research. However, what can be considered peripheral still depends on material distance from the centre which is anything but univocal. The researcher seems to be left to his own devices. The need to set some non-contingent limits to the derivation of interconnections forces us to move to a different theoretical model.

b) *The 'linear' model*

The 'linear' model is characterized by connections between the various elements making it up, such that they can be set out in potentially endless chains. Unlike the previous model, it is representable not as an endless array of radii emanating in all directions from the central point. Rather it can be seen as a straight line stretching backwards or forwards according to the requirements of the research in question. The problem here, then, is one of seeing how each element is produced by another. Causal theories provide an example of this model. Here the various relevant elements are usually set in order with a clear temporal distinction between preceding and following clauses. Correlation rules of the 'if ... then' type are thus established: if we have a certain cause and perhaps certain circumstantial conditions, then we shall definitely or in all probability have a certain effect. The result is a 'time sequence', where every successive step is achieved by an inversion of the cause and effect relationship.

In this model too it is difficult to set non-contingent limits to the connections between the various events. Though we can fall back on a fictitious limit to the research, we still have, each time we reach a link in the causal chain, to choose which path to follow: to decide which causes are primary and which we intend to omit as secondary. This implies more or less explicit selection criteria which may lead us to adopt 'asymmetric' structures. Some causes may end

up being more important than others, not only contingently, but because they happen to be further down the line. This then leads us to a different model.

c) *The 'triangular' model*

Unlike the previous model, the 'triangular' model is characterized by a relationship between each of its constituent elements. This relationship is limited on the one hand by an apex and on the other by a base. In this mode of thinking, the connections are not ascertained by moving from cause to effect, but hierarchically from top to bottom. This model is based on the view that there is an 'apex' which acts as a point of reference and a supreme selection criterion. Selection is marked by an increasingly limited cognitive and decision-making competence the further down from the apex it takes place. What is presupposed here is a 'structure' where the higher echelons select the input relevant for the lower echelons. Here causal connection is complemented by a normative connection without which the structure itself would be incomprehensible. Thus what is most important here is not 'reference' to a central element or 'production' by a previous element but organisation, i.e. the determination of the relative positions of the elements. The Weberian type of bureaucratic formalism provides an example of this model. It represents the social order as a pyramid separated from the environment and composed of differing roles, each distinguished by its own area of competence and relevance. Here the criterion of delimitation is given by abstract norms that establish the boundaries, both for the decision-maker and for the observer. For both of these, then, the most important selection criterion is that of the validity of the order. For it is precisely that which collects these norms together in a unitary and coherent way. We may talk about 'order' here as a closed system. However, we do not mean by that something that is totally indifferent to external events. Rather, for something external to be relevant, it must be filtered through selective interpretation. There are a number

of difficulties in connection with this model. There is the logical problem of showing that the apex of the structure is supreme and cannot be subsumed under a higher norm. There is also the practical difficulty of knowing where to draw the line at the base of the triangle. Nor may we forget that the various roles within an order might have cognitive capacities insufficient for their tasks and thus be forced to use external help. This brings us to a further model which is capable of transforming the vertical relations which are typical of the 'triangular' model.

d) *The 'circular' model*

The 'circular' model uses a radical approach to overcome the problems of selection inherent in the previous model. It adopts a circular rather than a hierarchical structure. Thus the distinction between higher and lower levels is relative. There is no escape at the top or at the bottom but a circular movement which continues endlessly. A good example of this is a simple thermostat system for controlling temperature. The 'circular' model can be useful in the context of theories of social regulation, where the object is to maintain certain functions which are considered necessary for the survival of social institutions considered as integrated, autonomous and well-delimited sets. It is therefore appropriate in functionalist approaches. By considering these institutions to be 'systems', it is characterized by its ability to contain the 'material' dimension (centre-periphery), the 'temporal' dimension (before-after) and the 'social' dimension (above-below) which featured in the previous models discussed.

However, there are some problems with the 'circular' model. The most obvious in the context of society seen as a whole is that it is not always possible to determine the systems (or rather the social subsystems) unambiguously by reference to clearly determined functions. There is no guarantee that any particular function is either possible or necessary. In the same way, it is not always possible to determine

these functions unambiguously by reference to already determined systems.

These observations explain the recent introduction in cybernetics of model rather more complex than the circular or cyclic one. We now turn to one such model.

e) *The 'hypercyclic' model*

The 'hypercyclic' model is marked by a multiplicity of interconnected circular relationship. It can be represented, therefore, as a meta-circuit that includes and stabilizes minor circuits whose criteria for functioning it determines. It brings material, temporal and social dimensions together, and also manages to determine the limits of their relevance from case to case. It thus gives rise to the phenomenon of 'controlling the control'. A good example of the 'hypercyclic' model is the approach that uses the concept of autopoiesis. In fact, the autopoietic mechanism is indispensable for interpolating within a meta-system the functional points of reference which remain extraneous and problematic in the cyclic model. The hypercycle involves a second degree of circularity, a sort of 'circuit of circuits'. This double circularity constitutes an autopoietic metasystem by choosing itself as its functional point of reference. It enables its own autopoietic components to reproduce themselves, thus remaining functional to the hypercyclic function to which they belong. Seen in this light, the complex equilibrium of the metasystem acts as a point of reference, as a 'function of functions'. The distinction that prove to be decisive in the 'hypercyclic' model is not therefore internal/external but compatible/incompatible. It is on the basis of the latter distinction that self-reproductive processes can ensure development of the meta-system without questioning the identity of the systems involved and their internal and external 'equilibrium'. Consequently, the 'hypercyclic' model typically has the capacity to absorb both operational and 'reflexive' tasks, i.e. the capacity for self-observation.

We can summarize what has been said so far in the following table:

Model	Conceptual couple	Problem	Dimension	Approach	Method of connection
Radial	centre/ periphery	origin	spatial	emana- tionist	reference
Linear	before/ after	sequence	temporal	casual	production
Triangular	above/ below	structure	social	formalist	organisation
Circular	inside/ outside	efficiency	systematic	func- tionalist	correction
Hypercyclic	compatible/ incompatible	equilibrium	meta- systemic	autopoietic	self- observation

3. WHAT IS NEW IN THE AUTOPOIETIC APPROACH

The above typology has important restrictions. It must be stressed that the sequence sketched in the previous paragraph is not necessarily an evolutionary one, culminating in the most advanced approach, the autopoietic. Moreover, we can observe that the latter approach is not radically opposed to the other models. Rather, we may say that the entire scale of theoretical models here presented is based on accumulative logic, both on the conceptual and problem level. This has important implications. We can find traces of the key concepts that characterize the 'radial', 'linear', 'triangular' and 'circular' models (origin, sequence, structure and efficiency respectively) in the problem of 'equilibrium', which, as we saw, characterizes the hypercyclic model. Thus, each of the previous models can be said to have more or less rudimentary forms of autopoiesis. The 'hypercyclic' model is only the one which exhibits the most complex and comprehensive version of autopoiesis.

If we look at the example of the legal system, it cannot be denied that a certain degree of autopoiesis, understood as a simple capacity for 'self-reference', is a feature of *every* legal order. This includes even the extremely simple kinds

that can be studied with the 'radial' model. Here 'self-reference' means 'coherence'. This kind of autopoiesis can include constructions of law inspired by a vision of 'natural justice', seeing all legal systems, even the most widely diverse, to be emanations from a certain set of fundamental 'values'.

It is possible to have a slightly more complex form of autopoiesis in the 'linear' model. Here the autopoietic mechanism is based on a form of 'legal realism'. It is claimed that a sufficiently long causal chain of facts tends normatively to modify its factual links autonomously. The presumption here is that if a norm has a factual force of its own, then the facts also have a normative force which they tend to produce more and more explicitly by reproducing themselves.

In the 'triangular' model, we can find an even more complex form of autopoiesis. In the 'normative' view, we can assume that in the process of concretization, each individual norm is presupposed by a higher norm. The autopoietic mechanism here is the fact that a normative order tends not only to reproduce itself but govern itself from a highest point, which supplies the logical presuppositions for the activity of the lower instances, and is not itself depending on any further presupposition.

In the 'circular' model, autopoiesis can be seen as connected with a 'teleological' view of law, which postulates its functional interaction with the other sectors of society. The law makes use of constant functional points of reference, which, as well as reinforcing the system, also set the limit to the range of its variability. Here the normative system is capable of self-correction.

All of these simple variants on the concept of autopoiesis show that there are various methods of considering autopoiesis: as self-reference, as in the case of the 'radial' model; as self-production as in the 'linear' model; as self-organization as in the 'triangular' model; and as self-correction as in the 'circular' model. The more complex 'hypercyclic' model focuses on self-observation.

In fact, the theory of autopoietic law can include at least six different approaches to law: a 'self-referring' approach, which refers to its own values for orienting social actors (natural law); a 'self-producing' approach, which refers to situation-oriented actions (realism); a 'self-organizing' approach, which refers to norm-oriented roles (normativism); a 'self-correcting' approach, which refers to aim-oriented programs (teleological law); and finally, a 'self-observing' approach, which refers to identity oriented images (reflexive law). In reflexive law the law is able to observe itself and check its own many-sided image without betraying its own identity.

We can summarize this in the following table:

Model	Level of autopoiesis	Key concepts	Inspiration
Radial	self-reference	values/actors	natural law
Linear	self-production	facts/actions	legal realism
Triangular	self-organization	norms/roles	normativism
Circular	self-correction	aims/programmes	teleological law
Hypercyclic	self-observation	identity/images	reflexive law

4. AUTOPOIESIS AND INTERSYSTEMATIC RELATIONS

What we have said above implies that the autopoietic approach does not represent the absolute and necessary 'closure' of systems. For we can see, paradoxically, that it must be equipped with the capacity to 'come out of itself' and proceed to a complex operation of self-observation. Although the 'hypercyclic' model doubtless represents an important contribution to making the external processes of stabilization 'internal'; it can also easily be applied from outside the legal system. We can see this if we look, for example, at the relation between legal systems and other social systems. At the moment when an autopoietic system takes another system into consideration, it tends to activate a series of processes. On the one hand, these receive and decod-

ify the information that arrives from the other system so as to construct a coherent image of it that can be translated into its own language. On the other hand it constructs its own image in a language that can be translated into the language of other systems.

All this is sufficient to redefine the different concepts of 'order' to which the law seems to be connected. It is often claimed that what establishes a certain order must be ordered in such a way that there is a correspondence between it and the order that is presumed to be produced. We can call this the presumption of correspondence between legal and social order and it is questioned by the autopoiesis of the 'hypercyclical' model. Here the legal order becomes independent and does not necessarily correspond to the social order. Societal order as a whole is the result of the combination of various orders among which legal order occupies an important but not decisive position. None of these orders is able to claim to correspond to the intersystemic order.

Finally, we can add that precisely because of its extreme complexity, the 'hypercyclic' model puts forward a sophisticated theoretical relativism. This affects both the concept of theory and the relation between theory and reality. This does not make for a greater rigidity, but rather a greater flexibility in the way that the relationship between theory and reality can be understood. From a legal point of view the concept of theory aims at producing metaphorical, or even symbolic, representations of reality. It does this within the framework of a non-empiricist but 'strategic' view of the relationship between theory and reality. This is characterized by seeing things not in terms of valid/invalid, but as more or less acceptable according as to how 'fit' within a specific socio-cultural context.

5. AUTOPOIESIS AND BEYOND

The 'hypercyclic' model also has implications which can lead us to question its fundamentals. In the context of the legal system, we can group them into three:

a) The first set of implications is connected with the fact that the self-observation of law can hardly manage to embrace all of law. The representation of law as an autopoietic system does not exclude the possibility that self-observation can itself generate an infinite regress. The system observes itself observing itself... This means that every subsector of the legal system may require a different theoretical model for its analysis, and that in some fields law may remain at lower levels of complexity and may be incapable of self-observation. Indeed, some sectors — such as politics and economics — are more exposed to the enticements of other subsystems, while other sectors are less prone to receive environmental stimuli. One can therefore represent law as a leopard, the darker spots corresponding to a more marked autopoietic content and the lighter zones to a less marked one. This is not necessarily caused by contingent factors which make for cultural backwardness. Differentiation does not only mean that each sector exhibits a different level of development, but also that, from a general system perspective, each sector disposes of a widely differentiated range of possibilities for reaction. In the case of law and its relations with politics and economics, we have differentiation when different sectors are programmed to react differently to the influences exerted by the extra-judicial systems (legislation by purposive programming, jurisdiction by conditional programming). In other words, differentiation is not to be confused with a lack of homogeneity. We have, for instance, a lack of homogeneity when, instead of a set of different complementary programmes capable of being traced back to a common principle (e.g. the division of powers), we have a set of different capacities for reduction (e.g. in some fields of labour law) that are not logically connected to the rest of the system.

b) A second set of implications is related to the fact that law, understood as an autopoietic system which necessarily maintains relations with other autopoietic systems, tends to relativize its function one can witness, a gradual process of overlapping functions. Thus system A has, in the

execution of its functions, to take into account systems *B* and *C*, each of which is distinguished by specific functions. In turn, system *B* must take systems *C* and *A* into account, and the same goes for system *C*. As a result, one cannot say that these systems have mutually exclusive functions, because, in the process of mutually adapting their functions, they assume a different, more general functional point of reference.

Things become more complex, in an evolutionary perspective, when we consider that the processes of reciprocal adaption can go so far as to produce at least a partial overlap of functions. This means that the law may continue to exercise its typical function of controlling the mechanisms of control, not in an exclusive, but rather in a 'residual' manner. In the same way as the family becomes the system for ensuring the possibility for loving what otherwise it would be impossible to love; the economy ensures the possibility to trade what otherwise it would be impossible to trade; politics makes it possible to legitimize what would otherwise be impossible to legitimize; law becomes the system capable of 'regulating systems of regulation' that otherwise would be impossible to regulate.

c) A third set of implications is connected with the fact that only by alternating phases of self-observation and self-production can the system manage to observe and develop. Elements of the system cannot live and observe themselves at the same time, as their self-observations must inevitably interrupt their spontaneous vital reactions. This means that, paradoxically, the system in its relations with other potentially autopoietic systems may reach the point of undergoing a process of assiduous self-observation, which suspends its ability directly to influence other system. Things become more complicated when we consider the possibility that these losses of power can be transformed into identity crises. These make the autopoietic circuit no longer virtuous. Instead of the law producing greater certainty, it sometimes can prove to be a factor in social uncertainty.

The legal system, as inserted in the hypercyclic circuit, appear to be less and less equipped with the characteristics

that are commonly attributed to a 'system'. One might, therefore, ask whether it would not be wiser to abandon the 'system' model and adopt a more flexible point of view.

We need, therefore, to tackle the further problem of the constitution of systems and the contingency of their boundaries explicitly. We need to use a model that, unlike the hypercyclic one, is not so much concerned with the stabilization of (systemic) areas in the framework of larger (meta-systemic) ones. Rather, we need a model that is concerned with the processes of symbolic production and decomposition that can also include phases of instability due to lack of homogeneity of contents, lack of specificity in functions and incoherence in the evolution of systems of systems. The implication of what we have said so far suggests that it would be more appropriate to talk of 'games' instead. These could be at one and the same time political, economic and legal, and bear their own meta-rationality as distinct from the simple subtotal of the rationalities of the systems involved.

In this context, we should consider a further model of law as a game of mediation. We can give some examples of games that can provide means of intermediation between law on the one hand and the state and economy on the other: the informal mechanisms for representing the interests used by legislative procedures which enable mediation to be exercised through values and actors; the informal mechanisms which enable mediation to be exercised through actions and procedures; the informal mechanisms of administrative procedures which enable mediation to be exercised through norms and roles; the informal mechanisms of concatenation which enable mediation to be exercised through codes and programmes; finally, electoral procedures which enable mediation to be exercised through image and identity.

Such a model could be represented as a 'network' of social games and may take on increasing importance in a situation like the present, which is marked by the decline of centralized regulation and the fragmentation of decision-making power into a series of interconnected games with mixed ra-

tionality. It is a concept that has only partially been exploited within a model of law concerned with the possibility of overlapping different, or even opposing logics in one normative, meaningful order. A model which is at the same time concerned with greater flexibility in decision-making on the basis not only of criteria of 'controlling change', but also of criteria for 'changing the criteria of control'.

Finally, it would be possible to discuss further the mutual relationships between a plurality of autopoietic systems. These different system may be characterized not only by different binary codes (lawful/unlawful; true/false; etc.), but also by different forms of autopoiesis (linear, hierarchical, circular, etc.). Generally speaking, it is possible to assume that whenever new forms of autopoiesis emerge in the realms of economics and politics, the form of the legal autopoiesis will tend to become more complex, in order to play its role in maintaining communication between the other areas. It is then possible to imagine that in a given historical situation — e.g. when drives towards modernization intensify (as may be the case in the transition from communism to capitalist democracy) — a hierarchical model in the realm of politics, a circular model in the realm of economics, and a hypercyclic model in the realm of law could coexist at the same time.

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