

Democracy as Self-Organizing System

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In the theory of postliberal democracy, a democratic dynamic leads to a reproducible democratic institutional equilibrium. This in turn leads to a highly democratic institutional equilibrium. It can be assumed that democracies must have the capacity to respond to disturbances and thereby to adapt to the conditions under which they find themselves. From the theoretical viewpoint of nonequilibrium thermodynamics, it can be assumed that transformation of democracy over time can be explained in terms of dissipative process that is related to the self-organizing system in the evolutionary process of its complexity and functional adaptability. In this sense, it can be claimed that democracy is a complex adaptive system functioning in the macroscopic evolutionary process.

Keywords: democracy, open system, deliberative process, adaptive feedback, dissipative process

I. Introduction

Democracy is an ambiguous term in political discussion. Many people use it in such a way as to make it synonymous with the phrase "the good society." If we call such a good society a democratic system, there must be an institutional mechanism to sustain it. Democracy is unquestionably good, and representative democracy is identified with democracy. Representative democracy is government of the people, by the people and for the people. Democracy could mean rulers chosen from among formally equal citizens by some mechanism in which all these citizens could equally participate. In a sense, it is a political mechanism for citizen' participation in politics. The term 'political mechanism' may appear odd, but it enables us to treat political institutions in terms of their functions and outputs. All political mechanisms are a means to do something, for example, to produce certain sorts of decisions or to mobilize

resources for certain objectives.

To be stable, democracy must be deemed legitimate by the people; they must view it as the best, the most appropriate form of government for their society. Indeed, it rests on the consent of the governed. Such legitimacy requires a profound moral commitment and emotional allegiance, but these develop only over time and partly as a result of effective performance. Democracy will not be valued by the people unless it deals effectively with social and economic problems and achieves a modicum of order and justice.

The problem of building a democratic society is one of a dynamic interaction of rules and actors, with the actors rendering the rules more democratic, and the increasingly democratic rules rendering the actors more firmly committed to and skilled at democratic participation and decision making. From the viewpoint of postliberal democracy, a democratic dynamic leads to a reproducible democratic institutional equilibrium (Bowles and Gintis, 1986, 186). In other words, such a democratic dynamic, a democratic set of rules, induces a more democratic culture. This in turn leads to a highly democratic institutional equilibrium.

In order to analyze the developmental process of democracy I can apply Easton's idea of political life as an open and adaptive system. As he says, "the logic behind the idea of an open system will also make it necessary to seek to develop concepts that enable us to handle an analysis of exchanges between a system and its environment" (Easton, 1965a, 62).

Based on his systems propositions it can be assumed that democracies must have "the capacity to respond to disturbances and thereby to adapt to the conditions under which they find themselves." In his words, a system need not just react to a disturbance by oscillating in the neighborhood of a prior point of equilibrium or by shifting to new one. It may cope with the disturbance by seeking to change the environment so that the exchanges between the environment and itself are no longer stressful. It can be said that democracy is endowed with feedback and the capacity to respond to it.

In the dynamic world of processes, democracies manage to persist. As Easton suggests, "Persistence of a system, its capacity to continue the production of authoritative outputs, will

depend upon keeping a conversion process operating." In this sense it can be assumed that democracy is a goal-setting, self-transforming, and creatively adaptive system in the macroscopic process of evolution.

II. Deliberative Process in Democracy

Democracy is self-government, taking charge of oneself. It is a kind of insurance against going beyond the tolerable level of mistakes, which is why it is needed even more by those societies that are not functioning well (Revel, 1993, 258). As Revel argues, only capitalism engenders economic development, only democracy can correct the worst political abuses and errors. Liberal democratic capitalism is not the best system but it is the only one that works. An advantage of democracy is that it allows people to be successful despite the poor quality of their governments. The looser the links between government and society, the more people can be productive despite the mistakes or the greed of their leaders. This is why political democracy is the absolute priority compared to all other goals of development, social justice or anything else.

We can say that democracy is not the disappearance of problems, it is only the least of them. It is not perfection, it is merely the best way to meliorate things. Democracy is a normative concept and cannot be identified in depth without articulating fully the evaluative conception that justifies its distinctive institutions. The democratic process takes as given people's interests and preferences and assumes that they act on the basis of those preferences. Democracy does not try to modify the preferences and interests of people in a morally virtuous. But this process somehow generates dynamics of collective action that produces morally acceptable results (Nino, 1996, 68).

It is true that the actual results of maintaining a democratic system are more conducive to the intrinsic good than they clarify the nature of a moral conflict. The maintaining process helps to distinguish among the moral, the amoral and the immoral, and between compatible and incompatible values. Citizens come to discover that a conflict is the result of misunderstanding or lack of information, or they might come to find ways to settle a

conflict by bargaining, negotiation, and compromise. In this way, deliberation in a democratic society can put bargaining into place.

Compared to other methods of decision making, deliberation increases the chances of arriving at justifiable policies. More than other kinds of political processes, deliberative democracy contains the means for its own correction. In Deutsch's words, deliberation goes on in any political organization, even a dictatorship, but it is at the heart of democratic politics. Deliberation is the chief process by which policy is determined. It is a continuous process of debate. Like any genuine debate, deliberation not only lets each participant promote his own views and interests, but also gives him the opportunity to adjust his own view of reality and even to change his values as a result of the process. All policy decisions involve deliberation (Deutsch, 1974, 194). The deliberation goes on all the time, but at certain key points it crystallizes into a decision, and then, immediately after a decision has been made, the deliberation begins again.

Even when deliberation fails at one particular time to produce a satisfactory resolution of a moral conflict, democracy's self-correcting capacity remains. This capacity is the only consistently democratic hope for its application to specific issues, and a view of how it works in practice as well as how it might work better. Deliberation contributes to the legitimacy of decisions made under difficult conditions. Making forums more deliberative brings previously excluded voices into politics. This is one cause of a risk of intensified conflict that greater deliberation may bring. The positive face of this risk, however, is that deliberation also brings into the open legitimate moral dissatisfactions that would be suppressed by other ways of dealing with disagreement. Deliberative democracy seeks consensus not for its own sake but rather for a morally justified consensus.

Deliberation takes account of the sources of moral disagreement in politics. Deliberation responds to this problem by creating forums in which citizens are encouraged to take a broader perspective on questions of public policy than they might otherwise take.

In the practice of our democratic politics, communicating by sound bite, competing by character assassination, and resolving

political conflicts through self-seeking bargaining too often substitute for deliberation over the merits of controversial issues. As Gutmann and Thompson argue, the conception of deliberation consists of three principles — reciprocity, publicity, and accountability — that regulate the process of politics, and three others — basic liberty, basic opportunity, and fair opportunity — that govern the content of policies. It would promote extensive moral argument about the merits of public policies in public forums, with the aim of reaching provisional moral agreement and maintaining mutual respect among citizens (Gutmann and Thompson, 1996, 12).

Reciprocity asks us to appeal to reasons that are shared or could come to be shared by our fellow citizens. Reaching for reciprocity is not always successful. But it is a feature of moral reasoning especially important in politics. It enables us, for example, mutually to respect one another as moral agents who share the goal of reaching deliberative agreement even when we disagree with one another's conclusions. Reciprocity asks that our empirical claims in political argument be consistent with a reliable method of inquiry, because these methods are available to us here and now, but not for all times and all places. By using the most reliable methods of inquiry, we demonstrate our mutual commitment to reach deliberative agreement in the empirical realms that are relevant to moral argument.

Moral conflicts in politics typically take place in, or are intended for dissemination in, public forums. The third feature of this disagreement concerns the agents by whom and to whom the moral reasons are publicly offered. The agents are typically the citizens as well as the public officials who are accountable to another for their political actions.

Accountability through moral disagreement in public forums extends not only to prominent elected officials such as the president but also to far less conspicuous officials, professionals, corporate executives, union leaders, employers and employees, and ordinary citizens when they act in a public capacity. The principle of accountability captures this characteristic of moral disagreement in politics. These three features of moral disagreement, then, point to the need for and at the same time provide the support for the three principles that refer to the process of deliberative democracy. Taken together these

principles constitute a process that seeks deliberative agreement on policies that can be provisionally justified to the citizenry who are founded by them.

Even when citizens find some provisionally justifiable principles, their disagreement over public policy may persist. Actual deliberation has an important advantage over hypothetical agreement: it encourages citizens to face up to their actual problems by listening to one another's moral claims, rather than concluding that their fellow citizens would agree with them on all matters of justice if they were all living in an ideal society. Deliberative democracy does not assume that the results of all actual deliberations are just. In fact, most of the time democracies fall far short of meeting the conditions that deliberative democracy prescribes. But we can say that the more nearly the conditions are satisfied, the more nearly justifiable are the results likely to be (Gutmann and Thompson, 1996, 17).

The participants in practical deliberations must regard one another as 'competent subjects' and 'moral and political equals.' Their deliberations not only must be free but also reasoned. Deliberative outcome, then, would have to respect basic liberty and opportunity as ongoing conditions of their own legitimacy. The greater the degree of deliberation that citizens exercise in democratic decision making, the more confident they can be of the democratic decisions they make. The principles of deliberative democracy do not guarantee morally right results, but they offer a more defensible way of reaching mutually justifiable policies than do the principles of utilitarianism, liberationism or egalitarianism alone. In deliberative democracy, the search for justifiable answers takes place through arguments constrained by constitutional principles, which are in turn themselves developed through deliberation. Thus it can be said that deliberative process can be related to the adaptive capacity of democracy, which is vital for its maintenance over time.

III. Adaptive Feedback Process in Democracy

In systems theory, adaptations are responded to disturbances that may upset "normal" relations. Adaptive systems are those

which maintain their essential variables within those limits necessary for survival within the environments in which they exist (Marney and Smith, 1964, 113). As Berrien says, adaptation is defined as a survival-extending process. Without maintenance input, a system dies, hence adaptation pertains to maintenance input (Berrien, 1968, 66). Adaptation is a survival-extending process and occurs when a potentially harmful maintenance input (an error) from the suprasystem is blocked or dissipated at the system's boundary or neutralized within the system (Berrien, 1968, 136).

From a similar systems-theoretical viewpoint, Buckley says that society, or the sociocultural system, is not principally an equilibrium system or a homeostatic system, but what he simply refers to as a complex adaptive system (Buckley, 1968, 490). To him, the complex adaptive systems (species, psychological and sociocultural systems) are also open and negentropic. But they are open "internally" as well as externally in that the interchanges among their components may result in significant changes in the nature of the components themselves with important consequences for the system as a whole.

His perspective of pattern maintenance suggests that persistence of an adaptive system requires as a necessary condition the maintenance of the system's "essential variables" within certain limits. From the analytical perspective for a political system, Easton argues that it is useful to interpret political life as a complex set of processes through which certain kinds of inputs are converted into the type of outputs that we may call authoritative policies, decisions, and implementing actions. He assumes that some systems do survive — whatever the buffeting from their environments — awakens us to the fact that they must have the capacity to respond to disturbances and thereby to adapt to the conditions under which they find themselves. Here he assumes that political systems may be adaptive. The critical property that a political system shares with all other social systems is this extraordinarily variable capacity to respond to the conditions under which it functions (Easton, 1965b, 18). Based on the above theoretical viewpoint, it can be assumed that the essential variables of democratic system — the allocation of values for a society and the relative frequency of compliance with them — are closely related to the stability of

democratic system over time.

In regard to a democratic system, Lipset argues that the stability of any given democracy depends not only on economic development but also upon the effectiveness and the legitimacy of its political system. Effectiveness means actual performance, the extent to which the system satisfies the basic functions of government as most of the population and such powerful groups within it as big business or the armed forces see them. Legitimacy involves the capacity of the system to engender and maintain the popular belief that the existing political institutions are the most appropriate ones for the society (Lipset, 1959, 64). The extent to which contemporary democratic political systems are legitimate depends in large measure upon the ways in which the key issues that have historically divided the society have been resolved.

Furthermore, it can be assumed that the effectiveness and legitimacy of a democratic system have related to the capacity of the system to allocate values for the society and to assume their acceptance. According to Easton, there are two major variables — the behavior related to the capacity to make decisions for society and the probability of their frequent acceptance by most members as authoritative. “The capacity of the system can be conceived as a self-regulating, self-directing set of behaviors” (Easton, 1965a, 128).

In his words, the capacity of a system to respond to stress will derive from two central processes found within it, feedback and response. Information about the state of the system and its environment can be communicated back to the authorities; through their actions the system is also to act so as to attempt to change or maintain any given condition in which the system may find itself. That is to say, a political system is endowed with feedback and the capacity to respond to it.

From the systems-theoretical view of flexible capacity, Easton points out that “feedback enables the members of the system to learn to know themselves and the situation in which they find themselves.” Mere survival needs alone will give a distinct advantage to those systems that are sufficiently dynamic and flexible to modify their own behavior so as to cope with changes in their structure or in the environment. Beyond survival, however, feedback enables a system to explore and discover new

ways for dealing with its problems (Easton, 1965b, 370). As Easton assumes, "feedback is the dynamic aspect of this kind of coupling between systems or subsystems." We can expect to find unlimited members and varieties of feedback loops. Through the interlocking chain of feedback loops, all of the participating members in any one loop may be coupled, if only loosely, with many other members in the system.

Based upon the Eastonian systems theory I can further develop the more complex feedback mechanism of a democratic system. Feedback cycles are basic regulatory or control processes and are of two types. When a circular chain of dynamic relationships is oriented toward reaching and/or maintaining a goal state, it constitutes a negative feedback cycle. It is basically concerned with achieving, and/or maintaining, stability and balance around a norm of reference. A positive feedback cycle is analogously oriented toward productive and cumulative change in a given state. The change-generative process may be directed toward purposive growth or decline.

It can be assumed that the dynamic nature of a complex democratic system may be cognized and conceptualized in terms of a set of interacting negative and positive feedback cycles. When these cyclic processes operate in accordance with their intended or recognized regulatory roles of stability and change, phenomena maintain their normal character. However, when these cycles begin to malfunction, i.e., fail to perform their regulatory function, problematic aspects emerge in the phenomena. The malfunctioning of feedback cycles may be engendered by their internal constitutive elements, and/or by exogenous factors (Rastogi, 1992, 18). It is feedback that flows from the system as a whole and may return through the system to the point from which it started, spreading its effects in the system through the chain of feedback loops (Easton, 1965b, 370).

We assume that democracy, like other complex systems, has both positive and negative feedback loops. A negative feedback loop is goal-seeking, tending to regulate the system toward some objective. A positive feedback loop is goal-divergent, tending to depart exponentially from some point of unstable equilibrium. But such a positive feedback character, which gives the positive loop its growth behavior, comes not only from the structure of

the system but also from numerous variable factors around the loop. These factors are often set and controlled by other loops in the system. As these factors change, depending upon the phase of disturbance, the positive growth loop can be controlled by negative feedback. The oscillation of a political system is intimately related to this interaction between positive and negative feedback processes over time.

We can say that democracy has feedback (negative) devices to help it cope with stress. A negative feedback mechanism would play a significant role in a system on the basis of negative feedback about current and past performance even during political disturbance. The political elites are capable of reorganizing their response and if they can recommit their resources, they can modify their present outputs in coping with the stress due to the previous output failure. Thus negative feedback may do more than simply help to regulate the overflow of political stress.

If I interpret Eastonian systems view correctly, democracy may not always take advantage of being able to respond to the stress in such a way as to try to assure the persistence of some kind of system for making and executing binding decisions. We can assume that whether or not the potential is actualized in the system may depend upon the ability of the authorities to deal with "the conditions creating stress in any phase of the feedback cycle" (Rhee, 1982, 77). In Easton's words, if they can have a chance to regulate or eliminate the stressing condition or to shield the system from them, these conditions of stress may be unable to push the essential variables — the authoritative allocation of values — beyond the critical limit. It can be said that this is typically what happens when democracy survives; every persisting democracy has adaptive feedback devices to help cope with stress.

IV. Dissipative Process in Democracy

If democratic systems are capable of persisting in the world of macroscopic evolutionary process, they must also be able to change or to adapt themselves to fluctuating circumstances. Thus it can be assumed that democracy is a goal-setting, self-

transforming and creatively adaptive system. When we attempt to understand the macroscopic process of democratic systems, it is relevant to analyze them in terms of evolutionary perspective which relies on nonlinear thermodynamic theory.

An evolutionary perspective focuses on mechanisms of filtering, or trial and error. In the current theory of evolutionary paradigm, the most important heuristic idea is that evolution is more than change, more than an array of interacting processes. Where process is an order of change, evolution is the coming into being of a new and higher order of process. It is this self-organization of processes, this ordering of order of change, which is coming more sharply into focus as evolutionary theory merges with a dynamic general system theory (Jantsch, 1975, 35).

As not only has the size of society rapidly expanded but economic structure has fundamentally changed, the democratic system has become more complex in terms of functions and structures. It is suggested that "nonlinear systems like biological organisms, animal populations, or human societies have evolved to become more and more complex." Our present society, when compared to Aristotle's polis or the political system of the physiocrats, is characterized by a high degree of institutional complexity and information networking (Mainzer, 1996, 275).

From the theory of nonequilibrium thermodynamics, it can be assumed that there must be a self-organizing system in the evolutionary development of democracy, which is related to the interactions between negative and positive feedback in its system. Self-organization, in the context of cybernetics, implies the maintenance (based on the principles of feedback) of a definite level of organization or the self-improvement of systems (Bushev, 1994, 7).

In the framework of nonequilibrium thermodynamics far from thermal equilibrium, there is not just a single fixed point of equilibrium, but a hierarchy of more or less complex attractors, beginning with fixed points and ending with the fractal structures of strange attractors. Thus, there is no fixed limit of complexity, either in biological or in sociocultural evolution, but there are more or less complex attractors representing meta-stable equilibria of certain phase transitions which may be overcome if certain threshold parameters are actualized. The

structural stability of a society is related to these more or less complex attractors.

Now it can be said that the dynamics of a democracy is understood in terms of phase transitions of a dissipative system's exchange of material, energy, and information with its environment in terms of complex systems theory. The institutions of democracy are dissipative structures which may emerge and stay the same in a particular interval of threshold conditions in the macroscopic evolutionary process of democracy.

From the viewpoint of dissipative structure, Mainzer makes a very interesting suggestion about the evolutionary process of society. According to him, in the history of industrialized societies we can distinguish more or less strong economic fluctuations which may initiate the crash of social institutions and the emergence of new ones. For instance, the economic depression in the USA in 1922 was relatively mild and short lived and did not produce a structural stability of the society. In contrast to that phase of American history, the stock market crash of 1929 had a genuine butterfly effect in initiating the Great Depression of 1933. This crisis caused the financial ruin of many firms and huge numbers of unemployed, and could not be managed by the established social institutions (Mainzer, 1996, 275).

The capability to manage the complexity of modern democracies depends decisively on an effective communication network. Like the neural nets of biological brains, this network determines the learning capability that can help mankind to survive. Based upon the framework of complex systems, we can determine the dynamics of information technologies as they spread in their economic and cultural environment in democracies.

In democratic societies, market forces are based on positive feedback processes and hierarchical forces upon negative feedback processes. Culture is one such negative feedback condition or environment — a source of negentropy and stability in social life. Without such cultural forces of dampening and inversion, positive feedback appears in interaction systems. The important implication is that the democratic system as macrostructure evolves from a mix of market processes and

hierarchical processes over time.

'Coherent' social systems, by this reasoning, can be treated conceptually as if their coherence were the product of two subordinate processes of structuration. What this means more specifically is that market processes operate macroscopically with some functional role that mirroring processes play microscopically, and likewise that hierarchical processes operate macroscopically with the functional significance held microscopically by idealization.

The mix of these two kinds of processes affects the evolving macrostructure of social systems the way the mix of mirroring and idealization functions in relation to the development of "self." In theory, therefore, social systems may be described as more or less "structural" in each of these areas, and as having evolved with greater or lesser emphasis along a "developmental" line emphasizing market structuration, or a "developmental" line emphasizing hierarchical structuration — though all will display both forms of structuration in some degree (Smith, 1992, 213).

Based on the above non-equilibrium theory of thermodynamics, furthermore, it can be assumed that democracies as open systems not only have internal sources of entropy production but also an external source of entropy production associated with energy or mass transformation to or from their surroundings. These systems maintain their structure by dissipation. Nonequilibrium systems exchange energy and matter with their environment, maintaining themselves for some period of time in a "state far from thermal equilibrium" and at a locally reduced entropy state. In the macroscopic evolutionary process of democracies, small instabilities and fluctuations lead to irreversible bifurcations and thus to an increasing complexity of possible behavior.

The most important feature of the thermodynamic composition of dissipative structure is the negentropic potentiality. Negentropy, or negative entropy, and its opposite, positive entropy, are irreversible thermodynamic processes. Positive entropy refers to the universal tendency of thermodynamic structures to evolve irreversibly toward a stage of maximum disorder called thermodynamic equilibrium. But for dissipative systems to sustain their growth, they must not only increase their negentropic potential, they must also eliminate the positive

entropy that naturally accumulates over time and that degrades the systems' internal structuring (Hawey and Reed, 1996, 302-3).

The internal source of a dissipative system's instability resides in its boundary-testing properties. That is, dissipative systems are constantly trying to transform themselves — moving away from their present point of equipoise to some alternative state. Evolving through successive instabilities, a living system must develop a procedure to increase its nonlinearity and its distance from equilibrium. In other words, each transition must enable the system to increase its entropy production. The evolutionary feedback of Ilya Prigogine, Manfred Eigen and others means that changing the control parameter of the system beyond a certain threshold leads to an instability through fluctuations, which increases dissipation and thus influences the threshold again.

From the theoretical and empirical implication of non-equilibrium thermodynamic evolution process, it can be found that democracy as an open system seeks even to control environmental and internal changes in such a way that they do not become stressful. In Easton's words, what political systems as a type of a social system possess uniquely is the capacity to transform themselves, their goals, practices, and the very structure of their internal organization. To keep the vital processes, the essential variables, of a political system alive, a system may remodel its structures and processes to the point where they are unrecognizable (Easton, 1965a, 99).

As Prigogine and his coworkers suggested, the "principle of order through fluctuation" seems to govern the evolution of physical as well as of biological systems. If order through fluctuation turns out to be a basic kind of mechanism for the unfolding of evolutionary processes in all domains, a unified view of evolution becomes a distinct possibility. The unifying principle will be found in the dynamic conditions of nonequilibrium systems and the assurance of continuous metabolizing, entropy-producing activity and energy exchange with the environment.

It is assumed that the kind of evolutionary view deriving from the theory of nonequilibrium thermodynamics is very useful for the analysis of macroscopic evolutionary process of democracy. Particularly, the "principle of order through fluctuation" is to

provide a new light for understanding democratic systems survival. In transitional societies sufficient nonequilibrium systems (dissipative structures) transform the more complex democratic system into new dynamic regimes, which may be at a higher state of complexity when fluctuations due to the system's disequilibrium are introduced. The new system can restore its capability for entropy production, which is at first high and decreases with rising entropy during each dynamic regime. Thus it can be assumed that there must be dissipative system in democracy in macroscopic evolutionary process.

V. Conclusion

More than twenty years ago some theorists of democracy argued that there were the intrinsic challenges to the viability of democratic government which grow directly out of the functioning of democracy itself. Democratic government does not necessarily function in a self-sustaining or self-correcting equilibrium fashion. It may instead function so as to give rise to forces and tendencies which, if unchecked by some outside agency, will eventually lead to the undermining of democracy.

As Crozier points out, the superiority of democracies has often been ascribed to their basic openness. Open systems, however, give better returns only under certain conditions. They are threatened by entropy if they cannot maintain or develop proper regulations. According to his observation, European societies not only fail to escape this general trend, they also do not face it with the necessary increase of governing capacities. Politicians and administrators have found it easier and more expedient to surrender to complexity (Crozier, 1975, 12).

Beyond a certain degree of complexity, however, nobody can control the outcomes of one system: if one tries, then government credibility declines, decisions come from nowhere, citizen alienation develops and irresponsible blackmail increases, thus feeding back into the cycle. According to Crozier's analysis, the governability of West European nations is hampered by another set of related problems which revolve around the general emphasis on bureaucratic rule, the lack of civic responsibility and the breakdown of consensus.

On the other hand, it was pointed out that there has been an explosion of human interaction and correlatively a tremendous increase of social pressure. The social texture of human life has become complex and is becoming more and more so, and its management more difficult. Organized systems have become tremendously more complex, and they tend to prevail, in a much more composite and complex social system, over the more simple forms of yesterday. Western societies faced their greatest challenge, which is related to the capacity to develop appropriate decision making mechanisms. As Crozier pointed out, this is the ungovernability of our society as a cultural failure (Crozier, 1975, 30).

However, from the nonequilibrium thermodynamic theory of macroscopic evolution, it can be assumed that democracy is a complex system consisting of political institutions and market mechanism. As both political institutions and market mechanism have been interlocking, the democratization process has been developing. Democracy as an organizing system predictably involves some combination of increase in size and an increase in internally generated constraints, as well as an increase in gross throughput.

The mechanism through which complex systems organize themselves is, to a large extent, through sets of interlocking feedback loops. For the purpose of characterizing the self-organizing behavior of democratic systems in the macroscopic evolutionary process, we may look at the systems from two different points of view: how flexible they are in changing their internal structure and how flexible they are in changing their patterns of interaction with the environment. As Jantsch points out, understanding human systems in terms of dissipative structures would provide a theoretical basis not only for social and cultural organization but for self-organization toward higher states of systems organizations (Crozier, 1975, 61).

As living systems theorists suggest, because a higher level of living system contains components made of systems at lower levels, an operation of the higher level, e.g., an adaptation, is more complex and can go no more quickly than its component parts. According to the principle of order through fluctuation, if systems of any kind are in a sufficiently nonequilibrium state, have many degrees of freedom, and are partially open to the flow

of energy (information) and/or matter, then the ensuing instabilities do not lead to random behavior; instead, they tend to drive the system to a new state of complexity (1975, 37).

From the above theoretical viewpoint of nonequilibrium thermodynamics, it can be assumed that transformation of democracy over time can be explained in terms of dissipative process that is related to the self-organizing system in the evolutionary process of its complexity and functional adaptability. In this sense, it can be claimed that democracy is a complex adaptive system functioning in the macroscopic evolutionary process.

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