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# Differentiation of society

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*Abstract* Recent developments in systems theory have replaced the paradigm of the whole and its parts with the paradigm of system and environment. System differentiation, therefore, has to be conceived as the reduplication of the difference between system and environment within systems. Differentiation is the reflexive form of system building.

In the special case of the society as the encompassing social system, this approach makes it possible (1) to analyse different types of differentiation (i.e. segmentation, stratification, and functional differentiation) within a common conceptual framework, (2) to elaborate on internal problems of differentiated societies, basing the autonomy of subsystems on the multiplication of system references for functional orientation, performance, and reflexion, and (3) to prepare the theoretical integration of systems theory and the theory of evolution.

*Résumé* Des développements récents dans la théorie des systèmes viennent de remplacer le paradigme du tout et de ses composants par celui du paradigme du système et de son milieu. Par conséquent, la différenciation du système doit être conçue comme le redoublement de la différence qui existe entre le système et l'environnement à l'intérieur des systèmes. La différenciation représente la forme réfléchie de la construction d'un système.

Dans le cas spécial de la société conçue comme système social ambiant, cette approche permet de rendre possible (1) l'analyse des types variés de différenciation (à savoir la segmentation, la stratification et la différenciation fonctionnelle) à l'intérieur d'un cadre conceptuel commun; (2) d'étudier en détail les problèmes internes des sociétés différenciées, en basant l'autonomie des sous-systèmes sur la multiplication des références appliquées aux systèmes pour l'orientation, fonctionnelle l'exécution et la réflexion; et (3) de préparer l'intégration théorique de la théorie des systèmes et de la théorie de l'évolution.

## I. System differentiation

The most important contribution of systems theory has been a change in the conceptual framework in terms of which systems are conceived and analyzed. General systems theory, as well as cybernetics, replaced the classical conceptual model of a whole that consists of parts and relations between parts by a model that focused on the difference between system and environment. This new paradigm afforded the chance to relate system structures (including forms of differentiation) and system processes to the environment. It is not pointless to call to mind again this important discovery because of tendencies to lose sight of it. The theory of ecosystems, as well as the research on world models, tends to conceive of the system and its environment as one encompassing system and aims at forecasting future system states on the bases of system variables alone without outside limitations or interferences.<sup>1</sup> And even formal attempts at defining the concept of system often ignore the fact that the environment has to be excluded from the system.<sup>2</sup>

This paper, however, will not explore the outer environment of societal or even ecological systems. Its intention is to use the distinction of system and environment to work out a theory of system differentiation for the social system of the society. For our first step, we can assume acquaintance with Ashby and Parsons.<sup>3</sup> Both authors state that, for reasons of time, complex systems cannot afford to rely exclusively on one-to-one relations between external and internal events. Complex systems require time for processing information and selecting reactions and, consequently, presuppose structures or other parts of the system that are not involved in working out specific reactions. Outside events that would require a change in everything at once would amount to the destruction of the system. System differentiation, then, is the structural technique for solving the temporal problem of complex (time consuming) systems existing in complex environments.

This kind of reasoning uses the distinction of system and environment only once: at the level of the differentiated system. It shows the unavoidability of differentiation by reference to the outer environment and then reverts back to the paradigm of the whole and its parts. The term "internal environment" is used, as far as I can see, to refer simply to the other parts of the system. The internal analysis, then, becomes an analysis of intersystem relations. The theory of Talcott Parsons, for one, sees its main task in working out paradigms for system interchanges. But the environment does not consist simply of some other systems. It also contains, for example,

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1. Sir Geoffrey Vickers, for example, takes ecosystems to be "supersystems" that guide the choice of system/environment references within themselves. See his introduction to Emery and Trist (1973: VII). For critical remarks, see Buck (1956:234 ff.).
  2. A typical example is Ackoff and Emery (1972:18): "System: a set of interrelated elements, each of which is related directly or indirectly to every other element, and no subset of which is unrelated to any other subset" — ignoring the fact that there are also relations between system and environment.
  3. I refer to Ashby (1952 and 1956) and to the foundations of the conceptual scheme of Talcott Parsons as stated in his essay (1970:30 ff.).

the chance to choose, change, or avoid relations to other systems. In addition, the forms of interdependence in the environment are important as well as temporal relations, the degree of normalcy, and the frequency of surprise, and so on. The environment has no boundaries but only horizons that refer to further possibilities and make it, at the same time, meaningless or inconvenient to pursue them indefinitely. In other words, the relevance of environments cannot be reduced either to the relevance of one encompassing supersystem or to the relevance of a set of other systems in the environment. Only if the concept of environment itself does not denote a (larger) system or set of systems is it meaningful to say that the concept of system presupposes the concept of environment and vice versa.

Starting with these assumptions, we can conceive of system differentiation as the *reduplication of the difference between system and environment within systems*. Differentiation, then, is the reflexive form of system building. It repeats the same mechanism, using it for amplifying its own results. In differentiated systems, we will find two kinds of environment: the outer environment common to all subsystems and the special internal environment for each subsystem. This conception implies that each subsystem reconstructs and, in a sense, is again the whole system in the special form of a difference between system and environment. Differentiation performs the reproduction of the system in itself, multiplying specialized versions of its own identity by splitting it into internal systems and environments; it is not simply decomposition into smaller chunks but, in fact, a process of growth by internal disjunction. The political subsystem, for example, institutionalizes a special way to conceive of the society as internal environment and tries to organize the political relevance of non-political motives as the "public." Structural changes on the level of the society, therefore, will have a special selective impact on this way of cutting the whole; they do not necessarily affect, in the same sense, the way in which the religious subsystem or the educational subsystem perceive their changing environments. Compulsory school attendance and mass education is a different environmental problem for the political system, the economic system, the families, the religious system, the medical system, and so on. To repeat the main point: it is by the diverging internal reconstruction of the system by disjoining subsystems and internal environments that facts, events, and problems obtain a multiplicity of meanings in different perspectives.

The function of system differentiation can be described as *intensifying selectivity*. Societies, at least the modern society, can presuppose an infinite world. Proceeding from that base, they create a highly contingent, moving but nevertheless already domesticated internal environment as a condition for the development of other social systems. The main function of the system of society, then, is to enlarge and reduce the complexity of external and internal environments to the effect that other systems will find enough structure to support boundaries and structures of higher selectivity. The process continues at the level of subsystems, repeating the same mechanism, and it arrives at organizations and interactions of high specificity. Any experience and action in such a society has to rely on a complex network of selective boundaries that reduce open contingencies. These structural conditions make expectations and actions that are highly improbable from an evolutionary point of view nevertheless highly probable in the present

situation. We can form expectations and rely on them. But this excludes the possibility of reconstructing the selectivity of experience and action as their intended meaning. There is neither a way back to meaningful original experience in the sense of Husserl (1954) nor the opportunity to base a systems theory on the concept of meaningful action in the sense of Weber.<sup>4</sup>

Actors in our society, of course, know this condition and perceive the untraceable complexity of their world. For highly differentiated societies, the world can be meaningful only as an indeterminate horizon of further explorations and not as a finite set of things and events (in the classical sense of *universitas rerum* or *aggregatio corporum*). But the evolution of society does not begin by assuming an indeterminate world. It reacts first to concrete environmental facts and generalizes its world conceptions as correlates of social differentiation. It enlarges conceivable contingencies to the degree that it can be sure about its own selective potential. In fact, world conceptions covariate with increasing system differentiation.<sup>5</sup> We have to distinguish, then, genetic and functional perspectives, and only highly complex societies can articulate their experience in everyday life with an open world and with a conception of structural self-selection.

## II. Segmentation, stratification and functional differentiation.

The evolution of society has often been described as leading to increased system differentiation. This statement is true but needs clarification. It would be difficult to compare all kinds of societies as to their degree of differentiation, assuming a common measure; they are too heterogeneous because they use different forms of differentiation. Degrees of differentiation, and for that matter complexities, are produced and mediated by forms of differentiation, and these forms of differentiation differ in the way they establish internal boundaries between subsystems and internal environments.

It is important for the evolution itself, as well as for the theoretical analysis of societal systems, that *only a very limited number of forms of differentiation have been developed*. It is difficult to adduce convincing theoretical reasons for this limitation — reasons that could exclude the possibility of other forms. But, apparently, we can rely on the “Goldenweiser principle” (Goldenweiser, 1937), which states that specific structural problems can have only a limited number of possible solutions. Even societies that are aware of the “social construction of reality” and operate under the assumption of contingent and changing meaning-structures would

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4. Of course, I do not deny that actors can pick up prepared meanings and that parts of the selection chains have to be attributed to them. But even this depends on attribution processes that cannot be controlled by the actor alone.

5. Our knowledge of cosmological conceptions available in the narrative form of a “history of ideas” strongly suggests further research but, so far, does not explore corresponding changes in the social system of the society. Cf. Duhem (1913, 1959); Mugler (1953); Kranz (1958); Orbán (1970); McColley (1936); and Koyré (1957). Further research will depend on breaking up the simple notion of “increasing differentiation” by distinguishing different forms of differentiation, and it will have to find ways to evaluate the contribution of specialized subsystems, for example, theology, in a society which, on the whole, is not yet highly differentiated.

not be able to dream up arbitrarily new forms of differentiation. *The contingency of the world cannot be matched by a corresponding contingency of the differentiation process.* Even if everything could be changed in reality and/or meaning, the society operating under such a premise would have to use and combine only a very few forms of differentiation.

This limitation results from the fact that system differentiation requires a combination of two dichotomies, both of which are asymmetric: system/environment and equality/inequality. So far, three possible combinations have emerged: segmentation, stratification, and functional differentiation. Their combination, again, follows the law of limited possibilities. It is, however, sufficient for the development of very complex societies.

*Segmentation* differentiates the society into *equal* subsystems. Equality, here, refers to the principles of self-selective system-building. In archaic societies, these are either descent or settlement or a combination of both. Inequality enters as an effect of differing environmental conditions. Inequality, then, does not have a systematic function but is, nevertheless, decisive for the process of evolutionary differentiation of different societal systems.

*Stratification* differentiates the society into *unequal* subsystems. It brings to coincidence the asymmetries of system/environment and equality/inequality in the sense that equality becomes a norm for internal communication and inequality becomes a norm for communication with the environment. The Greek term *isonomia* (Mau and Schmidt, 1964; Meier, 1970) referred to the equality of citizens as one strata of the society, successfully claiming to be or to represent the whole system. But it presupposed inequality with respect to other strata of the society. It defined, in other words, the internal environment of the society by inequality, and it depended in its own identity and self-conception on this presupposition.

Stratification, of course, requires unequal distribution of wealth and power — or, to put it more generally, unequal distribution of communication potential. It would be misleading, however, to focus exclusively on this aspect of inequality in terms of domination and exploitation or in terms of its possible justification, as bourgeois and Marxist sociology in fact does. Equality is as important, or even more important, as the principle defining the identity of subsystems. Stratification is a result of growth in size and complexity of the societal system. Under conditions that exclude the actual interaction between all members of the society, the communication system needs selective intensifiers. The premise of equality, then, facilitates the access to a selected group of partners, and this becomes even more important if stratification can be used to cut across a beginning role differentiation. Here, again, we have to distinguish genetic and functional considerations. The evolution of stratification requires an accidental and extrafunctional rise of unequal distribution and, in addition, some kind of symbolic differentiation of the social importance of persons or clans.<sup>6</sup> These are preadaptive advances in segmentary societies. It is only at a

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6. Compare the distinction of pyramidal and hierarchical structure by Southall (1956).

later stage of evolution that stratification performs its own function of integrating societies by a differentiated subsystem of high status with special communication potentials.

We can always moralize, of course, about the problem of unequal distribution, but we cannot advance from unequal to equal distribution. The *moral* problem of equality and inequality is an inherent problem of stratified societies, articulated in terms of a theory of justice, but it cannot be “solved” in these terms. Its moralization has only secondary, attenuating functions — or, as critics would say, ideological functions. The *structural* problem of stratified societies is *that the identification of subsystems requires a definition of their environment in terms of rank order or equality/inequality*.

Subsystems can maintain their identity and their boundaries only by defining the character of other subsystems. In this sense, the higher strata have to fuse their own identity with a hierarchical conception for the whole society, defining the places for others.<sup>7</sup> Whether lower strata accept, or are even aware of, this definition is an empirical question. They conform to it because they have no alternatives. The structural problem of differentiation by stratification is that it restrains the complexity of the societal system; it can be institutionalized only if higher complexity is not attainable anyway. Therefore, increase of wealth tends to revolutionize stratification systems.<sup>8</sup>

If communication among equals, in spite of conditions that make it difficult, is the main achievement of stratifying differentiation, it will be improbable that the communication process of the higher status groups refers to the behavior and living conditions of the lower strata. Rightly or wrongly, the environment is taken for granted. The communication process does not function to influence it or to adjust to it. There is, to be sure, the institution of complex household systems that modifies this condition at the level of personal relations. But, on the whole, lower strata have the problem of getting the attention and becoming a topic of influential communication, and their only means seems to be conflict: social movements, peasant revolts, uproars.<sup>9</sup> This way of catching attention may have consequences for

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7. The conceptual scheme that was supposed to do this work consisted of three dichotomies that tended to merge: whole/parts, higher/lower, and ends/means (or, intrinsic/extrinsic ends). They were introduced by Aristotle in his book on politics. An impressive attempt to formulate their coherence in the general framework of a religious cosmology offers Thomas Aquinas, *Summa Theologiae* I, q.65 a.2 (1952: 318).

The simple congruence of these dichotomies in the sense of the whole=higher=end and the parts=lower=means was not usable, of course, in practical affairs. The parts themselves had to be differentiated into higher and lower parts with different affinity to the whole. It is this context to which the classical notions of rulership or domination, representation and participation refer. Retaining these terms, the bourgeois revolution destroyed their context and, thus, generated the idea to solve problems by maximizing either domination or representation or participation.

8. One famous statement is de Tocqueville's (1952-53). It would be interesting, also, to analyze the system of ancient China as a contrary case. The Chinese apparently managed to use the functional subsystem of education for the double function of (1) absorbing the wealthy into the existing status system and (2) dethematizing social complexity by the classical topics of education. Cf. Ho (1960).

9. These conditions were drastically changed by the modern technics of mass communication. The invention of printing had an immediate and important impact already on the religious



the development of the society, but only rarely will it change the society by communication. The reforms of Solon are an exceptional case.

In both respects, with regard to the possible complexity of internal environments and with regard to adjustment by communication, functional differentiation provides for other conditions.

*Functional differentiation* selects communication processes around special functions to be fulfilled at the level of the society itself. Since all necessary functions have to be fulfilled and are interdependent, the society itself cannot give functional primacy to one of them; it has to use a second level of subsystem-building to institutionalize a primacy of specific functions for a special set of system/environment relations.<sup>10</sup> Salient examples are the political function of providing for collectively binding decisions, the economic function of securing want satisfaction within enlarged time horizons, and the religious function of interpreting the incomprehensible. In these and in other cases, the differentiation begins very early as a differentiation of roles. It gains momentum only if at least two different roles organize their complementary expectations around a specific function—for example, clerics and laymen, politicians and the public, teachers and pupils. This also requires a differentiation of service-receiving roles. These roles are boundary roles in the sense that they have to transform non-political relevances into political ones (public), non-economic relevances into economic ones (customers), non-religious relevances into religious ones (laymen), and so on. Only if this condition can be fulfilled on a larger scale can functional communications become subsystems that orient their operations toward a specific common environment within the society. They may even resort to illogical dichotomizations (e.g., state versus society, church versus society, or economic interest versus social interest) to articulate their relations with an environment that includes all other subsystems.<sup>11</sup> Environment and society tend to merge in this perspective.

Obviously, these conditions are more difficult to accomplish than either segmentation or stratification. Functional differentiation is the latest outcome of socio-cultural evolution.

Functional differentiation again shifts the distribution of equality and

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movements, the peasant revolts, and the city commotions in the first half of the sixteenth century. It did not only speed up and interconnect the movements itself, but it also intensified upper class communication by new and traditional channels (Eisenstein, 1971; Rammstedt, 1975). Today, members of the higher strata have to be informed people, and this means that they have to know (or at least feign to know) events immediately after their publication.

10. We have to recognize, however, that classical conceptions of society did use a conceptual technique that can be described as re-projection of functional primacies on the level of the encompassing system of society. Formulae like "*civitas sive societas civilis*" (stemming from Aristotle, *Politica* 1252a), "*corpus Christi*", "*bürgerliche Gesellschaft*" reveal such re-projection, using as their base the political, the religious, and the economic subsystem, respectively. These formulae have to be understood in the framework of a tradition that elaborated differentiation in terms of wholes and parts and had to use *pars pro toto* arguments (cf. note 7).
11. It is hard to justify, however, that scientific conceptualizations also join in using such dichotomies. Compare Apter (1971:13) as one example for many others.



inequality. Functions have to be unequal, but the access to functions has to be equal, that is, not dependent on the relation to other functions. The functional subsystems, therefore, have to be unequal, but their corresponding environments have to be treated as environments of equals because nothing but function justifies discrimination. A functionally differentiated society, thus, will become, or has to pretend to be, a *society of equals* insofar as it is *the aggregate set of environments for its functional subsystems*. This explains that the increasing functional differentiation, including differentiation of economy, of education, and of science, led to a reformulation of the normative ideal of equality in the eighteenth century (Dann, 1975).

Compared with stratified societies, functional differentiation realizes two important advantages in the direction of higher complexity. The functional subsystems do not depend on a complementary definition of their environment, nor do they prescribe the status of their environment in relation to themselves. Each subsystem can tolerate an open and fluctuating environment as long as the other subsystems in its environment fulfill their function. This condition requires, on the other hand, a constant selective adjustment by means of both influence on and adaption to the internal environment. Functional subsystems, then, are structurally induced to process information about their environment; they do not need, as status groups do, exceptional occasions to do so.

By means of functional differentiation, a society can multiply the specificity of functional relations and, at the same time, multiply the openness of internal environments in relation to which subsystems fulfill their functions. Its subsystems can afford indifference against anything except special traits of their respective environment. By specifying and institutionalizing functions, the society *increases* its internal interdependencies; by loosening the structural complementarities of systems and environments and by providing for indifference, the society *decreases* internal interdependencies. It augments, in other words, internal *dependencies* and *independencies* at once. It attains a higher level of compatibility of dependencies and independencies.

We must apply a system/environment theory and analyze the internal environments of functionally differentiated societies carefully to see the crucial point: the relation of each single functional subsystem to the society is not identical with the relation of each subsystem to its social environment; nor is this relation to the internal environment simply a set of inter-system relations. Therefore, the society can use a highly diversified scheme of functional differentiation because it can reduce its internal complexities by selective operations, which in all subsystems focus on their corresponding environments.

### III. Function, performance, reflexion

If subsystems are unequal and if their relevance for the encompassing system is reduced to a special function, new forms of system autonomy can arise. They result from the fact that each subsystem can orient its selective operations toward three different system references: (1) toward the *system of society* in terms of its *function*; (2) toward *other subsystems* within the internal environment of the society in terms of *input and output*

*performances*; and (3) toward itself in terms of reflexion.

The functional orientation gains its own importance by a process of specification at the higher level of the encompassing system. The essential conditions are sufficient size and sufficient care for other functions. The performance orientation can be characterized by the fact that input and output have to be adjusted to the system/environment perspectives of other subsystems; otherwise, they would not come forth or would not be accepted. Fulfillment of function as such does not amount to sufficient performance in inter-system relations. A reflective orientation, in addition, becomes unavoidable if problems of continuity or discontinuity spring up and have to be solved by going back to the conception a system has of its own identity. Their solution requires a history of the system that can be reduced and reconstructed as probing and proving problems, solutions, conceptions, and reality constructions. Such a history accumulates only if the society provides for specific system/environment relations at the level of subsystems.

It is essential to see that these system references, as well as selective standards for function, performance, and reflexion, are not identical. Even the relevance for the encompassing system in terms of the primacy of a specific function cannot claim to be the integrative formula or a kind of minimal ethic for all system/environment relations because, in a sense, the whole is less than the sum of its parts. This means that functionally differentiated societies cannot be ruled by leading parts (elites) as stratified societies could, to some extent, and that they cannot be rationalized by chains of means and ends as a technocratic conception would suggest. Their structural complexity can be formulated only by models that take into account several system/environment references at once.

Functional differentiation requires sufficient capacity at the level of subsystems to differentiate and reintegrate function, performance, and reflexion. This is the only way subsystems can attain operative autonomy as systems-in-their-environment. If they succeed, we can expect important consequences for the *temporal structures of the society*. The performance orientation gives priority to the time horizon of the *future*. It requires the temporalization of the relation of ends and means, replacing the medieval distinction of intrinsic and extrinsic ends. Reflexion, on the other hand, looks backward. It reinforces the identity of the system so that it can survive choices by reconstructing its *past history* as a consistent chain of intentions and actions. The function of a subsystem can be used as an address in communicative relations. It has, therefore, to be a *present* reality that directs and justifies communications. Of course, these different emphases do not exclude each other. No present is without future or without past. But the differentiation of function, performance, and reflexion at the operative level will differentiate time horizons. It will increase the complexity-in-time and will put tension on temporal integration. The present, then, gets the specific function of mediating between very different past and future states. It is well known that the time conceptions of modern society had changed drastically during the second half of the eighteenth century.<sup>12</sup> We have good reasons to

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12. A good statement is Koselleck's (1967, 1968). Compare also Poulet (1949) and Luhmann (1975a and 1976).

suppose that this change correlates with increasing functional differentiation.

Increasing functional differentiation, of course, leads to very different problems in different subsystems. A further analysis will require, therefore, changing the system reference and focussing on particular subsystems. If we take the formulation and execution of binding decisions to be the function of the political system, it is obvious that the fulfillment of this function is necessary but, at the same time, not sufficient as a performance to other subsystems. There has to be, in addition, sufficient care for the constant input of power resources and for the acceptance of decisions as a premise of behavior in the non-political environment; both input and output depend on structural conditions of environmental systems. Care for political performance in this sense may endanger, or will at least limit, the capacity to fulfill the function of politics; it will increase the proportion of undecidable issues. Furthermore, when operating in a changing environment, the political system has to provide for coherence of its decisions over time. In traditional societies, this was a function of law. If, however, modern societies differentiate the political and the legal system with respect to different function and, at the same time, provide for the change of law by means of political decisions, the legal order will no longer provide sufficient guarantees for coherent decision making in the political system. There has to be, then, a new kind of political reflexion focussing on the problem of continuing or discontinuing political premises of decision making. This reflexion cannot, of course, be simply an option for either a progressive or a conservative conviction.

Other subsystems may develop similar differentiations and, consequently, similar tensions. The system of scientific research pursues the function of producing a clear differentiation of true and false propositions.<sup>13</sup> It elaborates on this function by rules of methodological control. But methodological requirements can be refined forever and, nevertheless, do not warrant performance. Applied research, to be useful within reasonable time, may require healthy restriction on methodological scruple and even bold shortcuts that, one hopes, will be tolerated within the scientific community. Finally, neither methodology nor usefulness amount to theoretical relevance in the sense that results will solve or dissolve theoretical problems. Theoretical issues link the system of science to its own tradition in different fields, and it is only in terms of its theory that the system can reflect its own identity and may choose, on that base, between continuity and discontinuity. Here, again, we cannot expect natural harmony but, at best, stabilized and recognized tensions between the function, the performance, and the reflexion of science. And, obviously, it is only the subsystem itself that can cope with these tensions by differentiating its operations and by changing the focus of research. This requires high complexity and a high degree of specification that will neutralize the effect on the system of overemphasis on either theoretical or applied research or methodology.

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13. This requires the production of true and of false propositions. In fact, the production of false propositions prevails, at least in social science, and has even been claimed to be the methodological guideline of science.

In terms of its function, the economic system has to preserve sufficient generalized capacity or liquidity to extend the time horizon of need satisfaction. To be useful to non-economic systems, it has to produce goods and services. Its forms of reflexion have changed from profit (in the sense of non-contractual, non-social, and, therefore, purely economic income) to growth and may have to change again by taking into account problems of ecological balance. The educational system oscillates between humane education, reflecting thereby its own identity, and preparation of people for occupations as its performance, whereas its function could be described as socialization of persons as adequate environment of future social systems.

We could, but shall not, continue to itemize these highly debatable assumptions. The argument is that a general pattern emerges at the level of subsystems if functional differentiation is used as the primary structural differentiation of the society. Functional differentiation requires a displacement of problems from the level of the society to the level of subsystems. This is not simply a process of delegation or decentralization of responsibilities and not simply a factoring out of means for the ends of society. The displacement integrates each specific function into a new set of system/environment references and produces types of problems and problem solutions that would not, and could not, arise at the level of the encompassing system.

A normative, as well as the classical functionalist, reasoning would imply that a definite set of problems "exists" at the level of the society and that these problems "have to be solved" if the society will continue to survive. However, a closer look at the internal problems of functionally differentiated societies shows that we cannot take for granted that every function has the same chance of becoming a catalytic principle of subsystem-building within the internal environment of the society. Functional primacy at the level of subsystems means different things for different functions. Forms and urgencies of temporal integration of system and environment differ depending on the relations between function and performance. The subsystems are not equal in their capacity to differentiate function, performance, and reflexion. There is a widespread deficiency with respect to reflexion, which is, however, more obvious in politics than in science. Subsystems, therefore, differ in their tendency to use either function or performance as a substitute for reflexion; and there is at least one subsystem, art, which tends to use reflexion as a substitute for function and performance. We have, therefore, to accept the conclusion that *functional differentiation has itself a selective impact on functions*. It may start up processes of growth around specific functions and inhibit the development of others. Like any form of differentiation, functional differentiation is one of the factors that determines the outcome of evolution.

#### IV. Evolutionary perspectives

The conceptual framework outlined above elaborates the limited possibilities of system differentiation. To attain a clear presentation, it was necessary to isolate the different forms and to focus on them one after the other. We could compare the three forms of segmentation, stratification, and functional differentiation using the dichotomies of system/environment and equality/inequality as conceptual bases. This might have suggested the idea

that societies are either segmentary societies or stratified societies or functionally differentiated societies. But reality is, of course, much more complex.

The typology refers only to the *primary scheme* of differentiation. Whereas the traditional framework of wholes and parts had to characterize societies by their *partes maiores* or by forms of rulership, the system/environment approach characterizes societies by their primary scheme of differentiation. It replaces the classical political theory of society, which survives in many different elitist or pluralist conceptions, by sociological analysis. The most important structural choice, then, concerns the way in which the dominant scheme of differentiation defines not only the subsystems but, above all, the internal environment as a condition for further differentiation.

The first cut defines the conditions and limitations of further differentiation. Forms of differentiation do not exclude — they may even presuppose—each other, but there are limits of compatibility. Segmentary societies can develop stratification only in the form of “pyramidal organization” (Southall, 1956). They differentiate, to a certain extent, situations and family roles with respect to function, but they seem to be unable to catalyze enduring social systems around specific functions.

Stratified societies have to use segmentation because their strata consist of equal families, not of individuals. Stratification, then, depends crucially on segmentation but can use it only at the second level of differentiation defining the equality of sub-subsystems and the internal environment of status groups. Stratification is also compatible with functional differentiation, certainly at the level of special roles, but also of role systems, for example, bureaucracies, temples, or work organizations. It channels, then, the access to these roles. It approaches its limits, however, if functional subsystems define their clientele in universalistic terms. If the society introduces compulsory school education for everyone, if every person regardless of his being nobleman or commoner, being Christian, Jewish, or Moslem, being infant or adult, is subject to the same legal status,<sup>14</sup> if “the public” is provided with a political function as electorate, if every individual is acknowledged as choosing or not choosing a religious commitment; and if everybody can buy everything and pursue every occupation, given the necessary resources, then the whole system shifts in the direction of functional differentiation. The universalistic symbolic codes are preadaptive advances preparing for this change as early as in the Middle Ages.<sup>15</sup> The changes are accomplished if the whole population is split, regardless of ascribed status, into role sets that correspond to the functional differentiation of the leading roles. These, then, become organized with respect to their particular clientele environments to which they have to

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14. Hegel underlines this change in his *Grundlinien der Philosophie des Rechts* (1955: §§ 36, 209).

15. Comparing Chinese and European civilization. Benjamin Nelson draws attention to the fact that, irrespective of the degree of economic and technological development, the emergence of universalistic conceptualizations prepared the modern society in medieval Europe, but not in other high cultures. Cf. Nelson (1974).

adjust more than the status system would ever provide for. This change in role relationships restabilizes “universalistic” orientations and transforms them into an almost irreversible evolutionary achievement. Hence, universalistic symbolic codes are no longer a cultural or literary phenomenon only, but they become tied to the necessities of everyday life. They formulate for different subsystems in different ways the structural requisite of “inclusion” of everyone into every functional subsystem (Marshall, 1965; Parsons, 1971: 92ff. and 1974).

Functional differentiation, again, for many of its functions, depends on segmentary differentiation within functional subsystems. The most spectacular example is the political system. Even the global system of world society has, so far, not changed the fact that the political function needs a territorial basis for its decision making, and this so much more if it is supposed to maximize consensus and to optimize democratic rule. Thus, the political system of the world society is divided into political states not only in the sense of a more or less obsolete “survival” of history but apparently as a requisite of functional specification.

Obviously, stratification, too, survives — much to the complaint of bourgeois and Marxist intellectuals. But, adapting to the predominant functional differentiation, it changes form and content. Having been dethroned as the primary scheme of differentiation, it turns into a (more or less) open class system that is continually reproduced by the effects of functional differentiation. “Capitalist” and “socialist” countries do not differ in this respect, but they differ in the extent to which bureaucratic organization is involved in the reproduction of stratification.

Two essential features emerge from this discussion, summing up a kind of transitive relation, or even Guttman scale, between the forms of differentiation: stratification provides for more complex environments of subsystems than segmentation, and functional differentiation provides for more complex environments of subsystems than stratification. And: stratification has a higher, but not an unlimited, compatibility with other forms of differentiation than segmentation, and functional differentiation has a higher, but not an unlimited, compatibility with other forms of differentiation than stratification. Thus, the degree of compatibility seems to depend on the complexity of internal environments.

These considerations do not intend to explain socio-cultural evolution; they do not present a theory of evolution. Even perfect Guttman scales could not explain change or the reasons for the emergence of a certain succession.<sup>16</sup> A theory of system differentiation cannot explain why,

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16. It will be of no avail to distinguish between general and specific evolution and to limit the empirical research, using Guttman scales, to the evolution of special institutions or subsystems. Examples are: Swanson (1960); Schwartz and Miller (1964); Abrahamson (1968); and Farrell (1969). Compare also Freeman and Winch (1957); Caneiro and Tobias (1963); Leik and Mathews (1968); Buck and Jacobson (1968); and Bergmann (1973). As a critique of the application on problems of social change see Smith (1973: esp. 43ff., 137ff.). The restriction of theory and method to the sequential change of special institutions makes it easier to arrange empirical evidence in support of the theory, but it makes it more difficult to explain change.



historically, the chances to differentiate subsystems and to fill up their environments with complexity have been used at all. There is no general law, as the eighteenth century assumed, of change from simple to complex forms. A theory of evolution probably never will succeed as a theory that explains later states by previous states as part of the “process of universal history.”<sup>17</sup> It may, however, following the Darwinian tradition, work out a theory of structural changes brought about by the differentiation and interplay of distinct mechanisms for variation, selection, and stabilization (Campbell, 1965; Luhmann, 1975c). System differentiation can, then, be taken to be one of the factors of evolution, stabilizing its results and thereby defining the conditions for further evolution.

## V. Conditions and side effects

Different forms of differentiation rely upon different structural conditions; they also have different side effects. It is important to know these conditions and side effects — not so much as prerequisites for the “survival” of the society but as the structural framework for continuing evolution. We shall indicate some possibilities of further analysis with respect to (1) system boundaries, (2) size, (3) time structures, and (4) levels of expectation. The analysis will focus on societies with functional differentiation as their primary scheme, that is, modern societies.

1. Any form of differentiation presupposes boundaries of the differentiated system. Boundaries delimit the internal environment and establish selective relations between internal and external environments. They do not forestall and they may even encourage external traffic, cooperation, and conflict across the boundaries. The form of boundaries, therefore, will define the kind of external relations that appear to be advantageous or dangerous. The classical Chinese conception, differentiating civilization and external barbarian countries, seems to give priority to cultural and military considerations,<sup>18</sup> whereas the European notion of frontiers, differentiating legal and political systems,<sup>19</sup> tends to politicize external relations.

Forms of differentiation, on the other hand, affect boundary requirements. Increasing functional differentiation leads to diverging demands and diverging selection rules for the outer boundary of societal systems. The political and the legal systems have to insist on clearly defined territorial frontiers to be able to attach decisions to rules.<sup>20</sup> The religious and

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17. The reconstruction of past history in terms of a linear sequence of actions, events, or stages has, nevertheless, its own function in the present situation of a system. It reinforces the identity of a changing system — in our case, the identity of the bourgeois society in its change from stratification to functional differentiation. It will, however, be difficult to attain enough *scientific* support for functions which refer to the system level of the encompassing *society* that includes science as one of its subsystems.

18. Compare Fairbank (1968) documenting the conscious differentiation of civilized (internal) and barbarian (external) order and the strong cultural component of the tributary relations as well as of the attitudes with respect to foreign merchants. See also Lattimore (1951, 1962).

19. For the beginnings of European frontier conceptions, see Lemarignier (1945) and Dion (1947).

20. That in the European Middle Ages, particularly in France, the *religious* system did initiate



the economic systems, then, may come to look across political frontiers for their specific clientele. Their claims could be suppressed as long as their problems could be solved by traveling monks and merchants and/or occasional political expeditions. This condition changes, however, if the structure of these subsystems becomes increasingly dependent on processes of exchange with what politically has to be treated as environment. Then, pressures increase to extend the outer boundaries of the societal system and to relax their political definition. Otherwise, even decisive events in the context of religious, economic, or scientific processes would have to be located outside the system. If functional differentiation becomes the primary scheme of the society, these boundary problems can no longer be solved by travel or by attributing events to individual actors. The nineteenth century idea of individual capitalists exploiting world resources and getting legal and political support by their national states was already anachronistic. The territorial societies did fuse irresistibly into one global world society because some of their most important functional subsystems did expand so far and could no longer accept narrower boundaries. Since the political systems could not follow, they had the only choice of trying to bring world-interdependent processes of scientific and economic development and of mass communication and opinion change under local political control. Hence, regional differences are going to be transformed into different degrees of participation within the framework of one global society, and, therefore, we have a problem of "underdeveloped countries."

It is, after all, a consequence of functional differentiation that the boundaries of the societal system shift toward the extreme, encompassing, finally, all possible social communication. They constitute, today, a social system without historical precedent: a new type of societal system. And this changes the prospect of socio-cultural evolution in the direction of highest improbability: further evolution can only be the evolution of one unique system.

2. Of course, extending boundaries is a way to increase the size of a system but by no means the only way. We have, therefore, to discuss problems of size as a separate topic.

The concept of system size refers to the number of its elements, the interrelations of which constitute the system. The advantage of size does not lie in the capacity to actualize all possible interrelations but in the chance to select the important ones.<sup>21</sup> Increase in size means, therefore, increase in selectivity. Size obtrudes selectivity on a system, and the increased selectivity (and not the sheer number of elements) has to be matched by appropriate forms of differentiation. Selectivity operates in terms of equality and inequality. Therefore, stratification requires enlarged size and settles higher selectivity in comparison with segmentation and so does functional differentiation in comparison with stratification. Functional differentiation

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a movement toward clearly defined territorial boundaries, which was taken over only hesitatingly by the political powers, is an interesting exception, due to the legalistic and organizational structure of the church, which created decision problems of their own, for example, about competences of bishops, who traveled *extra provinciam*.

21. For a formulation of the problem see Graicunas (1937) and Kephart (1945).

provides for a system with the largest number of elements and, therefore, with the highest selectivity of any special relation. It definitely excludes the complete direct interdependence between all elements.<sup>22</sup>

With respect to problems of increasing size, sociological theory has the choice between demographic and communication variables.<sup>23</sup> Our framework tries to integrate both. Demographic variables refer to the growth of the population integrated into one society. From a systems point of view, these are *external* variables because persons as concrete psycho-organic systems belong to the environment of systems of social communication. Only communication variables relate to the *internal* processes of social systems. Sufficient size of the population has to be recognized as an important external condition for a sufficient number of communicative acts, but it can be used for intensifying the communication system only if appropriate techniques of communication are available, and it can, in part, be replaced by communication techniques. A country with low density population may have high density communication and vice versa.

High density communication has developed, roughly speaking, in three steps: from animal communication to language, to writing, and to mass distribution. Each step presupposes a sufficient population as an environmental precondition and responds to it by enlarging the number and intensifying the selectivity of communicative understandings. The change of communication channels by superadding more powerful means increases again the size of the population a societal system can integrate. The size of the system, then, stabilizes the required channels and techniques of communication as an almost irreversible evolutionary universal.

It is in this sense that evolution has brought about a single system of world society that relies on functional differentiation and on mass distribution of communications and would fall apart if structural changes did reverse either the primary scheme of differentiation or the system of mass communication. This means, on the other hand, that the system of world society has to pay the cost of its structural choice. Mass communication is not simply a better solution for communication problems, but it has a strong selective impact on almost all functional subsystems, limiting the ways in which they can fulfill their function.

Mass communication is not communication in the usual sense, intended to change opinions or influence action. It may or may not fulfill this function, but its specific impact on society involves time: as soon as information or opinions are published, common knowledge has to be taken for granted, and actions have to be based on imputed knowledge, whether opinions are really changed or not (Luhmann, 1975b). Thus, mass

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22. This is also true for reasons of temporal relation between system and environment, as Ashby (1956) has shown.

23. It will be impossible to decide if these are independent or dependent variables; evidently, they are both. For an extensive discussion of this question, compare Boserup (1965); Dumond (1965); Caneiro (1967); Spooner (1972); and Boserup (1974). The theoretically fruitful distinction, however, differentiates *external* and *internal* (and not independent and dependent) variables. External variables, too, may depend on system structures and forms of differentiation.

communication continually outruns its own immediate effects and speeds up reactions in a way that may or may not be compatible with a “serious” fulfillment of functions. In other words, the *social* reflexivity of “taking into account” what others are supposed to know already changes the *temporal* perspectives of experience and action. It is not so much the supposed uniformity of opinions but the shrinkage of time horizons that restricts the range of possibilities in other functional subsystems, and a plea for political control of mass communications is not only a plea for more consensus but also a plea for retaining an open, encouraging future.

3. Functional differentiation exposes subsystems to a highly complex internal environment. It attenuates common understandings, reducing them either to highly generalized symbolic meanings or to situations of the daily life that change with the change of partners. To a large extent, then, common assumptions about an enduring present reality have to be replaced by a succession of different events and actions, thus temporalizing complexity.

As research in the history of ideas shows, notions about time and conceptions of temporal horizons change accordingly.<sup>24</sup> In the early seventeenth century, the process starts, and this is a highly significant observation, by changing the concept of the present, reducing it to an instant without inherent continuity and depending on secondary causes and human effort for its preservation. This seems to register that loss of common understanding mentioned above, made visible by the religious wars, by economic fluctuations, and by geographic and scientific extensions of world views. Only the second half of the eighteenth century attempted to change the temporal horizons of past and of future accordingly, reconstructing the present as a turning point, or even as the point of decision, between highly different pasts and futures. Structure, then, becomes temporalized as non-arbitrariness in the sequence of events.

The same two centuries did initiate the transformation of European society on its primary level of differentiation from a stratified into a functionally differentiated society. The co-variation of temporal structures and forms of societal differentiation seems not to be a spurious correlation. It can be explained by a theory of differentiation focussing on the increasing complexity of internal environments and on its consequences for integration and inter-system communication. Stated in slightly different terms, functional differentiation leads to a condition in which problem generation and problem solution fall asunder. Problems can no longer be solved by the system that produces them; they have to be transferred to the system that is best equipped and specialized to solve them. There is on the level of subsystems less autarchy and self-sufficiency but higher autonomy in applying specific rules and procedures to special problems, and this means that interdependencies have to be mediated by time. Functionally differentiated societies need more time and have less time available than older societies. Their history, as well as their future, is much more complex

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24. For references, see n.12.

and contingent than that of any previous society, but the time horizons that are relevant for orienting experience and action seem to shrink nevertheless.<sup>25</sup> As a consequence, we observe increasing time pressures (and, correspondingly pressureless leisure times) in everyday life, and appointments get priority over values (Luhmann, 1971a).

4. Time pressures have a special impact on structure. They lead to a higher rate of structural change — a well known characteristic of modern society. Moreover, they affect the way in which structures can be identified as expectations in everyday life. This is a rather neglected topic; it therefore needs elaboration.

Everyday life is structured by reciprocal expectations.<sup>26</sup> It does not presuppose, however, a clear and unambiguous definition of the unit of one expectation in distinction from others. Expectations are evoked by contexts and live together in clusters. It is only under the pressure of disappointments and suggested changes that expectations are forced to accept either cognitive or normative meaning, depending on whether they are supposed to be changed in the case of contradicting events or to be maintained as counterfactually valid (Luhmann, 1971b: 40 ff.). And it is only this forced-choice condition of changing or not changing expectations that compels determining the point of view that identifies the unit that has to be changed or not to be changed. We have to know, after all, what is at stake before we are able to decide about dropping or holding out expectations.

Expectations of human behavior can be identified by *values*, by *programs* (norms or goals), by *roles*, or by the *persons* to whom they refer. These different levels of identification can be ordered on a dimension from abstract to concrete. Since expectations are shaped and used in concrete situations, the different levels imply each other and need not be distinguished if no problems appear. The exchange of greetings and small talk between friends may be expected as a value, as conditioned by a normative rule, as part of the role of a friend, or, simply, as the behavior of a person we know by its name and by parts of its biography; we don't have to decide which level would be the appropriate one. But, as soon as expectations have to be denied or to be changed, it becomes important to seek out appropriate levels of contrast. The differentiation of contrast sets compensates for the indeterminateness inherent in negations; it directs, in a way, the search for alternatives or surrogates.

For these reasons, we have to expect an increasing differentiation of values, programs, roles, and personal identities if the functional differentiation of the societal system speeds up processes of denial and change. Expectations, then, have to be changed frequently at appropriate levels, and their preservation, too, requires identification with respect to possible change. Goals may have to be changed while values are maintained

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25. Compare Galtung (1970) for some empirical evidence.

26. The concept of expectation is used by Parsons and others to connect structural and motivational aspects in the general framework of a theory of action systems. Cf. Parsons and Shils (1951); Parsons (1951); and Foschi (1972).

and persons change in roles. If we look at our present society, we find that its structural complexity is elaborated primarily at the levels of programs and roles. These middle levels sustain multiplicity and change whereas values become ideologies and persons become individuals. Values, then, get specialized in assuring enough consensus to begin communication and to bridge over any change in programs or roles. Only the modern society needs a concept of value. Persons, on the other hand, warrant continuity of concrete expectations in spite of highly individualized cognitive and motivational structures. Only the modern society creates and supports the social relevance of individuals. Both ideologized values and individualized persons are possible because the burden of structure is distributed on several levels and can be organized and adapted in the form of programs and roles on which values as well as persons depend. We can face, on the other hand, the contingency of programs and roles because we can transcend them in two directions, that of abstract values and that of concrete persons.

Next to time pressures and problems of temporal integration of pasts and futures, the way in which expectations can be identified and maintained or changed, has an important impact on perspectives and moods of everyday life without being recognized for that. Stratified societies could provide for conceptions of "good life" moulded upon the aspirations and realizations of higher strata. The functionally differentiated society continues to reproduce faded pictures of life in high society, but it founds the mediation of social structure and motivation on other mechanisms. They have to be more abstract and more situationally specific at the same time. Expectations have to be validated in a relative way, referring to systems which they hold or to decisions "subject to change without further notice." The situation can be described as dissociation of social integration and system integration;<sup>27</sup> it can be explained only as a trade-off problem of functional differentiation.

## **VI. Systems theory and theory of evolution**

Classical approaches to systems theory using the paradigm of the whole and its parts tended not only to ignore the structural relevance of environments for systems; they excluded, by these conceptual limitations, developmental perspectives too. The result was a theoretical cleavage separating theories of order from theories of development, statics from dynamics and interest in structures from interest in process as the primary focus of theory.<sup>28</sup> The respective theories were erected side by side, generating abstract controversies about the primacy of structure or of process as the fundamental reality of social life.

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27. Lockwood's (1964) distinction can be accepted only with important modifications. It will have to include the case of negative integration because denial, too, is a means of integrating communication about the same topic.

28. This cleavage has, of course, an old tradition. It has not been invented but only reformulated in the nineteenth century. It did originate from the attempts of early Greek "philosophers" to replace the epic-poetic way of preserved communication and rhapsodic education by a differentiation of knowing persons and known objects by means of the ontological focus on invariant structures of being as such. See, for this structural change of communication techniques and language patterns, Havelock (1963).

The system/environment framework outlined above does not offer the final decision on these issues. It does not pretend to be an axiomatic-deductive theory from which functional requirements of order, as well as explanations of change, could be derived by logical procedure. It accepts, at least provisionally, the difference of the conceptual frameworks of systems theory and of the theory of evolution. Given this position, which is, in a sense, the historical situation of sociological theory today, the task can only be to increase the complexity of both conceptual frameworks to provide for better possibilities of integration. We may rationalize the logical deficiencies of this approach by stating that only a plurality of *independent* conceptualizations may stimulate research on interesting (non-tautological) *interdependencies*.<sup>29</sup>

After Darwin, the theory of evolution treats a specific mode of structural change by differentiation of mechanisms for variation, selection, and stabilization.<sup>30</sup> Without losing its own conceptual coherence, it can dismiss the notion of a causal or "developmental" process of universal history as a self-explanatory unit.<sup>31</sup> This change of paradigm pulls away the base for the Marxist notion of a unity of theory and praxis. It provides, on the other hand, for better chances of integrating the theory of evolution and the theory of the societal system. The theory of organic evolution, at least, strongly suggests that systems theory can help to define and to characterize the different mechanisms of evolutionary change.

The Darwinistic approach, in other words, replaces the notion of a directional, historic sequence of changes from simple to complex states by the distinction of functions and mechanisms necessary for the use of chance in structural change. It is the higher complexity of this theory that increases the interdependencies between the theory of evolution and the theory of systems, provided that the theory of systems itself achieves adequate complexity. The same holds true for the reverse perspective. If we conceive of systems as open-systems-in-an-environment, structural changes have to presuppose non-coordinated events in systems and environments. Non-coordinated events are contingencies in themselves and with respect to their coincidence and conjunctive causality. The contingent coincidence of

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29. It is certainly an open question, but an interesting one to explore further, whether after Hegel and Marx and after Parsons, a more opportunistic, pragmatic approach to problems of theory design may be advisable. Bershady (1973) comes to a similar conclusion. See also Luhmann (1975d).

30. At the level of organic evolution, these mechanisms have been identified as (1) mutation and genetic recombination, (2) natural selection, and (3) reproductive isolation of populations. They are clearly differentiated by different *types* of system building. The application of this general framework to problems of socio-cultural evolution would also require the identification of these mechanisms and an explanation of their differentiation. It has never been attempted. The indication to struggle for existence or competition as explanatory principle is, of course, no adequate solution. See, however, Campbell (1965).

31. The so-called neo-evolutionist movement within the structural-functional theory did not quite grasp this change of paradigm, limiting itself to a *criticism* of *special* assumptions about a developmental process like necessity, unilinearity, continuity, and irreversibility. After having dismissed all this, we can hardly retain the notion of evolution as process: we then have to reformulate the conceptual foundations of the theory of evolution.



contingencies, and this is a plausible definition of chance, may lead to structural changes given the conditions stated by the theory of evolution. It is the higher complexity of both theories and the coordinated change of paradigmata in both areas that increases the prospect of theoretical integration.

This is, of course, a very formal way of stating possibilities of scientific research. The signpost indicating the road to concretization can be found if we go back to the distinction of outer and inner differentiation. The outer or primary differentiation is the general precondition for evolution as such at any level of physico-chemical, organic, and socio-cultural evolution. The boundaries of systems duplicate causal chains in the sense that single events in the environment of systems can have different effects in the environment and in the system. Minimal discontinuities, therefore, may increase over time as they differentiate reactions.

The same mechanism works within systems.<sup>32</sup> Moreover, internal differentiation fulfills one of the evolutionary functions since it provides the mechanism of stabilization. Systems within systems reproduce increasingly improbable behavior patterns and problem solutions and maintain evolutionary accomplishments (but also nonfunctional, or even dysfunctional, traits or survivals) within a zone of indifference against the fluctuations of outer and inner environments. If this is true, forms of internal differentiation can be supposed to affect evolution. Segmentation, stratification, and functional differentiation are not only different (but functionally equivalent) ways to retain and reproduce evolved traits. In doing this, they affect the interplay of the evolutionary mechanisms. For these mechanisms are not simply a list of requirements that have to be met additionally to bring about evolution; they are interdependent functions in the sense that the way in which one of these functions is fulfilled influences the span of possibilities of the others. Thus, functional differentiation increases and differentiates the horizon of possibilities for each subsystem. It stimulates variation and raises the requirements for selective operations to an extent that would be incompatible with any other form of retentive stabilization. It thereby accelerates evolution, and this again limits the range of possible innovations that can be retained. Under the condition of extreme functional differentiation, structural changes begin to outrun each other without having enough time to settle down and to test their best possibilities; then, speed itself becomes the predominant factor of selection.

These remarks are not meant to be descriptions or even sufficient explanations of the state of modern society. They remain at the level of general theory. They indicate, however, that important combinatorial gains could be achieved if the conceptual frameworks of systems theory and of the theory of evolution would be revised and reintegrated in the direction of higher theoretical complexity. And these combinatorial gains may turn out to be the decisive factor linking research in the tradition of "grand theory" with historical and empirical facts.

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32. Good illustrations concerning the internal differentiation of the proto-capitalistic European economic system can be found in Wallerstein (1974).



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