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An Informal Review of The Crisis of Global Capitalism: A Letter to George Soros

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An Informal Review of *The Crisis of Global Capitalism*: a letter[1] to George Soros

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Mr. George Soros
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Dear Mr. Soros,

I would like to bring to your attention some systems-theoretic ideas which are relevant to the point of view you present in *The Crisis of Global Capitalism*. From my perspective, your book, especially *Part I: Conceptual Framework*, is in both orientation and content an essay in "systems theory." My connection to what you have written is still more direct. I'm working on a book which integrates systems ideas and theories around the theme of "imperfection." This is close to the centrality of "fallibility" in your framework, since "imperfection" is to ontology what "fallibility" is to epistemology.

I want to do three things in this letter: A. discuss the relationship between a focus on "fallibility" and one on "imperfection" (and argue for the latter); B. share some thoughts about the "open society" idea; and C. take up additional technical matters (beyond those covered in A and B).

A. Fallibility and Imperfection

You ground your conceptual framework primarily in the two ideas of fallibility and reflexivity. I want to take up mainly the first of these, but will also touch occasionally on the second. The word "fallibility" puts the focus squarely on human beings as problem-solvers, policy makers, decision analysts, and social thinkers. While such a focus is valuable in opposing totalisitic orthodoxies and in promoting openness to new ideas, I don't think it illuminates the nature of social problems. To say that the imperfections of social systems are the result of "human fallibility" suggests too strongly that social (political, economic) arrangements are *designed*. While these arrangements are strongly *affected* by ideas, images, expectations, and plans, as you stress in the idea of "reflexivity", these systems -- as they manifest in the world -- are obviously not designed but rather evolve through complex and obscure forces. The market system as a reality -- as opposed to as a textbook model -- is not a construct, however much it has been influenced by our constructs. The imperfections of social systems are not necessarily different from the imperfections which characterize natural (e.g., biological, but even physical) systems. The fact of human fallibility only partially illuminates the imperfections of such systems.

[1] This is a slightly abridged version of a letter sent to Soros; some personal remarks (e.g., in the opening paragraph, before Section A) have been edited and condensed.

I would add that the imperfections of things which *are* (nearly completely) designed are not typically *made visible* by noting the fact of human fallibility. The control system for a nuclear power plant is designed, but the difficulties of good design stem from the objective complexity of both the controlling and controlled systems. All complex computer programs have bugs and a bug is a sign of programmer fallibility, but it tells us more to speak of tradeoffs between speed of execution and clarity of the code or between the integration and differentiation of function.

To further illustrate my argument that social problems are not adequately subsumed by the notion of human fallibility, consider the following four examples.

1. There are quite a few social problems which exemplify the "Prisoner's Dilemma" archetype: aspects of pollution, the population explosion, log-rolling, arms races, difficulties of voluntary collective action, etc. These difficulties arise because in certain situations individual rationality leads to collective irrationality. One could say that these difficulties arise from human fallibility in that we often assume -- incorrectly -- that the individual pursuit of self-interest leads *necessarily* to the common good. (The fact that many situations are PD-like does indeed illustrate the fallacy of market fundamentalism as a general assumption.) However, having perfect knowledge of the PD payoff matrix and knowing also that individual rationality in this case will *not* lead to collective rationality does not automatically help the actors if the structure of the situation cannot be changed. The problem is not fallibility, but rather the intrinsically problematical character of the PD situation, which is partially connected to the general problem of positive or negative externalities. There are many other game-theoretic situations which are archetypes of other ubiquitous human problems where fallibility is not an issue. (These problems arise in part because of "reflexivity." In games against other players, player X must consider the strategy of player Y who in turn is considering player X's strategy, and so on. This circularity is central to some of the paradoxes of nonzero sum games and to the inherent instability of coalitions in games with more than two players.)

Related to game-theoretic conundrums are decision-theoretic dilemmas ("games against nature"). Consider, for example, your discussion (pp.75, 202) about principle-based action versus expediency-based action in politics, and the parallelism between this and fundamentalist vs. speculative investment behavior. There is necessarily a tension between these alternative modes of behavior. As is the case in all polarities, there are always tendencies to both extremes, but neither extreme makes sense. Karl Deutsch speaks eloquently in his *Nerves of Government* of the dangers of either excessive or insufficient commitment (in financial husbandry, of either insufficient or excessive liquidity). Jon Elster in his *Ulysses and the Sirens* offers a sophisticated analysis of the paradoxicality of commitment, of -- as he calls it -- "binding the future." These issues are popular also among "evolutionary psychologists" who argue for the rationality of allegedly irrational emotions. ("Irrational" emotions are seen as rational in the long term, as preservers of principle-based action needed to balance the inherent expediency-orientation of short term rationality.) At a more abstract level, this is all about the dyad of rigidity vs. flexibility, which is closely related to that of closedness vs. openness.

2. Mathematically, one cannot optimize simultaneously two or more functions unless one can merge them into a single function. One therefor cannot optimize multiple "goods" unless they can be expressed in common terms. This is of course the reason that non-monetary values are often assigned monetary equivalents, so multiple values can be merged into a single net measure, which in principle could be optimized. But although monetary values can always be assigned and justified in one way or another, there clearly is no sound way to quantify and put on a common scale the value of preservation of nature, or of human lives, or works of art, etc. There is no common scale for equality and justice, and thus no way to optimally trade off one for another, and there are many other dyadic, triadic, and higher-order incompatibles and incommensurables which similarly cannot be optimally reconciled. This is a major source of the imperfections of social systems, and it does not arise from human fallibility. It is, to be sure, an instance of human fallibility to believe that it is possible to simultaneously optimize multiple objectives. But the problem is primarily the mathematical impossibility and only secondarily the error of not recognizing this impossibility.

Here I would urge upon you the consideration of the ideas of Isaiah Berlin, who argued that utopian thought was flawed not merely because our ideas are inadequate or because our implementations always fall short of our ideas, but because the very ends we pursue are inconsistent. Our moral values are not mutually compatible. The fault lies not in us but in the Platonic heavens. A technical version of Berlin's thesis is made plain in the famous Arrow Impossibility Theorem. For decisions involving more than two choices, where the ordinal preferences of decision-makers need to be aggregated, there is no way to do this aggregation which is (a) rational, (b) egalitarian, and (c) decisive. Of course, Arrow's Theorem is a mathematical result which is rigorously valid only in a narrowly defined situation. Applying such results to real world decision making is necessarily metaphorical. Still it came as quite a stunning surprise that the very notions of democratic decision-making could be inherently, i.e., logically, flawed.

Aside from the impossibility of optimizing multiple functions, there is also the non-existence of algorithms that allow us to find the global optimum even of a single nonlinear function except by evaluating all possibilities, which is rarely feasible. There is the inevitable tradeoff of getting new information about a problem (continuing a global search) versus exploiting the information one already has (being satisfied with a local optimum). The best is the enemy of the good; the good is the enemy of the best. One never knows which to seek.

Mathematical systems of sufficient complexity exhibit the Gödelian imperfection of being either inconsistent or incomplete. If one generalizes the ideas of consistency and completeness beyond their technical meanings in number theory one can see both problems, and also tradeoffs between the two, in many social systems, especially in systems of constructs, for example ideologies, the law, etc.

3. Systems sufficiently complex to have distilled out separate levels of matter/energy processing and informational control cannot be guaranteed to have the interaction of these two levels ideal and harmonious. To exemplify these two levels: in organizations,

there is management as opposed to labor; in economic systems, the financial as opposed to the manufacturing and energy sectors; in global interaction, the internet and other forms of electronic communication as opposed to physical transportation and trade; in complex biological organisms, the nervous system as opposed to other physiological systems. The informational level exists ideally and was selected for evolutionarily to regulate the lower level and make it more efficient and adaptive to external conditions. However, nothing guarantees that regulation will not fail or be maladaptive. Nothing prevents the informational level from becoming detached from its true function or subverted by alien information, thus giving rise to "informational parasitism."

The progressive etherialization of systems both refines function and generates dysfunction. You discuss this extensively for the global financial system, but we ourselves similarly live in a virtual reality (our minds -- assisted by media -- construct a reality only partially constrained by objective conditions), and this virtual reality is, as you say, linked to "real" reality: the construction changes the objective conditions, for better and for worse. Reflexivity, the complex relationship between an informational level and the matter/energy level from which it has been distilled, can produce benefit or pathology or both. God -- and the Devil -- are in the details of the relationship between these levels, and a benign relationship is not guaranteed.

4. To the extent that social, economic, or political systems are governed by dynamic laws which are chaotic, unpredictability and instability is to be expected. Fallible (and reflexive) human constructs do indeed contribute to the formation and maintenance of systems which are chaotic, and one might see the source of chaoticity in such constructs, but I would argue that it is more illuminating to point to the mathematical relationships which generate chaos than to the constructs which (partially) contribute to these relationships. The fallibility or reflexivity of such constructs is neither sufficient nor necessary to produce chaoticity. (But if markets are partially chaotic and not merely stochastic, this does indeed illustrate the fallibility of classical economic theory.)

To say more about dynamic systems: as you insist, not all dynamic systems approach equilibrium. Some (e.g., arms races) diverge towards infinity (of course, this cannot be reached; the mode of organization necessarily breaks down at some point or negative feedback constraints set in). Systems with net positive feedback (whether vicious or benign) don't relax to an equilibrium and often lock in initially random features of the system. (I like your vicious cycle example on p.xxiii of the "disenchantment with politics has fed market fundamentalism" and "the rise of market fundamentalism has, in turn, contributed to the failure of politics.") As you say (p.xxiv, p.39), the positive (non-restorative) feedback can be due to reflexivity, but it need not be. Non-equilibrium behavior demonstrates the fallibility of classical economic theory, but is not itself a consequence of the errors in its constructs.

Even systems with attractors need not have point attractors, which are so favored by classical economists. Limit cycle attractors are the norm (so economic cycles are in fact to be expected). Nonlinear systems, i.e., most systems, have *multiple* attractors, and fluctuations in state can shift the system to a completely different attractor. As you say

on p.xvi, it is false to assert that markets dislocated by external forces always return to equilibrium. Markets are surely nonlinear, and the stability of an attractor in a nonlinear systems is always local, never global. Some displacements from an attractor are not self-correcting but lead to qualitative change. When there are multiple attractors there are often hysteresis effects, which are simply and elegantly captured in the cusp catastrophe model. As you also say on p.xvi, "if a boom-bust sequence progresses beyond a certain point it will never revert to where it came from." In general, reversing policies doesn't necessarily restore a system to the earlier condition.

Chaotic attractors can be quite unstable with respect to fluctuations in state-variables or external parameters and extremely sensitive to initial conditions, a phenomenon absent in the linear models of classical economics. One might speak of problems arising from extreme sensitivity to initial conditions as being due to imperfect human knowledge of these initial conditions, but exact knowledge of these conditions is inherently impossible and the essence of such problems is not really human fallibility or imprecise knowledge but rather this extreme sensitivity of the mathematical relations. Even systems which approach equilibrium points often overshoot (you give an example on p.79): if time lag and amplification are not right, overshoot can get bigger rather than smaller. Complex dynamic systems exhibit counter-intuitive effects, as you comment frequently: if one intervenes by changing state variables or parameters, unintended consequences (so called "side-effects") are always produced (one can never do just one thing) and sometimes even the "main effect" is exactly the opposite of what is intended.

The unsatisfactoriness of both poles of any dyad is exemplified in the unsatisfactoriness both of systems fixed in stable equilibria and systems afflicted with chaoticity. Your discussion around p.66 and p.184, about the opposite kinds of challenges faced by systems in the "solid" phase where distortions can accumulate but manifest only too late and by systems in the "gaseous" phase where change is too rapid to be adapted to, very closely resembles the "edge of chaos" rubric of contemporary complexity research, e.g., the ideas of Chris Langton (e.g., his article in *Artificial Life II*), the evolutionary simulations of Stuart Kauffman, and Per Bak's notions of "self-organized criticality." The "edge of chaos" (simultaneously the "edge of rigidity") according to this rubric is the best place to be, but it is precarious. If you are not already familiar with this edge of chaos literature, you would probably find it congenial.

To summarize point #4 briefly: there are many pathologies possible for dynamic systems. They are best understood as just that: the aberrations inherent in certain dynamic relationships. Reflexivity and fallibility may or may not be involved in establishing these relationships.

So, let me urge you to consider a more radical point of view, namely that *all* systems, not just human constructs, are "imperfect" and this imperfection goes far beyond human fallibility. Sometimes I think that this is your opinion as well, since many of the examples you give of imperfections in social systems -- to my mind at least -- clearly go beyond human fallibility, yet you do sometimes (e.g., p.19) seem to want to subsume them all under the umbrella of the imperfection of human constructs.

To say that all systems are imperfect requires a qualification of "all" and a definition of "imperfect." I mean "all" in the following sense: a mathematician would note, for example, that in the ensemble of all possible dynamic systems described by mathematical laws, many many more are nonlinear than linear, and nearly all nonlinear dynamic systems are chaotic (for some choice of parameter values). What I mean by "imperfect" is illustrated in the examples above. Mostly I am talking about biological and social systems, and also systems of human constructs, but physical systems can be viewed as "imperfect" in a certain sense. For example, the solar system is no doubt chaotic and its order cannot be expected to endure indefinitely. (So example #4, which discusses nonlinear dynamics is relevant to physical systems, but example #1, which discusses game and decision theory is not.) If persistence is a virtue, vulnerability to dissolution is imperfection. Of course, one need not label the eventual loss of order of the solar system as an imperfection (though it certainly would have viewed as a great imperfection by medieval thinkers). The notion of "imperfection" seems to imply some human consideration, but the imperfections described in the four examples above have at least some objective character.

To articulate and support such a position, one needs a theoretical framework. There is such a framework. It is "systems theory," or the theory of "complexity" or "complex adaptive systems." These aren't really *theories*. One is really speaking of an orientation, a way of organizing knowledge around general and abstract principles of form and process, an orientation which provides a critique of standard ideas in the sciences. Issues of openness and closedness, order and disorder, instabilities, counter-intuitive effects and unintended consequences, paradoxes, error correction and error amplification, hierarchical order and its pathologies, relations between center and periphery, competition and cooperation, predation and symbiosis, complexity, emergence, the benefits and dangers of the capacity to model internal and external process, etc. are the kinds of issues that systems research is concerned with. This kind of science is very abstract, but it is the most useful kind of science for understanding (and affecting) the world.

It would certainly be helpful to have a new image of what we want and what is possible for human society. But I would suggest that to achieve that what is really required is something still broader and more ambitious, namely a new metaphysics. I do not mean, by "metaphysics" ideas about the soul, free will, and the like; I mean, in your terms (p.85), a new set of universal ideas. "Systems" ideas *are* these universal ideas which are needed. Human fallibility is a special case of a more general "metaphysical" fact: imperfection, uncertainty, and hazard are ubiquitous and lawful. Human fallibility is an imperfection of our cognitive system which models the world and ourselves and the interaction between the two, but imperfection is not restricted to our mental constructs. They merely partake in the general imperfection of everything.

As you point out, imperfection does not imply that flaws cannot be fixed, but remedies are local and provisional and generate new problems, so the dialectic continues. I appreciate the cheer in your observation that that because "perfection is unattainable ...

`what is inherently imperfect is capable of infinite improvement." In teaching the view that things are inherently imperfect, I have gotten complaints from students about the pessimistic tone of this position. I point out that we are grateful for many imperfections (e.g., those which led to the demise of totalitarian systems), and many are just the unavoidable concomitants of adaptive and successful organization, but this still is not upbeat enough for them. "Infinite improvement"! That should lift their spirits. I would add only (again the pessimistic take!) that what is imperfect can also be made worse.

A comment on your p.22 assertion that "Every construct develops a defect with the passage of time, but this does not mean that it was inappropriate or ineffective at the time it was constructed." It seems plausible to me that this might be true, but equally plausible that the defect may well be an "original sin," i.e., an error (incompleteness, inconsistency) in the construct in its very origins, not an extraneous error but an essential one. This kind of defect is more interesting, and it might be more interesting still if one asserted (dialectically) that there was often a connection between the defect and the strength of the construct; in your language, between the fertility of the fallacy and its fallaciousness. For example, a strength of Marx's critique of political institutions and cultural values was his observation that they served economic interests. With this strength came the natural -- and in the long run deadly -- weakness of cynicism about bourgeois liberties, which made the progression to Lenin and Stalin easier than it would have been if Marx had adequately appreciated the significance of political freedom and democratic institutions.

A final comment on fallibility: a related orientation might be one which spoke of *uncertainty* as an inevitable component of human modeling and decision making. Uncertainty is a major theme in the systems field, and it is deeply linked to another major theme: complexity. Perhaps uncertainty can be subsumed as a component of fallibility. For all my complaints above that fallibility is not a big enough idea, I very much agree with your discussion (around p.90) that we have left the Age of Reason and approach the Age of Fallibility. The idea of limits to human reason *is* a very big idea and it is, I must admit, much more accessible to the general public than any metaphysical notion of general imperfection. Perhaps one additional idea needs to be explicitly added to fallibility; that is *hazard*. It is because of hazard that fallibility matters, and hazard greatly increases as human power increases and as the planet becomes integrated.

B. Openness

The "open society" is a clear and powerful conception with which to oppose closed societies, but as you note, the battle against this mode of social organization has largely been won. Our society, as you point out, is endangered from another direction. You write about the instabilities of the global capitalist system -- and there are also the challenges of social and cultural fragmentation and the delegitimation of the political sphere -- but the phrase "open society" has no natural association with -- and can't help mobilize against -- *these* dangers. When you say (p.xxii) that "market fundamentalism is today a greater threat to open society than totalitarian ideology" there is a great mismatch between the obvious and *intrinsic* opposition between "open society" and totalitarian ideology and the less obvious and more indirect threat of market fundamentalism.

However much you would like to situate "openness" in the *middle* of a spectrum, it is more easily understood as the simple opposite of "closedness," i.e., as the other *end* of this spectrum. This interpretation is both straightforward and compelling in formerly closed societies, and it is difficult, I think, to broaden the normal connotations of "open society" to allow it to do the two-fold work you want it to do. This is partially an issue of rhetoric -- whether the "open society" phrase can serve both purposes, but it is also a matter of getting a more complex idea developed, understood, and accepted. Promoting your vision of an "open society" as a fragile but necessary balance between closedness and openness requires not merely supporting practical projects reflecting such a balance, but also the intellectual development and the popular articulation of this vision. Intellectual development is needed to establish and legitimate this mode of thinking. Effective popular articulation, however, is the more difficult task. On p.85, you point to the hard problem: acknowledging human fallibility -- or the inherent imperfections of systems -- is not a view that can "fire people's imagination." Something more is needed. Aside from the problem that the "open society" idea, because of its Popperian origins, tends to suggest only the opposite of totalitarianism, the idea is too anthropocentric. Our responsibility is not "merely" for human society but for life on earth.

I'm sure you agree that closedness can be beneficial; you suggest that on p.192 for financial markets. Too much openness can be harmful, even in systems of thought. One beneficial idea that the deconstructionists have brought us is the notion that in every dyad, one pole is "marked," i.e., favored. In the dyad of openness and closedness, openness is clearly the favored pole. This preferredness colors the phrase "open society" and unfortunately obscures the desirability and necessity of some suitable aspect of closedness.

Also, the open-closed polarity itself is insufficient. It is only one of a family of partially but not completely correlated polarities: order and disorder (or to reverse the marked state, constraint and variety), autonomy and interdependence, unity and multiplicity, rigidity and flexibility, and so on. For a higher level of organization, the tension that exists between being either insufficiently grounded in or insufficiently autonomous from a lower level is another such polarity, one relating (as discussed earlier) to reflexivity. The threat to the open society from the "other direction," from the absence of social cohesion, cultural coherence, political effectiveness, and economic regulation is, in these terms, the threat of not enough order, constraint, unity, and rigidity. In our society openness, variety, multiplicity, and flexibility are the marked states. To suggest that these are not absolute virtues but can be overdone would fall on deaf ears, although the Zeitgeist might change if there is economic or ecological collapse. It's of course more complex than this: the left likes order in the economic sphere but the absence of constraint in the cultural sphere, and the right likes the reverse; it is impossible to convince anyone about the ideal balance of these many contraries.

C. Economic Models, Boom-bust Cycles, Financial Markets, Dialectics of Capitalism

The equilibrium models, worshipped in economics, is, as you argue, only one possible mathematical framework. It is like the joke of the person looking for a lost object under a lamppost despite losing it elsewhere because the light is better there. In addition to the alternative of nonlinear dynamics, there are the related ideas of Prigogine, based also in non-equilibrium thermodynamics. (I suspect that your "near equilibrium" and "far from equilibrium" terminology comes from him. There are really two different meanings for the word "equilibrium": mathematically it just means the rates of change of the state variables are zero, but the word has also a thermodynamic usage. I think you are merging both meanings.) The steady states that Prigogine speaks of are attractors and if one imagines a sequence of shifts from one attractor to another triggered either by external perturbations or by internal fluctuations, one has a model of a *historical* and non-equilibrium process. There is also the explicitly evolutionary view of economics advocated (nonmathematically) by Kenneth Boulding; this is a non-equilibrium view through and through.

You might be interested in reading an article by E.C. Zeeman ("On the Unstable Behavior of Stock Exchanges", Journal of Mathematical Economics, vol. 1, pp. 39-49, 1974, reprinted in his *Catastrophe Theory: Selected Papers 1972-1977*) which proposes a cusp catastrophe model of boom-bust cycles. These cycles are the consequences of the linkage of two "control parameters", the "splitting factor" being speculative action and the "normal factor" being objective economic conditions. The linkage of the two calls to mind your discussion of financial market reflexivity. In Zeeman's model, too, what is "initially self-reinforcing" is "eventually self-defeating" (your p.54). Zeeman's model is a very parsimonious model of such cycles (it is enormously simpler than the typical "systems dynamics" models sometimes used to model economic phenomena) and one which is close to yours. I think your 8 stages and your graph on p.52 might even be related to the details of this cusp catastrophe model, but I do not see right now exactly this could be done. The cusp model also lends itself to describing political transformations, e.g., the collapse of the Soviet Union which you talk about on p.64, scientific revolutions, and other processes showing discontinuous effects produced by continuous causes. You might also have a look at catastrophe theory, which is one component of the theory of nonlinear dynamics which offers a family of simple yet insight-giving models.

Also related to financial markets: Galbraith wrote a comical novel, *A Tenured Professor*, about a theorist who figures out how to exploit speculative booms. I vaguely remember something like a calculated "coefficient of irrational expectations." The SEC gets on his back even though he fully plays by the rules. I think he also runs afoul of the academic establishment for going against prevailing economic dogmas and, worse, getting rich on it! Your description of your investment strategy reminds me strongly of Galbraith's sketch. If you haven't read this book, I'm sure you would enjoy it.

Perhaps you might consider taking up in your writings not only the instabilities of the global capitalist system, but the issue of whether the financial system as the informational superstructure of the productive base actually performs the function which justifies its

existence. To the extent that speculative factors prevail, it probably doesn't do so very well. There are surely grounds for arguing that it is at least partially exploitative of the base, i.e., an instance of "informational parasitism." How would one know the degree to which it is performing its proper function and the degree to which it is ungrounded and self-serving? I have no idea, but instability is only one of the imperfections of this system. When informational levels become detached from their proper function, one can speak also of irrationality; and, in moral terms, of injustice.

Re your observations that "monetary values and transactional markets do not provide an adequate basis for social cohesion" (p.xxi) and also undermine the legitimacy of the political order, it might be useful to formalize these observations with the very simple scheme of Boulding who writes of a three-fold social order: (1) the "exchange" system, i.e., monetary values and transactional markets, the system of voluntary exchanges for the mutual benefit of free agents; (2) the "threat system", namely the political system, which monopolizes the legitimacy of the use of force and provides the institutional framework within which the exchange system can securely operate (unfortunately the "threat" label, while being expressive, is too negative); and (3) the "integrative system," i.e., the culture, the common values which bind people together beyond the calculus of mutual benefit or the compulsions of threat. This is very similar to Talcott Parson's conceptualization, which adds a fourth component, "society," i.e., the web of human relations, voluntary and community organizations, etc. The exchange system needs stabilization by the threat system, but as you note, political order is absent in the international arena, and within the US is becoming increasingly delegitimated.

The system of cultural values in the West which facilitated the rise of capitalism is also, as you say, undermined by it. Culture, the shared values beyond transactional values, also ideally stabilizes the exchange system. As you note on p.74, the Prisoner's Dilemma, one of the pathologies (and virtues! e.g., price wars) of the exchange system, can be solved if the crooks shared the value of loyalty or not squealing. (The Mafia -- threat system -- approach is an alternative solution.) Indeed, religious and ethical values can be understood as providing sweeping solutions to PD and similar problems. You approach saying this on p.92 and later on p.211. The "free rider" problem is a PD. Hobbes' war of all against all is a PD. Political order is one solution. Cultural values are a more efficient solution. From one point of view they internalize the threat solution (in the superego); from another they modify our utility function to add consideration of the interests of others, and thus actually change the payoff matrix so that it is no longer a PD.

Perhaps more fundamental than the problem of the weakening of both the threat and the integrative systems by the hegemony of the exchange system is the simple disconnect (p.111) between capitalism and democracy. A system based on two different organizing principles is one based in contradiction. (Yet a system ordered by any single organizing principle is invariably incomplete.) Democracy and capitalism, as you note, are different organizing principles, and a contradiction inheres in society being organized around both. The principle of democracy should be dominant over the principle of capitalism, but the roles have largely been reversed, in part because the latter has larger scope (the nations of the world are locked into a PD which prevents both an international political order and

the effective control of capital), and in part because Marx's claim that the institutions of democracy serve the interests of capital has considerable truth to it.

I have other observations I might share, but this is surely enough for now. I enjoyed and profited from reading your book. I hope the ideas in this letter and my two enclosed articles are of some interest to you, and wish you and OSI all the best in your efforts.

Sincerely,

Martin Zwick
Professor of Systems Science