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Discussion Paper

by

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on

Walter B. Weimer's

**SPONTANEOUSLY ORDERED COMPLEX PHENOMENA
AND THE UNITY OF MORAL SCIENCES**

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COMMENTS
ON WALTER B. WEIMER'S
"Spontaneously Ordered Complex Phenomena
and the Unity of the Moral Sciences"

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I. General and broad agreement, minor, mainly logical disagreement

Professor Weimer has written a most interesting essay both because of the major claims he propounds and because of the many detailed discussions of particular points. He amasses an impressive collection of short intriguing discussions of topics and theories in biology, neurophysiology, psychology, linguistics, economics, social and political philosophy, and other disciplines to illustrate several major tenets of his, especially: (1) that all the unity of sciences we can defend is the unity of method and purpose, and (2) (that) the latter sciences manifest three general abstract regulative principles, which we will discuss below. In the process Professor Weimer formulates a large number of exciting claims.

Weimer's is indeed a very rich, instructive, and tantalizing paper. I am very happy to report both my general agreement in principle with the overall drift of the essay and my broad agreement with most of the particular claims in it. Weimer and I disagree chiefly about some of his minor theses, about the evaluation of some of his claims, especially his three regulative principles, and about the logical success of his argumentation. The paper is very ambitious, and in spite of its length it is just too short to support

Weimer's many claims. This is not, however, a complaint, but a mere observation. Clearly, it would be next to impossible to offer in less than several hundreds of pages the detailed argument all of Weimer's claims require. Yet I am not happy with the general lay-out of Weimer's plot, nor am I persuaded by some of his particular arguments. I will discuss these structural matters and leave for the most part untouched the merits of Weimer's particular theses.

Perhaps Weimer will object that my concentrating on matters of argument and evidence constitutes an exercise in justificationist epistemology, which he chastizes in his paper. He may be right about that; I am not sure, because he offers no clear characterization of his non-justificational epistemology. Yet I cannot believe that Weimer's non-justificational epistemology can be inimical to evidence and reasoning. Thus, here is my first minor complain: he ought to have characterized his non-justificational epistemology in some detail, so that there could be useful contrast between it and that of Popper's or that of what he calls rational constructivism. As things stand now, the contrast is merely one of suggestive labels about a mysterious real contrast.

One area of more substantial disagreement is this. Weimer holds the intriguing thesis that the distinction between natural and social sciences is not adequately drawn, and that the distinction should be drawn between sciences that study complex reality and sciences that do not. He proclaims to derive support for this from some views of John Von Neuman's about the

complexity of the human brain and logic. Here I confront two difficulties. On the one hand, I understand and am persuaded by what Von Neuman says in such citations, yet I do not see how Weimer derives his tenets from those citations. On the other hand, Weimer offers no criterion of complexity that can help draw the sharp line between what he sees as two drastically different kinds of science. His polemics against positivists' philosophy of science is marred somewhat by its not being focussed on the positivists' conception of science. Nevertheless, in passing Weimer throws a casual remark about identity that seems to me to be very fruitful in securing a good deal of what he wants --albeit on grounds so different from his claims about complexity, that I feel that I am jumping into another dimension in developing it. Yet it represents an aspect of our broad agreement.

Another disagreement of some importance pertains to the connection between sciences, complex reality, and social and economic policy. In spite of some remarks about how progress and the economic market can be guided, but not controlled, Weimer's economic and social politics is not clear, but he seems on the whole to be defending a laissez faire view of the system of free enterprise. Naturally, this view follows neither from the discussion of complex systems he takes from Von Neuman nor from his three very general regulative principles. His arguments leave much to be desired.

Let us proceed to the details.

II. Von Neuman's View of Complexity and Weimer's View of the Moral Sciences

As forenoted, there is a significant discrepancy between VN's claims about complexity and Weimer's view of the moral sciences. Weimer cites from VN the following passages and others expressing the same ideas, where the emphatic capitalizations are all mine:

(a) ... But in the complicated parts of formal logic it is always one order of magnitude harder to TELL what an object can do than to produce the object. (VN, 1966, p. 51)

(b) [about the brain] "It is not at all certain that in this domain a real object might not constitute the SIMPLEST DESCRIPTION of itself, that is, any attempt to describe it by the usual literary or formal-logical method may lead to something less manageable and more involved... It is, therefore, not at all unlikely that it is futile to look for a precise logical concept, that is, for a PRECISE VERBAL DESCRIPTION of "visual analogy." It is possible that the connection pattern of the visual brain itself is the simplest logical expression or definition of the principle." (VN, 1951, p. 24).

Von Neumann is saying that the DESCRIPTION of a complex object is more complex, less manageable than the object itself. YET Weimer derives from VN's citations the following some interesting theses:

(i) "This puts the program of explanation by covering laws of particulars in complex domains in the realm of utopian fantasy." (P. 6)

(ii) "VN's conjecture leads to an abstract constraint on systems of explanation: It is beyond the capacity of systems to explain or model phenomena that are more complex than the systems themselves."(P.6)

(iii) "We can conjecture about the abstract principles underlying complex phenomena and test them against particulars, but our knowledge will be limited to classes of phenomena compatible with given particulars. In such situations explanation is a specification of the context of constraint, not the deduction of particulars." (P. 8)

(iv) "Precisely because we cannot model particulars exhaustively in complex phenomena we must concentrate upon which is attainable: explanation of abstract principles capable of generating infinite particularity." (P. 7)

(v) "An obvious limitation is reached in self-explanation: A system can only be itself, it can never model or explain itself." (P. 6)

(vi) "No system, such as the human brain, could ever fully explain its own operations." (P. 6)

COMMENTS

1. It's not clear how (i)-(vi) follow from VN's claim about more complex phenomena being, in contrast with simpler phenomena, easier to produce than to describe. Nor is it clear how (i)-(vi) follow from VN's claim that in the case of very complex phenomena all VERBAL descriptions are more complex than the phenomena themselves.

2. In the citations given VN speaks of DESCRIBING VERBALLY a complex piece of reality, and claims that the verbal description is bound to be more complex than what it describes; Weimer speaks of EXPLAINING and of MODELING. It is not clear how the two activities relate to each other. Obviously, we cannot set aside a traditional contrast between describing and explaining.

3. Furthermore, a discrepancy appears between VN and Weimer. In one of the citations, VN allows that an example of a complex piece of reality, e.g., a brain, can serve as the SIMPLEST description of a brain; but Weimer, at (v) and (vi) proclaims that nothing can explain itself.

4. Another discrepancy intrudes at the other end. VN insists that verbal descriptions of complex realities are more complex, nevertheless he does not seem to hold that such descriptions are not descriptions, and he seems to

allow that simpler realities can be given descriptions that are simpler than they are. Weimer, in contrast, claims at (ii) that there are no models or explanations that are more complex than what they explain or model.

5. Thus, there is a need of the crucial premises bridging the gap between explanation and description crying out for satisfaction.

6. In fact, there seems to be an incoherence in the set of claims (i)-(v). Giving that there is no modelling of the super-complex we must stick to some general principles, this is fine. But then why can we not apply the hypothetico-deductive method as an explanatory technique? Such lovely abstract principles seem like excellent major premises for that method. At least there is here a logical gap crying out for a covering bridge.

7. Weimer is attacking the traditional view of explanation, which he identifies as a Logical Positivist view. But neither the traditional nor the Logical Positivist view includes the tenet that individuals are deduced from laws. The contention was that laws and statements about given circumstances imply statements about particular matters of fact. But Weimer cannot, in fairness, leave out the role of the minor circumstantial premises. Nor also in fairness should he contrast a deduction of particulars with the explanation of abstract principles capable of generating infinite particularity. Any law can "generate" infinite particularity: its universal quantifiers range over the whole domain of possible instances.

8. The points made by Weimer do not help establish an essential difference between the natural and the "moral" sciences. He himself notes that

Bohm and others are "forcing us to recognize that the "simple" sciences are more complex." Clearly, the point of differentiation between the types of sciences in terms of complexity has been blurred, and we must start anew.

III. Diachronic Sameness and the Social Sciences

In his contrast between the sciences of the more complex and the sciences of the simpler phenomena, Weimer offers a most fascinating and pregnant remark. He claims that only in the sciences of the complex we find dynamic order, and he asserts in passing, somewhat casually that:

...All the "equilibrium" in a dynamic order is the identity of the order in diversity, the higher order continuity in change that enables one to refer to later stages as constituting the same order, even though all the particulars may be different from the earlier ones. (P.25)

COMMENTS

This characterization of dynamic order is not very helpful, yet there is an interesting idea within it. It is not helpful to the extent that a purely physical structure, e.g., a pile of sand S may be said to be the same as the pile of sand S' resulting from removing one grain of sand from it. A molecule can be said to be the same in spite of the replacement of a component atom. Yet there is something profound there. We may say that a physical entity E is PHYSICALLY different from an entity E' if E' results from E by the replacement of one component element: furthermore, the sense in which E and E' are the same is governed by conventions, psychological reactions, and social structures.

I am convinced that here we have a firm foundation for a difference

between two types of science. The notion of convention brings in the notions of norm, correct/incorrect, right/wrong, obligatory/permissible, and the like. And as I have expressed in writing (e.g., in my Thinking and Doing: The Philosophical Foundations of Institutions, Dordrecht, Reidel, 1985), although the truth of norms and rules is in a certain sense reducible to facts, the deontic concepts have two dimensions of irreducibility to other concepts. Hence, if we can divide up the domain of sciences into those that use only non-conventional, set-theoretically representable identities and those that use besides conceptions of diachronic unity infused with conventionality or normativity, then we have in our hands a sharp and fundamental difference.

Now, building the difference between types of science along a conventional/non-conventional distinction changes the ground Weimer uses for distinguishing the natural or "simple" sciences from the moral or "complex" ones. There are no reasons to suspect that they converge, indeed, as we shall observe below, Weimer himself takes Bohm and other scientists as promoting physics to a science of more complex phenomena; furthermore, the citations from Von Neuman indicate that formal logic is itself divisible into the simple and the complex. We can expect the social, economic, linguistic, and political phenomena also to be divided into simple and complex areas.

IV. Weimer's View of Perception

Following Hayek's views of the sensory order, Weimer says:

(i) "... no sensory input is "perceived" or recognized (i.e., sent through the active CNS) at all unless it is perceived as one of the kinds of input accepted by the classes of sensory order."

(ii) "No sensory input can be perceived unless it can be isomorphically accepted as a match by the extant classes of sensory order." (P. 39)

(iii) "Perception is thus never of the intrinsic properties or attributes of "objects" in the real world: instead, objects are the results, the abstractions, of the actual organization and memory of the CNS" (40)

(iv) "We have no direct commerce with external reality at all: every input that (causally) results from an external energy source reflects the intrinsic properties of the CNS rather than the intrinsic properties of the external source." (P. 41)

COMMENTS

1. In (i) there is apparently a lapsus: the quotation marks around the first occurrence of 'perceives' are justified by the parenthetical remark; but the lack of quotation marks around the second occurrence of 'perceives' is not justified by anything, yet there should be quotes around it. The word 'as' following it suggests that the locution governed by 'as' represents what is internal to the perception. If so, then 'perceives' should be within quotes; if this is not so, then the 'as'-construction is misleading. On the other hand, the internal construal of the 'as'-phrase is assumed in the move from (i) to (iii). Obviously, (iii) doesn't follow from the citations from Hayek. The immediate conclusion one is entitled to derive from (i) and (ii) is, NOT (iii), but that either (iii) or (iiiA) the intrinsic properties of objects that are perceived are those that conform to the isomorphism mentioned in (ii). The very thesis (ii) speaks of an isomorphism of something coming from

"outside" and the sensory classes in the brain, and this is a claim about something coming from external reality.

2. It is not clear how Weimer is drawing the contrast between intrinsic and structural properties. But he seems to be sure that there are intrinsic properties in external reality, which somehow stay beyond our perception. Here we must observe a crucial ambiguity in the expression 'external reality'. It may mean (a) what Kant meant by NOUMENON, as well as (b) what Kant meant by real (phenomenal) world. Weimer refers to Kant, but he doesn't clarify what he has in mind. If he adopts interpretation (a), there is no proper attribution of intrinsic properties to external reality, for then we just have, as Kant emphasized only a negative concept of the noumenon, and even the word 'it' is inappropriate to refer to "it." Thus, on interpretation (a) Weimer is not justified by (i) and (ii) to claim (iv). On the other hand, if he means to use 'external reality' in sense (b), then he can speak of the intrinsic properties of external reality, but then he has no right to claim (iv).^{*} The whole discussion is based on the fact that there is at least CAUSAL COMMERCE between the perceiving mechanism and external reality. As just noted, thesis (ii) claims that what is delivered by external reality is accepted as a match to the sensory classes in the brain, but then there is that which is delivered by external reality. That deliverance is an EPISTEMIC COMMERCE between external reality and the perceiver. In short, Weimer needs to clarify his thesis (iv), and the sense in which he could have a right to it.

3. Weimer's (iv) must be carefully distinguished from a thesis propounded by the Logical Positivists Schlick. Schlick's thesis is, not about the connection between perception and reality, but about communication. Schlick holds, correctly in my view, that we do not communicate content to others, but only structure.

V. Weimer's Regulative Principles

Weimer seems to be wholly correct in his major claim that the only unity of science we can claim is an overall unity of method and of purpose. He specifies that the unity of method is exhausted by three very general regulative principles. He states:

... all successful theorizing in domains of essential complexity has made use of a context of constraints that utilizes a fairly small number of abstract regulative principles to capture regularity of what are in essence equilibrating systems that exist and evolve only as a delicate balance of essential tensions. ...

- (A) Principle of creativity or productivity;
- (B) Principle of rhythm and the progressive differentiation of rhythm;
- (C) Principle of the regulation by opponent processes: development tends towards opposites. (P. 2)

Weimer is clearly right in claiming that principles (A)-(C) do govern the phenomena studied by the social sciences. He is also correct in claiming that, provided we understand the principles very liberally, they govern all phenomena where there is some complexity, e.g., in biological molecules, in and political revolutions. Obviously, Weimer wants them to be understood liberally. Hence, he is quite correct about their generality. Whenever there

is a change we may indeed assume that there is creativity, the creativity that breaks the dullness of a changeless universe. Since change involves the disappearance of a state P and the appearance of a state P' incompatible with P, we see that nature is bound to have opponent processes, and the history of nature is precisely the alternating balance of such opposing processes.

There is nothing objectionable with Weimer's principles (A)-(C), indeed the less objectionable they are the more general and abstract they are taken to be. My problem lies in the other direction, principles (A)-(C) are undoubtedly constitutive of the methodological unity of science, but even if they are understood less abstractly than the preceding remarks allow for, they are still too general to be exhaustive of such a methodological unity. This unity seems to me more substantial than such principles can yield. The mere fact that all sciences aim at truth and nothing but truth suggests that there be a richer connection between that end and its means than principles (A)-(C) can support.

Obversely, Weimer's principles (A)-(C), although correct, are so general that they can hardly support any substantive conclusions about the nature of scientific or decision-making activities, or the contents of scientific theories or of any plan of action. Hence, Weimer's claims about free enterprise, political activity, and so on are just independent expressions of

personal views. Well, they are not entirely personal to the extent that he cites Hayek in his support. They do have whatever support Hayek's arguments give to them. But they do not follow from (A)-(C).

VI. Conclusion

The preceding points do not exhaust the disagreements between Weimer and myself, but they illustrate the general logical and epistemic character of our disagreements. Furthermore, those disagreements are located within a large area of agreement about there being a fundamental difference of contents between the natural and the social sciences. We seem to differ about the criteria of such a difference, yet even here we probably overlap at the role of conventions and deontic considerations in the diachronic unity of the objects of the social sciences. I hope that the issues raised above can serve to develop further areas of agreement.