



McGill
University

Foundations & Philosophy of Science Unit

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Dear Truesdell

Jean Axelrad writes that she saw you in excellent spirits--pardon me for this faux pas unforgivable in a materialist.

I am currently working on ^vto of the possible relations between ^vto theories: strict reduction (deduction) of one of them to the other, and the case where one of the theories is "based" on the other (i.e. the reducing theory, when suitably enriched with extra assumptions, entails the reduced theory).

I have taken quantum chemistry and quantum mechanics as a paradigm, but if I knew one tenth of what you know about thermodynamics and statistical mechanics I would have concentrated on this pair. At the time I studied the matter, thermodynamics had not even been satisfactorily based on statistical mechanics, let alone deduced from the latter. For one thing the 2nd law followed not only for the future but also for the past. I presume that the situation has improved since then but I have not seen any recent references.

Question 1: Are you satisfied with the way the 2nd law is now been derived from SM?

Question 2: Could you kindly indicate a reference or two?

And now to another though related matter. I am somewhat disturbed by the fame Prigogine's popular articles have attained of late. He seems to believe that he can explain biology in terms of SM just because the thermodynamics of open systems does not prohibit self-organization. As CT (and nowadays also MB) would say, there must be something basically wrong about Prigogine's ideas if they have become so popular.

with cordial regards von Haus zu Haus,


Mario Bunge

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