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# Commentary on Mark Weinstein: “Between Two Images: Reconciling the Scientific and Manifest Images”

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## 1. INTRODUCTION

Let me begin by first thanking Professor Weinstein for his illuminative and creative discussion on a topic that has generated its own fair share of literature. It is of value to this group to be exposed to theories of argumentation which have been informed by and which deal with scientific *types* of reasoning broadly construed.

In his own words, Weinstein’s paper may strike some as “regressive” for he attempts to exploit Sellars’ distinction of the scientific and the manifest images in order to push a notion of ‘truth’ as understood by the *logicians* (scientific) and the *informal logicians and argumentation theorists* (manifest). Weinstein’s tool in this is his *metamathematical model for emerging truth (MET)* to which you have been exposed.

In my brief commentary I propose to do the following: a. raise some questions pertaining to matters of fact and b. raise some questions pertaining to matters of clarification or of possibility. All this, though, will be done in light of the fact that I truly appreciate and like Weinstein’s approach.

## 2. MATTERS OF FACT

As it stands, Weinstein’s paper benefits from reading his previous work as well as looking into the emerging literature located at the intersection of philosophy and computational sciences, most notably the work of Lorenzo Magnani and the various conferences recently in computation, cognition, and philosophy that he has generated.

Weinstein commences by teasing the reader with an analogy: the scientific is to the manifest as physics is to sense perception, or as logic is to informal logic. The connection Weinstein gives is MET. If my reading of Weinstein is correct here, and without getting into the fine details of MET, the divide between the logicians and the informal logicians is bridged by the ultra-mathematical model of MET very much like the physical science and everyday sense-observation divide is bridged by a Newtonian world-view accompanied by the “ontology of medium level physical chemistry” and the like. Now Weinstein has already hinted that this may seem regressive and, indeed, informal logicians and argumentation theorists 25 or 30 years in may twinge at the prospect of adopting a formal model reminiscent of all that they have foregone. Question: is there something in MET other than the formalism that “cancels” out this seemingly perverseness of it being a bridge? In other words, I think we need to be careful in how we characterize formal and informal logic for

after all formal logicians theorize about natural deduction as do informal logicians construct technical systems. (I'm challenging Weinstein's claim to the regressive nature of his thesis!)

Secondly, it isn't clear to me how to situate MET. It is characterized as having relevance filters, having contextual sets of rigor, being non-monotonic, and that it is dynamic in that warrants are re-evaluated in light of new evidence -- all the ingredients of a sound informal logic theory. Now throw into the mix mathematical and computational concepts of modelling (including mapping and functions) and entailment and we have a brief characterization of MET. Interestingly Weinstein claims that entailment is the more novel of the two mathematical (read Scientific) concepts, it is the modelling or mapping which correlate to the dynamics of arguments. This strikes me as more positivist than Weinstein leads on and it would be curious to hear the author's own take on how "realism" fits into the scheme he has outlined.

Thirdly, to illustrate the momentum that MET carries, Weinstein moves from his "slam dunk" example of the periodic table to show how MET figures into legal and ethical reasoning. First, it is a bit misleading to indicate "the most compelling restriction on legal reasoning is a principle of coherence, a conservative principle that valorizes precedent." It should be noted that coherence is not only a test but an assumption in legal reasoning. Indeed, it is on the basis that a body of laws is deemed consistent that increased articulation provides us with legal argumentation as being logically compelling. Second, it is not clear how MET aides us any more than the wealth of research on analogical reasoning carried out vis-à-vis legal reasoning. That is, and this may not be fair to Weinstein, where does MET get us in legal scholarship that current theories (e.g. theories about analogical reasoning) cannot or do not?

### 3. THE POSSIBLE

A number of philosophers working in what is developing as digital humanities, computing and philosophy, cognitive science, and AI have been pushing the mainstream philosophical community to adopt computation and computers more than as a tool to present our research. Paul Thagard talks about computational philosophy of science or computational epistemology. Formal logicians are less and less numbered in philosophy departments, and for that matter even in math departments. They are turning up increasingly in computer science departments. For most of us, it is not hard to see the connection.

Weinstein claims: "MET gives a mathematical image of such a structure [the unifying property of legal reasoning]. Whether it will prove useful in analysing actual legal argumentation remains to be seen. But its precision should permit computer models of legal argument to be constructed and their power across the array of laws and precedents determined." This is an incredible claim to say the least and I would like to raise three points. 1. If one were to conjecture about this possibility, how should one be guided? 2. Would this amount to something like computational informal logic or computation argumentation theory? And 3. Lawyers and judges, like physicians and surgeons, like chefs, like engineers, like philosophers of science make various determinations as part of their competence. Does MET give us the tools needed to "model" domain specific expert reasoning computationally? And to sneak one more question in, can MET be used reductively to model computationally context free expert knowledge? I have my suspicions about the latter, but do hope for the former.

[link to paper](#)