Review of: "A Law for Irreversible Thermodynamics? Synergy Increases Free Energy by Decreasing Entropy"

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Potential competing interests: No potential competing interests to declare.

There is surely “vision” in this effort by professor Jaffe, but I found some of his metaphors too extreme, and difficult to prove. For example: is “energy consumption” a valid numeraire to evaluate an ant colony (Table 3)? First, energy is not “consumed”, and if the Author is referring to G, the free energy, I don't think it is the correct indicator either. A good resource consumption indicators could be the total exergy destruction produced by the ants on a lifetime perspective…

Same Table 3: is a city to be evaluated on the basis of its electrical consumption? well, but Mumbay (22 million people) has a lower electrical final use than Paris (2.2 million)… so perhaps this indicator ought to be augmented by some other quantity! As for the entry “Economies”, what could the economic performance identifier be? Not the (corrected or not) GDP, strongly criticized in the last decade, and neither the HDI… so this Table leaves some questions open.

As for Table 4, and leaving aside “Hell” and “Heaven”, whose thermodynamics is not falsifiable in Popper's sense, why should Evolution have a Delta G= 0 and a negative Delta S? All living systems have a negative Delta S when taken in isolation… but they (and their “societies”) induce a larger positive Delta S in the surroundings… so this point is rather unclear to me.

All in all, my personal opinion is that such extreme extrapolations ought to be made with equally extreme care, to avoid misintepretations. If I am allowed to make a self-referential statement, one thing is to believe that natural evolution goes in the direction of reduced resource consumption, another thing is to prove it…