

From: merhav@ee.technion.ac.il
Subject: Your recent arXiv post 1507.01537 : Identifying Functional Thermodynamics ...
Date: July 17, 2015 at 2:39 AM
To: dibyendu.mandal@berkeley.edu, abboyd@ucdavis.edu, chaos@ucdavis.edu



Dear professors Boyd, Mandal, and Crutchfield,

I am reading with interest your above paper, and I have a comment if I may: On page 2, left column, in the second to the last paragraph, you cite my recent paper [48], (which meanwhile has been published in JSTAT on June 30: <http://iopscience.iop.org/1742-5468/2015/6/P06037/article>), among several other works that "neglect correlations in the information-bearing components ...". It is rather imprecise to include my paper among those with such a property. In that paper, I am extending the findings of the Mandal-Jarzynski model (reference [43] in your paper) in a variety of directions, one of which allows *arbitrary* correlations among the incoming bits. In fact, one of my results in [48] (see section 4 therein) is essentially the same as your equation (4), which you refer to as one of your main results. Moreover, I assume there nothing about the joint distribution of a string of ℓ bits, not even stationarity, as you do (since I am not taking the limit of ℓ to infinity). Also, in the last section of [48], I am even extending the results to arbitrary *deterministic* input sequences, where the input entropy is replaced by its Lempel-Ziv complexity (a term that comes universal data compression theory). Yet another direction of extension, in the same paper, goes beyond the binary alphabet (section 6 therein) and allows any finite alphabet. Finally, I am also using generalized notions of entropy to bound the extracted work (section 5).

I would appreciate it if you gentlemen read my paper slightly more carefully and make a more precise comparison with my work.

Very truly yours,
Neri Merhav

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