Title:	Efficiency at optimal work from finite source and sink: A probabilistic perspective
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Abstract:	We revisit the classic thermodynamic problem of maximum work extraction from arbitrary-sized source of heat and sink, modelled as perfect gases. For a given initial state of the process, we assume ignorance of the final temperatures. We quantify the prior information about the process and assign a prior distribution to the unknown temperature(s). This requires that we also take into account the temperature values which are not regarded in standard analysis. In the present formulation, however, such values appear to be consistent with the given prior information and hence are included here in the inference. We derive estimates of the efficiency at optimal work from the expected values of the final temperatures, and show that these match with the exact expressions in the limit when any one of the systems is very large compared to the other. For other relative sizes of the source and the sink, a weighted mean is defined over the estimates from two valid inference procedures, that generalizes the procedure suggested earlier in [1]. The mean estimate for efficiency obtained in this way agrees with the results of the optimal performance quite accurately.
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