

Corrigendum

Corrigendum to: “Existence conditions and spreading properties of extreme entropy D -dimensional distributions” [Physica A 387 (2008) 2243–2255]

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In Subsection 4.3 of this paper we have found an error in the analytical expression of the Shannon entropy S for the maxent problem, given by Eqs. (32) and (36). The correct expression for this quantity turns out to be

$$S = C_1(\alpha, q) + \frac{3}{\alpha} \ln(r^\alpha) \quad (32)$$

$$C_1(\alpha, q) = \frac{1}{q-1} \left(\psi \left(\frac{q}{q-1} + \frac{3}{\alpha} \right) - \psi \left(\frac{q}{q-1} \right) \right) - \ln \left(\frac{\alpha}{4\pi B \left(\frac{3}{\alpha}, \frac{q}{q-1} \right)} \right) + \frac{3}{\alpha} \ln \left(\frac{3(q-1) + \alpha q}{3(q-1)} \right). \quad (36)$$

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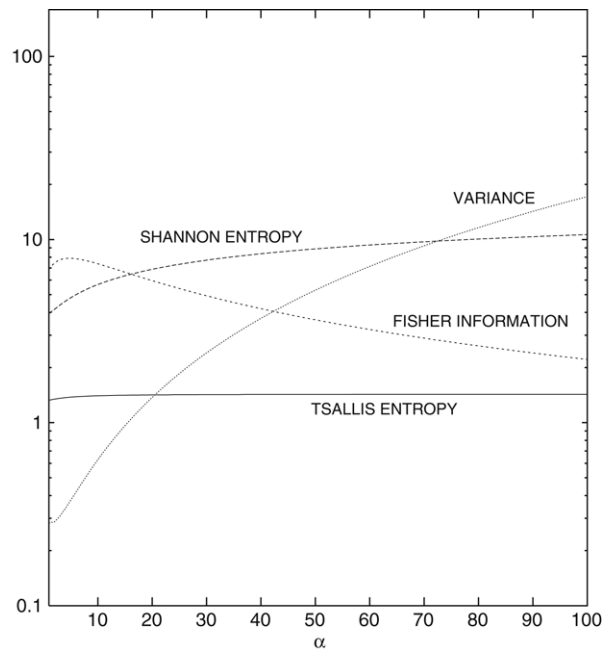


Fig. 3. Variance, Fisher information and Shannon and Tsallis (with $q = 1.7$) entropies in the three-dimensional maxent problem with constraint $\langle r^\alpha \rangle$ as functions of the expectation order α in the three-dimensional case ($D = 3$). Atomic units ($e = \hbar = m_e = 1$) are used.

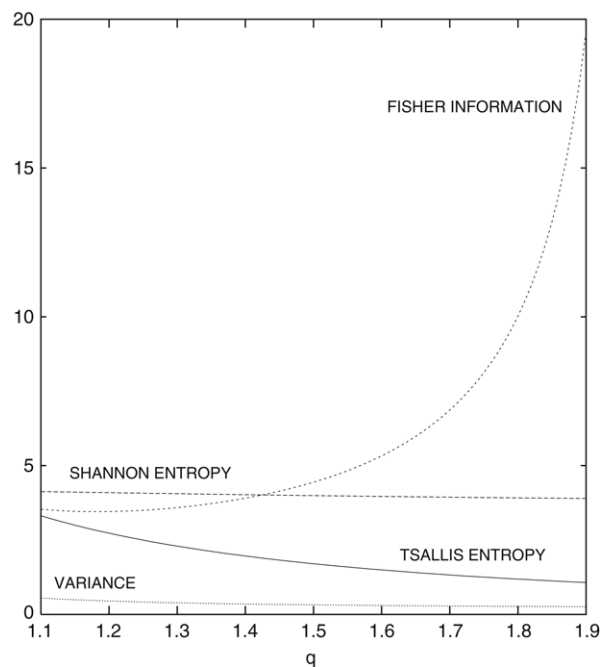


Fig. 4. Variance, Fisher information and Shannon and Tsallis (with $q = 2$) entropies in the three-dimensional maxent problem as functions of the non-extensivity parameter q constrained by the radial expectation value $\langle r^3 \rangle$. Atomic units ($e = \hbar = m_e = 1$) are used.

So, consequently, curves corresponding to S in Figs. 3 and 4 have been modified, appearing properly drawn (according to the above equations) in the new figures provided in the present erratum, while the curves corresponding to the other information measures remain unchanged.

Nevertheless, the rest of the contents and the conclusions of the paper continue to remain fully valid, with only a slight correction: the critical value q at which Fisher information crosses Shannon measure in Fig. 4, as discussed in the paragraph after Eq. (38), turns out now to be $q = 1.45$ (instead of $q = 1.7$).