Conjecture on information meaning.

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Lets admit that we Nature to data reservoirs: order - O and randomness –R and Let´s assume their probability of occurrence po and pe are related by: 1- po =pe (1)

Examining the Entropy of the system one can reach the follow equation:

$H(po,pe) = -(po(\log_2 po)+ pe(\log_2 pe))$

Looking for the maximum of H function, one obtain the partial derivatives:

$dH/dpo = 0$ then $1 + \log_2 po = 0$

and

$dH/dpe = 0$ then $1 + \log_2 pe = 0$

$\log_2 po = \log_2 pe$

$po = pe$

$po = 0.5$ and $pe = 0.5$

Considering a index of complex network science pointing to a central position for chaotic systems i.e between random and ordered networks , chaos indeed seems to be the

fingerprint of a extremum information content condition. This results suggests also that disorder (randomness) is not related to extremum informational entropy indeed .The frequency of observation of systems critically organized: ecosystems, brain, heart [1] in and natural tendency to the reach a extremum of entropy reinforces this.

Reference

[1] Campanharo ASLO, Sirer MI, Malmgren RD, Ramos FM, Amaral LAN (2011) Duality between Time Series and Networks. PLoS ONE 6(8): e23378. doi:10.1371/journal.pone.0023378