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] and a natural tendency to reach a extremum of entropy reinforces this.The same reationale can be done to the live (probability of order) or death (probability disorder) on the paradox of Schrödinger´s cat suggesting that strength of quantum mechanics is to offer a average prediction framework to deal with a every scale occurring chaotic phenomenon.

A probably translation of this would a scale-free conjecture:

Nature tends to cluster its energy in order to minimize the amount of invariant Cantor sets (maximizing the quantity of KAM Toris). The result of this tendency is maximize its adaptation capacity or resilience by controlling to set its condition in a extremum entropy condition.

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