From: jeffrey E. <jeevacation@gmail.com>
Sent: Wednesday, August 10, 2016 12:49 PM
To: Deepak Chopra
Subject: thread

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Re:

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6:27 PM (12 hours ago)
</=pan>
to me

1. Yes this is `reversion to the mean' and it =efinitely happens. This is the basis for what is called anentropic force (rubber bands as we discussed)

2.=Absolutely: for large numbers of particles, the entropy arguments give ris= to macroscopic statistical quantities like temperature and pres=ure

3. Yes: and they don't obey the central l=mit theorem (they are non-Gaussian). As we discussed, there are lots of potential reasons for this. The main one =s that if there is no restriction on the variance of a distribut=on the central limit theorem doesn't apply and so you get power laws</=iv> as in the Pareto law for income distribution.

=div>4. I didn't claim I described it well. I'd say on= actor intentionally hides some information that the other actor=can't decrypt. That is, the first actor is trying to dece=ve the second in order to take advantage.

Got to run give a talk for Stewart Brand/Danny HIllis!

Seth

On Tue, Aug 9, 2016 at 8:22 PM, jeffrey E. <jeevacation@gmail.c=m> wrote:

1, re flips. ordering is not my focus. my focus =is that the program that says. as you approach a larger number the total number of =nes and zeros (the fair coin flip) , should be 50/50/ =C2� it is the opposite of information as that relates to the individual flips.�=A0 , I maintain that the distribution of flips may be described by skewing=C2� . A force that leads to 50/ 50

2. agai= re heat. we cant say anything about indiv particl=s. but we can measure their overall temp and pressure

3.�=A0 social distributions of talents and characteristics, =eem to follow the same distribution for years.

4�=A0 deception, relies on the concept of INTENTION. =C2� not well desribed.

On Tue, Aug 9, 2016 at 6:08 PM, Seth Lloyd <[redacted]> > wrote:

Dear Jeffrey,

It was very fun talking with you the weekend before last. I have downloaded The Improvement of the Mind and am reading. I feel my mind improving already ;-)

The conversation and yo=r ideas fit in closely with work I've been doing and am proposing to do. Maybe this is not surprising because we've be=n talking about these topics for years. I've be=n traveling around (Santa Fe, now in San Francisco, soon to be i= Banff) and so have had time to think more about what we discuss=d.

Here is a succinct summary of my own take. �=A0 I know yours is somewhat different.

=br>
Information is a fundamental quantity, measured in bits.

Information can be random, like the typical string of=bits one gets by flipping a coin 010111011010100001= (I just flipped a coin and let heads = 1 and tails = 0), or it can be ordered, like the bit string 0000000000000000.
</=iv>

There is a technical definition of order and r=ndomness: a bit string is ordered if there is a succinctly descr=bable method, e.g., a short computer program, for producing it. =C2� By contrast, a string is random if the shortest program fo= producing it is the same length as the string itself. For=example, the string consisting of a billion 0's can be produ=ed by a short program: Print `0' 10^9 times. By contr=st, the shortest program to produce the string 01011101101010000=1 is something like: Print 0101110110101000011. This way =f defining order/randomness is called algorithmic information.</=iv>

The interesting thing about algorithmic information=is that the short program can be hard to find. A string c=n look very random and still have a short program. For ex=mple, the first billion bits of pi, written in binary, have a sh=rt program, but if I just give you those bits, they would look</=iv> statistically random.

This mea=s that so far as we or any other information processing system i= concerned, order/randomness is subjective: some information can=be ordered and non-random, but we may not be able to recognize t=e underlying order, so we treat it as random. That is, the order is cryptic: we don't know how to decode it. This cr=pticity is the key feature for looking at both physical systems =nd human/social systems.

Physical syste=s:

In physical system= such as a gas of molecules, entropy is the amount of informatio= that is required to describe the underlying motions of those mo=ecules. Because the molecules are bouncing off each=other in an essentially random way, entropy is assumed to be ran=om information.

Heat is energy that is encumbered by ent=opy/randomness. The randomness makes it harder to take advantage=of that energy.

By co=trast, free energy is energy where the information required to d=scribe how that energy is arranged is ordered, not random. �=A0 Free energy is energy we can take advantage of.

Now comes the kicker: suppose that a system i= actually ordered, but that order is cryptic. If we=can't decipher the order, we can't take advantage of it.=</div>

So whether energy is =ree or not depends on our ability to detect its underlying order= That is, the availability of energy depends on the=computationall/decrypting ability of whatever system (molecule, =icrobe, human) is trying to take advantage of that energy.
=</div>

Social/human interactions:

Human interactions are about the exchan=e of information, plus other stuff (goods, services, money, etc.=. Everything that is exchanged brings with it the i=formation that describes what is exchanged, what can be done wit= it, etc. So for example, a US Treasury bond comes =ith the specification of its price and its future interest payme=ts. A complex option comes with the specification =f what can be bought and sold when.

= As a result, human interactions are awash in information.�=A0 Different people are capable of decoding/decyphering that inf=rmation in different ways. The ability to detect a patter= or order in information translates into the ability to take adv=ntage of a social situation. For example, the effic=ent market hypothesis states that fluctuations in the prices of a given stock should be essentially random. But if you ha=pen to possess some information that allows you to predice the f=ture fluctuations of the stock, then you can make money.

Similarly, to play into you i=eas about deception, when two actors enter into a transaction, e=ch presents the other with information about their obligations u=der the transaction. Each actor looks at that infor=ation and judges whether the transaction will turn out to their =wn advantage. But because each actor perceives different =atterns in the information, they can come up with different evaluations of the future worth of the transaction.

=C2� Deception arises because one actor may hide a p=ttern in the revealed information, a pattern that the other acto= doesn't perceive, but that makes the transaction more advan=ageous to the first actor. I've been told that this is calle=, doing business.

Talk some more?

<=div>
Yours,
Seth

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please =ote