

The lowest interpretation about data or information bit.

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By my point of view, the bit of information is based on a main assumption:

the perfect stability of a value can be information, a bit.

The value of information bit, must necessarily come from an alteration of a state. And is this state, if changed, to provide the necessary transformation, to take on the new data.

The topic of the competition is not exactly this but I want to focus

better about what has just been said. I need an example ,

indispensable to Me , to continue.

The example is the following. Let's take a very common object

but useful, a bendable straw. Normally a straw in plastic, made for drink and with folding part . The straw is not folding exactly in the middle but usually close to an end.

Well, took this item out of the box, if new is normally straight.

Now I bend it at the predetermined point , such an angle that it is stable in shape.

I have a new form now , for the old object. What We see is exactly an ordinary straw for orange juice ready to use.

When You put this new shape on a paper , or on a bench ,

the object due to gravity, rolls for a

fraction of a second, but after, remains firm on the sheet of paper, immobile.

With a pencil it is possible associates , the first straight portion of the straw, to an hypothetical vector , with its impulse too.

More precise , this vector starts by the end of the long portion of the straw.

I want to associate it with a momentum  $m_2v_2$  (mass and velocity of the pulse number 2).

Instead, the second section of the straw, I want to assign it to a second vector, always writing on paper, or  $m_1v_1$  (mass and velocity the impulse 1). The direction of the vector  $m_1v_1$  or  $m_2v_2$ , must be taken by the position of the straw just folded. What I have just accomplished is very useful to the theme of the contest, the long portion of the straw has a stable value, or simply,  $m_2v_2$  (vector) is associated with a value of zero.

While, the remaining portion of the plastic  $m_1v_1$  (vector), associate it to a value of one. What unites those two vectors ( $m_2v_2, m_1v_1$ ), is very clear, the special folding joint of the pipe.

I feel satisfied, really, the concepts of information or data, what is a bit now.

At the exercise lacks the necessary translation into some mathematical formula.

My proposal now, not really complicated, for the understanding of the essay.

The two vectors are related, the straw is a single object intact.

The first portion is a long vector  $m_2v_2$ , the second a vector  $m_1v_1$ , are united by a twist of the folding portion.

The portion I want to describe mathematically is going to be articulated with the following system.

The straw resting on the sheet, has found its position and now because of that resting position, We have a reference plane, with x and y.

This plane also has the third axis, z, but emerges by the hypothetical plane under the straw, the paper.

But, is precisely in the z-axis, that the twist occurred.

The straw received a twist of "n" twists.

I see as a complete twist,  $M_z$ , the zed is for the z-axis.

So the plastic joint observed mathematically give,  $nM_z$ .

If You realize a good observation with physical objects You can be more confident and maybe, understand in a better way, what is a important.

In my case, the bits of information emerges using a physical object, initially intact, the straight straw.

Now to return instead to the math part of the essay the bits of information emerges from the sum of the vectors , together with the torque.

$$\text{That is: } m_2 v_2 (\text{vector}) + m_1 v_1 (\text{vector}) + n M_z = 0 \quad (\text{a})$$

The object is composed of only three parts. If  $m_2 v_2$  and  $m_1 v_1$  are equal, in their entirety, including direction. It is clear that,  $n M_z$  becomes zero, because not modified and therefore:

if one small ant enter in the straw, before folded, we would see the ant exit immediately after a straight path. The value, for convenience, is took zero, but it could also be understood as one.

When You bend this plastic rod is clear that we will have, values of zero and one, once again. And for the ant it will be a path with obstacles.

Mathematics can have a considerable utility about this result and also physics .

I think that the values of  $m_2 v_2$  and  $m_1 v_1$ , correlated can be even easier with a more classic

DeltaP

$$\Delta P = n M_z .$$

This statement if feasible, it can be re-inserted even in quantum mechanics, where the variation of the momentum is correlated with the variation of position  $\Delta P \Delta x > = h/2\pi$

$$\text{otherwise : } n M_z \Delta X > = h/2\pi .$$

The uncertainty about position and momentum of a particle was a milestone in the physics of the last century. (1)

Conclusions.

My idea of bits of information resides deep in the idea of measurability of the same data.

It should be noted that, in extreme situation, may coincide with the observer.

Before placing the straw folded on the table, it sets a new shape to the object in space.

If You want to associate with the twist in two momentum:  $-nMz \leq m_2 v_2 (\text{vector}) + m_1 v_1 (\text{vector})$

If those two vectors have infinitesimal mass  $m_2 = m_1 = 0.00000 \dots 1$

and , if they were photons, the report lends itself to a basic interpretation of phenomena such as quantum entanglement.

The rotation of the photons, the relative spin , is bound "by a mathematical law" fundamental also in the measurability or perception, of information.

I conclude that the human will can produce the bit, as well as watching him.

In nature then, there are two possibilities, the voluntary production of information or data and their acquisition.

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(1) [http://en.wikipedia.org/wiki/Uncertainty\\_principle](http://en.wikipedia.org/wiki/Uncertainty_principle)