

# It From Bit or Bit From It?

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## Abstract

In order to really know the answer we have to take a look at behind the curtain. What curtain? And what should we see? The curtain is current understanding and knowledge in particle physics and behind the curtain lays bare naked truth of the nature. We are ready to rip off the curtain.

## It From Bit or Bit From It?

At the present time, information is experiencing the hype. But one shouldn't forget the curtain. Final answer to the question is... revealed later. If we take an old classical perspective to subatomic phenomena and give it a new spin then we can, not only answer to the question but, explain all known physics phenomena and anomalies. Not a bad achievement at all.

The source of this new revived classical perspective comes from The Theory of Everything by illusion (ToEbi) [1]. Based on ToEbi, every elementary particle is a real solid particle with certain attributes (mass, velocity, spinning rate and spinning orientation). This is the core of reality, the It. Just spinning classic billiard ball particles creating the whole universe. But that's impossible, remember the synchrotron radiation, you may say! Moving charged particle loses its energy by emitting photons and therefore electron can't be a classical billiard ball particle orbiting a nucleus. Observations with the synchrotron radiation are solid and undeniable. Drawn conclusions are just totally wrong.

Conditions in a synchrotron and near an atom nucleus are totally different according to ToEbi. Moving charged particle inside synchrotron emits photons only because it moves relativistic velocity in fairly static medium provided by Earth and therefore experiences resistance from the medium. Moving electron in an atom moves along with a nucleus dominated medium and this medium is flowing around a nucleus due to real spin of a nucleus. For simplicity we should call this medium as the force transfer ether (FTE). After all, every known force interaction are transferred through this medium. FTE consists of the most fine grained matter which at first survived the Big Bang, we should name them as force transfer ether particles (FTEPs). Every larger elementary particle is compressed from these FTEPs, either by the Big Bang or by some other particle creation process.

Now the curtain is lifted and this is the most crucial moment. Decades ago physics took a major wrong turn at this exact point. We should go back

into that moment and choose another path which gives us a new paradigm with a bundle of firepower. We are almost ready to hear the answer.

## **What IS information?**

The essence of information depends solely on one's perspective. Derived from ToEbi, information can't be nothing but particles and their interactions. In a broader sense, everything in the universe is information. It's totally different case if all information is usable and meaningful or some of it is just a background noise, it all depends on a consumer of that information. Every particle systems, like human beings, choose their flavour of information. We do see certain wave length light, feel the pressure from surrounding particles, decrypt different chemical molecules, experience DNA mutations from a high power radiation and so on. Our appetite for information makes us seek for a new ways to gather and understand information. High tech equipments scan and probe everything in the universe, from atoms to galaxies, in order to satisfy our appetite.

At the end of the day, information is just nothing but interacting particles. In that sense, the answer to the question is: It is Bit and Bit is It. Interactions normally happen through some other particles, like photons, neutrinos or FTEPs. We shouldn't set limits for the information. Even the tiniest force transfer other particles consume information, in this case, the attributes of other nearby particles.

## **What is relation between information and "Reality"?**

Reality, which we are living in, contains ourselves and our surroundings and all interactions within. What is the relation between information and reality? Based on the previous chapter we can say that an object's reality consists of its consumable information. Reality is an extremely complex system but it consists of physical particles which at the same time, are the information. We could say that the relation between information and reality is a very intimate one.

As earlier said, there is always a particle or system of particles which process existing information. It would be better to speak of context related realities. Obviously there is reality for us human beings, which, in fact, is a very broad and complex one. For a simpler life form, reality is something else, maybe containing only gravitational interaction and electromagnetic interactions between its atoms and electromagnetic interactions with surrounding particles. Constant bombardment of high energy particles and neutrino flux is also part of this simpler life form's reality. It most likely won't be conscious about it but most certainly it's able to consume that information. High energy particles are totally consumable by its cells and DNA. Maybe not the way it would prefer but still. What makes realities different for this simpler life form and a plain rock? They both have a quite similar realities, don't you think?

Capabilities to grow, multiply and move makes a huge difference between a simpler life form and a rock from the perspective of reality. All of these capabilities guarantee an increased amount of information consumption for this creature and generations after it. Capability to process chemical molecules for various purposes increases information consumption also. In other words, its reality is more rich and complex than rock's.

## How does nature (the universe and the things therein) "store" and "process" information?

Information is everywhere as particles are everywhere. All objects in the universe process (consume) information. For example planet Earth, how does it process an information? Earth is not a conscious creature (as far as we know) but it processes and stores an information all the time. Gravitational interaction between Moon and Sun is a good example of one form of information processing and storing. Earth "sends" information to Moon in form of FTE and Moon processes it. At the same time, Moon "sends" information to Earth and Earth processes it. Because of that information processing we have a tidal wave phenomenon and orbiting Moon.

In order to realize how gravitational interaction is stored in case of Earth and Moon, we have to look at the Third Law of ToEbi which reveals very interesting detail. Gravitational interaction is stored in form of rotation frequency and rotation axis orientation changes, into the interacting objects. Obviously this applies to every stellar object, not just in the case of Earth and Moon.

Based on ToEbi, the same mechanism is observable with elementary particles. Measurable force difference comes from a rotation frequency difference of elementary particles (electrons, quarks) and stellar objects. Particles process information (other particles) by reacting to other particle's presence. High rotation frequency particles generate very powerful FTEP flux around them. In case of two, same spin, particles meet in appropriate conditions they process that information by precessing until they have reached parallel rotation axis orientation. End state of this process is a stored information in form of new spinning rates and spin axis orientations of particles involved.

If we study particles on Earth, we have to remember that they already have stored information with them. In that context, it's not very surprising if we discover for example certain alignment among elementary particles [2]. Based on ToEbi, particle's spinning rate and spin alignment (stored information) are the keys in order to understand the source of inertia and the mechanism for a conversation of energy. Both of these phenomena emerge from the information processing and storing.

In our everyday conditions, it's not possible to witness when quarks build up (process and store information) a proton. Never the less, proton is a "living" example of processed and stored information from the early moments of the universe. Less than 400 000 years after stored proton information electrons stored another information by attaching themselves with protons. As a by-product from this information processing, lots of photons were created and released. As we can see, information processing and storing is building

bigger and more complex systems.

How animals, including human beings, process and store an information? We do know that a central nervous system receives input from surrounding reality mainly in electric form. For example, when receptors in an eye process photon information with certain energy, it releases a small current into a ones brains. Brains receive the information in form of electric current but how the brains store that information? Only option is to change brains structure and that's really happening when brains store information [3]. Electric current is used to coordinate certain protein synthesis in a synapse. Because the vast amount of received information and limited energy and space resources brains discard most of the received information. Detailed description of processes involved while storing information into a brains is a way out of author's knowledge base.

## **How does understanding information help us understand physics, and vice-versa?**

Ripped off curtain reveals the essence of information. At the same time, the essence of physics is revealed, hand by hand with the information. It should be called the new paradigm in physics, ToEbi paradigm. Universe is, after all, explainable to a common people. Mysteries, like dark matter or dark energy, will vanish. New technologies, like utilizing antimatter, emerge and change our world.

From now on, it's meaningless to ask: It From Bit or Bit From It? It is Bit and Bit is It.

## **References**

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