Tendency of Motion generating Gravity

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The author's opinion is that gravity originates from a peculiar quantum property of matter called tendency of motion. Continuous motion is an innate property of mass, as Brownian motion shows. Nucleons are thought to be self-propelled particles constantly changing direction due to gravitational information called G-information. Mach's principle can be viewed as a form of entanglement of all masses in the Universe exchanging G-information.

Further, in the Earth's reference system, gravity disruptors such as surrounding celestial bodies, forces other than gravity imparting acceleration to test bodies and thermogravity are discussed. Objects on Earth are lighter during high tides, when horizontally accelerated and when their temperature increases.

What prevents us from building devices capable of manipulating gravity is the lack of knowledge on the real nature of gravity. There are many bogus claims on antigravity machines, but what is puzzling is that it seems crucial knowledge on gravity is lost in time. Otherwise, how can we explain the megalithic constructions? With all our technological advances, we are not capable to replicate them. Also, the idea that our ancestors could have had any kind of enormous machinery defies logic. Most likely they knew something that we don't. Something basic, something simple. They appear to have known WHAT GRAVITY IS!

We say gravity affects everything having mass. Masses attract each other, or it seems so.

We also observe that everything in Universe moves. Restlessness is just an illusion. When looking at sitting objects on the ground, we should be aware that they are moving very slowly, either vertically in the direction of the center of the Earth, or horizontally with drifting continents.

Interestingly, Aristotle introduced the notions of a Prime Mover and the Eternity of Motion as early as 350 BC [1].

Brownian motion and the continuous motion of atoms in any gas, liquid and solid also prove that continuous motion is an innate property of mass. Let's call it tendency of motion, in order to also cover the temporary relative restlessness of masses in a reference system.

One step further in understanding gravity is to accept that nucleons are restless self-propelled particles. What makes them so? Possibly quarks made of pure kinetic energy. Where to are they moving? Possibly in a direction given by information they are capable to provide and acquire. Let's call it gravitational information.

Rightfully, most physicists trying to reconcile GR with quantum mechanics are attacking the problem from the quantum direction, not from the GR direction.

Albert Einstein who had a huge intuition was interested in Brownian motion but only from a thermodynamic point of view. He published a paper in his "miracle year" 1905 without investigating what makes the atoms and molecules move [2]. Otherwise, he may have come to a similar conclusion that gravity is not a geometric property of space-time but a property of matter itself due to nucleons' self-propulsion.

The nature of gravity cannot be explained by GR. Gravity is a quantum phenomenon, deeply rooted in the atom.

Gravity is a form of tendency of motion in which bits of matter generically named kinetic dipoles manifest a preferred direction due to acquired information from afar.

Neutrinos could be the carriers of gravitational information since all matter is transparent to them. Possibly, all atomic nuclei spontaneously emit neutrinos. Also, nucleons may receive gravitational information from neutrinos coming their way and change their tendency of motion in the direction of incoming neutrinos. In this respect, The Sun is an enormous source of neutrinos which may determine all matter in the solar system to gravitate by propelling itself towards it. Or maybe the carrier of gravitational information is the graviton which waits to be discovered. For short, lets call the gravitational information "G-information".

Neutrinos move at the speed of light but there is some evidence that gravity propagates instantly, as Newton said. In this case, G-information would propagate instantly, immaterially, yet in a particle-flux fashion. Similarly, photons and

electrons can become entangled due to an instant propagation of information, a phenomenon taken for granted and unexplained.

Considering any mass is a point source of G-information evenly radiated outward in a three-dimensional space, Newton's law of gravitation comes naturally as an inverse-square law due to the fact that the intensity of radiation passing through any unit area directly facing the point source is inversely proportional to the square of the distance from the point source. By radiation we mean a flux of neutrinos or other carrier of G-information.

We push our bodies towards the center of the Earth and manage to stay on the ground, but we also feel the G-information emission of the Moon and, in a lesser amount, of the Sun and all the nucleons in our body have a tendency of motion towards them too. Everything on Earth, living or lifeless, feels the same tendency of motion in ever changing directions due to the instant relative positions of these massive bodies. Additionally, distant celestial structures emit G-information in our direction, modifying the direction of tendency of motion of every nucleon on Earth in a subtle way. This could be the explanation as to why we get a different value of G every time we measure it, as a manifestation of Mach's principle [3-4].

From this perspective, Mach's principle can be viewed as a form of entanglement of all masses in the Universe exchanging G-information.

Therefore, gravity is not a simple force. Gravity is a complicated dynamic process. Each atomic nucleus is a self-propelled particle generically called kinetic dipole.

If gravity manifests itself as a force due to matter's tendency of motion in a direction given by G-information, it follows that we cannot manipulate gravity unless we learn how to alter or disrupt G-information. For any mass, the tendency of motion appears to be a constant and the G-information a variable. At least on Earth, that constant was called "gravitational force quanta" with a calculated value of $1.6414122 \times 10^{-26}$ N representing the self-propulsion push force of any nucleon to the center of the Earth [5].

On Earth, the most significant natural disruptor of G-information is the Moon which generates tides due to a cyclic reorientation of the kinetic dipoles.

It would be interesting to find out whether the Egyptians and other civilizations knew thousands of years ago that is easier to lift a block of rock during a high tide and work only then. Ancient Egyptians observed Nile's low and high tides for sure. Maybe that is why it took so long to build the pyramids.

The tendency of motion generating gravity is different from any other known force which in turn may disrupt its direction temporarily. It seems that acceleration imparted by a non-gravitational force to a moving body makes it lighter than the same body at rest, in the Earth gravitational field. It may be said that a force accelerating a body is also a disruptor of G-information. A Newton's cradle pendulum experiment appears to prove that in the case of elastic collisions [6].

I tried to determine the effect of a horizontal force on the weight of a test body by riding a high-speed train (TGV in France) and weighing a 100 grams object on an electronic 500-gram scale during train's acceleration and deceleration. Unfortunately, train's vibrations made the measurement inconclusive. I wonder whether someone else could replicate the experiment on a MAGLEV train, hoping for less or no vibration, and make a video of the scale. More dynamic weighing experiments should be devised and conducted for supporting this prediction.

I also suspect that an airplane is lighter at takeoff due to the horizontal acceleration and that the aerodynamic lift force generated by wings through Coanda effect is not entirely responsible for a successful takeoff. The aerodynamic lift force of the wings is difficult to measure at full scale, but it would be interesting to compare the wing loading and the acceleration at take off in several aircraft models taking off horizontally. The highest acceleration can be seen in the catapult-assisted takeoff of fighter jets on aircraft carriers because they have a small wing area.

Another disruptor of gravity is heat. Thermogravity is defined as the influence of temperature on the weight of a massive body [7-10]. The higher its temperature, the lighter the body is, in opposition to Einstein's calculation based on the equivalence mass-energy [11].

Thermogravity seems to prove that temperature can alter the G-information and hence affect, for example, the weight of a body on Earth. Temperature generates lift in hot-air balloons and thermal airships having rigid envelopes because a hot gas is lighter than the same volume of gas at a lower temperature. The chimney effect and the natural circulation in fluids defy gravity for the same reason.

It may be said that heat randomizes the direction of motion of every atom. For this reason, a hot Sun emits G-information evenly in all directions.

An important conclusion of the above discussion is that, physically and mathematically, mass is not a scalar and is not a constant for any given body. Mass

is a special kind of vectoral expression of embedded G-information and tendency of motion.

Also, the concept of G-information may explain blackholes. For now, we think black holes are structures with extreme densities and mass. Possibly, black holes are no structures at all, hence their "blackness". They could be made solely of G-information. Other invisible nodes of G-information may be responsible for cosmic anomalies attributed so far to illusive dark energy or to dark matter. Galaxies running at higher speeds than predicted could be driven by unknown sources of G-information.

The apple which was Isaac Newton's inspiration had no better fate than Brownian motion in the hands of Einstein since Newton did not think of it as an object moving by its own using G-information. However, putting on the same notional scale an apple in free fall with planets orbiting the Sun was a work of genius.

The most difficult things to understand are things in plain sight.

As a thinking species on Earth, we are experiencing and observing the effects of gravity for millennia and still we are asking ourselves: WHAT GRAVITY IS?

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