

1. Infinite Universe Cosmology; An Exposition

The current expanding universe cosmology is based on the measured red shift of the light from stars. The farther a star is from the earth, the greater is its red shift (We do not worry here as to how the distance to stars is measured). The basic assumption as to the cause of the red shift is that it is due to the velocity of a star with respect to the earth. The farther a star is from earth, the faster it is moving away from the earth. Going back in time, the farther we go back in time, the closer the stars are to one another, and going forward in time, the farther apart the stars are from one another. This is the origin of the expanding universe cosmology.

It is the assumption that the red shift is due to the velocity of a star w.r.t. the earth which leads to the consequence that the universe had a beginning ~15 billion years ago at which time the universe would have fit into a volume smaller than that of a ping-pong ball. At that time the universe was all energy and no mass, and as the universe started to expand, the energy was converted into mass in accord with $\Delta m = \Delta E/c^2$. That is what is taught in astrophysics classes. However in chapter 1 it was proved that $E \neq mc^2$ and thus there is no way that the energy of the hypothesized proto universe could be converted into mass and therefore the "Big Bang" expanding universe cosmology is false.

There is currently no direct way of measuring the velocity of a star with respect to the earth and consequently the basic assumption remains untested. The assumption examined here is that the red shift is due to the loss of energy by photons (Thus a red shift) as they pass through the hydrogen atoms making up the inter stellar and inter galactic medium. The farther a star is from earth, the more inter stellar and inter galactic medium it passes through on its way to earth and the greater its red shift. The red shift is therefore due to the distance a star is from earth and not due to the velocity of the star with respect to earth. Consequently it is not necessary to assume that the universe had a beginning and that it has a finite volume.

The astronomer Fred Hoyle envisioned a steady state expanding universe in which as the universe expanded, empty space would create hydrogen atoms at just such a rate so that the density of the universe would remain constant and therefore mask the expansion of the universe. The theory assumes that something (Hydrogen Atoms) can be created from nothing (Empty Space). This assumption has never been observed to be true.

The new infinite universe, cosmology assumes that:

The Universe is infinite in extent in all directions starting from any point in the universe and that it has existed for all time. The universe did not come into being at any time in the past, the universe has existed for an infinite amount of time in the past much as it is now and will exist for an infinite amount of time into the future. But what has existed for all time? Our planet, our sun and all of the stars that we can currently see have not existed for all time.

The hypothesis is that what has existed for all time is the process of stars creating stars. That is: The light (Small mass photons) going out from a star, over geologic time, form larger mass photons by mass accretion governed by the attractive force

between small mass photons. The accreted larger mass photons are further attracted to one another to form hydrogen atoms and the hydrogen atoms form dilute clouds of hydrogen gas.

Under the influence of gravitational attraction (A naturally occurring force), dilute clouds of hydrogen atoms condense into a spherical mass to form a star. As the radius of the cloud decreases, its potential energy decreases and its kinetic energy (Temperature) increases, and the proto star starts to heat up and gives off small mass photons (Light, x-rays, radio waves etc.). Over geologic time as the small mass photons are speeding away from their parent star, the small mass photons begin to accrete forming hydrogen atoms (and possibly larger mass atoms) and that starts the process of stellar evolution all over again on a never ending cycle that has existed and will exist for all time.

The new stars reach middle age, cool and form a solid crust and become planets. Over geologic time, (Billions of years) as the star cools down, forms a solid crust and becomes a planet, large mass atoms are made from small mass atoms by a process of compression during large "Earth" quakes. See chapter 11, sec 13.

Eventually:

1. The planet is destroyed by collision with a larger planet forming many smaller pieces called asteroids that eventually collide with a star and are melted and become part of the star, or collide with a planet and become part of the planet. Or
2. The planet directly collides with a star and is adsorbed by the star.

Here on earth (A burned out star) starting about 4 billion years ago and under the action of the chemical bond force, large molecules formed from smaller molecules, and in the ancient seas, larger molecules formed self-replicating molecules, cell membranes, cell organelles, and finally the living cell. Single cell organisms formed multicellular organisms and through a process called natural selection (Organic evolution) formed the increasingly complex plants and animals currently found on earth and finally the creation of Homo Sapiens.

Along the way (Governed by naturally occurring forces) in the chordates (But not limited to the chordates) the central nervous system, muscles and muscle forces were created. The muscle forces are governed by frequency modulated (f.m.) electric signals generated by the brain in response to electric signals generated by the sensory nerve cells in response to external events. This is how the brain is made aware of external events. The sensory nerve impulses are modulated by electric signals stored in glial cell circuits to create the f.m. signal that is routed (By the electric signals stored in glial cell circuits) to the motor neurons of the Superior Sulcus. It is the motor neurons of the Superior Sulcus that directly control muscle movement and it is the movement of human muscles that we call human behavior.

The stored electric signals in the glial cells constitute our memory. They are constantly being added too in animals that have a memory.

In animals that don't learn and whose behavior is all innate behavior, (Exhibit the same behavior in response to a repeated external stimulus), the stored electric signals are not added too during the life of the organism. In this case, the animal is born with the stored electric signals in the glial cells already activated and the stored

electric signals are determined by the animals D.N.A. and the stored electric signals determine the animal's behavior.

In such an animal, a dinosaur raptor might be one, if the raptor were after you and you ducked behind a tree, and it couldn't smell you or hear you, you would consequently cease to exist for the raptor and it would thunder on pass.

As regards humans; what makes us so much more intelligent than our closest relatives the chimpanzees? The answer is much greater memory capacity and fine motor control than that of the chimpanzee. Without the memory capacity we would lose our adaptive behavior capacity and without the fine motor control we would lose the ability to express what was stored in our memory.

It must be remembered that no matter how complex our ideas are, be they mathematical or murderous etc., they are expressed by the brain as an f.m. signal that is routed to our muscles by the stored memory electric signals in the glial cells and our muscles are caused to move by the f.m. signal in a highly coordinated way, to express the mathematics or murderous act.

The f.m. signals generated by the brain result in forces that move the muscles. Muscle forces however depend on the past history of the organism (In those organisms with a memory) while atomic, molecular and gravitational forces do not depend on the past history of respectively, atoms, molecules, stars and planets. Here on earth, the creation of a force that depends on an electrically stored past history of an animal, is a new kind of force that evolved with the creation of a central nervous system, muscle and skeleton.

This is an important difference and makes possible learned or adaptive behavior. So our universe is the way it is because of naturally occurring forces and all those naturally occurring forces have existed for all time. If any of the forces (atomic, molecular, gravitational) had a different numerical value than the one they have, we would not have evolved and we would not be here on this earth.

In answer to the question, "Why is the Universe the way it is?"; if the naturally occurring forces had numerical values and governing equations other than the ones that they do have, we would not exist to ask the question.

Historically, how did mathematics enter into our description of the universe?

Mathematics is used to describe the magnitude and direction of forces between objects (Atoms, molecules, planets, stars, etc). If your mass is M_y and the earth's mass is M_e then the force between you and the earth is: $F = -M_y M_e G / (r_{ye})^2$ where G is the gravitational constant and r_{ye} is the distance between you and the center of the earth. If your mass is $1.06 \cdot 10^5$ gm and with measured $M_e G / (r_{ye})^2 = 9.8 \cdot 10^2$ cm/sec² your weight is: $|F| = 1.06 \cdot 10^5 (9.8 \cdot 10^2) = 1.04 \cdot 10^8$ dy = 270lbs.; A tackle for a professional football team.

One final point; The author is aware of Extra Sensory Perception and ESP is a method of communication that does not directly involve muscle movement. However if one

wants to express ideas obtained using ESP without using ESP, then one must do so using muscle movements.

A neurobiological model for ESP has been developed and is given on the author's web site www.jmkingsleyiii.info : Click on the tile entitled "Physics and E.S.P."