

The Constitution of The United States of America and the Constitution of the Unified States of the Physical Universe—A Comparison

David Halprin

Here we have a limited parallel between:

- 1) the laws of Northern America and the role that they play in the administration of the life of the inhabitants, living therein

AND

- 2) The laws of physics, pertaining to all the states of matter, that exist, or may exist, within the Physical Universe.

In other words, a comparison between the Supreme Law of the Land and the Supreme Law of the Physical Universe.

Both the parallels and the differences will be highlighted, where deemed appropriate.

Essentially, ipso facto, there can be No amendments, (appended assumptions), to the laws of physics, but there will be a surfeit of bylaws, all of which are deducible from the laws of the constitution, so, a priori, there will be many instances of overlap in the field of bylaws, and occasionally there will appear to be a contradiction, but, since cognitive dissonance has no place in physics, (despite many current practices), they will be resolved by an in-depth analysis of the fundamental laws of the constitution, and the concomitant deductive processes applied to them. If such alternatives still persist, then we have to consider that:

- 1) There may be an inherent fault in the constitution, which, although unlikely, will be considered if one or both of the following two reasons cannot obtain.
- 2) There may be a fault in the deductive processes, which brought about this apparent dissonance.
- 3) There may be only an apparent dissonance, when, in fact, both alternatives may coexist, under appropriate circumstances, perhaps based on balance of probabilities.

Relevant to this possible point of contention, it may be solely due to semantic interpretations, for the following reason(s):

When one gives serious consideration to an alternative paradigm, that, by its very nature, must be grossly at variance with the original paradigm(s), one must expect that there are new (and/or extended) meanings to current terminology, and/or new terminology, such that some differences will be only apparent due to arguing at cross-purposes.

In essence, we have to examine the Laws of the Physical Universe, in the same probing manner, that an attorney-at-law will examine the Laws of the Land, wherein he looks for legal loop-holes, that will help him exonerate his client, when accused of some misdemeanor. In this instance, he knows that there are such loop-holes to be found, since the Laws were formulated and promulgated by humans, for humans, who, by definition, are imperfect.

On the other hand, the Laws of the Universe are there, to be discovered by Man, and exist

independently of Man, since the Universe existed before the Birth of Mankind and will continue long after its disappearance, so if Man, in the person of a Philosopher of Science, does indeed discover these immutable Laws, then the search for the loop-holes rather than discovering faults, (which, by definition, cannot exist in a perfect Universe), in fact uncovers all the possibilities, that may be, and then it is only a matter of probabilities, as to whether the entities/existents are there to be discovered.

So now to state the Laws, as discovered by D. B. Larson, which he lists as four basic premises, as hereunder:

Basic Premises

The basic premises of the theory consist of certain preliminary assumptions, a postulate and a definition.

- A) In order to make science possible, some preliminary assumptions of a philosophical nature must be made. We assume that the Universe is rational, that the results of experiments are reproducible, etc.. These assumptions are accepted by scientists as a condition of becoming scientists, and are not usually mentioned in purely scientific discourse.
- B) We assume that the generally accepted principles of mathematics, to the extent that they will be used in this development, are valid.
- C) We postulate that the Universe is composed entirely of one component, motion, existing in three dimensions and in discrete units.
- D) We define motion as the relation between two uniformly progressing reciprocal quantities, space and time.

We can analyze the above four statements in various ways, for instance:

As they stand, *prima facie*, they represent the definition of the Primal Universe of Motion, wherein the motions are solely primal, themselves, and therefore are not considered to be an activity of the six-dimensional Universe, but merely, the setting, background, or datum, within which we shall interpolate, and from which we shall extrapolate, in an attempt to investigate whether there can be secondary motions and/or entities, which complement the premises, but in no way need assumptions to justify them.

We note that there is no mention of vectors or energy, let alone matter, so let us investigate any opening (Goop-hole) for possible variations.

We acknowledge the discreteness of time and space, hence we must imagine (as best we can) these minuscule 'units', all progressing, (the space units), away from each other, with no inherent directions, but those determined by chance, or in other words, obeying a probability distribution, and are purely scalar quantities. The same description applies to the temporal units, but cannot be imagined quite so easily, because there is no spatial connotation, other than by analogy with the space units. The Primal Universe is indeterminate, and Heisenberg's description may well obtain.

So we see that this Primal Universe is expanding at a speed, determined by the ratio of one space unit per temporal unit, *sine qua non*. This speed can be called unit speed, and can be identified by our observations, as being the speed of light, although at this stage of the investigation this can be put aside, awaiting further developments.

Looking once again, in overview, at the primal six-dimensional universe, we have one unit of space progressing per unit of time, showing that both are progressing. There are two mutually exclusive ways of observing this, the first being the way that humans observe, which is by taking a spatial approach, and using a reference frame, whereby we envisage the spatial locations moving outwards, distributed over all the possible radii of an expanding sphere, whose center is the origin of the reference frame. The other type of observer, about whom we can only conjecture, would have the capability of observing this expansion in a temporal framework, and would see it in the same way, BUT what we call space and see evidence of in our framework, would not be observed in the same way by the other observer, who would only look upon it as a one-dimensional continuum as we look upon time. Similarly, by reciprocal argument, our knowledge, by our experience, of time, is as a one-dimensional continuum, (see next paragraph), when in fact, vice versa, it is the three-dimensional space of the other type of observer, which Larson calls a cosmic observer.

I shall now quote Larson on the topic of the two classes of observers

“Re the existence of the two classes of observers. That is one of the reasons for distinguishing between the ‘material’ and ‘cosmic’ sectors. Human observers ‘exist’ only in the material sector. The hypothetical cosmic observers ‘exist’ only in the cosmic sector. The material sector can be regarded as a three-dimensional frame of reference moving ‘linearly’ through a three dimensional temporal frame of reference. The material observer, therefore, has access to the entire spatial reference frame, but cannot observe the high speed physical entities moving in the temporal reference frame, except during the brief ‘interval’, during which they happen to be on the ‘linear’ path of the time progression. To the cosmic observer, these relations would be reversed, (interchanged).”

We note that the outward expansion of the universe is a primal motion, and any secondary motions that will be introduced must, of necessity, involve a different ratio of time units to space units, than 1:1. Having realized this, then a broader concept of motion obtains, since, for instance, 2:1 or 1:2 have equal probability. The former representing a spatial speed, which is half unit speed, a normal motion, to our observations, while the latter represents its counterpart, from the point of view of the cosmic observer, but which will manifest itself to us, not as a motion at twice unit speed, but in some other way. We can label it motion in time, but not to be confused with the science-fiction concept of time-travel.

This speed of the recession is fixed, so the only variation open to us is a directional variation, of which there are several types:

Linear vibration, rotation, and rotational vibration.

Imagine that a space unit reverses its outward motion at the end of a unit of time, and moves for one time unit back along the line of progression, when it reverses again, so we have to consider whether this conflicts with any part of the basic premises. It seems not, so to develop the consequence of this vibrating unit, it ceases to move outward along the line of the vibration, but it may still move outward in an orthogonal direction, since there is no component of the vibration possible at right angles to it. However, this would probably not manifest itself to the observer of the material sector, since the vibration occurs within a space unit, which is time, and hence this entity remains to be identified.

If we consider another space direction reversal, but this time the space unit travels backwards for two units of space, and then reverses, as above, but this time we would have the entity comprising two space units and four time units, which would still have the net result of half unit speed as it oscillates, but this time it is spatial in its manifestation, so when it then travels orthogonally, we would see both a

secondary motion and an entity. The description of the locus of the vibration in space would be a 'sinusoidal path', (see later), and this can be identified as energy in the form of an electro-magnetic wave. However, it is important to note that this observation of the entity as an electro-magnetic wave is only from our viewpoint as material observers, who only can witness four dimensions of the six available.

We witness the many manifestations of the outward recession, such as direction reversals, scalar rotations, rotational vibrations and motion in time, in many different ways. To the extent that we believe that 'seeing is believing,' we are held back by this innate bias, in our full understanding of the six-dimensional physical universe, and that is why it is so difficult to realize, as the 'piece de resistance,' that all motions, which we are witness to, are only apparently less than unit speed, because of the inherent restrictions of our four-dimensional observational apparatus.

Traditionally we think of space as a continuum, which allows us to consider that any point in a three dimensional framework is a point in space, and in plane geometry, all points on the X-axis are admissible, without exception.

However, if we consider this in context of space-time, then the X-axis represents a line in space, which is expanding at unit speed, and the smallest part of this line is the unit of space. Within this unit there cannot be space, or we would be contradicting a basic premise, so it must be time, but since it occurs in a spatial context, we can assume that it is effectively manifesting itself as space, but in a reciprocal way. In other words, since one unit of space is equivalent to more than one unit of time. i.e. n units of time are equivalent to $1/n$ units of space.

If, then, we consider the vibrating unit as being within a space unit and having a period of $2n$ units of time, we would have a vibration not only at less than unit speed, but in fact that fraction of unit speed denoted by $1/2n$.

It should be noted here that the vibratory motion is not the simple harmonic motion that we learn at school, since in that case we have a mass, which oscillates to and fro, which is at rest at both ends of the motion and is at its maximum speed halfway along the path of oscillation. The oscillation of the photon, however, is at $1/2n$ of unit speed each way, and there is no mass to be considered as coming to rest and accelerating to a maximum speed etc. etc., *reductio ad absurdum*.

We need to formulate a mathematical expression to represent this type of motion, which must have a name, so let us call it simple vibratory motion, (S.V.M), but we cannot expect it necessarily to have a simple mathematical expression. In fact in a separate paper, I have written the Fourier series, that describes it, and also the shape of the electromagnetic wave with its equation.

Material matter, according to the *Reciprocal System of theory*, is predicated on the material rotational base, which has a vibratory unit, whose speed of vibration, is that fraction of unit speed, denoted by $1/2n$ or $1/(2n+1)$, where n takes integral values 1, 2, 3, 4,... but the actual value, or preferable choice, appears not to have been elucidated, to date.

The texts refer to a destructive limit where material disappears from observation, said to go into the cosmic sector, but more accurately described as becoming observable by the cosmic observer, and no longer observable by the material observer or in other words, there is an interchange of its components, where time and space interchange, hence the vibratory rotational base of the matter becomes the vibratory unit of electromagnetic waves where, say, the vibration of $2n$ becomes a vibration of $1/2n$, or perhaps some other value???

To quote and comment on James Jeans evaluation in 'The New Background of Science':

“Space-time is not the framework of the world of nature, but of the world of our sense-perceptions, and when we represent objects beyond our senses in space-time, their apparent absence of determinism may be merely the price we pay for trying to force the real world of nature into too cramped a framework... Materialistic philosophy runs counter to the teachings of present-day physics in its assumption that everything can be fully represented in space and time; it fails to distinguish between the surface and the depths beneath. It takes the spatial qualities of objects to be their primary qualities, although science shews that, the spatial qualities are merely those with which our senses can establish direct contact—the ripples on the surface, which meet our eyes.”

Considering the foregoing premises and arguments of Larson, James Jeans was closer than he could have ever imagined himself to be, with actually ‘hitting the right button’.

To transmogrify Jeans by appropriate paraphrasing, and yet couching it in his terms:

Space-time IS the framework of the world of nature, (the physical universe). When we want to represent objects objectively, which means in the space-time reference frame, which in itself and of itself is beyond our sense-perceptions, their apparent absence of determinism is the price we must pay for trying to force the real world of nature into too cramped a framework, of merely three spatial dimensions and a one-dimensional time continuum.... Materialistic philosophy and its successors up till 1988, (other than the *Reciprocal System of theory*), all have assumed that everything within the physical universe, whether it be matter, energy, or other entities, still awaiting proof of existence, can be fully represented in space and/or time and/or a 4-dimensional space-time, which is commonly regarded as non-expanding by most paradigms, and what is more, both space and time are considered to be independent continua. Effectively, this lack of understanding of the true nature of space-time, implies that the spatial qualities of entities are their primary qualities, while at the same time it is recognized that the spatial qualities are merely those with which our sense and measuring instruments can establish direct contact.

Summarily, all existents in this physical universe, whether material particles or electromagnetic waves are six-dimensional and capable of being observed, wholly or in part, directly or indirectly, by both mutually exclusive classes of observers, each according to his perspective, which is always four dimensional.

To put it yet another way:

We humans, are composed of aggregates of atoms, which are contiguous in space, and we emanate infra-red waves of energy, which are subject to scalar motions, that distribute them in all directions of space, based on probability laws, yet they are all six-dimensional entities, and would be observable, wholly or in part, by cosmic observers, the vibratory units of our atoms would be the vibratory units of electro-magnetic waves and the vibratory units of our infra-red waves would be the vibratory units of c-atoms and c-particles.

The basic premises not only define a theoretical universe, but they also describe accurately, both explicitly and implicitly what can be and what cannot be in the universe, (see article, ‘Que sera sera’; to appear later) For instance, there have to be indefinable concepts, which by their very nature do not fit anywhere in the universe, therefore are irrelevant to an meaningful discussion, and should be dismissed as a waste of time, in the elucidation of the facts.

It can be argued, from a different standpoint, that one may bring any topic, not a conversation for some other purpose, than the purported matter under discussion, but in a serious attempt to develop all the

consequences of the basic premises, some items should be summarily dismissed.

e.g. 1) Theology, theosophy, zen, mysticism, supernatural, and such concepts as 'beyond space and time,' 'the beginning of time,' 'the big bang,' 'time travel,' neutron stars, magnetic monopoles, black-holes, superstrings, super-gravity, gravitons, gluons, quarks and anti-gravity.

e.g. 2) The possibility of there being such an observer, that can observe all six dimensions. This has no more meaning, than the age-old paradox of the coming together of the irresistible force and the immovable object, or the sound of one hand clapping, or dividing by zero. This is all zen, and whereas it may have a purpose of clouding a mind with sufficient confusion in the hope of bringing about an eventual enlightenment, it is not, in essence, meaningful or relevant.

P.S. Notwithstanding all the correct results obtained by R.S. in the domain of the atom, could there be another factor, that to date has not been investigated, but which may have the potential to answer some of the problems that have arisen, where some inconsistencies are awaiting explanation? I humbly suggest the vibrational frequency of the rotational base. This does not appear to have had any in depth analysis. Whereas reference has been made to the variations possible in electro-magnetic waves, depending on the generating source, but here is part of my analysis, to date.

It is impossible to have a vibrational frequency that is exactly unit speed, (as perceived in our four-dimensional sector). Unit speed only occurs in the outward expansion, where there is a 1:1 relationship between space and time units. The moment we have a direction reversal, to set up this simple vibrational motion, we have either 1:2 or 2:1 as mentioned in above paper, giving the speed as 1/2 or 2, and by analogy the only speeds possible are $2n$ or $1/2n$ of unit speed.

This then raises the question, could some elements have more than one representation, depending on the frequency of the rotational base, or alternatively, could certain groups of elements use one value of this frequency only, while other groups used another value? Or can this frequency be changed by extreme conditions, such as in excited atoms, in lasers and in some galactic examples too???

View From A Point

Take thou a photon, and vibrate it freely,
Then may-be you-all have a straight line, nearly. This vibration, (in time), is forever eternal,
It's as obvious as night and day are diurnal.

Each photon merely describes its own locus; to aver it a line is a Hocus-Pocus.

So when we rotate it, to build up a particle,
This is done in space, (as you'll see by my article).
The successive rotations may be called revolution,
And all of these revs, determine the Atom's Evolution.
The Atom, thereby formed, has properties, Intrinsic,
Brought about by these combined vibes and revs.,
Extrinsic.

The triplets, that described this photon's dance do suffice
To identify WHICH atom, in a manner, precise.
However, for completeness, we may need one more:
The vibration's frequency comes to the fore.
Now remember, the kernel is 2 or 1 photon;
To deny this foundation is strictly 'verboten.'