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Universal Relativity

The task of determining the 'theory of everything' need not be insurmountable, so long as due care is taken to eliminate prior misconceptions and seek deductively reasoned truth. To this end, it is required that a clear philosophical context is established to expedite our investigation into the fundamental nature of all mechanisms. Firstly, to know how a completely unifying theory might appear, we must examine those properties we can extract from its definition.

The Axioms of Unity

1: If a theory is completely unifying, it describes no more than one object.

2: If a theory is completely unifying, its variables are universally applicable.

Note that we are not discussing an aether separate to matter, nor a cloud of individual particles; rather we are observing a single, continuous subject, and any geometric properties pertaining to it. It stands to reason that we should not assume to apply variables relating to the now defunct 'particle physics', for whilst some are potentially correct, they are surely not fundamental. Hence in our search for universal variables we must inspect the space between 'particles' of which it is known that density can fluctuate. Furthermore, my esteemed countryman Sir Isaac Newton surmised that "All actions must have an equal and opposite reaction", which can now also be applied ubiquitously in accordance with deductive law; therefore, it is reasonable to state:

For any change in the density of space, there must be an equal and opposite change in the density of space.

The inquisitive reader may already have noted that a description of changing density differences will be meaningless without some driving interest necessitating the alteration of systems. What are the geometric imperatives at work in, for instance, momentum? The consensus being that "things just behave that way" and that an initial force is somehow responsible for a present continuation of movement. We are charged with the task of building upon our deduced, simplified context and to apply a rule which is consistent for every point in that geometric figure. Broadly speaking, there can be seen a dichotomy in physical systems which implies both liberal and constrained interaction; more specifically, a constraint which appears cumulative over distance and by extension, volume. A relationship between volumes of space can therefore be inferred as being precise to an infinitesimal degree; thus, a universally applicable equation will relate infinitely small points to one another such that our volumetric constraint is achieved through the cooperation of said points, which may be abbreviated through differentiation.

The notion of an infinitely small point having a density value may appear a non-sequitur, for infinitesimal points cannot have a substructure. In practice, the density of an individual point is a measure of the quantity of space immediately adjacent to it. We can take this to describe an additional dimension of sorts, which may be articulated in a manner similar to radian measure: If a point is surrounded by space which is considered of average density, it will be surrounded by a single sphere of adjacent space; for higher density a point will be neighboured by more than a sphere of space; conversely if a point is said to exhibit lower density than the universal average, it will be in the midst of less space than a single sphere; our *"force dimension"* scale is therefore between 0 and 2 spheres, where the distribution of space around a given point may be asymmetric.

Let us now observe the universally applicable mathematical equality, Universal Relativity, wherein the average density of one sphere is represented as zero.

$$\int_{\varphi=0}^{2\pi} \int_{\theta=0}^{\pi} \int_{r=0}^{\infty} \frac{d\rho}{dr} \rho(\varphi, \theta, r) = 0$$

Where ρ is density of space.

I ask the reader to recall our assertion "for any change in the density of space there must be an equal and opposite change"; now we must expect this to be true from the perspective of any point, lest the second Axiom of Unity be violated. From a given point in space, our seemingly innocuous equation is integrating the values of ρ over distance r. As distance increases from a point, so the relevance of said point diminishes as its potential influence is shared with a larger sphere of infinitely small points. The sum of the integrated values of surrounding density, will for any point in the entire universe, reliably equate to zero. This is our universal equality which cannot, even momentarily be violated, leading to a variety of conflicts whereby many functions can be impermissible, resulting in various degrees of what we observe as force. Helpfully our master equation gifts us numerous consistencies which can ease the process of calculating changes in our geometric figure; amongst them Planck's constant, which references the universe's quantisation to a constant width with respect to the Force Dimension.

We will regularly observe the change in relevance over distance:

$$R = \frac{di}{dr} \frac{\rho}{1+\frac{4\pi r^3}{3}}$$

Where 'i' is 'imperative' This derivative henceforth may be referred to as R ('*Relevance*').

The Arbiters of Entropy

Whilst the various themes of structural degradation can be said to result from the same overall process, for clarity we may categorise entropy's mannerisms in the following terms:

1: Self Annihilation - If a system is sufficiently unstable within itself, the density set will flatten[i].

2: "Non-local" Resolve[ii] - External to any local system, are non-local systems which can contribute to the resolve of density differences. Note that whilst distance reduces the imperative for such action, multiple non-local systems may conspire and interfere cooperatively.

3: Dissipation - Space surrounding any given system will absorb density differences; a process familiar to us through "wave-particle duality".

Wave-Particle Duality

If a computer were instructed to generate landscapes of density differences at random, the results would seldom satisfy Universal Relativity for all points. Moreover, of the few that would appease our most fastidious equality, the clear majority would fall victim to Self-Annihilation. Yet some will accede, comprising curves and counter-balance such that typical non-local resolves will be tended to, meaning the structure has the ability of self-repair and will consequently persist. We describe these oases of entropy-negation as particles and groups thereof. Nonetheless, Dissipation (particularly in the case of stationary bodies) is a mainstay of all systems, for it follows that if volumes of space are of different density they represent a difference which will be communicated to surrounding space such that $\int \Psi$ (area under the curve) will never increase or decrease, yet will spread and flatten. Crucially, through this process, the imperative will reduce such that the rate of dissipation will decrease; this is the essence of wave-particle duality. If the curve of a given function (from the perspective of the particle's centre) is consistently $f' \frac{d\rho}{dr} \leq R$ the density difference will be described as a particle, whereas a particle with shallower curves than R will generally be described as a wave, which via a collision may revert to R.

Figure 1.1a

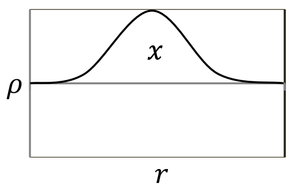


Figure 1.1b

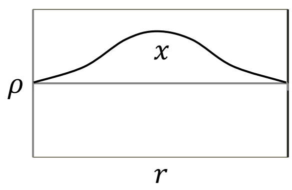
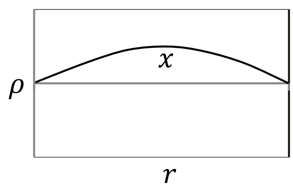


Figure 1.1c

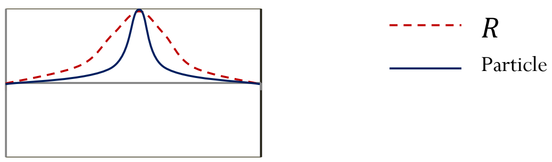


Where x refers to $\int \frac{d\rho}{dr}$, which is the consistent for all stages of wave transition. In figure 1.1a $\frac{d\rho}{dr} \equiv R$ meaning the wave function exhibits the properties of a particle; in this case, an electron.

An electron, when in motion, will exhibit at the peak of its structure a point which has a density value at the lower limit of our density scale. Conversely, a positron will have a peak of difference with a density value at the upper limit.

In the case of curves steeper than the R, we find different tendencies to arise, where if all curves of the particle (in every direction) are more steep than R, the density difference may briefly persist as a higher energy lepton, which will in most cases decay through what has hitherto been known as the weak interaction into various other, more stable (less steep) functions. It should be noted that the abruptness of a particle's structure being sharper than R is not alone enough to ensure sufficient persistence for observation; since the satisfaction of $U.R.$ from the perspective of all points will prescribe very few such islands of stability (particles).

Figure 1.2



Here the particle has a steeper function than R meaning the rate of spread will result in radioactive decay.

In the case of the double slit experiment much has been left to explain, thus due diligence requires at least a cursory analysis:

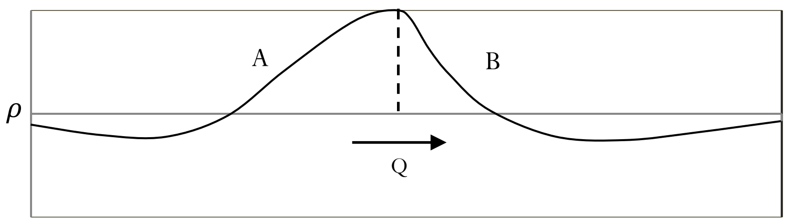
The surreptitious arbiter of this curious event is the constant preservation of density integral, which for the spreading wave requires that the structure accordingly becomes slenderer and increasingly negligible from the perspective of a potential obstacle. For many scenarios involving two slits, there will be a threshold beyond which the lowest energy solution is to allow the slender wave to divide and to venture as pair of waves which may interfere with one another as expected, until terminating through collision (where no slits are offered as lower energy alternatives); at which point the will of quantisation is imposed lest the density function integral be changed and the law of constant width be violated. A collision prior to the slits (or indeed after as we will discuss later) will likely cause the wave to collapse, reinstating the more commonly understood particle behaviour.

An important question may have arisen in the mind of the reader – what is the consequence of an *asymmetrical* density function?

The Mechanics of Motion: Momentum

In the case of asymmetrical density functions, the familiar property of momentum will occur. It is important to understand exactly why this is the case, for it plays an important role in so many of our universe's operations.

Figure 2.1

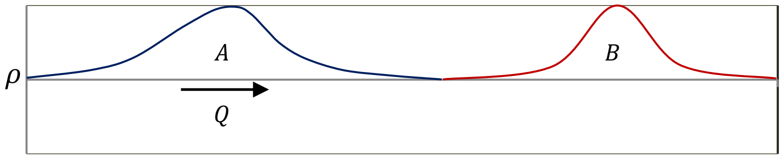


Where the curve of B is steeper than the curve of A, giving motion in the direction Q. Note that the positron function will not spontaneously revert towards symmetry because the structure is under constant pressure to maintain itself, (for slope B is communicated more quickly to its surrounding space in accordance with the imperative/distance relationship) thus accounting for Newton's first law of motion.

When a particle has momentum, the corresponding dissipation in the directions parallel to the momentum vector preserves the asymmetry along that axis, however dissipation may still occur perpendicular to the momentum vector.

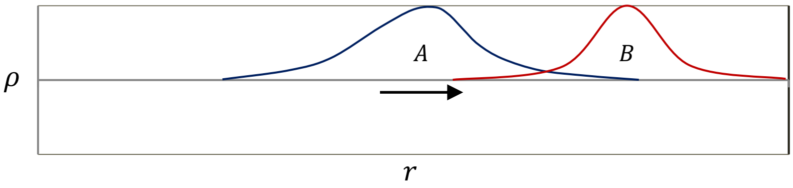
We may now consider how momentum is transferred from one particle to another through the process of collision:

Figure 2.2a



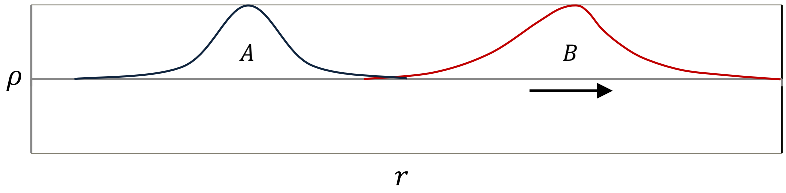
Particle A is on a collision course with particle B.

Figure 2.2b



Two particles are intersecting through a collision, thereby reducing the area under their curves, with the peak of the particles moving closer together we can expect the associated local space to be strained by increased imperative. It follows that an alternative response be necessitated lest Universal Relativity be violated; note that the total area under the curves must remain the same.

Figure 2.2c



The asymmetry has been transferred from one particle to another to counteract a reduction in density difference, thus accounting for Newton's third law of motion.

Figure 2.3a

Conversely, where two opposing density differences intersect, we may observe the more violent transition of *annihilation*.

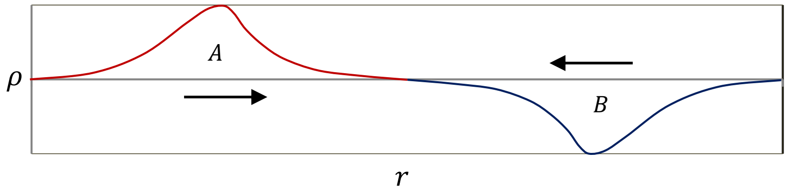
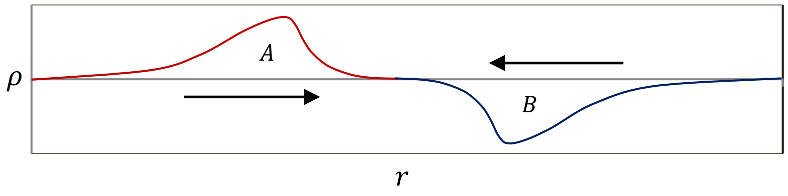


Figure 2.3b

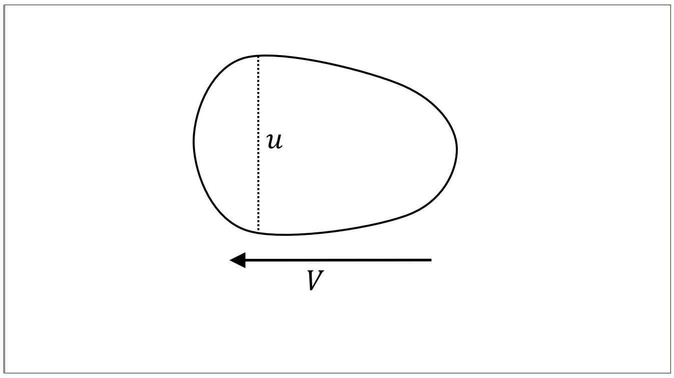


As the two differences move closer, so their intersecting values will cancel one another out, resulting in an increase in momentum/asymmetry; yet as previously mentioned – the resulting changes of density will have ramifications for surrounding space, hence the area under the curve will not diminish.

The Mechanics of Motion: "Time Dilation"

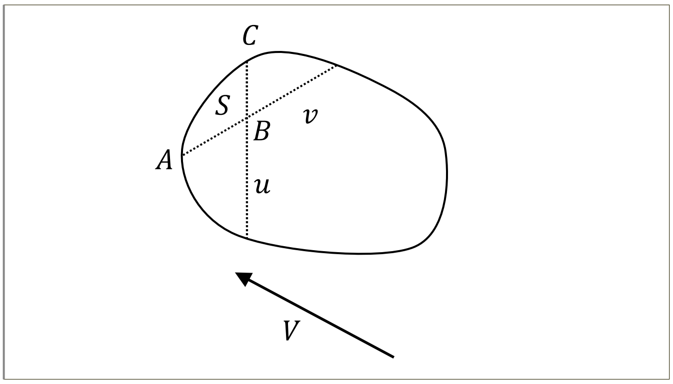
Density differences for which asymmetry has been observed through their motion, have at times confounded the bewildered observer through an apparent, albeit partial, immunity to entropy. Such observations have led to accusations of time dilation and a general abandonment of logical, mechanical comprehension. Now let us see the process clearly for what it is:

Figure 4.2a



Here a change in the value of ρ is portrayed through the rate of the change in height on the y axis. The particle is asymmetrical and has velocity indicated by vector V and axis u.

Figure 4.2b



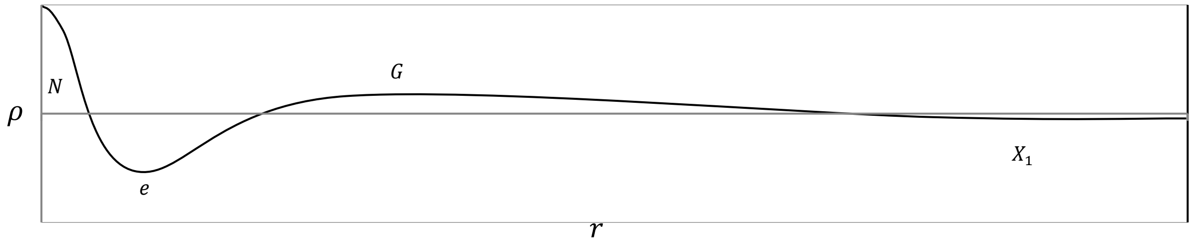
The particle has gained an additional asymmetry where axis v intersects axis u at point B, creating a new region S which will exhibit a steeper $d\rho$ than its two constituent asymmetries; the resulting direction of motion can be determined by bisecting $\angle ABC$.

Note that these kinds intersecting regions for multiple inertial asymmetries result in an overall slowing of events within objects in motion. For instance, an object which is almost completely asymmetrical and therefore travelling close to the speed of light, would exhibit considerably slower reaction times from the perspective of a stationary observer, thus accounting for "time-dilation".

The Atom

A Neutron contains equal and opposite density differences (hence zero electric charge) which are seeking to annihilate – a process impeded due to the presence of like differences. Eventually, following the triumph of the more potent 'annihilation' mechanism, the most stable solution for space is to structure itself with opposing concentric density fields surrounding a proton, with each field exhibiting exponentially diminishing imperative and accordingly, displacing exponentially increasing volumes of space. The proton is charged thanks to unequal density differences, for which an electron field is required as ballast. Note that a solitary Neutron is not likely to persist, for the annihilation mechanism will serve to undermine the collision process; whereas for a Proton, lop-sidedness in favour of like-differences will yield a more robust structure.

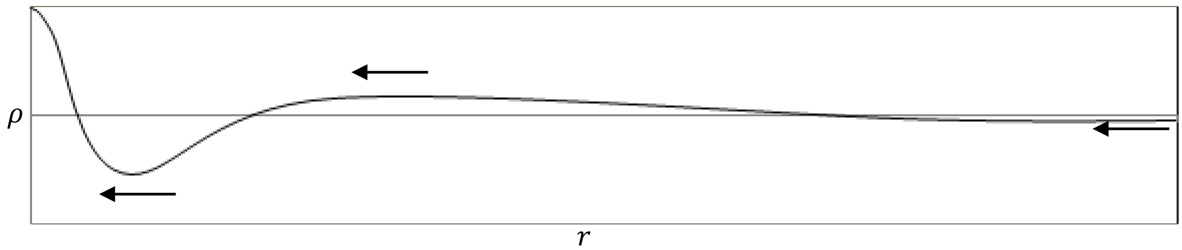
Figure 5.1



Where r is distance from the atom's centre N is the Nucleus, e the electron shell, and G the gravitationally associated field, beyond which it follows that further fields are propagated, spreading over exponentially larger distances.

We will refer to our newly hypothesised density functions as '$X\ Fields$' – commencing with 'X_1' which must be a negative density field; for all $X_n\ Fields$ where n is an odd number are negative density differences; inversely, where n is an even number, the field will consist of positive density values.

Figure 5.2



In Figure 5.2 an interesting property of the atom is described, the various components have momentum! Note they will typically exhibit equal and opposite momentum with respect to the atom's centre, thereby not putting the entire structure in motion, however the consequences of these asymmetries is noticeable through many interactions, such as the case of the electron shell, where we witness the effects known as orbital angular momentum.

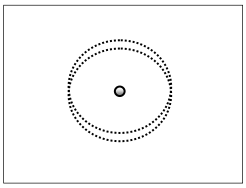
The reader may at first glance assume an incongruence between the drawn curves of our concentric spheres and scientific observation. If the potency of a force is diluted into space such that the corresponding imperative tends towards zero, one might not expect the density value to plough on through to the opposing sign. To clarify this apparent discrepancy, let us return to the realm of the fundamental: A point in space must have a local relevance *and* varying degrees of relevance for distant points. The local difference in density between two surrounding hemispheres of a point for instance, will be mediated and resolved through further surrounding points, which themselves cooperate with their own surrounding points and so on. Conflictingly, the volumes of space which surround the local points and their neighbours are also subject to the same rigorous rule and must yield in a manner which is incongruent with the anticipated locally scripted curve; this is thanks to the geometry of relevance being at odds with itself with regards to density differences, hence we experience the flexing and changing of space. For a particle subjected to the warping effect of the gravitationally associated positive density difference, there must be contrary force due to the X_1 field. The net resulting force *does* therefore tend towards zero, thanks to the tendency of the effects of G to overwhelm those effects associated with X_1, regardless of location.

Furthermore, the consequence for stationary atoms, where the prior momentum had yeilded high imperative/distance values, the differences will now be allowed to spread and their mass decrease. Similarly, the increase of heat related momentum in a material will increase the value of imperative over distance and thereby increase the gravitational footprint.

Electro-Magnetism

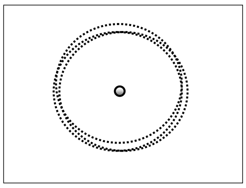
In the pursuit of a mechanically robust explanation of the processes involved in electromagnetics we should first rectify our understanding of ions, for it might be easily mistaken that an atom which is deprived of electron(s), or given a surplus thereof, would either violate *U.R.* or at best spontaneously change into a different element. Let us seek now to visualise a sturdy atom of Helium which will sport two electrons (at least it will demonstrate two electrons worth of positive density difference which may precipitate into individual electrons as circumstances require).

Figure 6.1a



Let us bear in mind that all points in this structure exhibit a balance, which would be disrupted were we to add an electron to the shell of this atom. How then may the visitor be accommodated?

Figure 6.1b



We can of course increase the distance of the electron shell, thereby maintaining the appropriate imperative/distance relationship; however, it must be expected that whilst U.R. is satisfied, there is still an inequality which will burden our atom's fields with a price – thus the structure is *charged!*

What then of the anion's diminutive sibling, the cation? As you may have inferred, the opposite solution is necessitated by our atom's components.

Figure 6.2a

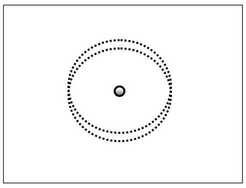
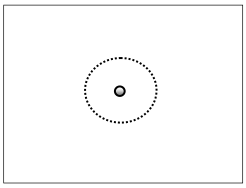


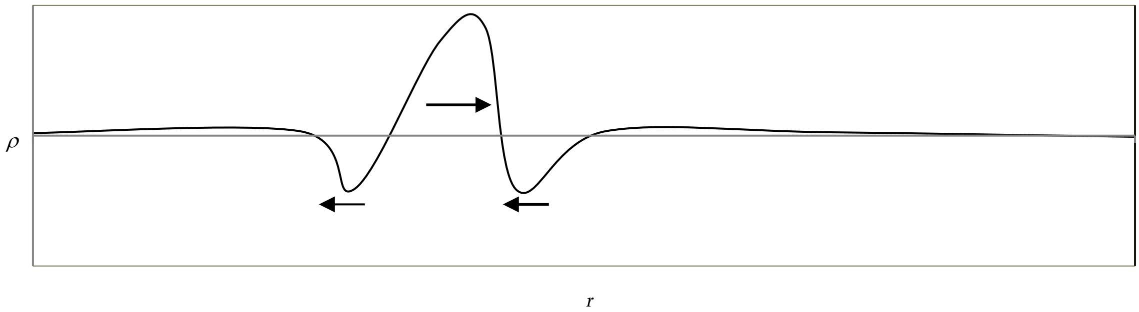
Figure 6.2b



The removal of one electron has required the remaining negative density structure to move closer to the nucleus; U.R. is satisfied, although our atom is less stable, given its willingness to accept a replacement electron.

Here we will move to a more complex scenario: Let us consider an atom exhibiting opposing momentum between the electron components and the atom's nucleus, whilst still within the geometric constraints of Universal Relativity, we can expect the imperative distance relationship to be imbalanced such that the electron hemisphere which aims away from the nucleus will be characteristically of North polarity; whilst the hemisphere which aims inwards is observed as South polarity. We should note that these electron structures have relevance for non-local functions, such as a travelling electron which may be within the gravitational field of the local structure which will nonetheless interact "electrically"; for the non-local electron, will be as concerned by the local electron's imposition as much as R may facilitate.

Figure 6.3

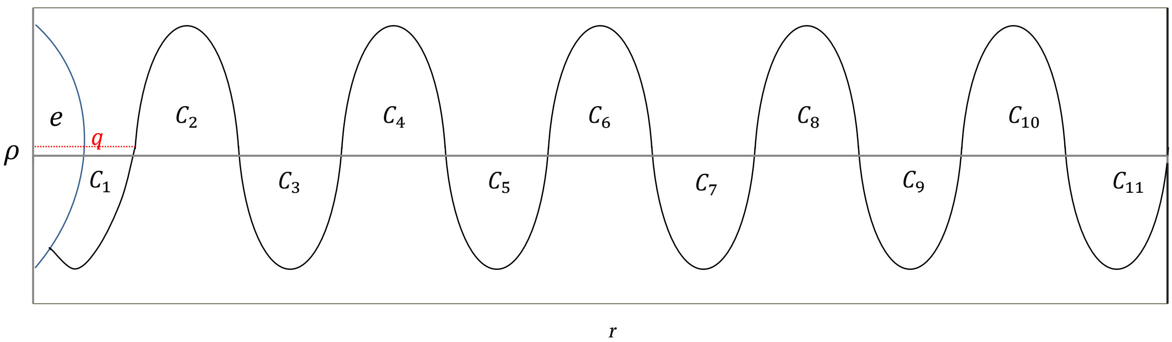


Where arrows denote momentum/asymmetry.

The Electro-Magnetic Wave

Perhaps the most interesting of our universe's mechanisms, is that of the electromagnetic-wave. As one might expect, any change in density which does not reach either limit of ρ, will in turn necessitate subsequent equal and opposite differences which propagate as photons. The reader should note that the various mechanics of propagating electromagnetic waves will be investigated separately to ease comprehension. We will firstly investigate the mechanical nature of black body radiation:

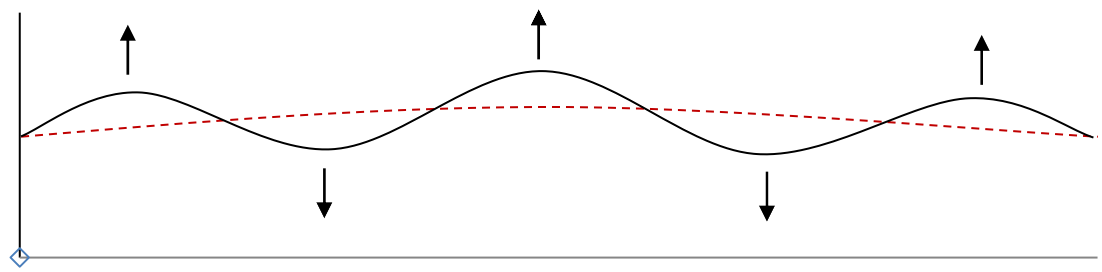
Figure 7.1



Region e represents electron shell of an atom which oscillates horizontally over distance q; the change in density of region C_1 marks the instigation of a propagating photon, with C_n denoting subsequent density differences. Note that for any electromagnetic wave function (in this figure, C_n) the area under the curve is the same; providing us with Planck's constant. The consistency of Planck's constant derives from the imperative/distance relationship yielding constant width.

A question now arises, what are the consequences for the vector of a photon transiting through uneven space? For example, when a photon propagates into a magnetic field, an observer may be forgiven for expecting that it would be deflected, as a result of the region of the wave function which is closest to the source of the magnetic field propagating with greater haste, on account of the relatively low density of the medium. However, both logic and experiment show otherwise: The effect is neutralised, for every propagated field of the photon the opposite will quickly follow, causing equal and opposite deflection and attraction.

Figure 7.2



A crucial property of light may now be discussed: As a photon transmits from regions of space which have higher values of ρ, the wavelength will increase (redshift); similarly, as waves propagate into regions with lower values of ρ, the wavelength will decrease (blueshift). This phenomenon is required by the gravitational field's momentum vector, which points towards the gravitational source.

It is worth noting that a photon does not exhibit momentum in the traditional sense, thus we should not presume to apply the same rules; yet we are certainly left wanting for an understanding of some of light's properties. Polarity, amongst those peculiar events, requires careful consideration:

As a photon is instigated by an initial event, the curvature of the wave function is symmetrical from the perspective of the initial. Potentially, a photon might propagate for very large distances without any disturbance, but disturbances do occur and often the symmetry of the wave function will be compromised, thence the process of wave spreading occurs, although we should note that there cannot be an increase in the density integral. So, without choice our propagating wave function must subtract in one dimension in order to accommodate the increasing orthogonal dimension, thus leading to the sidedness of the electromagnetic wave.

Figure 7.4a

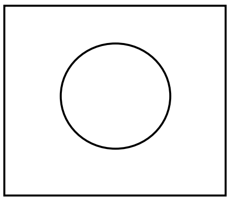


Figure 7.4b

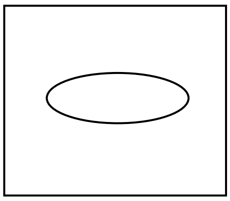
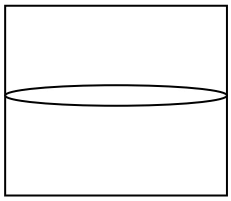


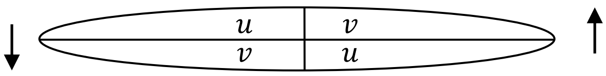
Figure 7.4c



In each figure, from the perspective of the photon source, the function is spreading along the x axis whilst reducing with respect to the y axis.

Yet we have not entirely resolved the mystery of the polarity of light, for there is a confounding twist in the tale! What are the mechanisms at work driving the polarity of an electromagnetic wave to rotate in the phenomenon known as "circular polarisation"? The answer, it turns out, concerns the structure of a photon; specifically, if a photon has asymmetry along two axes the resulting communication to subsequent wave functions will be faster or slower depending on the differences involved.

Figure 7.5



The photon exhibits asymmetry along the axes such that regions v are denser than regions u, the disparity of which will yield momentum vectors, thus necessitating the overall structure to rotate in a manner reminiscent to a propeller; in this example the photon is rotating counter-clockwise.

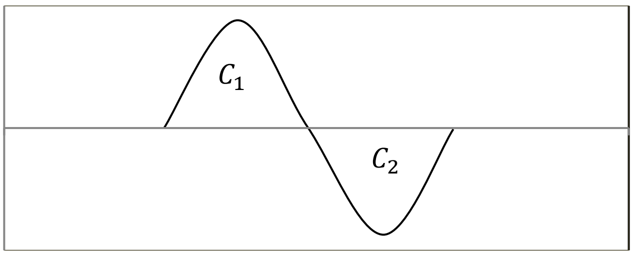
As mentioned, the polarisation of light need not always occur; in isolated space with no interruption the photon would spread in every direction evenly; any real medium however, is likely to have curves and fluctuations which initiate the process of polarisation.

One of the more confusing and fascinating responses of density fluctuations is the observed interaction at a distance. For photons, we have witnessed this via a variety of experiments, but for explanatory purposes the most useful of them is that of entangled photon pairs emitted by an atom.

Photons may be emitted as pairs such that their density differences are consistently equal and opposite, meaning that a change in one will likely require a change in the other; we must keep in mind that the universe's equality would be violated if for instance, one of the photons were to be spontaneously removed. Remembering that the tendency of a photon is to continue without sidedness until the structure of space requires differently, at this point, we can expect the entangled photons to disassociate through the process of polarisation, which itself will tend to occur sympathetically. We might assume that this pairing ought to be compromised by an increase in distance; however, the distance is only relevant insofar as the chance of meeting a disturbance is increased over time. A disturbance which might well be the need to resolve an inequality in the vicinity of one of the photons. This will however result in a slightly decreased chance of such an adjustment occurring when the R functions for both photons are overlapping at proximity. Interestingly this potential for a photon to meet a disturbance which has decreased influence over R is not vector specific and will therefore work for structures placed where the photon has been; as observed through 'delayed choice' experiments.

Regarding another aspect of the electromagnetic wave, the wave-packet - it may seem as though a single wave could transit through space without there being a violation of *U.R.*, in practice things are not so straight forward. Let us first consider the structure of a pair of propagating density differences, where the wave functions will be equal and opposite. If we assume surrounding space to have values of ρ which are zero in all cases excepting the density functions of said electromagnetic waves, we will discover impermissible structures in accordance with Universal Relativity:

Figure 7.6



In this instance, our equality could not be applied; notice at the peak of the wave C_1, whereby in a three-dimensional extrapolation of the expression R will take into account the immediate values of ρ more than can be counteracted by any magnetic fields or indeed further fields C_n.

In short, an electromagnetic wave would violate $U.R.$ were it to venture forth with either the initial or final wave occurring without a suitable crescendo or diminuendo. Therefore, the briefest of wave packets cannot simply be a single propagating density difference; rather they are the minimum set of oscillations which may occur, whose overall structure is proportionate to R.

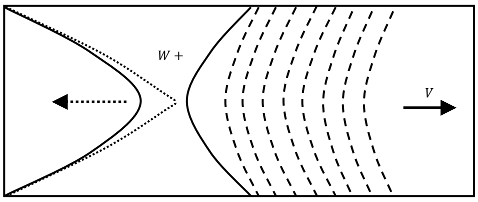
The Neutrino

There is now a third and final method of transition for us to evaluate; we have discussed the transit of density differences via asymmetry, and we have seen the light with regards to the propagation of the electromagnetic wave, so how else can density differences be communicated through our geometric figure?

If we consider a W+ boson analogous to an implosion event, the resulting electron anti-neutrino can be said to be something of an indelible pip which, upon every infinitesimal moment, is plugged by adjacent volumes of space. This transitioning difference is peculiar to a coalescing or disintegrating particle which itself culminates in one or other of the limits of our density spectrum.

Figure 8.1

Beta+

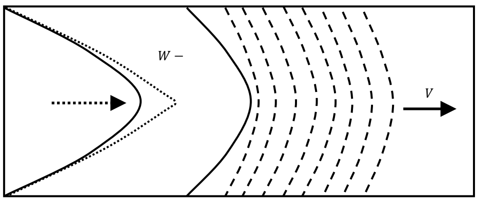


Where the Neutrino is initiated and subsequently transits with velocity V.

Similarly, the inverse of this operation can be observed in beta- decay.

Figure 8.2

Beta-



Astronomical Implications

We may now consider some of the large-scale implications of Universal Relativity; for instance, with prominent enough masses, the effects of X_1 will be observable. As previously mentioned, this field involves lower density space, which will have the opposite effect to Gravity, albeit far weaker; moreover, space which is becoming less dense may also be described as expanding. Thus, at sufficient distance, we can expect to see stars and galaxies repelling; for example, where stars coalesce into spiral arms, which in turn, resist each other.

Unsurprisingly the effects of X_1 have often led the observer astray from those origins which we may now claim to comprehend; particularly where such influence is referred to as "Dark Matter". Consider a galaxy which spins whilst retaining more stars than the observable mass might be expected to accommodate. We do not need to resort to the addition of invisible matter, for the X_1 field surrounding every gravitational field of every star is effectively pushing sufficiently distant celestial bodies away. For objects in motion, our X_1 fields will be distributed asymmetrically such that the leading hemisphere (pointing in the direction of motion) will have a sharper, steeper profile, and where galaxies have subdivided into spiralling appendages, the asymmetry of the corresponding X_1 fields will serve to drive the next arm, which in turn imparts momentum to the subsequent arm and so on. The story is not as simple as we venture towards the centre of the galaxy however, as the structures become closer to one another, the inertial effects of X_1 fields diminish towards non-existence.

Galaxies have been seen to attract at close range, yet as we look back upon the universe's history, we should expect to measure expansion between galaxies where X_1 fields are intersecting; followed by a subsequent slowing of expansion where enough distance facilitates X_2; with our own era experiencing an acceleration of expansion, fuelled by X_3 fields, which we can expect, in concert with X_1, to undermine X_2.

A notable consequence of our universal equality can be observed in the co-dependence between a galactic core and corresponding star field surrounding it. In some respects, there could be considered very little difference between a positron and a galaxy, other than size. This is perhaps a strange remark but it might help to steer our minds towards the relationships involved: The central black hole of a galaxy will necessitate a surrounding region of lower density, (to be found in the form of X_1 fields) which in turn require the existence of the black hole.

What then of antimatter? To what may we attribute its lack of success in the universe? Clearly the density differences are inverted, hence we will expect to observe a negative equivalent of gravity, and thus antimatter would not enjoy the safety of numbers bestowed upon conventional matter via positive gravitational pull; rather, antimatter will repel and disperse. It is thus reasonable to suggest that antimatter will eventually migrate to the space between galaxies and there, influence the motion of those structures.

Conclusion

What then of the wider questions - why does the universe exist? How did it begin? Firstly, as we have noted, our universe is a geometric figure, for which the rule is relatively simple, yet this mathematical statement is, amazingly, self-aware![iii] The universe is an intrinsic mathematical marvel much like the number pi, which like pi did not depend on something creating it, because as with the nature of existence in general, it is that which is inherent, which persists infinitely and indefinitely, that can be said to exist at all. The universe begins with a single point which, according to the rule has infinite density, surrounded by zero density.

Differences resolve.

[i] The flattening process will disturb local regions and maintain the value of $\int \frac{d\rho}{dr}$

[ii] Strictly speaking, the concept of locality is now obsolete, for in the universe we are describing, which adheres to the Axioms of Unity, we cannot consider a system within as separate; however, for practical purposes, we are indeed restricted to the description of local systems. It is worth considering that whilst all density differences are balanced, there may be an exchange between systems of the source for balances, when met with two or more options; such behaviour has greater chance of occurring in small scale operations.

[iii] Via yourself at the least.