Unary Interaction
And Heterogeneous Space

Contents

Recap & Introduction

Nature is not divisible. It is neither progressive. So it can not be selectively applied to an observed event. To help gradual learning about the nature, concept observers are hypothesized. Pico-Physics defines some concept observers similar to Newtonian frame of reference with specific relationship to objects and observers. These are;

1. Internal Observer
2. External Observer
3. Independent Observer
4. General Observer

Intuition, speculation and abstraction play an important role in observation through the step of cross-correlation and integration with knowledge base. The integration of new knowledge results in change in interpretation of human observations. This is seen as changes in power to observe. Object Identification, Experiencing the subject, Recording, Cross-fertilization, Measurement, Communication and External Cross-Fertilization as elements of an observation has been discussed.

The observation is finally a record of experience of the object. Quantitative records use a number together with a unit. Measurement is a process of conformal mapping between identities in two objects. One of them is taken as a unit and the other as an object for measurement. The identity of unit object may be same or different than that of the object. The set of numbers available to be used in record of observation is a subset of transfinite numbers from Set Theory. The subset of transfinite number can be expressed as a number space, and objects measure is a lookup value from number space. The infinite order of an identity is important characteristic defining the identity. In Pico-physics Unary law plays a central role. Unary law is enunciated in two flavors. The *Definition flavor* '**Space contains Knergy**' defines confinement properties of space with respect to it's interactions with Knergy. The *Assertion flavor* '**Knergy Exists (in space)**' relates to the fact that Konservation denies creation or annihilation in any such interaction. There are six important corollaries to unary law. These are;

Corollary #1 - Space has three dimensions
Corollary #2 - Knergy moves at constant speed in space.
Corollary #3 - Time is progressive and unidirectional.
Corollary #4 - Knergy can be freely distributed in space.
Corollary #5 - Space has affinity to possess Knergy
Corollary #6 - Space devoid of Knergy is homogenous

Knergy, due to Konserved nature has no dimension (Zero infinite order identity). In observation it is a constant quantity (Invariant). It has a natural unit of measure. An object (Space containing unit Knergy) continuously drifts in space with a constant speed. Unit object possess cylindrical symmetry. It's size is determined by its spatial measure along the drift direction (length). The length is inversely proportional to Knergy density in the point object.

Unary law defines space and provides basis for creation of mass and its interaction with space. Creation of mass is the result of continuous change in direction of drift of Knergy in space. The Knergy in space can be seen as in spatial rest with respect to an independent observer. Since Knergy is Konserved, it can not be created or consumed. It can only change drift direction. The interaction that results in change in drift direction is called Unary Interaction. We will analyse properties of Space and understand the Unary Interaction in discussion below.

Summary

Quantization is a pre-requisite of Konservation. Knergy is Konserved, hence it is quantized, and that provides a natural unit and a unit object indivisible to external observers. The Konserved Knergy composing unit object, makes it follow a continuous path. Continuous path provides 1:1 mapping between position of unit object and global instants. This sets up constant drift rate for unit object. Konservation also defines time (the gap between instants) as unidirectional distinguishing it from other space dimensions.

The indivisible unit object, binds the occupied space together. The Unit object is symmetrical about drift-direction and its dimension in drift direction is inversely proportional Knergy density.

The occupied space bonded together by Knergy. It is consumed and replaced replaced at the trailing edge in quant. Space holds Knergy for some time before being consumed. The retention of Knergy by space is measured as its holding power which is product of Knergy density and hold time. It is not a probable function, but assertive, bonded space once created will continue to exist till it holds the Knergy as per the holding power.

The two important characteristic of space are holding power and characteristic speed. They determine the cross-sectional area of cylindrical unit object while Knergy density in unit object determines the length.

Varying Knergy density is equivalent to varying the size of unit object. It is thus synonymous as space density. This space is distinguished from G-space as R-space. G-space is geometrical space occupied, and R-space is real space that fills G-space at varying density level. In R-space, the size of unit object is constant. In G-space, the size of object reduces as Knergy density increases and vice versa.

The G-space is partly occupied by Knergy and partly by free R-space moving-in from the sides. This moving in R-space itself can be occupied by other unit objects. This creates conditions for multiple unit objects to be bundled together. The sharing of G-space among multiple unit objects leads to higher R-Space density.

K-diagram is a tool to discuss the motion of Knergy through heterogeneous space. Using this tool, it is established that rate of consumption of R-Space is function of relative speed of independent observers. However the rate of consumption of R-space is invariant with respect to heterogeneity of space. The characteristic speed in G-space can be seen to decrease with increase in R-space density.

Unary interaction establishes the refraction caused by difference in R-space density along the path of unit object as primary reason for change in drift direction. In case the space density gradient is along the drift direction, no change in direction takes place, if it is across the drift direction, the curvature of path is function of R-space density gradient, and in between the two for a sudden change it is given by Snell's law. Refraction is unary interaction, as per Konservation of Knergy nothing else changes at unit object level – except it drift direction.

With change in R-space density across the unit object path an acceleration of the unit object towards the high density center is expected. The radius of curvature and centripetal acceleration can be computed as a function of R-space density.

Towards the trailing edge the drift speed is higher than at the leading edge as the occupied G-space is depleted of holding power (R-space). The trailing portion is pushing the leading portion of unit object forward, generating a locomotive effect on unit object. This gradual change in holding power is not visible to external observers, due to indivisibility of unit object. for independent and external observers the nature can be simply be stated by modifying corollary #2, as;

Corollary #1 - Space has three dimensions
Corollary #2 - Knergy moves at characteristic velocity in space.
Corollary #3 - Time is progressive and unidirectional.
Corollary #4 - Knergy can be freely distributed in space.
Corollary #5 - Space has affinity to possess Knergy
Corollary #6 - Space devoid of Knergy is homogenous
Corollary#7 - R-space Consumption rate of is invariant with its density.

With velocity replaces speed in corollary 2.

Discussion

Important conclusions

- ### Quantization is Pre-requisite of Konservation

Konserved, Knergy can be measure to infinite magnitude. The smallest unit for an identity can be construed as minimum difference in magnitude of identity in two objects. If the quantity is continuously variable (Like ideal fluid), we can conceptualise a case, when the measure is infinite in lowest unit of measure. A Konserved Identity therefore posses a natural unit, and can exist in objects as a multiple of this quantity. Quantizing is inherent characteristic of Knergy due to its Konserved nature.

- ### Concept of Time

Konservation of Knergy implies that the Knergy must follow a continuous path between its locations. If an instant is defined as a snap shot of geometric distribution of Knergy in Space, there is a continuous chain of events between any two events. ***Konservation implies cause and effect relationship between any two local events as conserved Knergy shifts through the space.*** For an event (Knergy occupy a particular section of space) to occur, it needs to precede an event of Knergy moving from another section of space it vacated. This continuous chain is the **time**. The flow of time is always unidirectional, since the space participating in the preceding events disappears. No event can repeat itself. An event or localization event is identified with presence of Knergy at a particular section of space.

- ### Natural Measure of Drift

There is no simple way to measure separately displacement and time. The only natural displacement value is between 2.5 to 0.5 mms determined from wavelength of cosmic background radiation. It is expected for unit Knergy object to be in equilibrium, the space consumed equals space created in volume occupied by unit Knergy. The holding power of space define the instant gap between instant fresh space is occupied and later consumed. Displacement by time (instant gap) is speed of motion of unit object. Hence this speed is related to;

1. Rate of Consumption (Gravitational Constant) and creation of Space (Hubble constant)
2. Holding power of space

Drift speed measures to a constant. In suitable units it can be termed as unit speed. The 1:1 conformal mapping between time and displacement governs PicoPhysics thought process to access the drift speed of Knergy in space observed by object references – internal and external observers to be unity as well. However, we factor drift speed as C_S to identify the same as characteristic of space.

Unit Object

Unit object is composed of unit Knergy. It exists in space. Knergy enclosed in the object continuously drifts in space at constant speed, and so does the unit object. The drift in space, of unit object establishes a preferential direction about which it shall be symmetrical. The occupied space is bonded together as enclosed Knergy can not be divided. Knergy binds the occupied space. The space occupied by unit object is consumed by enclosed Knergy at a rate determined by holding power of space. Consumption of space, may not be continuous but discreet. Holding power of space is defined as proportional to holding time as well as the Knergy density.

$$H_S = K_D \Delta t$$

Where H_S is Holding power of space, and K_D is Knergy density, Δt represents the gap between instant the space is occupied by Knergy and released (consumed) by Knergy. The change in K_D of unit object, affects the length of the object.
Length of unit object along the direction of drift;

$$= H_S C_S / K_D$$

where C_S is constant drift speed of unit object in space (or speed of light in free space). The cross sectional area of unit object across direction of drift can be calculated as;

Cross section area of unit object = $1/(H_S C_S)$

The cross –sectional area of unit object is invariant with respect to change in Knergy density. It does not depend on the space occupied by the unit object.

Unit object is symmetrical about drift-direction and its dimension in drift directional is inversely proportional Knergy density.

A natural frequency directly proportional to K_D exists for unit object, the period for which is proportional to length of unit object.

Knergy Confinement

The values H_S & C_S can be assigned as two defining characteristics of space. C_S, the characteristic speed measured to unity in natural units, defines constrains on drift

speed imposed on Knergy. H_S, The holding power of space defines the lateral confinement of Knergy in space. The freedom to vary Knergy density is sustained by space, as the change in density affects are unidirectional.

Unary Law and Space

Unary law defines space to be 3-D identity that measures to third infinite order and is not Konserved. Space has affinity towards Knergy which occupies it to be consumed as its holding power is consumed. As occupied space is consumed, the space affinity towards Knergy makes the outer space to move-in and replace consumed space. Space is regenerative, and it regenerates itself. If rate of consumption of space by Knergy is fully offset by the regeneration in the occupied space, presence of Knergy will not influence outside of the object(=Knergy in occupied space). Dimension less nature of Knergy (infinite order 0) and 3-D space precludes whole of Knergy in the universe to be in this equilibrium state.

Drift of Space: When the equilibrium is offset, or not present, Space external to the object shall move-in regularly to replace consumed space. This is difficult to match with human intuition. Normal human visualization about space is everlasting, omnipresent, isotropic, homogenous, infinite, 3-Dimensional identity partly occupied by matter. All these attributes are assignable to space; Space does not provide any resistance to motion of bodies.

Frame of reference has evolved as concept observers that can locate and trace motion of bodies in space. To understand changes in motion of objects a space-time paradigm has been evolved in Relativistic Mechanics. The motion is always related to bodies moving in stationery space as referenced by observer. Thus space is always stationery (at rest with observer). The motion itself is governed by various conservation laws.

If Pico-Physics shall reconcile itself with contemporary physics, and human intuition, it needs to incorporate the contemporary concept on space. This is accomplished by visualizing space to be a composite identity (Space & Kambhar). Kambhar will be introduced later before modeling formation of mass particles. We discuss below as G-Space and R-Space concepts as they relate to modelling space heterogeneity.

- ## G-Space

Space devoid of Knergy is homogenous and isotropic – as there are no reasons for different regions to have different characteristics. Most of the space is devoid of Knergy (Non conformal mapping of Knergy onto Space). Perturbation due to presence of Knergy is insignificant. It can be interpreted the space is homogenous & isotropic. To study the perturbations due to Knergy presence, it is possible to model these perturbations with reference to an imaginary grid (Feasible as a result of non-conformal mapping of Knergy to space) similar to a homogenous-isotropic three dimensional space. We can call this as G-Space. (Geometric Space)

- ## R-Space

The real space, is than expressed as contents of this G-Space. The differences can be attributed to different values of space characteristics – drift speed, holding power with respect to Knergy etc. Space heterogeneity due to different drift speed is easily experienced when light traverse a path without/within a refractive medium. R-Space occupies whole of G-Space. Since R-Space is not Konserved, it can measure to be infinite. It has at least one dimension (3 dimensions of G-space minus two = 1). The real space carries Knergy. It occupies the G-Space.

Interaction between Space and Knergy can be studied as interaction between R-Space and Knergy in G-Space.

▪ Space density

This will refer to amount of R-Space per unit G-Space. Consider the value of holding power space be reduced to half. This shall result in either K_D Knergy density reducing by half or reduction in unit objects length in drift direction. In both cases, lateral occupied area to double for unit object. We can therefore say, increased Knergy density is same as increased in occupied space. K_D can be seen as a measure R-space density in G-Space. Inside of object, it carries a proportional amount of Knergy drifting at unit speed, out side it is static and carries no Knergy. Kambhar concept carries this reconciliation to conclusion. Since a natural unit for characteristic speed exist, the holding power is identified with space density. Space density is inversely proportional to holding power.

$Space.Density, S_D.\infty.K_D$

As K_D increases, the ratio of G-space to R-Space decreases, or R-Space density increases in proportion to K_D – Knergy density inside unit object.

Space-Knergy Binding

This unit object exists in Space and occupies part of it. Space is non-Konserved. Mapping between Knergy and Space is not conformal. In a unit object no further division is feasible. Even though, occupied space is continuously variable among different unit objects, in an identified unit object, it can not be identified on geometrical location within the unit object. As this will entail, breaking of Knergy unit into sub-units.

The unit object therefore binds the occupied space together. Knergy acts as a binder of space. Knergy together with space acts as the unit object. So the holding power of occupied space as whole is reduced with time. When it reduces to nil, it is replaced by surrounding space.

In a given 'distribution density' of Knergy in Space, the amount of space replaced together is constant. The amount is the space mapped by unit Knergy and rate is determined by holding power of space.

It does not matter, if the space is lost at the trailing edge, or continuously as Knergy uses the holding power. It can be said, without any affect on the observation of external observer that Knergy consumes space.

Knergy consumes R-space

Amount of space consumed together is determined by mapping density of Knergy in space and frequency is determined by holding power of space.

▪ Space Heterogeneity

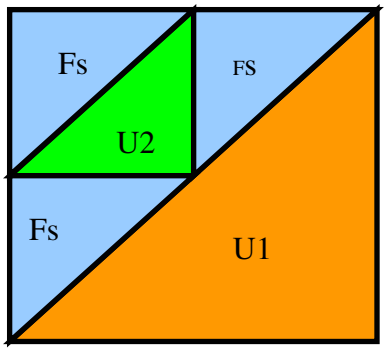
The space is consumed inside the unit object, it is generated outside the object, from where it moves into the object due to its affinity to posses Knergy. Inside the object, half of space is occupied by the object and rest is free space. This cause's non uniformity in distribution of R-space over G-space. Except at the leading edge of unit object, the occupied R-space it-self has full holding power. It has little affinity for R-space in other objects. The amount of real space consumed by unit object is determined by;

Rate of R-space consumed

= Frontal Cross-section Area X Constant Drift Speed X R-space density

$= 1/(H_S C_S) \mathrm{X} C_S \mathrm{X} S_D$

$= K_D = 1/H_S$ …….. (Ignoring proportionality factor)



The G-space can be partly occupied by Knergy and partly free. The contained Knergy may belong to multiple unit objects. With-in geometrical boundary of a unit object, the free space part can not provide holding power in excess of 100%. Since the trailing edge of unit object, is devoid of any holding power, two unit objects can not occupy the same (identical) G-Space. Unit objects can partially share the occupied G-space. Thus with-in object's geometrical boundary, multiple Unit Objects (belonging to different objects) can have influence. This accumulation of influence of different nearby objects leads us to basic superposition principle as well as binding of multiple unit objects together.

Holding power occupied space = Holding power of R-space

= Sum of holding power from individual unit object (R-Space)

+ Free space fractional occupancy (contribution from Knergy affinity)

Sharing of G-space between objects, leads to higher (R: G-Space) density At leading edge of unit object, G-space is not shared. Knergy of unit object exclusively holds G-space at leading edge. Knergy is said to occupy the G-space. This can be considered an interpretation of unary law.

▪ Knergy occupies G-space.

It does not matter, if the space is lost at the trailing edge, or continuously as Knergy uses the holding power. It can be said, without any affect on the observation of external observer that Knergy consumes R-space.

The maximum overlap of occupied G-space between unit objects is determined by number of participating objects. It is a function of inverse of number of participating unit object. In a unit object collection, each object may share its occupied G-space with other unit object's R-Space. A small part of space is available to be shared

among all, next bigger with lesser number of objects and so on.... binding multiple unit objects in the occupied space. For regeneration, no limitations due Konservation exist. So regeneration can vary continuously.

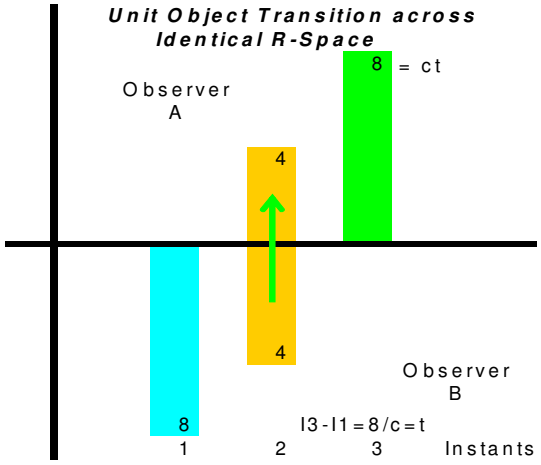
Space is consumed by Knergy in Quant (measure of Mapping Knergy in Space) and regenerated in proportion to participating free space.

K-Diagram

K-diagram, representing G-space, is a 2-D pictorial tool to discuss the motion of Knergy through heterogeneous space. The 2-D picture consists of two parts each with different set of characteristics of R-space. Unit object composed of Knergy transitions from one space to the other. Naturally occurring transitions in characteristic values are expected to be gradual, but in K-diagram they are depicted to occur across a line (representing surface boundaries between two R-spaces). The space itself is tied to respective general observers. The unit object has object references (internal & external observers). Discussion visualizes the experiences of different observers with the unit object as it travels across two spaces.

Let us consider space S_A, has holding power H_A and characteristic speed C_A is attached to observer A, while space with holding power H_B and characteristic speed C_B is attached to observer B.

Consider a case, when two R-spaces are identical ($S_A = S_B$). The figure to the left represents a scenario with Observer A at rest with respect to Observer B.



There are two important events that describe the transition. The event when unit object touches the borders to enter R-space S_B and the event it leaves the boundary and no part of this is in R-space S_A. These are event 1 and 3 respectively in K-diagram. Unit object dimension along drift direction is given by

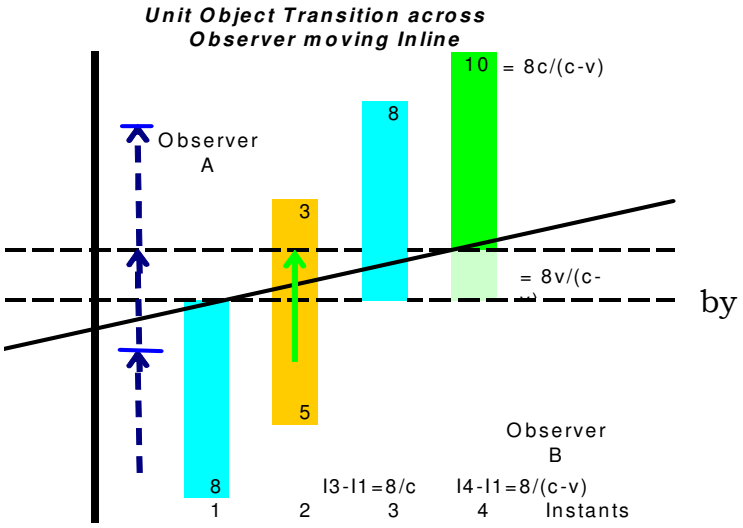
Unit Object length
= (Gap between instant 1 & 3) X C_A.

The instants are universal. Hence the gap measures to same number for both observers in respective spaces. Hence Unit object dimension in direction of drift is same for both observers (and in respective R-spaces). In the diagram it is measured to 8 units by both observers.

Observed size of unit object depends on characteristics of space attached to Observer.

▪ Relative Motion between observers

The figure to the right presents a similar scenario but with Observer A moving with respect to Observer B inline with motion of unit object with speed v. Now by the time, the trailing edge crosses the leading edge location with respect to observer A, the transition boundary moves away into the unit object drift direction. The events that describe the transfer of unit object from space S_A into Space S_B are events 1 and 4 in the K-diagram to the right. Instant 4 follow instant 3.



The transition time between the two events
$= L_B/(C_B-V)$

L_B equals 8 units in the diagram.
The length of unit object as observed by observer B is
$L_A = C_A L_B/(C_B-V)$
$= L_B/(1-V/C)$
(Since $C_A = C_B = C$, 10 in the K-diagram)
Volume $= L_A/H(C-V)$

If Observer B is external observer to the unit object, and Observer A is general observer, we have a general observer experience of the unit object as dependant of relative motion of object reference (external observer). The length in drift direction as well as rate of space consumption by unit object is a function of this relative motion. If L is length of unit object to an observer 'B' considered at rest (speed V is measured relative to this observer), we have;

Observed Volume = L/H(C-V)
Knergy density = H(C-V)/L
Rate of consumption of space A:B = 1-v (v is expressed as ratio V/C)

Rate of consumption of space is a function of relative speed of independent observers.

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" For localized objects, the Knergy motion is in equilibrium, the amount crossing any cross-section in both perpendicular directions to the cross-section plane is same. For such objects, the rate of consumption of space when observed to move with speed v (as a fraction of space characteristic speed or speed of light) as;

Ration of consumption of space by a moving object with respect to a stationery object;

$= (1-v)(1+v)$
$= (1-v^2)$

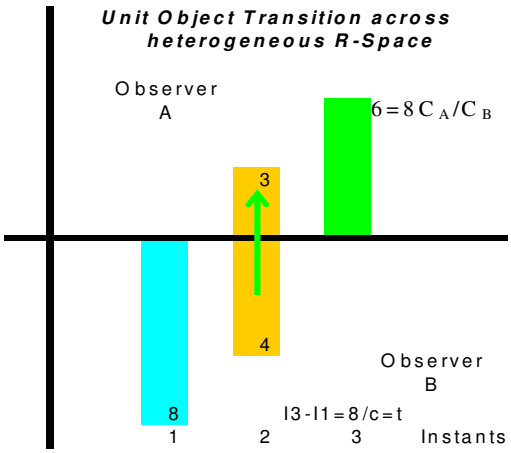
Please exclude text within quotes in the first reading, till formation of matter particles is discussed. "

▪ Unit object in heterogeneous space

Consider a case, when $C_A < C_B$. This refers to a cse when the unit object travels across heterogeneous space distinguished from each other by characteristic speed differential. The two important instants are 1 and 3, separated by time – L_B/C_B. The length of unit object for observer A is given by;

$$L_A = L_B C_A/C_B$$

Let ration $R = C_A/C_B$, and Length $L = L_B$
Then length for Observer A = RL
As Knergy is conserved, cross sectional area is same in space A as in space B,
Unit cross-section Area = 1/HC
Therefore volume of unit object for Observer A
= RL/HC
Volume Ratio A:B = R
Knergy density ratio A:B = 1/R



Hence space density ratio that equals the Knergy density ration = 1/R

The characteristic speed of Knergy drift in space is inversely proportional to space density.

Volume Ration of R-Space Consumed A:B = R
R-space density A:B = Knergy density = 1/R
The rate of Space consumed A:B = 1

Thus rate of consumption of space, as unit object moves across heterogeneous space is constant.

Or

Corollary#7 - R-space Consumption rate of is invariant with its density.

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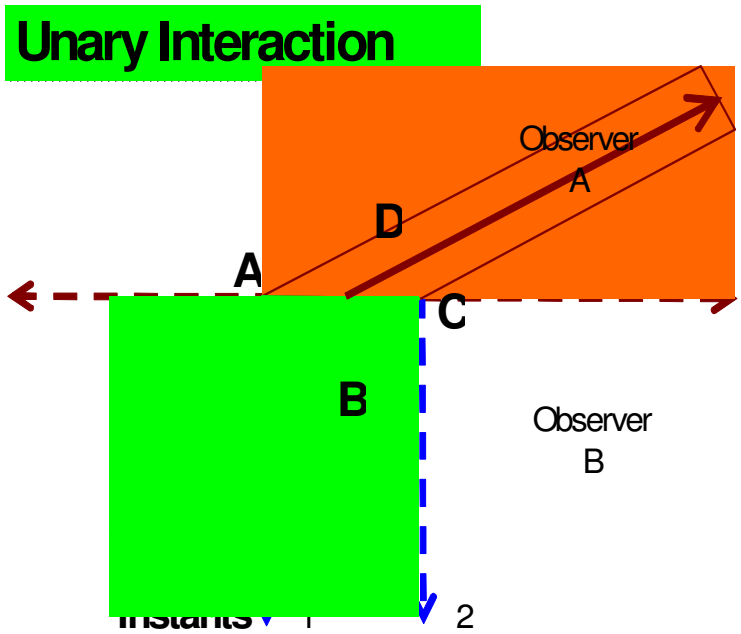
Unary Interaction

We have seen above, characteristic speed, Knergy density, holding power and R-space density are directly related to each other. R-space density can also be seen as the Knergy density inside the unit object. The very presence of Knergy in space, breaks homogeneity of space, by enforcing space density in occupied and immediate neighbouring space.

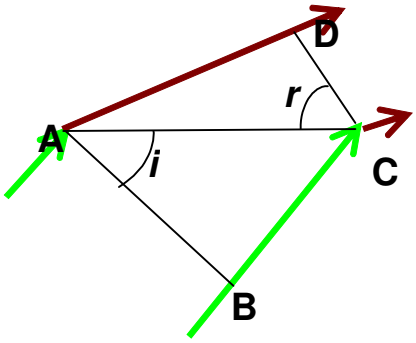
Continuous drift of unit object in space sets up a preferential direction in the space inline with the direction of shift. Thus the unit object acquires cylindrical geometry (symmetry).



Knergy occupies space, therefore a unit object that contains unit Knergy shall measure to a definite volume. Hence neither its length along drift direction nor cross-sectional area can be absolute zero. They have to be finite. (Phenomena that may change or reset these values will be subject of discussion later when phase and polarization are discussed).

Now the K-Diagram tool can be used, to visualize the movement of unit object in heterogeneous space, across space with varying characteristic speeds or G-space with varying R-Space density.

Consider the unit object incident on the separating surface at an angle 'i' shown in green above left. Since contained Knergy occupy space, it shall have definable dimensions along and across the drift direction. AB represent the leading front and result of its dimensions across the drift direction. The instant when the leading edge AB, touches the separation is instant 1. As it crosses over to space B, it moves away from the separation and motion is shown in figure below in dark red color at an angle 'r' to surface normal. At instant 2, it leaves the surface and the trailing front is shown as CD. The resulting quadrilateral ABCD is shown to the right of this text. In two right angle triangles ABC & ACD, the side AC is common. The time it takes to travel distance AD and BC is same (Difference between instants 1 and 2). Let us say it is 't'. Than



$BC = tC_B$, $AD = tC_A$, $Sin(i) = BC/AC$ & $Sin(r) = AD/AC$

Or $Sin(i)/ Sin(r) = C_B/C_A$ ..... ***Snell's Law***

Or

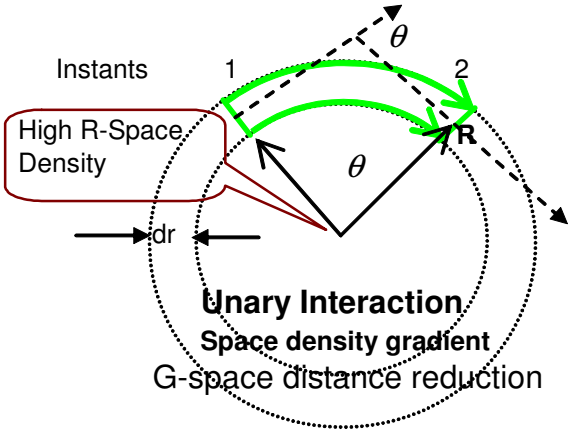
the unit object moves away from lighter space and towards space with greater density. Thus unit object seeks G-space with lower characteristic speed or greater holding power or higher R-space density. The change in direction is governed by above

Or

Snell's law represents unary interaction of Knergy with space.

Let us consider the motion of unit object in heterogeneous space with constant change in R-space density across the direction of motion given by 'G = dS_d/dr'.

In the figure to the left, the geometric length of the arc is given by $R\theta$. Let the two green arcs represent two sides of unit object. The geometric distance traveled is different at the two ends. However, as the instance gap is same, the real length is independent of radius. While change in geometric length of the arc as a function of radius is θ. The change in length in the drift direction represents change in space density. Therefore when a unit object moves in across the space gradient, it travels in a circular path, the radius of which is given by the relation R = G = dS_d/dr. G is Space density gradient with respect to geometric distance across the direction of motion of unit object.



The radius of curvature of unit object path is determined by the space gradient.

Unary law provides only two identities in non conformal mapping. Hence in the regions of space devoid of Knergy other than the object itself, the unit object moves a constant drift speed without changing geometric direction. If space is homogenous, than the unit object moves in a straight line.

Knergy moves in space at a constant velocity. The magnitude of velocity is a function of space density (Inversely proportional to space density).

Centripetal acceleration (Geomatric)

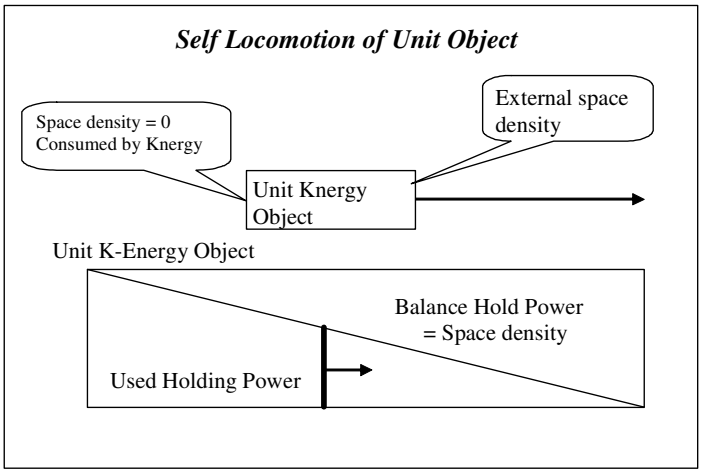
The path traced by unit object is a straight line, unless, there exists space density gradient across the path. The Centripetal acceleration points toward the high density center of the circular path. The acceleration is given by an equation;

$A_r = c^2\ d/dr\ (Kd)$; Kd is R-space density.

For space external to unit object and devoid of Knergy, the R-space density gradient is produced by affinity of space to posses Knergy of unit object. Knergy objects act as a centers pulling space onto them. It can be seen that in R-space motion continues in straight line.

Self Locomotion of Unit Object

Geometric drift speed is therefore a real speed (which is unity) divided by R-space density. As R-space is consumed, the geometric drift speed increases. While at the leading edge of unit object, the R-space is maximum equals Knergy density, it is reduced at the trailing edge. Thus the geometric speed at leading edge is slower than the speed at trailing edge of unit object. Thus Knergy at trailing edge continuously pushes the unit object forward in a path determined by space gradient external to object. This is **Self Locomotion** of unit object that perpetuate motion of unit object.



The geometrical space enclosing the unit Knergy in the object is partially occupied by Knergy and partly by external space moving in. There is accumulation of space moving in, due to the Knergy occupied space being bonded together. This bonded space is released and lost after the holding power is fully consumed. The accumulated space, then replaces the lost space. This gradual decline of holding power is not available to external, independent or general observers. For these observers, natural unit of Knergy dominates. The self locomotion or reason thereof is not visible. To them the holding power is characteristic of the occupied space, and constant. Space is consumed in quant, each quant of R-space being of the half the size of occupied G-space.

Motion due to self locomotion is also not visible to external observers. The velocity (speed in specific direction – drift direction) is a characteristic of space.
Corollary #2 of unary law is therefore modified as below;

Corollary #2 Knergy moves at characteristic velocity in space.

Discussion Results

To understand space is a difficult proposition. Above discussion has provided some insight into unary law definition of space and how the same is used to establish the principles governing motion of Knergy in space.

It is established that Knergy moves with a constant velocity. The space can be heterogeneous with heterogeneity introduced by presence of Knergy itself. Heterogeneity does not affect the rate of consumption of space by Knergy, it affects only the direction of drift – velocity. While with respect to R-space is unity, for G-space it can be different, depending on the R-space density. Heterogeneity is studied in different geometries. A sudden change across a surface results in both change in speed as well as direction as given by Snell's law. The Snell's law is established theoretically (against a observed fact of nature in contemporary physics) for this geometry. It experiences a centripetal acceleration in case of gradual change across

the Knergy path. Unit object has in-built locomotive power that sustains there continuous motion, but because of non-divisibility of unit object, independent & external observers only experience the result.

There are certain other results deductible from the discussion about relativistic mass and gravitational affects of mass. We will discuss them again after discussing formation matter particles during level-2 discussions. In level-2 we will introduce Kambhar concept and the model for universe that will enable us to visualize formation of mass particles.