New ideas - the big picture

30 April 2013
16:31

Want the S-plane to represent the classical world of space and time, the universe in which patterns such as ourselves exist. The model h as to take into account aspects of the quantum universe.

The wave-like behaviour of quantum mechanics is taken to show that the configuration of the underlying substrate is changing with each processing cycle and the wave equation represents the time-dependent changes to the configuration.

Introduce the Simticle as a separate CA that can be associated with one of more cells (S -nodes) in the S-Plane. This allows certain characteristics of quantum objects.
They have no dimension in the S-plane
An object can be associated with several points in space - entanglement.
In essence the Simticle exists in the curled up dimensions.

To account for

Architecture Overview

15 January 2013
14:47

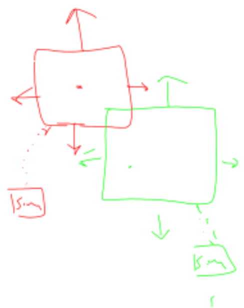
Change to architecture based upon wave type propagation.

Form our understanding of quantum mechanics it seems that we need to model a probability wave structure that becomes particulate upon specific interactions. This can be done by entagling a single Simticle to a moving wave-front. This can be interpreted as the particle's properties being spread throughout space. At the point of an interaction the Simticle is assigned to the relevnat S-node(s) and on its next processing cycle a new wave structure is generated.

There are three possible wave structure interactions:

F-Sim to F-Sim

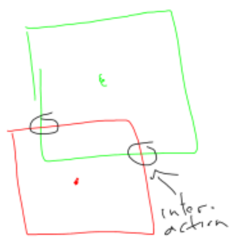
F-Sims do not interact with each other and therefore they continue to propagate.



F-Sim to M-Sim

If the F-Sim wave structure interacts with the M-Sim then this means that the associated F-Sim occupies the same S-node as the associated M-Sim. This constitutes an absorption of a quantum of energy by the M-Sim.

Is this enough to break the entanglement and cause the M-Sim to be partly or fully associated with this particular S-node, in which case we would consider the wave-function to have collapsed and for the M-Sim to be a realised particle.



In this case there would be two instances of the entangled M-Sim. The M-Sim has a transfer and processing period. This means that the wave structure will propagate at the transfer rate.

Does the M-Sim have to be in an 'ACTIVE' period to 'interact' with the F-Sim wave. This would seem to make sense as it would mean that when inactive the M-Sim is 'unobservable'. Otherwise in a real system the density of energy fields would mean that a Simticle is always realised.

M-Sim to M-Sim

If two M-Sim associations are evident in an S-Node then the S-node processing sees this as an invalid state. The M-Sims will be realised and generate a new single M-Sim and associated F-Sim structures.

Given the wave-front structure it is likely that on any given cycle the Simticles will interact in more than one S-node. This has major implications upon the processing and conservation rules.

Prior to interaction the Simticle can be spread across the wave front and this does not break any conservation rule. However multiple interactions on the wave front would unless some structure is put in place. There is also the fat that F-Sims do decay, however this may be dealt with by the fact that the wave front is expanding.

What about a corkscrew approach whereby the possible location of the Simticle moves around the wave front as it is propagated. THIS NEEDS MORE THOUGHT! Unlikely to work as its location is space then has a relationship to the wave front and hence distance travelled from the source.

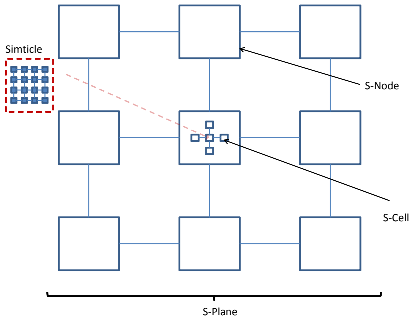
What if the nodes of the Simticle's CA referenced S-nodes. Then the Simticle's states could be superimposed upon the S-nodes to identify potential spatial locations of the Simticle. As the Sim-states are moving on every cycle according to a flocking algorithm then there would be a seeming level of randomness to whether the Simticle was located at a specific point. Consequences:

More massive (higher energy) Simticles would have a larger probability footprint. You would need higher energy particles to interact (find) lower energy particles.
An interaction occurs when two M-states from two Simticles occupy the same S-node. This interaction is controlled by the S-node as an invalid state.
There can be several concurrent interactions for a given Simticle. How can this happen and maintain conservation laws? Does each M-state represent the total state of the Simticle? Is this why sub-atomic particles may have a mass range? Is the M-state self referencing in this way. This would mean that the larger the particle was that interacted with the Simticle then the greater its mass would appear.
If we assume that a Simticle's state is defined by its configuration of states and its location in the S-plane then superimposing the Simticle CA upon the S-Plane only changes the Simticle's location and not its configuration.
The Simticle's configuration changes at c, but only for M-Sims.
The fewer M-states there are then the more states it can have and the less information we have about it.
The Hilbert space identifies all of the possible configurations in the Simticle CA. Each of these states has a time-dependent wave function that identifies how the initial pattern may evolve over

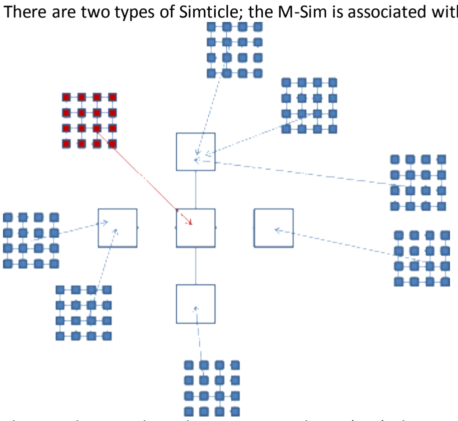
time.

The Architecture consists of a hierarchy of embedded CA structures. Each CA structure has its own rules and set of states. The CA structures all process at varying periods that are an integral multiple of a master processing period. The actual next processing cycle for a given object within a CA structure may be dependent upon its state.

The difference between this architecture and a standard CA is that a standard CA has a set of defined states that each cell may have, In the embedded architecture each cell can be considered to be another independent CA and it is the state of the lower level CA coupled with the rules of the higher CA that define the state that the higher CA infers for the cell.



The highest level of CA is the S-Plane. This consists of a 3 dimensional Moors neighbourhood (just to keep it simple) of S-Nodes. This is the plane in which complex structures are formed, including the sentient simulants. From the Simulant's perspective this represents 'space' and perceived interactions give rise to all other physical characteristics such as matter, time, energy etc.
Within each S-Node is a structure consisting of a central S-Cell with a complement of next nearest neighbouring S-Cells.
The S-cell has no internal structure but are capable of holding references to the lowest level CA in the architecture, that being the CA representing individual Simticles.
The Simticles are transferred between S-cells by moving their reference to a neighbouring S-cell. Each Simticle is a separate CA. The 'state' of an S-Node is represented by the states of all of the Simticles associated with its internal cells. In an interaction with the Simticles associated with a neighbouring S-Nodel the state will depend upon the state of the individual interacting Simticles.
There are two types of Simticle; the M-Sim is associated with matter and the F-Sim with energy or force carrying objects.



The Simticles are independent processing objects (CAs). There is no concept to a structure of Simticles.
The Simticles associated with an S-cell can be construed as a dimensionless 'particle' of matter with a rest mass equal to the quantity of M-states within the M-Sim and an inertial mass that is the cumulative quantity of states within the F-Sims (taking into account some mass-energy equivalence).
This internal structure cannot be directly perceived by the Simulant but can only be inferred by interaction with its S-cell environment.

The Processing Hierarchy (REVISIT THIS NOT SURE IT IS CORRECT)

Simticles state is based upon the configuration of M-States.

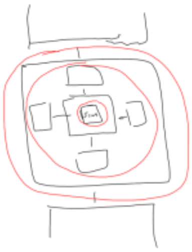
Central S-cell state is dependent upon the number of M-Sims associated with the cell and if only one M-Sim then the block state of the M-Sim.

Outer S-cell state is defined by the total quantity of E-states of all associated F-Sims.

S-Node state is defined by WHAT !

Where does the processing of an unstable M-Sim occur?

Each level of cell in the hierarchy has a set of rules for the processing of that cell type.



S-Node is an independent processing entity that has rules depending upon the configuration of associated Simticles within its S-cells.

The Simticles are independent processing entities that have rules to change their state depending upon the configuration of cell states within the Simticle CA.

There are three levels of CA processing, each with its own rules and frequency of processing.

1. The M-Sim is an independent CA that has the following characteristics:
    a. Each cell has a bivalent state (m-state)
    b. The rules focus on maximising the number of neighbouring states for each m-state (grouping).
    c. The CA processes on every processing cycle.
2. Inner S-cell processing takes into account the block state of the M-sim and its associated F-sims:
    a. If the M-sim's M-state configuration is valid (stable) then it will emit the required F-sims.
3. Outer S-cell process looks at the

Conventions

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15:15

The S-plane consists of S-nodes.
Each S-node has an internal structure consisting of S-cells.

Table of characteristics

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Object	Valid States	Invalid States	Processing periods	Rules	Questions or notes
M-Sim	There are no valid states it just runs a grouping rule on the M-states until the inner S-cell looks at it.	From the M-Sims processing perspective there are no invalid states (they are identified by the inner S-cell)	M-State processing at master processing frequency)	Some sort of grouping rules for M-States. Emits F-Sims during internal processing. Calculate next internal processing period as proportional to total M-state and E-state within S-Node Calculate next transfer processing period as inversely proportion to total M-states and E-states within S-Node.	May be separate states that carries charge. How are valid M-Sim identified? Via a block rule. What object processes an invalid M-Sim and when? It seems that the inner S-cell should identify the state of the M-Sim via a block rule. This would be done at the M-Sims internal processing period. How big is the M-Sim CA
F-Sim	Always created with a valid state.	Possibly E value > M-Sim Threshold	No Processing	No Rules	Early universe may have F-Sims with enough E value to create M-Sims.
Inner S-Cell	No M-Sim (no processing) 1 M-Sim (valid or invalid?)	>1 M-Sim (processed at master processing frequency)		If No M-Sim then transfer all associated F-Sims. If Valid M-Sim then hold all F-Sims until transfer processing period. Then transfer using transfer rules. If invalid M-Sim(s) then create new M-Sims in neighbouring S-nodes. Do something with the F-Sims.	What object processes an unstable (invalid M-Sim)
Outer S-Cell	Total E value < M-Sim Threshold	Total E Value > M-Sim Threshold	If no M-Sim = Master processing period. If M-Sim then no processing. (controlled by inner S-cell)		
S-Node					

Notes on structure of Simticles

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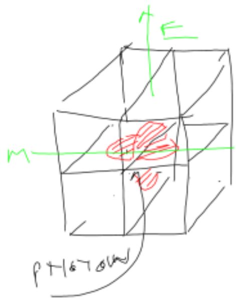
12:36

3 sets of states
Rest mass states internal configuration of states within the simticle ca The m-sim has a more open distribution of sim states enabling inertial properties The e sim has a symmetric configuration with no resulting inertial preference. The s-node would have inertial component due to the distribution of simticles in the s-cells but individually they would have no inertia. This would lead to a natural quantisation of energy levels.
Still have problem of identifying a select stable configurations for m-states. Mass is quantized in that we observe a few stable states of matter with specific ranges of mass value. Higher mass objects are less stable and decay into lower values. There can be no mass states that have a symmetric pattern as these would have no inertial component. These states are unstable states.

Inertial mass states configuration of simticles within the associated S-node. The rest mass simticle holds on to the energy state simticle within the s-node Energy states internal configuration of states within the simticle.

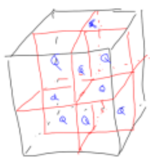
What delineates the e-state sim from the m-state sim What about mass energy equivalence



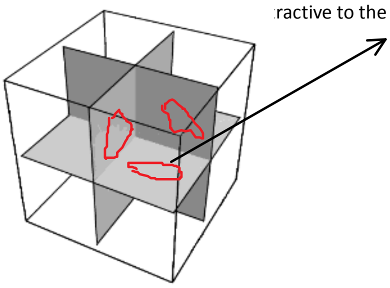
The idea that a stable Simticle is one that exi eems to be a sensible one as it is a simple way of giving a block view at the S-node level.

It may also allow for the idea of orthogonal E

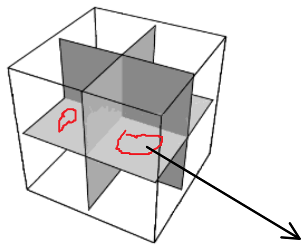
A specific quark would then be a given plane



In the 3-D version what happens to M-states that are in the enclosed cells between defined planes?
In s ractive to the M-States. This may make the M-States in general migrate toward the centre of the M-Sim CA.



3 Quarks = Hadron



Quark and anti Quark

What is then a stable M-Sim and how do we account for quarks have very different ranges of mass!

Problem with this idea is that the Hadron becomes a single M-Sim and this is dimensionless and hadrons are not!
Could the M-Sim CA be 2 dimensional !
The S-cell could be a three dimensional CA in which these two dimensional planes exist !
What would the stable patterns be?

An electron in a semi-conductor moves randomly but with a net direction. Scattering is a chaotic quantum event. The random movements of the scattered electron can be represented as wave functions that can be superposed to give probabilities of direction.

The idea of the Simticle having patterns of S-states accords with a quantum mechanical view of such a system having a space of states, equivalent to the possible patterns. This realised state space would depend upon the characteristic to be measured and this would accord to a subset of possible patterns, for example measurements of spin may involve patterns about a given axis, whereas polarity may involve patterns specifically of the charged s-states.

Changes to add

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TODOs

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M-Sim

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M-Sim Notes

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What determines the maximum transfer speed of an M-Sim?

An M-Sim cannot travel at c or have a transfer frequency = master processing frequency.
To accelerate an M-Sim requires a continually increasing F-Sim field. This increases the total E+M state value of the M-Sim . The next transfer processing cycle then is inversely proportional to the total E+M state value. An inverse proportion cannot be calculated as a integer value.

A solution would be that the transfer interval = constant - total E+M value. As the total E+M value increases then the number of master processing cycles to the next transfer decreases.

If E+M value = M and constant = C then C-M > 1 for all M.

What if C = Initial E value from which all Simticles are created. It would then be impossible for C-M = 1.

However small particles (electrons) can be accelerated to near the speed of light (over 99%). An M-Sim requires a huge F-Sim field at the scale of S-Nodes and this may be possible. However a macroscopic object is on a scale of vast numbers of S-Nodes and this requires a macroscopically extended F-Sim field of vast proportions and this is not practically possible.

M-Sim Characteristics

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The M-Sim has the following characteristics:

It has the following Simulant perceived characteristics:
Mass
Spin
Point particle
Charge
Isospin (colour charge)

M-Sim Structure

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What does the M-Sim processing have to achieve?
The M-Sim consists of a CA where each cell can have a simple bivalent state. The M-Sim has a configuration of states that depends upon the rules. The likely perceived physical attributes of an M-Sim are equivalent to; mass, spin, colour charge and electric charge. It may be that there are two types of state: M-states for mass and C-states for charge.
The M-Sim rules need to make it easy for the S-cell to identify patterns that are stable and those that cause the S-cell to implement rules to ‘decay’ the ‘unstable’ M-Sim.
The M-Sim also needs many processing cycles to generate a stable pattern.
The range of stable patterns suggest a range of M-state quantity and hence mass.
Spin could be the result of a rotation of the pattern caused by the effect of the rules.
Colour charge suggests that there are categories of M-Sim patterns that enable interaction between them.
In accordance with the principles, the Simticle CA is a simple CA structure. Each cell can have one of a group of very simple states:
State 0 or M for mass[DM1]
State 0 +C or –C for charge
Simticles with M-states will be M-Sims, those without will be F-Sims.
In accordance with the observed mass-energy equivalence the states within associated F-Sims are processed as M-states if there is a central M-Sim present, otherwise they are E-states that represent the influence of a given force.

[DM1]Need to resolve the problem of supporting energy and mass including inertial mass.

Stable and unstable M-Sims

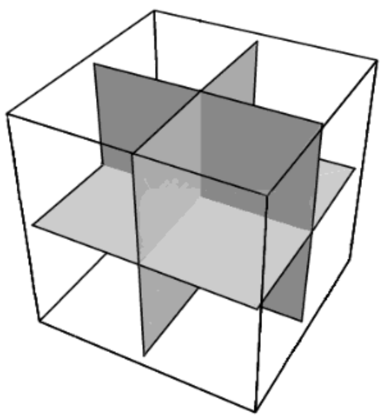
What is required of the M-Sims is that there is a defined set of stable configurations that are able to influence each other in a local environment so as to create a hierarchy of structures of increasing scales.
Stable M-Sims have characteristics that support influence of neighbouring M-Sims and are likewise influenced by their neighbourhood. Such stable M-Sims have a limited range of stable states.
Unstable M-Sims undergo transformation (decay) to generate more stable M-Sims.
The stable M-Sims should look similar to QCD where Quarks are the M-Sims.
The stable M-Sims would need the following Simulant perceived characteristics:

- Mass (inertial mass has a different origin, this is only rest mass). This would be a bivalent value; if M=0 them it is not an M-Sim, otherwise it is 1 or equivalent.
- Charge; either 0, +1 or -1
- Spin (may be explained by the general flocking algorithm and is due to resulting dynamics).
- IsoSpin (colour charge) ??

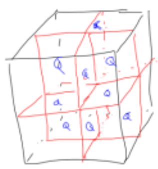
The general approach is that M-Sims process on every processing cycle. The rules attempt to maximise the number of neighbours for each cell with a state <>0. This leads to grouping and continual pattern change. The pattern is likely to reach a quasi-stable state and the pattern of M-states represents the M-Sim’s inertia. In three dimensions the pattern may rotate giving rise to a simulant perception of Isospin and also rotation of charged states and hence magnetic moment. In essence the dynamics of the dimensionless particle can ‘leak’ into the S-plane through its macro interactions.

How does the model delineate between stable and unstable M-Sims?

The axis approach



A stable M-Sim is one where all the M-states lie in the cells that define the central axes.
One could see that the cells dissected by each axis could represent a quark and the area on other side of an axis the anti-quark. Each plane would have limited cells and hence limited mass range. Normal Moors neighbourhood would give 6 pairs of M-Sims. Same as current QCD!



What would the CA rules look like?
General rules

- M-states are attracted to empty axis cells.
- M-states repelled by neighbouring axis cells with an M-state
- M-states are repelled by other M-states
- Axis cells with m-states do not process.

There can be more M-states than can be accommodated in axis cells. Over a period of processing cycles the Simticle may become quasi-stable, but how many cycles?
Problem 1: the M-Sim is a compound object that includes several quarks, and hadrons have physical dimension and would be extended over the S-Plane. This configuration would be considered to be an unstable M-Sim and would decay into valid M-Sims. But what happens to the extraneous M-states? If part of the processing was to transfer the sector representing a quark to the neighbouring S-cell. Then we could generate quark anti quark transfer and may be a way of creating a bond between M-Sims.
Problem 2: what do we do with the M-states that are not on the axes?
Problem 3: how do we decide when to process a quark access as the processing occurs every processing cycle and M-states may still be outside of the axes? The M-Sim in its unstable state would have a processing period dependent upon its M-state quantity (mass).

The M-Sim Decay Process

The M-Sim has a next active processing cycle that is dependent upon its total mass (rest + Inertial). The rest mass is the sum of the number of M-states within the M-Sim.
The M-Sim processes on every cycle giving time for M-states to migrate to axes and group.
The M-Sim is associated with an S-Cell but in the current model the S-cell checks for the validity of its M-Sims on each cycle.
Checking rules:
If single associated M-Sim then

Therefore it would be dormant for many cycles. The greater the mass then the longer it is to the next active cycle. This is against observation as more massive quarks are unstable and short lived.
During a processing period:

The cellular size of the Simticle CA is unknown at this time. However given that we observe a very limited number of equivalent particles (quarks) that each have a mass/energy range it seems that there needs to be limits on the number of M-states that can be accommodated in an M-Sim.
Only a few configurations are valid M-Sims.
If not valid then it must decay
It may be that once an M-state has moved to a cell within the orthogonal planes of the CA it remains there. Given that there are six quarks this seems to fit the six orthogonal 3-dimensional axes, given a central cell as origin.
The m-states in each axis can be shifted out to the neighbouring S-cell but what happens to the off-axes m-states and what happens if the neighbouring S-cell already has an occupying M-Sim? This would lead to a perceived decay of an unstable M-Sim into several stable M-Sims. This would also make the lightest M-Sims (up and down quarks) most copious and the heaviest the most unstable as an additional M-State in the axis may cause it to be full or overflow! This model would confirm a moor's neighbourhood for our universe; if other fundamental quarks are found then it would be a larger neighbourhood.
This feels as though it is a good model for bosons and mesons as they would constitute a small group of S-cells in which stable M-Sim states (on an axis) were passed between neighbouring S-cells. These M-states would be linked to a continual transfer of colour charge or gluons.

M-Sim Rules

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An M-Sim jus processes every processing cycle and its configuration of M-States changes.

M-Sim Process Model

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The M-Sim has several processing cycles:

Every master processing cycle its M-states are processed. Total number of M-states remains fixed.

Internal cycle associated with its total M and E value - emits relevant F-Sims and calculates next processing cycle

Transfer cycle associated with 1/ its total M and E value - transfers S-nodes and calculates next transfer cycle. (this may be done by the S-Node.)

F-Sim

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F-Sim Notes

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The F-Sim is a category Simticle that carries the influence of the M-Sim that generated it. From the Simulant perspective that are the force carrying particles and there quantity and distribution through the S-plane constitute a field.

The F-Sim has to include a complex structure similar to the photon with its orthogonal Electric and magnetic fields.

The problem is that the magnetic field is in fact the result of relative motion between observer and the photon as it is forany electromagnetic field. In essence this means that in the photon's reference frame there is no magnetic field! This seems to suggest that it may be an emergent property.
This would also have to be an orthogonality that is evident in the S-Plane.

F-Sim Characteristics

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An F-Sim has the following characteristics:

- They are massless (no M-states)
- They are generated during the internal processing of the M-Sim or when an M-Sim transfers to a neighbouring S-Cell.
- They have momentum (give inertial mass to M-sim and hence influence its direction of transfer)
- There is a F-Sim density threshold at which the F-Sims will transform into M-Sim(s). This is the E=MC squared observation
- They do not interact with each other. There may be an interaction with the G-Sim (gravity)
- They transfer in a fixed direction.

F-Sim Structure

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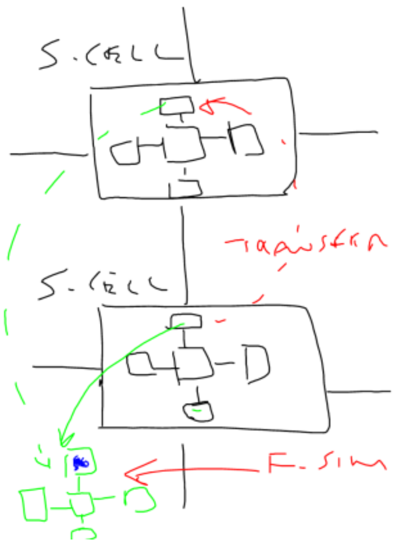
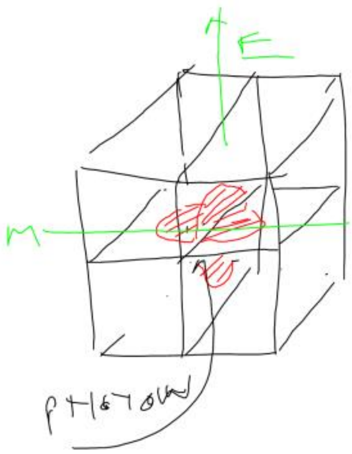
As F-Sims do not interact they have no internal processing. They are not so much a CA as a fixed pattern, the configuration of which is generated by the rules that generate it.
They have an E-state that can have any integer value from 0 to a maximum that is theoretically the value at initiation of the model.
As we observe a relationship between energy and mass it is likely that a specific E-state value corresponds to an M-state.
The direction of transfer of an F-Sim is defined by the pattern of the E-state(s). There is no variation, or uncertainty in the direction.



F-Sims associated with the S-cell within an S-node.

I like this structure for the F-Sim as it may enable the creation of photons that have periodic E-state structure in orthogonal planes. This could be a centralised periodic pattern that spreads through the two orthogonal planes.



F-Sim Rules

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F-Sim Process Model

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S-Plane

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S-Plane Structure

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The S-Plane consists of a von Neumann neighbourhood array. Each cell in the array is an independent processing unit and is termed an S-Cell.

S-Node

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S-Node Notes

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The F-Sim is a category Simticle that carries the influence of the M-Sim that generated it. From the Simulant perspective that are the force carrying particles and there quantity and distribution through the S-plane constitute a field.

S-Node Characteristics

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For a Simulant the S-node is a dimensionless point in space.
An S-Node may have many associated Simticles. From a Simulant's viewpoint this allows a point in space to be occupied by several fields.

S-Node Structure

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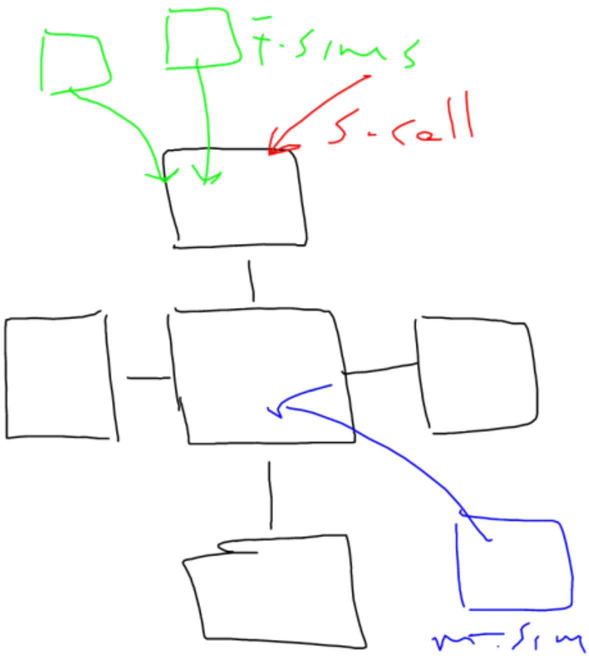
The outer neighbouring S-cells within the S-Node can only reference F-Sims. The central cell can reference only M-Sims. This means that from a Simulants perspective a dimensionless point in space will have a superposition of forces and matter states.



S-Node Rules

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The S-Node has the following scenarios to process:

No M-Sim but only associated F-Sims - F-Sims are transferred (every processing cycle)

One valid (stable) M-Sim and associated F-Sims - in this case the F-Sims are not transferred (fixed to the M-Sim) - controlled by M-Sim processing cycles

More than one M-Sim - this is an absorption scenario and will be processed. - processed on every processing cycle.

An unstable M-Sim and associated F-Sims. (processed at the M-Sim's processing cycle). The unstable M-Sim Decays (whatever that means)

The S-Node states:

1 M-Sim (regardless of M-Sim State)
No M-Sim and associated F-Sims (their location in the S-cells is all that is required)
Single M-Sim (the state is either valid or invalid). The state is defined by a block view of the M-Sim CA.

It is the block view that identifies the quarks and anti-quarks.

S-Node Process Model

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The S-Node does some processing on every processing cycle.

If the M-Sim is a valid (stable M-Sim) then the S-Node calculates the next transfer cycle for the M-Sim.

S-Cell

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S-Cell Notes

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There are two views of the state of an S-cell.

- Absolute state as viewed by a Simulator. This state is dependent upon the states of the all the Simticles associated with the S-cell.
- Relative state of an S-cell as viewed by a Simticle associated with a neighbouring S-cell will be dependent upon the state of the neighbouring Simticle and the states of associated Simticles in the S-cell that have influence upon the Simticle.

S-Cell Characteristics

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S-Cell Structure

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S-Cell Rules

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S-Cell Process Model

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Initial conditions

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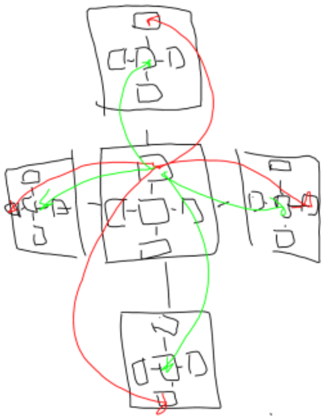
Initial condition is an S-node with each outer S-cell associated with a single super F-Sim.

The Super F-Sim has an E-value that has been calculated to enable all the required M-Sims, or total M-state quantity to be created. What would such a calculation be based upon ?



The Super S-Node detects F-Sims that have E-value above the threshold for creating an M-Sim. The rules cause the following to occur:

The total E-value is calculated and M-Sims are created and transferred to each neighbouring S-Node. The remaining E-value creates a symmetric group of F-Sims that are transferred to each of the neighbouring S-nodes. THIS HAS TO BE DONE WITH CONSERVATION OF MOMENTUM! These F-Sims will be complex structures equating to photons.

The F-Sims will continue to be above the threshold and therefore new F-Sims and M-Sims will be created.

The M-Sims will have a maximum number of M-states and will also be identified by the S-node as invalid. This will cause the S-node to decay the M-Sim, creating new M-Sims in neighbouring S-Nodes. Given the symmetry of this expansion of Simticles the S-nodes will also have more than one associated M-Sim and hence this will create new M-sims and F-Sims in neighbouring S-nodes.

Because all of this processing is exception processing by the S-Nodes it will occur on every processing cycle.

This seems similar to the initial inflation phase of the big bang. The universe is expanding at the speed of light by creatin g an ultra dense volume of heavy and unstable matter states and a high energy field. As the M-Sims are unstable and they are massive (due to the M-state quantity and the surrounding F-Sim values) their internal processing period is a very large number of processing cycles and hence they never emit any F-Sims. Therefor at this phase of the expansion no forces have condensed out of the expansion.

At some point we will reach the intermediate or 'messy' phase. This starts when the average E-value of F-Sims has dropped below the M-Sim threshold and valid and lighter M-Sims are created. There will come a point in the dynamics where valid M-Sims are surrounded by a fairly uniform field of low E-value F-Sims. At this point M-Sims may start to have a level of stability and their total mass will mean that they transfer under valid S-node rules and hence their speed becomes sub-luminous. As they transfer the F-Sims from the outer S-cells are re-emitted to the neighbouring S-nodes. The stable M-Sim's internal processing period has also decreased and they may start emitting F-Sims. This signifies the condensing of natural forces. Interactions and bonding between stable M-Sims will occur and fundamental structures will evolve.
At this point there may be a uniform background of very cool F-Sims (especially if they are created with no inertia from the initial stationary super F-Sims). This may be a Higgs field as it will imbue M-Sims with a background inertial mass.