

The String Theory

- comparisons with the 5-dimensional model presented on site www.u5d.net -

Subheadings:

1. The level of analysis is optional
2. Dimensions as building stones
3. Problems with the Infinity as a background to ST
4. Number of dimensions
5. "Undeveloped" dimensions ?
6. Number 5 in ST
7. Structural aspects in the reference: 1-2-3-brans, Calabi-Yau-rooms etc.
8. Polarities - Dualities in ST
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10. The Mathematics of ST - and 11-dimensional Supergravitation

Additional remarks:

11. The efforts to unite Gravitation with Quantum mechanics
12. Mass and Charge properties
13. Why the enormous littleness of strings?
14. The 7th "undeveloped" room dimensions — and fatty acids

Reference: Greene, Brian: "*The Elegant Universe, Superstrings, Hidden Dimensions and the Quest for The Ultimate Theory*", Imprint: Jonathan Cape, London. (Swedish translation, 2003).

When the 5-dimensional model here was developed and the booklet series behind this home page made public in 2000, this String Theory was unknown to me.

Yet, the theory seems to have several traits in common with the so much more elementary model here, - at least be possible to interpret as in accordance with it.

Some comparisons:

1. The level of analysis is optional:

The level or dimension degree (d-degree) of analysis is optional according to our first postulates (see Presentation). This means that an analysis of the physical world in d-degree 1 (of lines), in accordance with the string theory, should be as adequate as in 2-3-4 d-degrees.

2. Dimensions as building stones:

The String Theory (ST) uses dimensions as building stones as in the model here. ST sees the world through the only concepts of Structure (in first place 1-dimensional) and patterns of Motion (vibration).

Compare from the file Presentation:

Chain of Motions, d-degrees: 0/00- 1 --- 2 --- 3 --- 4 --- 5

Chain of Structures, d-degrees: 5 -- 4 --- 3 --- 2 --- 1 --- 0/00

However, the definition of the concept Dimension differs:

In opposition to our model, ST seems to define a dimension just as geometrical structure

and ("independent") direction of motion. Nothing more is said on that subject in the book. One should perhaps see these views as two different definitions? We could ask: Which direction of motion defines the first 1-dimensional string? Or rather: which relation exists between the 1-dimensional structure and Motion as such?

In our model a dimension is defined through its outer poles, characterised by complementarity. (Polarities of such kinds come into the String theory in much more muddled, entangled ways, see below.)

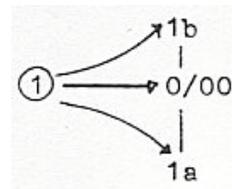
And Motion in our model is defined as a polarization of a 1-dimensional structure.

3. Problems with the Infinity as a background to ST:

Physicists got problems with infinities appearing in their equations during the development of quantum physics, where they thought they had to handle elementary particles as points, and especially so when trying to unite the general relativity theory for gravitation with quantum mechanics. This is said to be the background to the String theory, the motivation to start with 1-dimensional strings instead of particles as points.

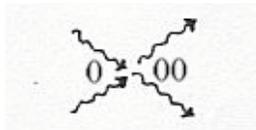
Thus, the reason for ST is just to avoid something, this infinity, which in our model cannot and shouldn't be avoided, just redefined as anti-centre.

Compare in our model d-degree step $1 \rightarrow 0/00$:



Definition of infinity as anti-centre demands of course a centre, a singularity (with physicists' term).

2 crossing lines or paths of motion define a point, in direction inwards the point, zero, and after crossing one another, in direction outwards, the "infinity".



Mathematically, we could think of inversions around number 1 in a co-ordinate system: to reach the point from number 1 we need to write 10^{-00} . Inverted we get the infinity 10^{+00} .

When physicists get infinities in their equations, such as a probability higher than 1, (in ordinary mathematics impossible) - we must presume that that there is something wrong, not with the infinity but with the concept of probability in this Schrödinger context. Perhaps the error could be found in the attempt to analyse or find the electrons in two different d-degrees of appearance at the same time, in the same equations?

Passing the border number 1 of probability might represent a d-degree step ?

(As Greene touches upon, the difficulties may have raised through assumptions, which the physicists themselves have invented.)

Here we suggest the more general view that these difficult infinities just mean "on the other side of", that a term from the complementary world has been involved in the equations.

We could eventually take the footprints of a walking person as an elementary metaphor: the right foot on the ground, with a definite position, the left one up in the "infinity", unspecified, undetermined. (?)

Concerning the infinities appearing when physicists try to unite the gravitational force with quantum mechanics: they seem very natural according to our 5-dimensional model here: this force seen as defined by direction inwards in d-degree 4 with "outer poles" $00 \leftarrow \rightleftarrows 0$:

that is direction from anti-centre (~ "infinity") towards zero (0).
 (Nothing is explicitly mentioned in Greene's book about the opposite force (F_A), the vacuum energy, and outward direction.)

When physicists treat particles as points and are confronted with infinities as problems, we could from our point of view conclude that they have missed the 5th dimension degree as defined in our model - or just haven't developed any mathematical way to handle the 00-pole.

More about the 00-pole and the infinities further down.

In any case, irrespective of the infinity problems, an analysis in d-degree 1 should be as well justified as in terms of 2-dimensional shells or 3-dimensional bodies or vector fields.

4. Number of dimensions:

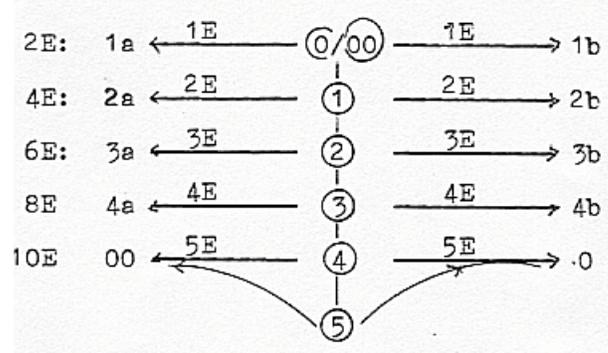
The String theory counts with 11 dimensions, the 4 usual ones with 3 space dimensions plus 1 for Time, and 7 "undeveloped" ones.

(Nothing is said in Greene's book about how they count: the strings as structure seem to belong to the 7 "undeveloped". Remain then 6 different motion directions for the vibration of the strings ? But in another statement these 6 are said to be divided in removals of the whole string (change of position), and on the other hand the vibration patterns of the string...? The latter would then be reduced to 5. ?

In our 5-dimensional model we could imagine the 11 dimensions derived in different ways:

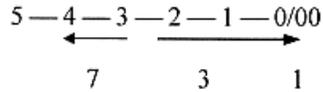
a) 10 dimensions (without Time) in some way expressions for the sum of "outer poles" in d-degree 4 (re-identified as Direction), what we have called the "E-number".
 D-degree 0/00 of Motions as base for the Time concept in the standard model; motions as transformations of d-degree 5.

Sum of poles:

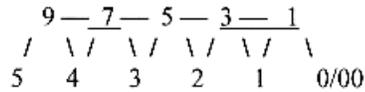


The number 10 then transformed to 4 + 3 + 2 + 1 through d-degree steps. (Values of the d-

degrees - ? - or half axes, the other branch then ignored, connected with $E = -mc^2$?
 b) An addition in a cumulative way ?:



c) Superposed level ?



With the view of debranched d-degrees in first steps, we get $10 \rightarrow 8 + 2, \rightarrow 6 + 4$ in sums of poles.

In our model we have assumed the external motions to be just 4-dimensional in d-degree 1. But this refers to another concept or definition of dimensions than in the String theory.

We have suggested vibration as the motion of d-degree 1 in d-degree 4, seen as a linear motion in structure, but without any notes on its direction.

Since each d-degree of structure in our model principally is possible to analyse in pure motions, according to our postulates, it seems quite compatible with the reference to the "E-numbers" here, the sums of poles in different d-degrees - and with the general view in the String theory.

In ST, properties as Mass and Charge are identified as different vibration patterns. (Unfortunately hardly anything more is said about that subject in the reference.)

We can point out too, the talk about "directions" of the vibrations in ST, representing dimensions, which seems consistent with the designation of d-degree 4 as Direction in our the 5-dimensional model here.

5. "Undeveloped" dimensions ?

The ST physicists are looking inwards in the sense inwards towards Microcosm. As they in several respects, from our point of view, seem to study our dimension chain from 0/00 inwards *. We could identify their dimensions as characterised by direction inwards, but only in this sense.

Does that mean that the 7 dimensions they refer to are undeveloped, only 4 developed? Hardly a good term. (The vibrations of their strings must occur in something of an "external" world, however small.)

They talk about both open and closed strings. Compare in our model the suggested polarity radial versus circular structures of d-degree 3, derived from directions outwards-inwards.

The used scale cannot justify the word undeveloped. The brains of ST-physicists are very small in relation to Universe, but "undeveloped"?

* About the division 4 - 7 and outwards - inwards: Compare the "mad" idea about "quark-numbers" in our model in connection with amino acids: a number + 2 times the mirrored number, sum divided by 3 etc., the same operation repeated, give chains of numbers as loops, sometimes "point loops":

A dimension chain as numbers for steps: 54 - 43 - 32 - 21 - 10, backwards 45 - 34 etc.
Last steps 10 - 01:

$$(10 + 2 \times 01) / 3 = 4 \text{ from step 10 outwards}$$

$$(01 + 2 \times 10) / 3 = 7 \text{ from step 01 inwards}$$

6. Number 5 in ST:

There is not only the 10 room dimensions (Time uncounted): 2 times 5.

There were also 5 different versions of the String theory, which have showed up to be different aspects on the same things, the M-theory as a uniting one. And there are polarities, as for example inversions, among the versions. In these aspects and others it sounds as if the String theory could be developing as a relative to our 5-dimensional model here.

Associations go to the 5 versions of Histones among amino acids, types of proteins on which the DNA spiral is rolled up.

7. Structural aspects mentioned in the reference:

All outstretched objects, which the String theory generates, are called "brans" (membranes): 1-brans are 1-dimensional strings, 2-brans are surfaces, 3-brans is outstretched in 3 dimensions etc.

There is a hint too that there could exist "0-brans".

In such general terms this seems quite compatible with our model here as a development inward towards higher degrees (and/or lower in step $1 \rightarrow 0/00$).

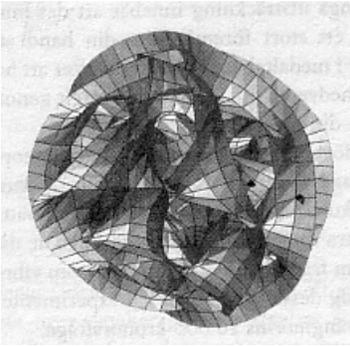
Note that one talks about objects here, not only motional patterns: strings united to higher degrees of structure. But in our model (as in ST ?) there is no clear difference, when motions are seen as polarizations of d-degree 1 and could unite to strings again.

If we could believe the illustrations in a tv-program, some open strings are attached in both ends to a surface. Which surface if we only had strings? It must be 2-dimensional membranes (2-brans) - formed by united strings? Compare in our model d-degree 1 with outer poles:

$$2a \text{-----} 1 \text{-----} 2b$$

D-degree 1 created by the polarisation of d-degree 2, but in our model between complementary poles. (Nothing explicitly or clearly mentioned in the book about such a kind of polarity.)

The 6 extra ("undeveloped") room dimensions that the String theory demands and generates have to fulfil form conditions which the so-called 6-dimensional Calabi-Yau-rooms do:

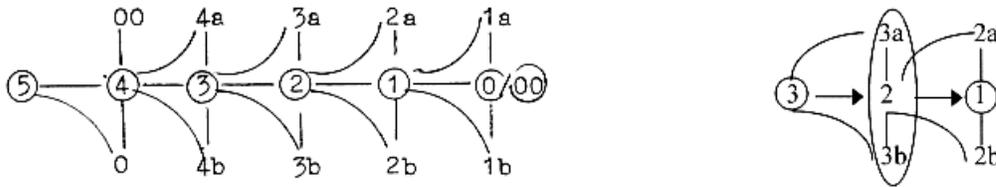


Calabi-Yau-room

*From the book referred to. Original imprint: Jonathan Cape, London.
(Figure: Brockman Inc, N.Y.)*

They look like very intricate balls with many inner surfaces — and with holes. Thus, it looks like a combination of complementary realities, "matter" as structure and "anti-matter" as holes

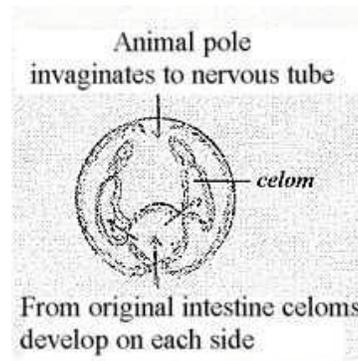
- and in the number 6 of dimensions it reminds of the sum of poles 3a and 3b in our 5-dimensional model. Inner surfaces as a result of the combination.



We have suggested "radial" versus "circular" structure as first very simple geometrical descriptions of poles 3b---3a. First criticism of this own model included the question how it could be possible to imagine this relation geometrically define surfaces of the 2nd d-degree! Forms as Calabi-Yau-rooms seem much more convincing in this respect. Without knowing anything about the intricate mathematics behind them, we just put a question here if they can be connected with the opposition radial / circular in the purely geometrical sense?

Besides such eventual polarities in the structure, we have the one between structure and holes, a polarity as an underlying = built-in polarity of next higher d-degree, if interpreted in terms of our model: "Radial" as connected with diverging Space (and negative curvature), circular connected with mass (and positive curvature), an opposition related to $E = - mc^2$ and $E = + mc^2$.

Here (again) we could get vague associations to the gastrulation process in embryology: how many dimensions or so-called "independent" directions of growth do we have there:



Another vague association goes to our suggested interpretation of spin 1/2.

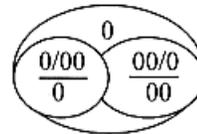
About 6 dimensions, "undeveloped":

We could perhaps, in a very simple way, imagine an ordinary 3-dimensional co-ordinate system with 3 axes but with 6 poles, 3 in positive direction, 3 in the negative one. This simple co-ordinate system folded together into something like a ball, a Calabi-Yau-room.

Seemingly without any connection with this complicated form (?), in the external, "developed" world, Einstein mentioned the relation between two 3-dimensional celestial bodies as a 6-dimensional system.

Calabi-Yau-rooms or the like are thought to exist in every crossing point of the space-time web. Thus, they remind of what we have said about "complex poles" in the original booklet behind this site:

Original poles of 5th d-degree, 0 and 00, may get increasingly more complex character towards superposed levels. That which on one level has the role of a 0-pole, may under its surface, on underlying levels, be constructed by combined 0- and 00-poles, in their turn on a still deeper level being combinations of opposite types etc.



And increasingly more directions will be defined.

If we should look at Calabi-Yau-rooms as such complex 0-poles, it implies a development of the crossing points in the web. If one accepts the assumption in our model about level development that each d-degree step of a fundamental dimension chain can develop into new whole dimension chains, such forms as Calabi-Yau-rooms could be developed in step 1 — 0/00: a purely mathematical development by the String physicists - ? - or eventually realities.

A last question mark about 6-dimensional Calabi-Yau-rooms:

Where is the 7th "undeveloped" dimension if there are 11, 4 of them developed?

See below about the "String coupling constant" and the 10th room dimension.

8. Polarities - Dualities in the String theory ?

There are several such dualities in ST but, as it seems, without any ordering scheme. We have to pick them out from sentences in different contexts and chapters of the book:

Structures ----- Vibration motions

Structures ----- Holes, as in the Calabi-Yau-rooms

Open strings ----- Closed strings

Unlinked strings ----- Linked strings (winds themselves up on a circular dimension)

Strings ----- Anti-strings (as virtual pairs)

Right ----- Left type, "mirror symmetry"

Actual vibrations ----- Uniform "vibrations" of the whole string

Bosons ----- Fermions, appearing as pairs in the "super symmetry" theory

Odd d-degrees ----- Even d-degrees of holes (in "conifold transitions")

Pairs of forms Before -- After "conifold" or "flop" transitions through mathematical operations

Inversions: $R \text{ ----- } 1/R$ (inversions around the Planck length as 1 in the different ST versions)

"Strong -----Weak" coupling

Some of these "polarities" are the same as in our 5-dimensional model or easy to identify as such:

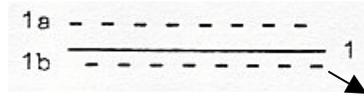
Motions versus structure, in our model as chains in opposite direction,

Chain of Motions, d-degrees: 0/00- 1 --- 2 --- 3 --- 4 --- 5

Chain of Structures, d-degrees: 5 --4 --- 3 --- 2 --- 1 ---0/00

and **Structure** versus **Holes**, as corresponding to **mass --- vacant space** or $E = +/- mc^2$, from polarization of d-degree 4, giving the poles in d-degree 3. This one is of the complementary type for poles in the same d-degree as we have suggested.

So too is the polarity "**strings - anti-strings**", said to be virtual, occasionally splitted strings which then join again. We could interpret them as result of the polarization of d-degree 1 \rightarrow 0/00, from lines to the d-degree of motions, with the "poles" we have called "motions to one another, from one another":



1a-1b as virtual strings

The windings these string - anti-string pairs in ST can form, as loops, seems to illustrate and agree with our naming of those poles.

(If we compare these virtual strings with steps of a walking person, the steps cannot be example of the mirror symmetry mentioned in ST? There is half a step of displacement between them.)

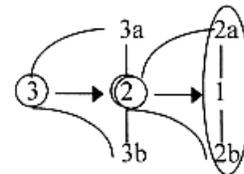
In other respects, many of the polarities listed above seems sooner to represent the "polarities" between different d-degrees in our model:

First the structural oppositions **open/closed** and "**unlinked - linked**" strings:

We could associate these forms with d-degree step 2 -- 1 in our model: strings as defining 1-dimensionanl lines, closed strings as defining a surface:

The author is in his book mostly occupied with closed strings, the linked ones, which wind themselves around another dimension seen as a kind of tube. (Or in very odd, inconceivable tv-illustrations climbing around as rings outside the surface of these "tubes".)

It sounds as if closed strings could be the ST forms of relations between d-degree 1 and one of its "outer poles" 2a or 2b (as inside-outside or similar complementarity), expressed in terms of our model.



Compare strings at the borders between holes and structures inside Calabi-Yau-rooms?

Eventually the both types of strings could be seen as just smaller versions of the "radial and circular" poles of d-degree 3 in our model, but they don't seem coupled at all in ST (?).

Some open strings were tv-illustrated as bound in both its ends to a surface. No polarity in this surface. Just a bad illustration?

But what about the free, unlinked open strings? They seem to be only small, independent pieces of a line? What gives the tension for vibration?

Such seemingly independent, freestyle swimming strings in an empty Universe are certainly not in agreement with our model. Looking as something between d-degree 1 and 0/00, the d-degree of motions. In our model nothing is "independent".

We can connect this opposition in our interpretation of d-degree steps, 2 - 1 and 1 - 0/00 respectively, with what is said in the reference about **mass**:

Linked strings have a minimum mass of the structure, depending on the size of the radius and number of turns it is winded around the other dimension. The vibration gives a contribution. In our model Mass as a property is defined as through inward direction, 4a, to circular pole of d-degree 3.

Unlinked strings have only the mass given by vibrations, without any contribution from the structure. It sounds like 1 d-degree transformed to motion in our model. (Mass of the open string structure and quantum mechanical effects cancels each other out.) About *fluctuations and quantum physics*, see below.)

In ST there is also a more gradual transformation than in our model between structure and motion: linked strings with big radii have big "link energies" and small vibration energies, while those with small radii has small link energies and big vibration energies.

What to say about the d-degree of motions in our model, representing the debranched d-degree in each step towards lower d-degrees, as vibration, rotation and translation?

Except the vibration directions, there is the uniform displacements (called vibrations too) of the whole strings, comparable with a 1-dimensional translation or pathway. Then there is the winding up on another dimension, comparable with a 2-dimensional rotation. (If many turns around, could they form 3-dimensional spirals - ? - as the planets spiral motions around the orbit of the sun?) And then we have the vibration motions, in one aspect a linear form; in another it could have the form of pumping outwards - inwards of a 3-dimensional structure?

In ST, the directions of these vibrations are added as concept for more dimensions, (at least as it sounds in the vague descriptions).

Bosons and Fermions:

One obvious example of "dualities" in ST, corresponding to different d-degrees in our model, is the assumption that quanta of forces and of material particles (bosons and fermions) should show up in pairs, this according to the so-called super symmetry theory. The pairs should have 1/2 difference in spin. Such vibration patterns for boson-fermion-pairs are said to appear in all 5 versions of the String theory.

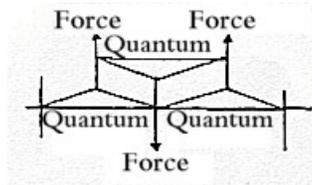
But no such pairs have been found among known particles! Yet, the prediction that these pairs exist is said to be a general property of ST.

It seems as if there is something wrong with the idea of "super symmetry"? In our 5-dimensional model, with a view from inside outwards, from higher d-degrees towards lower, **asymmetry** is an essential aspect, deeply rooted in the first polarity: centre - anti-centre.

In our model we have assumed that each d-degree (of structure) is a binding force in relation to next lower d-degree, a lower d-degree a polarizing force in relation to next higher one. This means that forces versus material things is a question of relations.

(Protons and electrons appear as forces too, on the level of chemistry, H+ and e-.)

With these assumptions as postulates one should rather find "triplets", two "forces" and a more or less material structure upheld by them. We can refer to the picture from the file about forces, under the *headline "Carriers" of forces:*

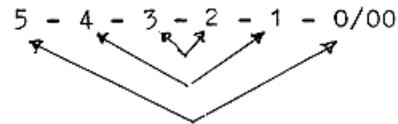


Perhaps the ST physicists have missed to identify something as the other "force", the energy of "empty space" or the like??)

Should we perhaps find fermions constructed by two forces - 2 bosons? (2 "one-turn" spins added to a 2-turn = spin "1/2") ?

Yet, there is a duality in our model too in the view on complementarity where each d-degree is secondarily characterised by first poles 0 and 00.

We have also the perpendicular aspect on the dimension chain with lower d-degrees representing 00 in relation to higher as 0, (as geometrically there is an infinity of lines in a surface, of surfaces in volumes...).



Could eventually such an aspect be involved in the talk about bosons and fermions as pairs?)

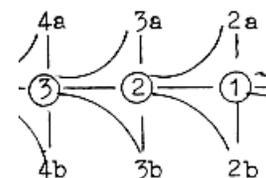
Two kinds of spheres in Calabi-Yau-rooms:

This is another kind of mix between different d-degrees. Two kinds of spheres are said to be imbedded in such complicated 6-dimensional rooms: one has the form of a "beach ball", (which indicates it is empty). The other one has the form of a tyre.

We can identify the "beach ball" as a 2-dimensional surface, enclosing a 3-dimensional volume, a form connected with d-degree step 3 - 2.

The tyre is the form that has been used to illustrate a 4-dimensionaal ball, interpretable as a 3-dimensional form enclosing a 4th dimension as structure of rotational motion. This indicates that the form is interpretable as connected with and enclosing d-degree step 4 - 3.

Hence, we have a good bit of our dimension chain: 4 - 3 - 2; forms where higher d-degrees are built-in or "underlying" the lower ones, as "binding forces" in our own terminology.



D-degree steps as a process in ST:

There are traces too of the concept "d-degree steps" of our model in ST, but we have to dig

them out from stray remarks in the most difficult chapters of the book, from descriptions and illustrations most difficult to follow and swallow.

It concerns the so-called **conifold transitions** and **flop transitions**.

These are described as mathematical operations where different points on a form are united after special rules so that new forms are created.

For example: When a 3-dimensional form is pinched together and splits (or ruptures), it gets replaced by a 2-dimensional one, and the massless vibration patterns increases with exactly 1.

Besides the way of operating the forms, such a formulation seems to completely agree with the central concept of d-degree steps in our model. The new form loses 1 d-degree in structure, wins one d-degree of motion.

In another context, about the string coupling constant, the opposite direction, towards higher d-degrees, seems to be the case, eventually: When this constant is increased, in one of its versions, the structure is changing to a 2-dimensional membrane, "but this is not a structure that the string can vibrate in", "since it is locked to the structures of the strings themselves". It sounds as an increase with 1 degree in structure implies a vibration moment lost as built-in into it, expressed in terms of our model.

It's said too that some such transitions between forms imply that the **number of holes of odd d-degrees** in one of the forms are the same as the **number of holes of even d-degrees in the other**. This too seems to indicate some complicated version of d-degree steps.

The author talks about "our conception of drastic typology transitions where the room raptures". In spite of ST being a so much more mathematically intricate and elaborated, scientific version of a model, couldn't we associate these "points where the space-time web raptures" with the d-degree 0/00, the 0- and 00-poles: first points (0), then the 00-pole which we have assumed as the first polarizing force in our model? The 00-pole, which as anti-centre and "infinity" represents a non-structure and a phase "before" the space-time "web" is developed or the "non-structure" in the holes of the web?

In connections with the M-theory, uniting the 5 different versions of the earlier theories, these are mentioned with the word "**phases**".

This could indeed be still another sign that the String theory is on the track backwards in our 5-dimensional model.

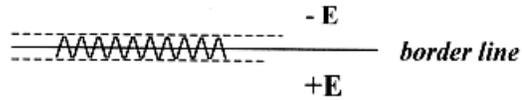
(Compare starting from 0, from Zero, and starting from the anti-centre, the 00-pole. The A-base of DNA in the genetic code appears structured spontaneously in an appropriate solution, but in living organisms the way of construction of the A-base is very complicated, as taking it "the other way around".

About the mirror duality in ST, it's said that one part of those pairs gives extremely difficult calculations, the other one much easier ones.)

9. Fluctuations and Quantum mechanics....:

There is a lot of talk about furious, violent fluctuations in such things as energies and velocities, even in gravitation, in the microscopic world, within the area of Heisenberg's uncertainty principle and Planck's lengths. The "fluctuations" seem to be only a mathematical conclusion (necessary or not?) from this undetermined or indefinite area of quantum mechanics.

These fluctuations could in our simple model be interpreted as the motions out of the polarized borderline between +E and - E or the 0 ---00-poles:



(Dirac, for example, says velocities can vary +/- c in this area.)

In some experiments of quantum physics there is a similar relation between Yes and No answers, particle or no particle, as if the measurement happened to occur when the fluctuating something was in the "-E"-area when the answer is no and vice versa.

The String theory "smears" such fluctuations out to a line, and there is talk about strings that "wraps" a surface. Then we should be able to see 2-brans as "smearing out" strings, shouldn't we, in terms of our model as combinations of the poles 2a---2b, defining d-degree 1 and lines.

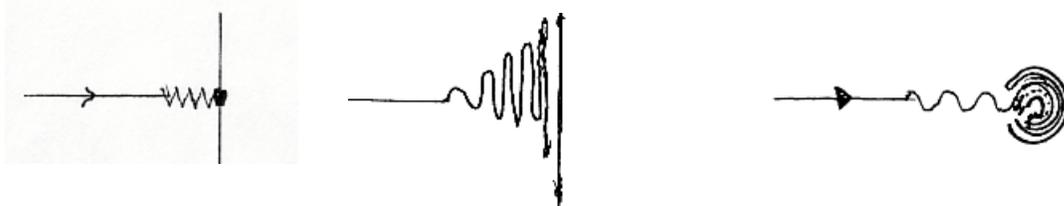
Three aspects on this:

a) The formulations, "smear out", "wrap a surface", seem to include the concept of superpositions from quantum mechanics, yet this word is not mentioned.

A **superposition**, including two possible but opposite answers at a measurement (as particle - no particle), was discussed in our file about Quantum physics as a d-degree step from higher to lower d-degree. (If in a 2-dimensional co-ordinate system the y-axis "collapses" to zero, it can be viewed as "smeared" out on the x-axis, implying either of its complementary poles, as yes or now. A 2-dimensional surface or membrane in the String theory should be possible to interpret as a superposition to the strings?)

The formulations in ST about strings "wrapping a surface" seem more like the simple views in our model but in opposite direction: a surface, possible to analyse in terms of pure motions, can be created by an 1-dimensional line plus its motions (as "locked" or built-in)? We can refer to the notes on this in the file about Einstein too.

b) Another association to the violent fluctuations concerns our early suggestions that the properties Mass and Charge could be interpretable in some terms of "negative" acceleration and velocity "inwards," that is inwards towards a centre, a zero point. As crashing cars get new forms along new co-ordinate axes in relation to their velocity direction.



When physicists introduced the concept of particles as wave packets, they illustrate something of a similar idea, growing "fluctuations" - in our suggested interpretation the result of inward direction (towards a detector screen or the like).

c) **The "String-coupling constant":**

If rightly understood, the wild fluctuations in the area of indefiniteness should be connected

with the appearance of virtual string - anti-string pairs, as polarizations of 1-dimensional lines in terms of our model.

In ST there is assumed a number, the "String coupling constant", which should express the probability that the polarization occurs and that the virtual pairs join again.

From our point of view it sounds rather odd that there should be the same constant in polarizing direction ("outwards") and in depolarizing direction of synthesis, in depolarization. Why? A structure of a certain d-degree (not only d-degree 1 of strings) is in our model upheld by a certain relation between the binding force of higher degree and the polarizing force of lower degree, the structure as a playing field between these forces.

Perhaps the ST-physicists are right, perhaps all energy in structures could be "lost" as pure kinetic energy if not the constant was the same?

But they haven't found this number. Changing the constant transforms the 5 versions or "phases" of ST into one another.

(Perhaps the number could be 0,2, the inversion of 5 in the last step
 $1 \rightarrow 0/00$!? Or $0/00 \sim 5'$: $5^{3/2} = 11,18$. 11 dimensions + 0,18.!))

What is indeed the difference between the "string coupling constant" and the relation between an inward gravitational force and outward accelerating force?

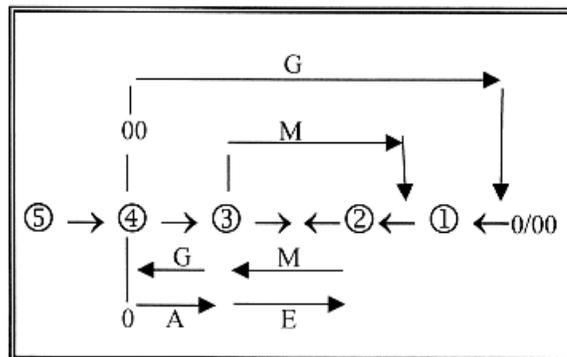
10. The Mathematics of ST - and "11-dimensional supergravitation":

Not much is mentioned in the book about the mathematics, and the whole String theory is still just a mathematical one.

Yet, so much is said:

- 1) It started with a 1-dimensional string and calculations with equations that already Newton could have written.
- 2) Then Quantum mechanics were introduced in these equations, with quantifications, probabilities, the uncertainty principle, fluctuations etc.

It sounds as if we could associate this approach with d-degree 4 and 1 in our model, then step $1 \rightarrow 0/00$.



Newton's gravitation with a big G as inward direction from the 00-pole in d-degree 4, to d-degree 1, the string,

- and quantum mechanical aspects explored in d-degree step $1 \rightarrow 0/00$.

Then the elaborations of the theory inwards our dimension chain, towards 2- and 3-

dimensional membranes and holes, meeting the 4th dimension as built into the Calabi-Yau-type rooms...

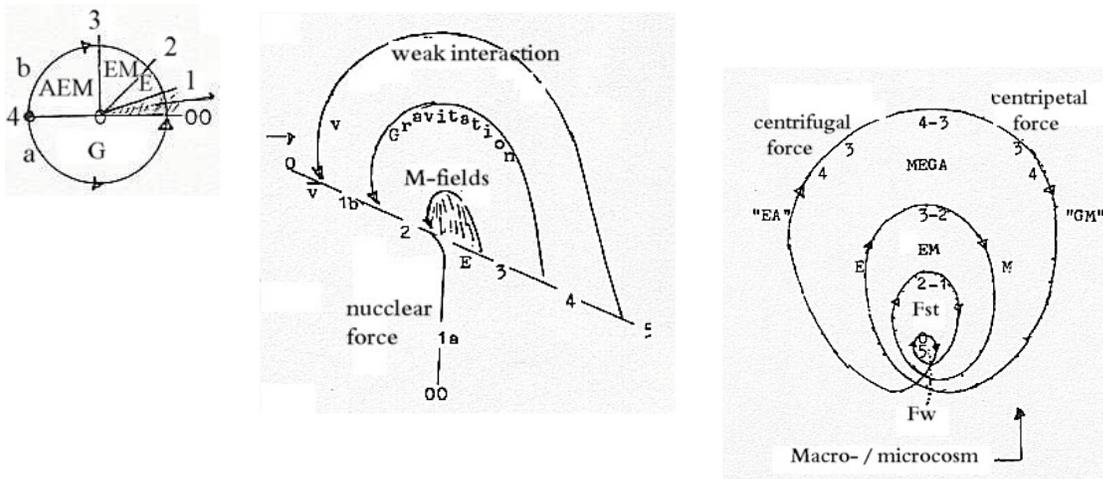
From one viewpoint it seems rather natural that they take the step from d-degree 4 to 1, since one d-degree is debranched in step 5 → 4, according to our model. (But they avoid step 4 → 3 outwards ?)

(Compare the definition of dimensions in ST as independent "directions of vibrations": "Direction" as our name for d-degree 4, and Motion out of step 1 → 0/00. "Vibration" as a 1-dimensional motion structure in d-degree 4.)

We have to repeat that the ST-physicists' occupation with Gravitation reasonably should have touched on the complementary F_A-force, related to Vacant Space, but such a force isn't mentioned. (Compare G-A and M-E in the figure above, see "MEGA-fields".)

In their occupation with strings and d-degree step 1 — 0/00 (as we have interpreted it here), they should reasonably have much to say too about the Weak Interaction force, with the aspects on this force we have in our model. (Perhaps its involvement is taken for granted in the "Standard model" formulation of it.)

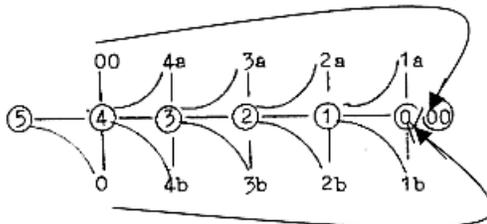
Here some more versions of figures from earlier files to help visualise these notes:



The 00-pole and 11-dimensional Supergravitation:

In our model the 00-pole of d-degree 4 are meeting the complementary 0-pole in last "d-degree of Motion", 0/00. The 00-pole as an inward directed vector field, identified as a gravitational force, is redefined through

"motions from each other" in the end of the dimension chain.



An 11-dimensional supergravitation?

This supergravitation is said to show up if one increases the string coupling constant to a number much bigger than 1 in one of the 5 versions of ST. It's said that no one knows what this "supergravitation" should be!

We have described the d-degree 0/00 as the transformation of d-degree 5; also as 5' a starting point for new dimension chains.

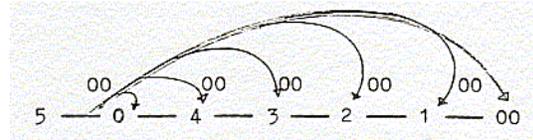
(Compare poles 1b --- 1a, defined in our model as "motions to and from each other": $1+1 = 11$, to quote some rather unknown poet in the 60th !
 Motions from each other (pole 1b) define a distance, ~ a line: $10^1 = 10$. (Room dimensions.)
 Motions to each other (pole 1a) define a point: $10^0 = 1$. (Time dimension)
 "Time" = "Supergravitation" ? !

Or perhaps this theoretical 11-dimensional supergravitation implies that the ST-physicists, via the degree of Motions, arrive directly to d-degree 4 with poles of the 5th d-degree, "E-number" sum 10 (+ Time = 11)?

If rightly understood this "supergravitation" is connected with "super symmetry"? If so, we could state that in our model we have a very simple kind of symmetry in d-degree 4, where no secondary directions are defined yet but the inward - outward ones.

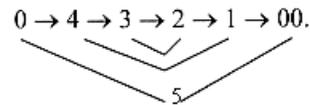
In our model the 00-pole as anti-centre can be found in every d-degree of structure.

There is always a surrounding to a "unit", defined as such by an enclosed centre, the surrounding by an excluded centre.



We can think of the 0-pole developing stepwise through the chain and in combination with the 00-pole from outside forming structures of different d-degrees....

We have also the view on a dimension chain as "haploid gametes", then written:



It seems a bit curious that the **appearance of a 2-dimensional form** should be connected with these calculations, leading to "supergravitation". The condition for this in our model should be that the calculations were on the way $4 \rightarrow 3$ of d-degree steps, polarization of gravitation and acceleration outwards (F_G and F_A), and a second d-degree debranched in that step, meeting "the other way around".

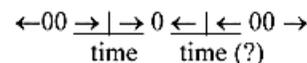
Note that this 2-dimensional "bran" seems to be viewed as the 7th "undeveloped" room dimension we asked for above about numbers of dimensions. ($4+3 = 7$!)

How to unite the double aspects in our model on the 00-pole being first fundamental polarizing pole but also in next step an aggregating one as gravitation? (The 0-pole binding, integrating - and polarized.)

Motions "**from each other**" defines an anti-centre, a (new) 00-pole, a polarization, which should be responsible for the separation of poles 2a and 2b of d-degree 1, of the "strings", the tension in these. Upholding them as linear structures. But the structure of the diverging motions is an inheritance from the 0-pole of the outward directed vector fields in d-degree 4.

Motions "**to each other**" defines a (new) centre, a 0-pole, which could appear as the contraction force in the strings. The motional structure, however, is an inheritance from the converging gravitational force or vector fields in d-degree 4. This is the "pole exchange" from d-degree 4 to 0/00, vector fields to motions. All according to our model.

With this duality (and a little piece of Time between, as "one way direction"?), we get the windings of the ST-physicists' strings.



(But how do "motions from each other" ever meet again!?)

So the question about "super gravitation" could be if it is the divergent 1b-pole, creating a 00-pole, in the d-degree of Motion, that points back to the vector field of pre-material Gravitation in d-degree 4 and its "field lines" ? Back, or forward to Gravitation in a new chain.

The **R - 1/R duality** could perhaps fit into this context. It implies that when the circular size of a linked string shrinks down to 1 (as the Planck length), Universe decreases, but on the other side, shrunk still more, it begins growing again. The ST-physicists gets the same Universe on both sides of 1, an inverse relation. (0/00, the "d-degree of Motion", equivalent to 5 or 5'.)

Additional remarks:

11) The efforts to unite Gravitation with Quantum mechanics:

The difficulty to unite the general relativity theory of gravitation with quantum mechanics was the cause for the string theory. Operating with particles as points (0-dimensional) gave "absurd" infinities of possibilities. These infinities, redefined as anti-centres, are quite natural and necessary in our model. Gravitation is identified as the vector result of that "infinity", for direction inwards. There are two statements here worth to note about why the difficulties arose:

- 1) The physicists tried to quantify the gravitation, in **gravitons**, the assumed quanta.
- 2) The physicists felt obliged to treat **particles as points** in order to retain the possibility to find them somewhere within Schrödinger's type of wave functions.

1) Suppose that Gravitation from the 00-pole represents continuum, the 0-pole the quantified scale in this opposite pair of duality. Suppose then the **graviton**, not found yet, is not a quanta of the same kind as the quanta of later steps in the dimension chain.

Compare the calculated spin: With Hawking's description spin numbers says how much we have to turn a quantum for it looking the same again. We could translate it to a degree of complexity: Spin 2 of the "graviton" means 1/2 a turn, spin 1 means 1 turn, 360°, the circle around, spin 1/2 means 2 turns, 720°.

Why should such a structure of just half a turn (hardly any rotational moment) appear as a quantum with something of an enclosed centre ? 180°: it sounds as if the concept "field lines" should be a more appropriate association.

Nor have magnetic monopoles been found, quanta of the magnetic fields. It could be the same story with them - ? - with our view that M-fields are characterised by the 00-pole in next step, as a son of Gravitation. (Mother the F_A -force.)

2) About wave functions and squared amplitudes as possibilities to find a **point particle**: Suppose there is no particle in the waves, suppose the assumed "particle" just is in its wave "phase", (perhaps fluctuating between inside/outside the wave surface?), the energy spread as in the amplitudes okay, but only becoming a "particle" when the wave breaks, meeting resistance as through a measurement ?

It seems to be something wrong with the "probability concept" when it comes to finding a point inside a wave, before it breaks? Of course there is an infinity of "points" in the mathematical sense in something spread out as a wave. (!?)

(Where do we find the words when human beings talk, before they reach the brain of a listening receiver?)

12) Mass and Charge properties:

As said above there isn't much mentioned about these concepts, besides that they are defined by different vibration patterns and the note about mass division between structure and vibration patterns in linked strings.

One statement seems in very general terms to agree with our simple identifications of mass and volume as poles in d-degree 3: It's said that the mass of a "3-bran" is proportional to the volume it encloses.

In another context we have the statement that Mass is inversely proportional to the string-coupling constant for objects of higher than d-degree 1. The smaller this number is made, the bigger the Mass becomes. Here it sounds as if this constant could represent only the possibility for polarizations of one d-degree, not the opposite?

Inversely, however: when this constant was made much bigger than 1, the super gravitation raised, which is stated in another context.

Can we in these opposite operations find an evidence for the inverse relations Gravitation - Mass which we have seen as a probability in our model, step 4 → 3 as an inversion ?

Compare: Radius of stars on the main series is directly proportional to the cubic root of their masses, while the radius of white dwarfs is inversely proportional to the cubic root of their masses ?

Charge is connected with EM-fields in usual physics. A main suggestion in our model is that this property is a 2-dimensional one, if interpreted in relation to Mass as a 3-dimensional one. Nothing is said in the book about Charge, which we could compare with this suggestion, and it seems that the author sometimes uses the concept of "charge" in a wider sense.

It's mentioned that charge can be divided in much smaller fragments of 1 than $\pm 2/3$ and $\pm 1/3$ of the quarks, for example $1/13$ or $1/53$ (!), if a linked string winds itself up on another dimension in more and more turns. Nothing about the background idea if any.

From our point of view and interpretations of Forces, Mass and Charge main questions here is

- a) if it's possible to derive Charge as property from the Mass property (as 2-brans were derived from 3-brans through conifold transitions in ST, and
- b) if Kaluza's derivation of EM-equations from Einsteins's Gravitational ones may lead to a recognised derivation of EM-fields from "G/A"-fields, according to the suggestions in our model here, and
- c) if the polarization of 2-dimensional membranes (as into inside - outside, convex - concave, (surfaces of holes / membranes) can give rise to strings ?

13) Why the enormous littleness of strings?

Strings of ST is thought of as about 10^{-35} m, that is hundred million trillions smaller than protons in atom nuclei. Is it really necessary? Why not blow up the scale?

In our model we have taken as a postulate that the same patterns of structures show up on superposed levels, and very much points towards that. Why not in the String theory if it has a justification? What about "field lines" in relation to celestial bodies in Macrocosm,

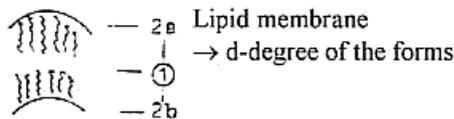
what about processes in biology - and protein structures in biochemistry?

In our model, as said before, there is a chapter about level development (not yet as a web file). The assumption there is that each step in a fundamental dimension chain can develop to whole new chains, as new loops of energy are created in the modern world. A somewhat related idea in ST is mentioned, of possible new bubbles in each point... But why should that lead to other Universa? Why not see them realised in this world!

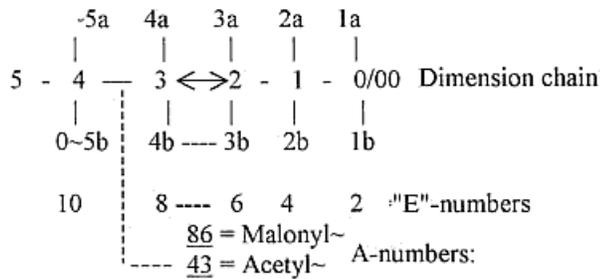
14) The 7th "undeveloped" room dimensions and fatty acids:

With 11 dimensions, one for time, there is the usual 3 "developed" ones, + 6 in Calabi-Yau rooms, which gives 9. The 7th "undeveloped" space dimension seems to develop during certain operations with the "string coupling constant"?

Compare the files about Fatty acids and 1/7, "The inversion of number 7": a curious (or "mad"?) idea that the periodic number eventually could be a mathematical principle behind the synthesis of fatty acids - and collagen? This periodic number has certain number relations to fatty acids which are building up cell membranes, "2-dimensional" on a higher level. A couple of them here:



$$\begin{array}{r}
 3/7: \quad 0, \overline{428571} \\
 > 3/2 \\
 2/7: \quad 0, \overline{285714}
 \end{array}
 \begin{array}{l}
 42+85+71 \\
 > 283 = \text{fatty acid C18} \\
 28 + 57 \\
 \updownarrow \text{-chsrge} \\
 28+57+14 \\
 > 255 = \text{fatty acid C16} \\
 85 + 71
 \end{array}$$



[Cf. the quotient proton/electron:
 $(0,428571\dots)^2 = \underline{1836,73469387} \cdot x 10^{-4}$
 $= 4 \times 1836,7346 \dots \text{etc.}$
 $42,85^2 = 1836,1225 = p/e.]$

Concluding words:

It's possible, as showed above, to find several similarities between the String theory and our model here, but only through searching for them in many disparate contexts and separate sentences in this reference. The set of concepts used by the theory seems also to be one of its own to an essential extent.

The whole theory seems still entangled in some complex form of "Calabi-Yau-rooms" and the Universe presented is everything but "elegant".

But "Universe" in Latin means a unit inverted, so beginning with the inverted form seems justified.

However, one popularised version of the String theory seems to be one with an infinity of loose, individualised, independent, free-swimming, vibrating strings in an empty something, which is certainly not the case and totally contradictory to our model where everything is related — and relations.