PLUS-IMPLEMENTATIONS IN NATURE
AS QUANTUM EFFECTS IN LIVING ORGANISMS

by George Hohbach

ABSTRACT

Understanding empty spacetime or nothing as a timeless and space independent, simple piece of mathematical information, shows how the entire body of physical data–from quantum mechanics to gravity–can be understood as different expressions of this very simple mathematics: PLUS, which can be shown to define itself as both non-existent and unstable in its fundamental, time- and spaceless state. This also provides insights into the connection life, its processes and its consciousness has with timeless and spaceless nothing.

1. Introduction: The primal mathematical foundation PLUS

In my article *"Active Unity-Code Plus"* on www.georgehohbach.com the mathematical premise PLUS is described in the following way:

1.1. Simplicity. In all areas of life, including science, man is searching for underlying structures, laws or principles. The notion is that the underpinning premise has to be simple and universal. One such simplicity is cybernetic feedback, as for instance, astrophysicist John Gribbin refers to in his book *"Deep Simplicity"*.

1.2. Unity-Code PLUS. The fundamental principle that will be used here, and that has been subject of other articles that can be found on www.georgehohbach.com, is called PLUS, the Math-Principle, or active unity-code. It is neither a cybernetic feedback loop nor an (recursive) algorithm. PLUS in its primordial fashion is the description of a single timeless and space independent piece of mathematical information on which everything can be shown to emerge from.

PLUS is inherently dual as PLUS means both "MORE" and "ADDING UP" **at the same time**. This inner duality makes it timeless and space independent. PLUS is a unity that is never left. Here is how in more detail:

- PLUS can mean: one apple + another apple + another apple to show MORE.

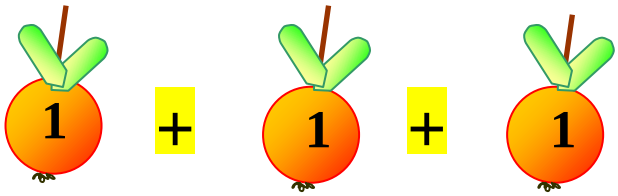
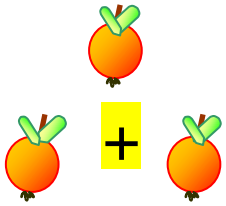


Figure 1

PLUS: MORE APPLES: 1 + 1 + 1

- PLUS can also mean to *add all up*, so that one would get to 3 apples[1]. "Adding up" means including all, and that is the overall meaning of PLUS.



3 apples
Plus means *More* (Fig. 1) and *adding up* (Plus) as in Fig 2.

Figure 2

PLUS: all (more) apples are ADDED UP to be 1 as a unit.

- This can be codified in an *equation* to show the inner duality that PLUS encompasses: PLUS=MORE=ADDING UP.
- As "adding up" is PLUS again as the all-encompassing notion, "adding up" can be replaced by PLUS, so that the equation becomes **PLUS=MORE=PLUS.**

[1] In his book *"Shadows of the Mind"* physicist Roger Penrose points out that a child (already) 'knows' what the numbers zero, one, three, etc. mean due to the child's awareness, and the child also understands what the abstract concept of 'three' or 'four', etc. is. The child, according to Penrose, has access to the timeless, mathematical platonic world.

- The **equal signs** indicate that MORE (more sizes, scales, particles, laws, features, etc.) is always PLUS. With ALL (more) being PLUS, all is alike, the same. This is nothing: there is no time, and there is no space.
- The primal nature of PLUS is non-existence. That is nothing, an emptiness that is full of MORE.
- Consequently this MORE has to show itself, as MORE demands expansion. Nothing, emptiness or PLUS will continuously produce MORE, while always staying empty. That is PLUS as the single timeless and space independent mathematical rule that all is based on.

1.3. More in a unit. Several examples can be given to illustrate the meaning of Plus from different perspectives, as the article *"Unity-Code Plus"* highlights. They include the aspect of uncertainty, Gödel's incompleteness theorem or Aristotle's statement "*The whole is greater than the sum of its parts*", etc[2].

What is helpful to visualize too, is the following, as described in the article *"Plus and the Magic of Mathematical Simplicity"*:

- The **MORE-aspect** represents Plus in terms of *"additional"* and refers to **counting**, such as: 1, 2
- These two numbers (1, 2) can also be seen **as a unit**. The mathematical operation to implement that is, of course, **ADDING UP (PLUS)**.
  1+2=3
- In the mechanics of the simplest mathematics, there is an uncertainty to be recognized. It pertains to the meaning of the number 2.
  - The number 2 can be understood as the 2nd as in counting 1, 2
  - or 2 can also simultaneously be perceived as II parts as in adding up 1+2=3.

Every unit has to implement the notion of Plus. So there are several possibilities (reflecting More) for a unit, e.g. a quantum, to implement **Plus or More in a unit**:

[2] For descriptions on how Plus is both implemented by quantum mechanics, gravity and other physical processes go to the article *"Active Unity-Code Plus"* on www.georgehohbach.com.

- the uncertainty principle (the heart of quantum mechanics) describes uncertainty pairs regarding fundamental particles such as the pair *momentum-position* (More-unity) or the pair *energy-time* (unity-More).
- the *wave-particle duality* is another option, where the wave denotes More and the particle represents the unit, that includes More, as the quantum (the energy bundle like a photon) is combined (added up) with the frequency of the wave.
- Other options are *quantum entangl*ements or *quantum coherence*: More is acting as a unit. That is Plus.

1.4. Three Examples of More in a Unit as Counting and Adding Up.

1.4.1. Uncertainty and the photon as particle and wave.

The photon is, as Planck found out, a discrete unit, a bundle of energy, and he called this a quantum (of light or electromagnetism in the case of the photon). We could also call the quantum a Plus. Plus means More in a unit, which is why there has to be More. Heisenberg established with his uncertainty principle (the heart of quantum mechanics) that the quantum is a unit (1), but there is a 2^{nd} aspect to it, namely that of uncertainty. As was shown above, there is always uncertainty as to what 2 exactly means. Uncertainty comes in pairs. While one can count these pairs (1, 2), each pair makes clear: an observer can know one aspect of the pair with great precision but the 2^{nd} aspect is more unclear or uncertain, because 2 not only means the 2^{nd}, but 2 also means being More at the same time. So, we can count units (1, 2), but each unit (number) contains More itself, just like each uncertainty pair (a unit) that contains 2 aspects; with the 2^{nd} aspect always being unclear (More).

Each quantum (fundamental particle ending with "*on*") carries this information: A unit contains More and shows it (uncertainty).

The More-aspect causes each quantum to also be a wave. The wave always shows More, something additional. That is why it allows and supports counting so well based on the frequency, which states how many crests or troughs of the wave appear in a time unit. So, the quantum, like the photon, is combined with the frequency

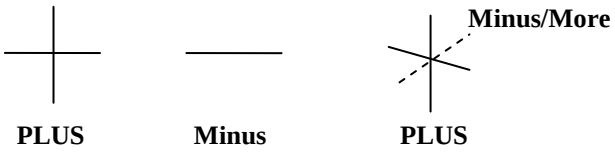
(counting) of the wave, which constitutes the photons total energy. Counting is fine, being a unit is fine, but there is always More at the same time due to the number 2 that also denotes being More (at least 2 parts) simultaneously. That is why the photon (like all the other particles ending with "*on*") can be at different places at the same time with a certain probability (meaning to be somewhere More likely than somewhere else).

As we have seen, the More-aspect also makes adding all up possible (1+2=3). But since there is so much More (information) involved, because of the all-inclusiveness of adding all up, the photon, it seems, randomly appears at one of its possible locations that represents the result of having added all up. In other words, the tremendous amount of information that is added up, makes it look random with regard to where the particle shows up. The photon appears at one possible location (to show all is added up) briefly, before it returns to existing in its wave function again[3]. The wave function is continuous, deterministic, because the photon in its total energy is first connected to counting (1, 2) via the frequency of the wave, and the 2nd aspect of being More (at more locations) at the same time is included in that. On the other hand, the adding-all-up process is discontinuous (ends the wave pattern) and probabilistic (as to which possible location gets picked), which is understandable if one considers that adding all up reduces ("ends") all to a unit, and adding all up means both stemming from the uncertainty (More-aspect) regarding the actual meaning of the number 2 and including a tremendous amount of information; so picking a possible location seem to take place randomly.

1.4.2. 4-dimensional spacetime.

In previous articles I mentioned that the 3 visible dimensions can be explained as the unification of the Plus sign (+) and the Minus sign (–), as the minus sign can be understood as meaning More. More means less unity is visible, and less is a subtraction, a minus. So space with its 3 visible dimensions is a timeless statement of how the universe works.

[3] The process of a fundamental particle picking one of the possible alternatives, that it simultaneously occupies, is called *decoherence*, respectively *reduction* or *collapse of the wave function* by physicists.



***PLUS* and *Minus/More* as added together as one constituting 3-dimensional space. In this unit, every dimension can be seen as part of a possible Plus-sign (3 are possible overall), and it can be seen as one of the 3 possible Minus/More-signs. Everyone can see how the universe works: Unity (Plus) contains More (time).**

Figure 3

Each dimension consists of 2 aspects, like "*up & down*", "*left & right*", "*front & back*".

So, one unit (one dimension) comprises the number 2, i.e. counting 1, 2. What does 2 mean?

The 2nd, equally valid unit (dimension) holds the number 2 again and tells us: 2 also equals 2. So, we can add up, right?

Sure, we can count and add all up at the same time: The 3rd dimension is 1+2=3, and as the all-inclusive unit it contains 2 aspects, too. So you can count again 1, 2, and again the questions arises what 2 means, because the notion of *Plus* or *More in a unit* is timeless and space independent. This shows how time (the 4th dimension) comes from timelessness, as time denotes cycles, and nothing constantly creates that.

1.4.3. The DNA.

One last example of how nature (math) uses the Plus premise, i.e. the notion that there is counting and adding up, is the DNA. The DNA consists of 2 strands that denote 1, 2. The 2 strands are connected by 2 base pairs. So we get that 2 actually can mean 2. We have counting and adding up. Thirdly, the 2 base pairs consist of 2 bases. One base pair again says 1, 2, and the other again says 2 also equals 2. As the DNA repeats the pattern of 2 means both counting and adding up, it encoded to use this pattern (1) as a process (2). The fact that the DNA double helix structure is explicitly 3-dimensional, also supports the continued application of counting and adding up. So the DNA can open up and show 1, 2 strands, and it can close itself (or add up the 2 strands) or a RNA (1) can add up with a DNA (2) strand. A gene consists of

3 bases (a triplet) and denotes More in a unit, as 3 contains both counting and adding up (1, 2, 3 and 1+2=3). So a gene is a consistent unit for containing information (More), but it can also include More (new information to result in mutations) due to the aspect of adding up. "*Mature*" means both that something is ripe and that something is becoming ripe. So if you add ***math*** and *nat**ure*** to be *Mature*, you get a pretty good idea of what is going on. There is a timeless and space independent pattern (it is mature, complete) that simultaneously generates growth, More, cosmology, evolution, etc. (getting ripe, it matures).

There is the strictness of an old headmaster, and there is the playfulness of a young child.

If one analyzes scientific data in this respect (with regard to Plus), one always rediscovers the Plus-pattern.

2. Implementations of PLUS in living organisms on the quantum level

In his talk *"Quantum Life"* physicist Seth Lloyd presented his and other teams' findings regarding the use of quantum effects by living organisms. Especially the well established results from analyzing photosynthesis will be used to show how Plus is being implemented through the use of quantum mechanics. Also the findings of Stuart Hamerhoff and Roger Penrose will be mentioned, but not in full detail and in a lengthy discussion, as this was already done in the article *"Active Unity-Code Plus"*.

2.1. Photosynthesis and quantum effects. A **photon** (a quantum of light, a quantum of energy) is a Plus (a unit), and the photon exhibits the More-aspect e.g. in the wave-particle duality or in its connection with the frequency of the wave pattern which establishes the quantum's total energy.

The photon reaches a bacterium, carrying out photosynthesis like the *purple bacterium* (a Plus itself, as it is More in a unit and shows More in its actions). The bacterium uses the photon's energy for the process of photosynthesis.

The photon, i.e. its energy, has to get to the so called **reaction center** of the bacteria, where the energy will be transformed into *chemical bonds* (of sugar molecules) to store the energy. To get to the reaction center efficiently (i.e. without losing a lot of energy/Plus), the bacterium (a unit itself) deploys several (which denotes More) quantum effects.

To sum up the key elements so far: Light displays the

1. concentrated Plus (unit) through the quantum (photon)
2. and the More-aspect, that allows moving forward, through the wave-pattern,
3. that is, with its frequency, combined (added up) with the quantum.

Light is both energy (Plus) and its transportation (More). As More means more, the More-aspect also helps to understand why a particle can be at different locations with a certain probability, i.e. be "More" at this or that location at the same time. (For a further discussion of the wave-patterns see the article *"Active Unity-Code Plus"*.)

These two aspects, Plus (1, energy quantum) and More (2, wave-pattern) is what the bacterium translates into versions of Plus (More in a unit) that it can handle. The bacterium rewrites the incoming Plus-version in the form of light as:

1. **energy preservation (Plus)**
2. **energy transport or transfer (More)**

Again, the rewriting of the incoming Plus-information in the form of light is possible–without changing the core information Plus–as Plus itself contains the More-aspect and permits many (More) different presentations of itself (the most simple and basic one being nothing).

Let's see what the purple bacteria do with the incoming light:

2.1.1. Energy preservation: creating a Plus, a concentrated unit containing More. Inside a **chromophore** (a square-shaped molecule of the bacterium) residing in a ring structure (ring-shaped molecule) in the so called antennas of a purple bacterium, the photon's energy creates an **exciton**. Plus (the photon) becomes More as the photon's energy (Plus) kicks out an electron. The electron itself has a negative charge. The place where it originally was, is now vacant (a hole), and in reference to the negative electron, this hole has a positive charge. So the minimum to count as More, which is 2, has been created: the positively charged electron-hole (1) and the negative electron (2). As More (1, 2) is part of the Plus-definition, More (consisting of smaller units) can act as one, too, i.e. show the added up aspect as in 1+2=**3**: it can act as PLUS, as a unit containing More and show it. That is what the exciton does: it contains both the positive hole (1) and the negative electron (2). That way, by being More in a unit, most of the photon's energy (Plus) is preserved, i.e. was translated into another configuration of Plus. (From $E=mc^2$ we know that energy (Plus) can present itself in a huge number (More) of ways).

This Plus-implementation is stable[4]. Seth Lloyd calls this situation *decoherence-free subspace*, meaning this Plus-state does not interact (add up) with the environment, but implements More and Adding Up by itself in the form of getting to the reaction center (so that *"getting to"* represents More in the form of covering distance) using all paths leading to it (Adding up). This is what the **energy transport or transfer** is all about.

2.1.2. Energy transportation: showing More as Plus. The production of the exciton happened inside the antennas of the bacteria and is passed on to a further complex made of of ring structures too, with each ring structure consisting of 2 **rings**: an inner ring (1) and an outer ring (2). Each ring (a unit) contains several of these square-shaped molecules, the chromophores (More). The inner ring can have 9 chromophores and the outer ring 18.

[4] *"Stable"* in the quantum world means not decohering for a very short, but still significant time span of several nanoseconds; it does not mean being stable for long.

There are several of these ring structures inside a purple bacterium, and the photon's energy, captured in the exciton (Plus), has to use these rings (More) to get to the reaction center.

To get to the reaction center, Seth Lloyd and his team showed, the exciton deploys another quantum effect: it performs a quantum (random) walk. The exciton does not know which path–hoping from one ring to the next–is the most efficient (in terms of hardly losing energy) to get to the reaction center. Therefore, it takes all paths at once. It implements Plus as More (taking all paths) in a unit (all at once).

The exciton in a purple bacterium, as Lloyd pointed out, exists all over the ring structure that can contain 27 chromophores. As noted before, the ring structure itself consists of 2 rings, which is the premise for counting (More, i.e.1, 2) and Adding Up (1+2=3). In addition, each ring contains several chromophores, making it again a unit containing More. The exciton, as a Plus containing More, and the double-ring structure (also a unit encompassing More) both carry the same Plus-information. Exciton and ring structure are one in this respect. Therefore, the exciton can be all over the ring at the same time (in a superposition), especially as chromophores represent Pluses (units) that can:

1. absorb (add up),
2. promote the creation of More (2 as the hole-electron pair) and
3. stabilize More (the hole-electron pair) in a unit called the exciton (Plus as More in a unit).

This Plus-information unit, that each chromophore represents, is–as far as the information is concerned–very conducive to the enabling or supporting of other, further Plus-implementations like the created exciton (a Plus itself) performs in its ensuing quantum walk, that also exhibits being More (at different locations) in a unit (at the same time).

If the exciton is one with the ring, where it was created, in a state of being all over the ring–which is being in a symmetric state all over the ring–then this state is strongly coupled to the other rings, and the exciton can become also one with the other ring structures. It is a case of symmetry, as Seth Lloyd pointed out, that promotes the efficient transport of energy to the reaction center in a purple bacterium.

Symmetry is one of the key features of the Plus-definition *Plus=More=Plus*. As stated before, this definition is timeless (all is Plus: More in a unit) and yet allows Plus to propagate forward (in time), too, as Plus (1) becomes More (2) that Adds Up (3), as in 1+2=3. So, it is this simple math, Plus, that provides the timeless and space independent premise for quantum mechanics[5].

The More (the distance, the many paths to the reaction center) can be covered in a state of equality (symmetry) or unity. So the exciton takes all paths in a probabilistic fashion (More at the same time, More in a unit) to reach (add all up) the reaction center.

2.1.3. Taking another look at the creation of the exciton again. In context of the creation of the exciton, it is also worth noticing that, as Seth Lloyd mentioned, the purple bacterium uses **2 different axes** within its square-shaped chromophore to produce (More) and stabilize (Plus) the exciton.

As explained before, the equation of PLUS is PLUS=MORE=PLUS. With this in mind, the exciton creation can be stated in reference to the Plus-equation:

I. PLUS=MORE

1) The incoming photon is a **Plus** causing the creation (showing **More**) of the **hole**-**electron** pair, which denotes **1**, **2** as in counting **2 particles** (aspects), with 2 being the minimum to count as More.

The question (uncertainty) remains: What does 2 actually mean? The second ? Two parts?

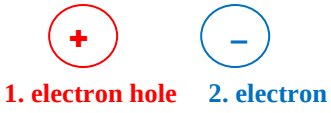
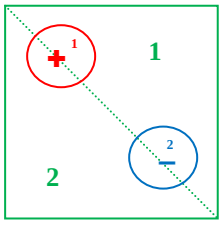


Figure 4

[5] and all other physical occurrences like gravity, etc.

2) Doing this along an axis of the **square-shaped chromophore** divides the chromophore into **2 equal halves**. It means 2 is both the second (as in **1, 2**), and it actually also **equals 2 aspects**. This says: **1+2** is possible, too.



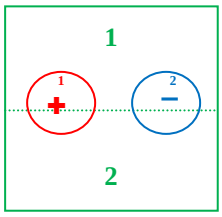
Inside the square-shaped chromophore the hole-electron pair is created along an axis of the chromophore, which divides the chromophore into 2 halves.

Figure 5

II. MORE=PLUS (Adding Up to be unit)

3) **Stabilizing (adding up to be a unit)** the hole-electron pair in the form of the exciton, the purple bacterium uses a 2nd axis that–splitting the chromophore in 2 equal halves again–denotes equality in the sense that the 3rd step shows **1** & **2** in 2 equally valid, combined variations:

1. *Counting:* 1, 2; represented by the **hole-electron** pair showing More.
2. *Adding Up **1** & **2** to be a unit:* 1+2=3; since the **2 halves** say: 2 also means (equals) 2 aspects.



The 3rd step shows: 1 & 2 not only stand for *counting* 1, 2 but can also be regarded as representing *adding up* 1+2=3 simultaneously.

Figure 6

The 3rd step shows: the **all-encompassing, all-inclusive (adding up) operation** (1+2=3) also contains More (counting 1, 2, 3).

Also, the 3 steps–that describe the creation of the hole-electron pair and the stabilization of it as the exciton–show the TIMES SIGN (X) and the PLUS SIGN (+), if one takes the 2 axes into account that the 2 particles and the 2 halves create.

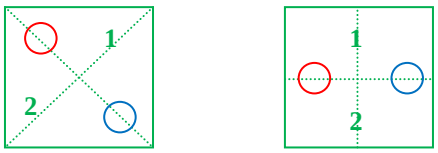


Figure 7

All of the described 3 steps always show 1, 2: timelessness (Plus, unity, More in a unit) and time (moving forward, showing More) work hand in hand.

1.	COUNTING:	1, 2 particles
2.	2 EQUALS 2:	1, 2 halves
3.	ADDING UP:	1, 2 operations (counting & adding up)

Figure 8

PLUS=MORE=PLUS

Since PLUS is the all-encompassing operation, all is included in Plus as the timeless and space independent piece of mathematical information (nothing). That is why there is always unity (1), symmetry (2), and yet symmetry breaking or moving forward, as the unit contains More (counting, time, uncertainty, being unstable, different mathematical operations, vibrations, cycles, etc.). Nothing happens! The universe comes from nothing (1), it shows nothing (2, our universe), and it goes back to nothing (3, the emptied out universe, from which a new universe emerges).

The purple bacterium knows all this in a sense, as it uses the Plus-premise (nothing). Once the bacterium has translated the incoming Plus (the photon, the energy of light) into a conducive form (unit), More can be done, and that is the described energy transport to the reaction center.

2.1.4. Chemical bonds: More in a unit as the storage of energy. Some of the energy will then be converted into chemical bonds (units), until these bonds of the sugar molecules get broken up (show More), and that chemical energy (Plus that is More) can then be used to carry out work (do More).

It's all Plus. So nothing literally does happen.

2.2. Other cases (of more circumstantial evidence) for the use of quantum effects by living organisms.

2.2.1. Smell and quantum effects. Evidence suggests that quantum effects (More in a unit) play a role in the process of smelling.

1. A **key** (a *molecule* from the outside) fits into the **receptor** (inside the nose). This is standard Adding up.
2. The More-aspect is very likely incorporated through the *vibrational patterns* of the atoms of the *molecule structure*. Vibration, therefore, also seems to determine how we smell a molecule, as Seth Lloyd explained.

2.2.2. A Bird's navigation compass and quantum effects. Birds, like robins, also use quantum effects based on 2 correlated electrons with different spins for their navigation incorporating light and the earth's magnetic field.

2.2.3. Microtubules and quantum effects. Stuart Hamerhoff and Roger Penrose consider microtubules, a part of the cytoskeleton, to be a likely structure that–possibly using quasiparticles called *anyons*, which are associated with electrons and have fractal charges of the associated electron–helps to incorporated quantum mechanical effects like quantum coherence in the processes of the brain and might even touch non-computable realms as Roger Penrose explained in his "*Richard R. Ernst Lecture 2012"*.

2.2.4. Plus and evolution. Darwin's theory of evolution can also be understood in reference to Plus and its equation PLUS=MORE=PLUS. The Plus-equation allows and supports replication. Plus (a cell or a hereditary molecule) uses More, its inner More (1) and the outside More (2), to replicate itself, to be become another Plus. Organisms want to be "plussier", i.e. stronger or fitter: they want to be a Plus that contains More (strength, etc.) to reproduce More. As Martin Novak, a mathematician and biologist, has pointed out in his work, cooperation also plays a part. Each Plus, each cell or organism like a fish, etc., is part of a unit, a larger Plus like a body, a shoal, a pack, a tribe or a planet. It is like a quantum, a unit, a Plus, that can be More at the same time, or it is several quanta that act under one wave function (More in a unit, too). The holistic notion of "All is one" is ancient and can be found in sentences like Heraclitus' *"All becomes one and one becomes all"*; it is represented by the Yin-Yang symbol, but also in the work of Lamarck, Lotka or Capra, etc.

It should not be surprising therefore that the DNA structure relies on the Plus-equation in its design and the way it works. Both processes and structures reflect Plus. (More about the DNA and the cell membrane can be found in the article *"Active Unity-Code Plus*"). The cell membrane, as biologist Bruce Lipton explains in his book "*Biology of Beliefs"*, works like a computer chip. Plus is global, so it can be discovered in the design of the cell membrane, too, causing the membrane to be a unit that can show More and integrate More. The cell membrane uses channel proteins to release or include More (information).

Even when the quantum behavior gets classical, the Plus-information is never lost; it is just restated or translated into another implementation (which the More-aspect permits).

3. Conclusion

While quantum computer specialists still have problems protecting their entangled quantum states from getting lost or from outside influences that would immediately cause decoherence, nature has found ways to use More (heat, wet conditions) to create sufficiently stable quantum units (More in a unit such as entanglement, coher-

ence) for a significant amount of time. The technique, creating a *decoherence-free subspace*, which purple bacteria use was mentioned above. In his article *"A bit of quantum hanky panky"* Seth Lloyd also names the feature *environmentally assisted quantum transport*, where including some outside signals, such as temperature, actually helps to enhance the energy transfer process (More, expansion) and generated robustness (Plus, coherence). PLUS is used by nature in many different ways which is why, apart from physics, processes like evolution, economics, management, movie plots, fitness, etc. can also be understood as implementations of this basic, mathematical notion.

Math speaks of beauty and truth, as Plus defines itself as non-existent, which is symmetric and an all-inclusive unity. And while this nothingness always also shows More, which amounts to symmetry breaking, the deepest unity and symmetry of mathematical nothing is never lost. This also helps to understand, why fundamental particles like photons or electrons cannot actually be visualized. They can only be described mathematically as Heisenberg states in his book *"Physics & Philosophy"*.

Thus, if we like the Golden Section, it is because the small part (Plus) is to the larger part (More) as the larger part (More) is to the whole (small + large part). Because of the More-aspect intrinsic to the mechanics of timeless mathematics, mathematics presents itself not only in science.

In the video of the Templeton foundation *"Science and the Big Questions"* physicist Brian Greene, who stresses that combining different perspectives can create a richer picture, sees the future of science as becoming (again) more and more integrated with other fields of human experience, serving as a data processing tool. Another physicist, Hans-Peter Dürr, highlights in his book *"Geist, Kosmos und Physik"* (*Spirit, Cosmos and Physics*) that physicists gave up the ambition to always be 100% accurate, which made it possible for them to open up towards other areas of research, such as the field of life sciences. The works of physicists like Roger Penrose or Seth Lloyd show how interdisciplinary work can merge physics with biology and ques-

tions of consciousness. Art, in the form of movies like *Star Trek* or *Star Wars*, inspires people to become physicists, and physicists use art to present their findings in different ways, as physicist Lisa Randall described in her talk about "*Knocking on Heaven's Door*". It is the Renaissance-spirit of art and science working hand in hand that can be very fruitful, as More is united to be More again. In the video *"Science and the big Questions"* physicist Anton Zeilinger both emphasizes that philosophers can assist in finding meaning with regard to the data that physicists have produced and notes that especially Eastern philosophies describe notions similar or equal to findings in quantum physics. In a discussion about creativity at the Cambridge Forum science writer Marcia Bartusiak portrayed several aspects of how creative inspiration can occur in scientific research such as thinking outside the box, doing trudge work to find patterns in huge amounts of data, handing down useful, intriguing questions from the mentor to his apprentice and being open-minded (like a child). In the context of this article one might say, it is all about implementing Plus as adding up More (data, thoughts, opinions) to get to a unit (Plus in the form of patterns, formulas, equations) that will then generate More (insights, curiosity, wanting to play, etc.) again in terms of opening up to integrate new data once more. Some call it management, some call it cybernetic feedback loops, chit-chatting with friends or tossing around ideas, etc. Mathematician and biologist Martin Novak has coined the term *cooperation* as a new aspect to Darwin's theory of evolution and beyond, i.e. cooperation as a principle working in galaxies, too. Michael Persinger details in his talk *"No More Secrets"* how everyone's brain is connected with everyone else's brain based on a frequency pattern of 7 Hz via the earth's magnetic field: More, single pluses, in a unit in the form of a global resonance pattern. Others, like the fathers of the C2C-concept, Michael Braungart and William McDonough, stress that solutions can only be long lasting if the aspect of abundance (the More-aspect) is included in a holistic way. Former president Bill Clinton wrote the following in the foreword to McDonough's and Braungart's latest book *"Upcycle"*: "*I've seen how these simple ideas, when put to practice, can improve productivity and make people happier and healthier."*

It becomes clear: there is timelessness, and because this timelessness contains More and makes More happen, we can experience diversity that is based on the most concentrated timelessness that is even spaceless: nothing.

People say to me, "Are you looking for the ultimate laws of physics?" No, I'm not. I'm just looking to find out more about the world, and if it turns out there is a simple ultimate law that explains everything, so be it (...) My interest in science is simply to find out more about the world, and the more I find out, the better it is.
Richard Feynman
(from: A Universe from Nothing, 2012, p.177)

A complex system that works is invariably found to have evolved from a simple system that worked.
John Gall
(from: The Personal MBA, 2010, p.308)

This is common to all our laws; they turn out to be simple things, although complex in their actual actions.
Richard Feynman
(The Character of Physical Law, 1992, p.33-34)

You can think of the vacuum as a reservoir of energy …
Lisa Randall,
(Warped Passages, 2006, p.226)

Even in the most quiescent setting imaginable, such as an empty space, the uncertainty principle tells us that from a microscopic vantage point there is a tremendous amount of activity.
Brian Greene,
(The Elegant Universe, 2003 p.119)

And that is, you start out with very simple ingredients and some simple rules, but you have to have enough ingredients to make it complicated. And then you put in some randomness, some fluctuations and some randomness, and realize a whole bunch of different representations.
George Smoot
(George Smoot on the Design of the Universe, May, 2008:
http://www.ted.com/talks/george_smoot_on_the_design_of_the_universe.html)

Einstein (…) was driven by a passionate belief that the deepest understanding of the universe would reveal its truest wonder: the simplicity and power of the principles on which it was based.
Brian Greene,
(The Elegant Universe, 2003, p.xiii)

Nothing–in this case no time and no space!–is unstable.
Laurence Krauss
(A Universe from Nothing, 2012, p.174)

The newborn universe was simple (…) If there were no alternatives to the initial state of the universe, then exactly zero bits of information were required to describe it; it registered zero bits. This initial paucity of information is consistent with the notion that the universe sprang from nothing.
Seth Lloyd,
(Programming the Universe, 2007, p.45)

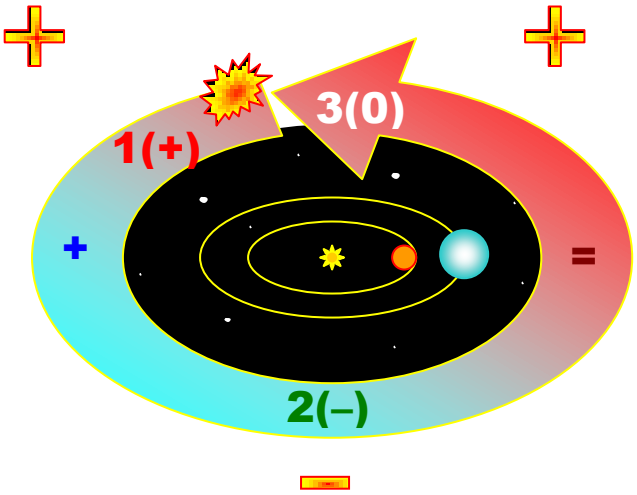
The basic idea is very simple. In the presence of a positive vacuum energy, it will remain true that most states tend to empty out to empty space, but "empty space" will (...) have a Gibbons-Hawking temperature (...). This temperature gives rise to thermal fluctuations (...) which can then continue forever as in the standard story of eternal inflation.
Sean Carroll and Jennifer Chen
(Spontaneous Inflation and the Origin of the Arrow of Time, p.20, arXiv:hep-th/0410270v1)

... it is absolutely essential that we take care of this planet …
Amy Mainzer
(The Future of Space Exploration, http://keentalks.com/future-space-exploration/)

... with the introduction of the chaotic inflation scenario (…) it was realized that the basic principles of inflation actually are very simple.
Andrei Linde
(Inflation, Quantum Cosmology and the Anthropic Principle, p.3, arXiv:hep-th/0211048v2 8 Nov 2002)

Information is forever.
Leonard Susskind
(Leonard Susskind on The World As Hologram, November 2011,
http://www.youtube.com/watch?feature=endscreen&v=2DIl3Hfh9tY&NR=1%E2%80%A2)

For MORE go to www.georgehohbach.com.



PLUS: MORE IN A UNIT

A quantum physicist comes home from work. It's late, and he looks tired and dizzy. His loving wife asks: "*Honey, what's the matter?*" And the quantum physicist goes: "*Oh, it's nothing!*"

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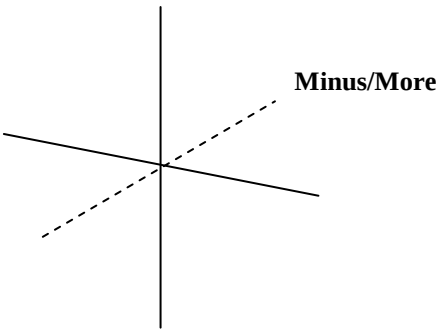
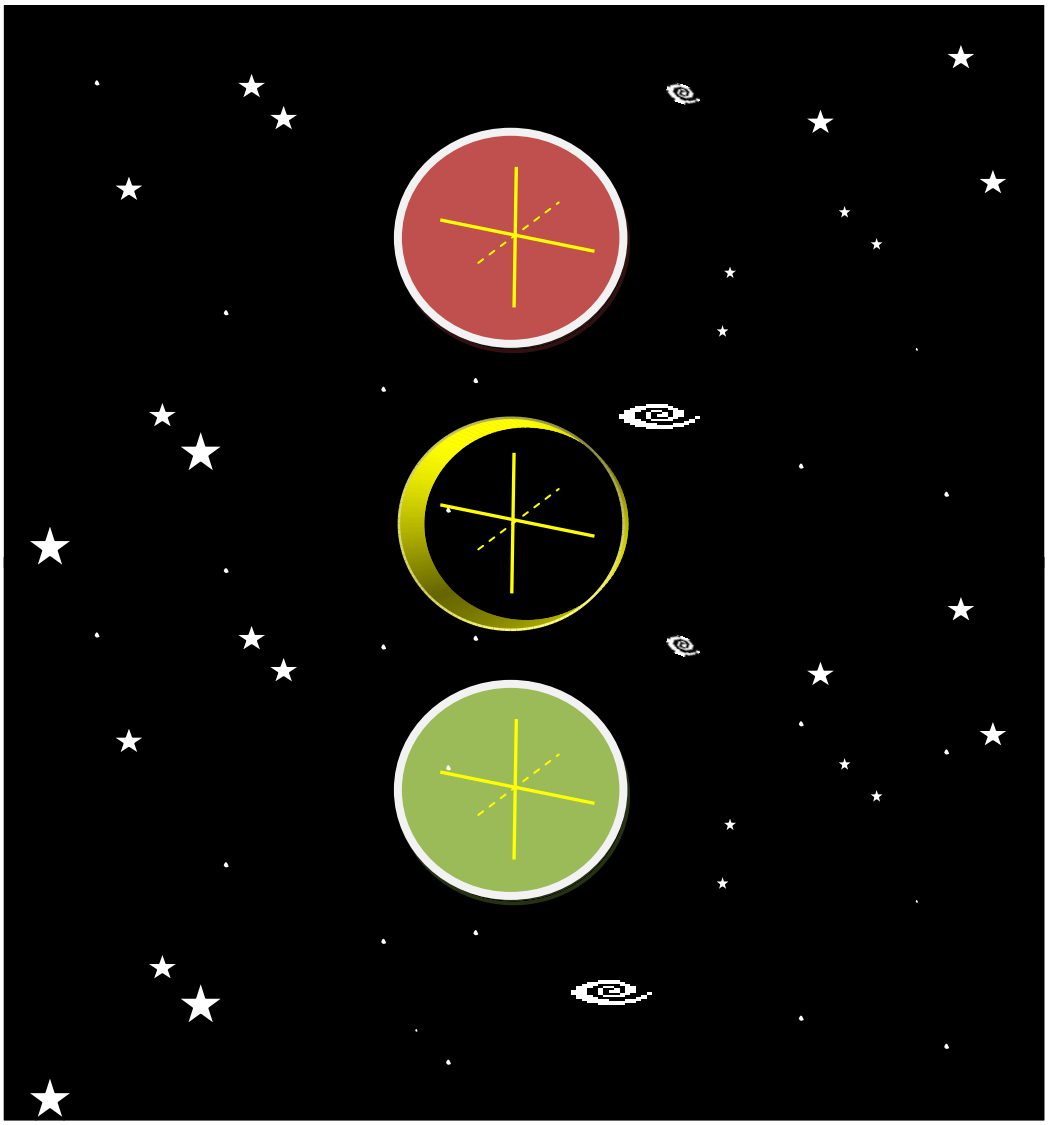


All becomes one and one becomes all.



All things flow and nothing stays.

Heraclitus