A Model that leads to **new knowledge**

Consequences of the misjudged role of the course of time

T/Q = **Theorem-Question** **E** = **Explanation** **O** = **Observation** **C** = **Consideration**	Is the course of time a consequence of the special nature of the dimension of time?

Text Module = in black, version of present Physics = in red

O	The Newtonian worldview prevails in almost all scientific disciplines. Partly because of this, the Physics of the 20th century was very productive. But at a certain point we didn't make any more progress.	What's the scope of the insights of Physics? • Relativity demonstrates a connection between space and time, which enables to understand gravity a little bit better. The relation of the other forces towards space and time remain elusive. • Quantum Theory shows additional but very mysterious rules of play for Matter in space and time. • Field and Gauge Theories map the forces and lead to the experimentable Standard Model. • String Theory and Super Symmetry give no deeper insights nor experimental options for 45 years…
Q	Which aspect of our vision of reality is at the root of the fact that we don't see any underlying connections? At this moment, in Physics, no one clearly knows how it all works!	**Preliminary conclusions of some physicists:** ▪ To us space-time and the laws of quantum mechanics are like the decor, the setting of a play. The elementary particles are the actors and physics is what they do. A door that we see on the stage is not a door until we see an actor going through it. Else it might be fake, just painted on. ▪ You cannot explain the existence of certain particles much as you cannot explain the existence of this Universe. Source: Martin Veltman, Facts and Mysteries in Elementary Particle Physics 2004

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C	It is rather strange that Physics uses all kinds of **building blocks** of which we do not know their origin and their nature. Are we erroneously assuming that those building blocks came out of nowhere?	The Laws of Physics contain building blocks like: • The dimensions space and time which size the Universe • Elementary particles which hold Energy and which constitute Radiant Matter (photons, electrons, quarks,...= 4%) • There are the Forces that organize Matter: – Gravity, – Electromagnetism, Weak Interaction, – and Strong Interaction. • There is also Dark Matter (neutrino's,... = 23%) and Dark Energy (= 73%). These building blocks are necessary to describe the Laws of Physics!
Q	Can we discover why our worldview got stuck? **No** says the 'Copenhagen interpretation' of Quantum Physics since 1927!	Since Newton mathematics dominates the realm of Physics. The resulting pragmatic[1] deductions end up in the fact that we can only describe ***the exterior*** of things, i.e. the *behavior* of Matter. It's striking that we don't understand ***the interior***, *the nature of things*. Reductionist physicists such as Niels Bohr, Werner Heisenberg and Richard Feynman even claimed that we simply cannot know that interior. For such underlying knowledge they refer to the domain of philosophy and religion. However, it's annoying that we may no longer ask ourselves questions about the nature of essential things such as energy and forces. Somehow it should be possible to determine what drives them. We even don't understand what makes Matter evolving into complex organisms.
C	Some other considerations: Analytical worldview ≠ Holistic worldview	Scientists isolate specific elements and study them in controlled conditions - a laboratory. Even if the experiment takes place in nature or in real life, they reduce reality to a manageable number of factors, which take on the status of cause or effect. By definition, therefore, there are factors that they do not take into account, but which may have played a role. As a result, knowledge is always incomplete and provisional. This way described constituents from reality are then merged into generalizations that are regarded as THE reality. This often leads to an incomplete or misperceived reality. Consequences of this approach are: monocausal and linear compartmentalized thinking, a static mechanistic vision = this is the **analytical worldview**. This worldview is fully opposite to the **holistic worldview** in which coherence and dynamics are looked for. The holistic is systemic and hence much less mechanistic.

[1] Useful, immediately usable.

		Can we find a method to merge the analytical and holistic worldview? Only then we can grow in an objectively researchable way to **a post-Newtonian worldview**.
Q	Perhaps the stagnation in Physics and the ambiguity of our worldview has something to do with the lack of something fundamental? Where's the needle in the haystack?	Because of the Newtonian approach, scientific laws are only based on **repeatable** events. Yet we realize from our daily lives that **one-off events** play a major role in the making of things. The boundary between repeatable and one-off events also indicates the boundary between the mechanical and the systemic. We will return to this topic at the end of this Module. Mostly we call one-off events '**coincidence**'. This way we don't allow **the transitory** to acquire a place in our scientific thinking. In that context we must dare to ask ourselves the question where during our scientific development we have wrongly 'eliminated' one-off events from our equations. The insights of the quantum world are based on probabilities. They appear to be essential for understanding the behavior of elementary matter. Could it be that much more is hidden there and that 'coincidence' can play an even more important role in our scientific practice?
O	It wasn't until well into the 20th century that someone saw that the transitory is not included in our math arsenal!	In the seventies of the last century Ilya Prigogine indicated that Physics is working with a view on the course of time that is wrong. He then justly remarked that there is no mathematical description for the course of time. Could the lack of such a mathematical description be an indication of a fundamental problem with our view on the laws of Physics? Could it be that we have missed the importance of the existence of such a description?
Q	When did something so drastic happen that it profoundly influenced our vision on time?	In 1908 there was an extremely important and far-reaching intervention by the mathematician Hermann Minkowski. He designed the Minkowski-space and imposed it on the physicists in a most compelling manner. At that time Minkowski's reasoning seemed logical but, as we will see later, it is only logical to a certain extent.
Q	What did Minkowski do?	Minkowski disregarded the specific nature of time with its typical course. Minkowski suggested that the nature of time is mathematically real[2], just as it is the case with space. As a result, the imaginary[3] nature of the dimension of time was no longer seen and eliminated via the squares of the coordinates.
E	**Minkowski-space** was born.	This way, Minkowski developed a mathematical tool that allows us to predict movement in the entirety of space and time: the Minkowski metric of spacetime. This method is a pure example of Newtonian thinking. Mathematics and calculation come first; reality fades into the background.

[2] Measurable, with coordinates that are expressible in real numbers

[3] Being mathematically imaginary involves working with imaginary numbers, this happens in the coordinates. A dimension that is essentially imaginary, is hitherto unknown in Physics.

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O	However, Minkowski's cleverness had many unforeseeable consequences.	The pragmatic nature of Minkowski's finding gave Einstein the opportunity to develop his General Theory of Relativity. Presumably this was the reason why Einstein had no suspicion of the fact that Minkowski's cleverness had other drastic consequences. Only at the end of his life Einstein realized that in Physics something was seriously wrong but he did not know what! From a letter of Einstein to Solovine in 1953 it appears that he realized very well that **only a holistic approach** could save us from the impasse in which Physics ended up. His solution: first comes the research hypotheses, then the theorem and the experiments and only then the mathematics.
Q	What did we lose sight of because of Minkowski's analytical approach?	Time has a course and is therefore par excellence the dimension of the transitory. But what if **for a dimension being** mathematically **imaginary** means that it has an **irreversible** nature and that through that nature it has **a course**? The lack of any insight into the phenomenology of an imaginary dimension could in fact be the reason why, until now, we have not been able to give a mathematical description of the course of time.
E	A combination of real and imaginary dimensions has **no order relation** for the adding and multiplying.	A possible interpretation of the lacking of such an order relation is that in physical combinations of real and imaginary dimensions always information is lost. Hence an imaginary dimension is irreversible and shows a course. The imaginary character of the dimension of time was situated in the **quantitative** by Minkowski. We now have the opportunity to put it back into the **qualitative**.
O	Mathematically imaginary dimensions are an introduction for one-off events in the world of the repeatable.	When we work with mathematically **real** dimensions, we only describe the **repeatable** and thus we can only reach for the behavior of the Matter, *the exterior*. When we add mathematical **imaginary** dimensions then we add **one-off events** to our description and then we may be able to understand *the interior*.
E	Partially because of this consideration, a Model was created instead of a theory!	The idea is that there is at least one imaginary dimension involved in the construction of the Universe. This idea was the reason for drawing up a model of origin that tries to discover how Matter originated. That model is further referred to as **the Model**. It reveals the existence of several additional imaginary dimensions. Surprisingly this feature gives the Model the capacity to explain where all the building blocks of the Universe come from: dimensions, energy, forces, particles, ... So we may rightly conclude that Minkowski's finding deprived us from the distinction between *the exterior* of things, the behavior of Matter, and the *interior*, the nature of the laws of Physics.

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E	Consequence: not everything in our world can be understood analytically.	By allowing imaginary dimensions entering into Physics, not everything can be predicted anymore. Many derivations will be based on configurations instead of formulas (see the second Module). So, our holistic capacities are called upon to comprehend this enhanced Physics. These Physics can be called 'post-Newtonian' because it contains the material achievements of modern Physics and is extended with the so far underestimated part of the transitory.
Q	What is the physical nature of a course?	Phenomenologically a dimension with a course is volatile and intangible whilst it is mathematically described as imaginary. The course of time is such a volatile dimension. Elementary Matter is irresistibly drawn along with it. This course makes us irreversibly travel with the flow of time.
Q	How can the course of time correspond with a reversible time, the existence of which is claimed by theoretical Physics?	We should not confuse the *external* effect of the presence of the course of time in elementary Matter with its effect on *the interior* of elementary Matter. According to the Model the reversibility of the course of time in Physics is due to the presence of other courses, the so-called **courses of space**.
Th	Indeed, courses of space exist!	The Model finds that several courses of space exist besides the course of time. Courses of space are mathematically imaginary spatial dimensions. Phenomenologically a course of space tends to pull a point onwards in space. A course of space implies an irreversible drive. All courses, thus including the course of time, are to some extent embedded in Matter. The action of courses of space in Matter is providing the so far unknown drive from the energy and the forces.
Q	What is the action of a course of space?	1) A course of space is an urge to move in space; in the Model these courses of space replace certain common "fields" as a source of forces, such as in electric and magnetic attraction or repulsion. 2) Qualitatively, there are two types of courses of space: one type has a rigid orientation and the other has a variable orientation.
Q	How can we comprehend a course of space?	Some effects that allow us to imagine the action of a course of space: a) a photon which departs with the speed of light without having to accelerate and does this for a permanent journey through space. The photon is drawn (pulled) along endlessly by a course of space. b) A permanent magnet is driven against a steel plate by an invisible force. The courses of space in the permanent magnet are directed towards the steel plate and do not require an external source of energy.
Q	What about the mathematically real dimensions?	In addition to the imaginary dimensions, mathematically real dimensions exist which are reversible. In these dimensions we can, so to say, go back and forth ending up in an identical state. The spatial dimensions as we perceive them have characteristics that come very close to them. The original real spatial dimensions are not directly perceptible.

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E	An absolute frame of reference exists.	The mathematically real time and real spatial dimensions shape an only indirectly observable **absolute space-time**. The existence of an absolute space-time has already been suggested by several scholars[4].
O	A Newtonian approach XXXL	The second Module gives a first impression how the dimensions of our Universe originated and where Matter gets its energy and its forces. But there is more. Much more. When the two kinds of dimensions are merged into their original dimensions, Core-dimensions are obtained (see second Module). These appear to have special properties that can transcend space and time: Non-Locality and Simultaneity.
C	Using the twofold nature of the dimensions, the Model has devised a mathematical tool for studying immaterial properties!	When the combination of mathematically imaginary and real dimensions reveals the existence of two previously virtually unknown intangible properties, then this is very likely to be possible in another way. Therefore, we should consider that three basic properties arranged in the following way are inextricably linked; we distinguish two connecting points: - the **imaginary**, the **irreversible**, the **transitory** (indeterminism, the acausal) - the **real**, the **reversible**, the **repeatable** (determinism, causality)
	Conclusion	When the integration of the imaginary (irreversible) and the real (reversible) provides the added value of both intangible properties, then the integration of the one-off events into the repeatable will also do the same. This is also put in evidence in the separately published **article** on the **C-zones** and the article on Non-Locality and Simultaneity.
C	Strikingly, the existence of both immaterial properties is revealed!	These articles show that chaos can induce an influence (indeterminism) on the repeatable (determinism). It is the cornerstone of self-organization. In the substantiation of these articles the great theories of the 20th century play an important role: the Theory of Relativity and Quantum Theory. The influence of one-off events on the repeatable does indeed exist, but we have never seen this because we have been working with the wrong focus. The discovery of the influence of the immaterial on the material has profound consequences for the way in which we should observe reality. We suddenly have the opportunity to look behind the scenes of organized existence. Apparently, besides the material realization, there is an immaterial element that carries the inherent potential for memory and overview. This inherent potential extends both over space and over time.

[4] a.o. Paul Marmet.

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C	The Newtonian approach also prevents the emergence of necessary insights in other fields of science. Care should be taken to ensure a correct approach: the distinction between objectivity and subjectivity should be strictly monitored.	The Newtonian approach limits our knowledge to the mechanistic aspect of existence and gives the systemic no chance to surface. Changing this is of great importance in all areas related to life and consciousness. • In medicine: Statistics misrepresent and ignore the importance of individual developments Case studies should be part of our knowledge The Newtonian approach prevents learning from experience • Psychology mainly studies behavior, statistics are used to understand people. This way personal motives are not taken in account (views - emotions - soul stirring). •…

