

I: Against an Aggressive Atheism
Seminar Biblical Values and Present Time
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Biblical values in our time are endangered by an aggressive Atheism. I suggest a way out. In fact, Atheism is not a logical consequence of Science, but of the **personal World view or Weltanschauung, Lennox[6]**. Dawkins and certainly many others persons demonstrate that. So I feel very well as a **theistic Scientist** in extremely good company of for example (or e.g.) Galilei, Einstein, and Pope Benedict.

Strong attacks by Dawkins (Biologist, I know a bit [4]) and Hawking(Physicist, I know a little bit about him and his last book [5]). So we might come back to them in the discussion? In the mean time many atheistic scientist with great standing are a shame for Dawkins' aggressive and bad arguments.

Physics, Sciences: Only with the deliberation from the dictate of the church the good development of Physics/Sciences starts. The independence from theology and church, e.g. center is the Earth instead of Sun, universe, allows successful Science. Today only Physics and Mathematics Methodological Atheism, that means: It explains and derives all its results, as if God would not exist. This is their theory of cognition.

Galilei' s method starts an unbelievably successful development in Physics (Sciences):

"Experiment" \implies "Theory or mathematical model" \implies " Extended experiment" \implies " Extended theory " \implies

Example: Equilibrium at the beam: start simply and go to more complicated cases

beam on a stand with

1 load at distance 2 and 2 forces at distance 1 mathematical model:
 $1 + 2 = 2 + 1$ or $1 \times 2 = 2 \times 1$, both o.k. Equilibrium

3 load at distance 2 and 2 forces at distance 3 mathematical model:
 $3 + 2 = 2 + 3$ or $3 \times 2 = 2 \times 3$, both o.k. Equilibrium

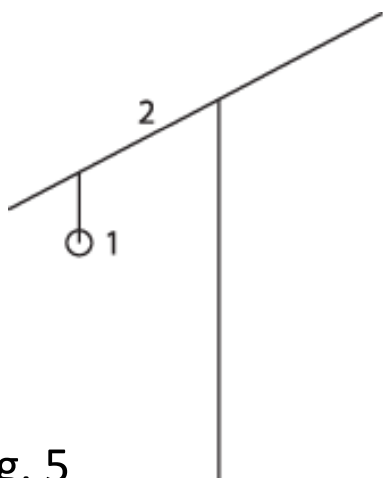


Fig. 5

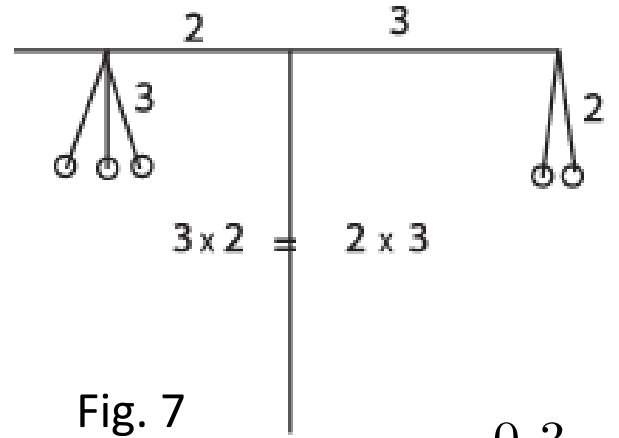
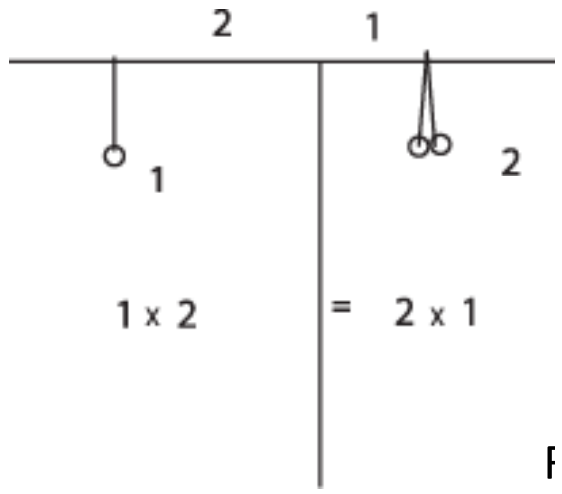


Fig. 7

0-3

1 load at distance 4 and 2 forces at distance 2 mathematical model:
 $1 + 4 \neq 2 + 2$ but $1 \times 4 = 2 \times 2$, only \times o.k. Equilibrium
load x load arm = force x force arm GO MORE COMPLICATED

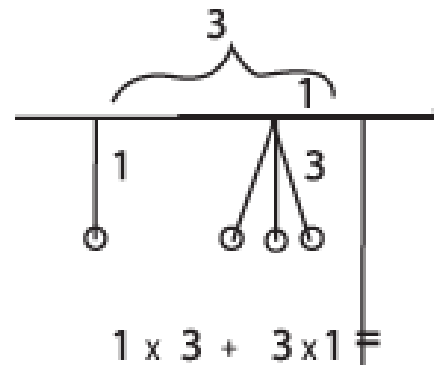
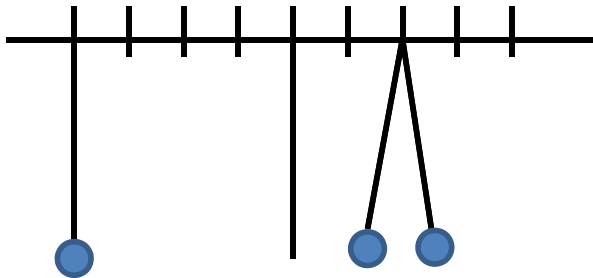


Figure 0.1: Beam with different loads

$$1 \times 4 = 2 \times 2$$

$$1 + 4 \neq 2 + 2$$

This extremely successful strategy is applied all over in Physics,...

Experiments have to be independent of the experimenter always yield the same results by measurable data.

Laws for equilibrium at the beam and for free fall in vacuum: Equally heavy iron balls, old Chinese vases or Stradivari violins yield equilibrium or hit the ground the same moment

Essential is the very high abstraction: Both experiments independent of chosen objects, if they are equally heavy.

This strong abstraction is unavoidable and represents a strong reduction of the "complex reality".

BUT Essential aspects excluded e.g., all aspects of transcendence right from the beginning,

Hence all types of scientifically based claims beyond the agreed borderlines, e.g., upon all aspects of transcendence, are extremely problematic and questionable, in fact unproven claims,

Dangerous claims beyond the agreed borderlines in Philosophy, here Positivism and Neo-Positivism (18., 19. and beginning 20. century): Only those phenomena are "real" which are shown to be true, **positive**, by physically correct experiments. Everything else is "not real. So Positivism is tempting, but the results are partially even wrong speculations, for instance, the new atheism."

Similarly to Physics in (Astro Physics,) Chemistry, Biology, ..., (experiments,) data, observations are translated into mathematical models, motivating new experiments, data observations ..., **all arguing along the methodological Atheism**
But Eugene Wigner and I extend: It is an undeserved gift that the Physical (, Astro Physical, Chemical, Biological, ...) world is representable in mathematical models.

WHO CAUSED THAT?

1895 ff extended experiments into the area of atoms.

New phenomena can no longer be classically described, for example,

light, either waves or corpuscles. These two seem to exclude each other. **Duality: Only the combination of both properties allows the description of "reality". The correct answer depends on the specific experimental situation and the experimenter.**

This enforced Heisenberg's uncertainty relation:

1. It is impossible to measure the impulse = mass x speed , and the position of such a small object, called quantum object.
2. Measuring its position automatically changes its impulse and vice versa.

Solution of this dilemma: Only phenomena for huge numbers of these small particles, statistical Physics.

Another battlefield is the special and general relativity theory of Einstein and all its consequences.

THIS SITUATION CAUSED A SEVERE CRISIS

MATHEMATICS in

Old Egypt: after the yearly flooding of River Nile it was necessary to reconstruct the ownership of the land. Or

Old Baylon, Europe (e.g., sun disc, Stone Henge), Indian high cultures, e.g. Mayas: They had to compute the positions of sun, moon, stars and the characteristics of the seasons for optimal times for sowing and harvesting.

A lot of ingenious mathematics present the background for that, later on Archimedes

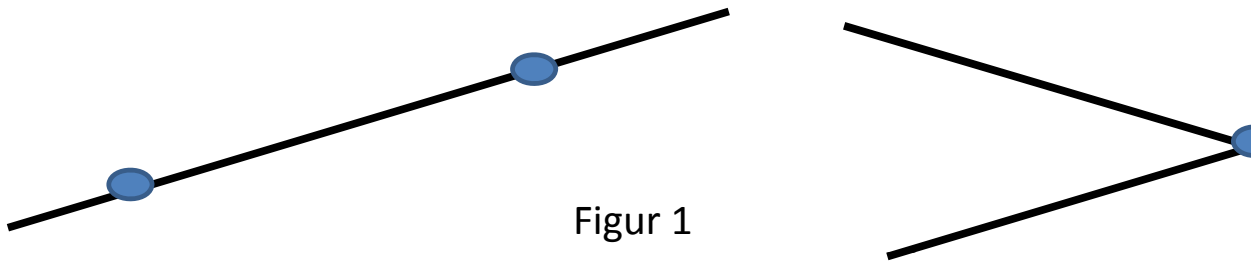
Still today: Many computations in applied Mathematics, Physics, Chemistry, Engineering Sciences are performed with impressive success. Very often this is only justified by coinciding of these computations with the corresponding experiments for special cases.

Very early essential goal: Prove that/why all that works: Without a scientifically accepted basis this is impossible.

1. A classical example, ca. 3. century b.C.

The Euclidean axioms for the classical geometry approximately 300 B.C.

Most important axioms are the following: Through two different points there is exactly one straight line connecting them. Two non parallel straight lines intersect exactly in one point.



Starting with this scientifically accepted basis, the so called systems of axioms, one can prove new results, introduce new definitions, new axioms, and so on...

ca 1400 Axioms for Algebra, ca 2300 years after Euclid:

2. Natural Numbers (nat. N.) 1892 Peano Axioms [1] :

1 nat. N. Kids and nat. N. begin with 1, not with zero 0 !

$1' (= 1 + 1) = 2$ nat. N. or $1 = ' 2$, successor or predecessor

n nat. N. \implies exists successor n' , a unique nat. N.

1 is not not successor of another nat. N. Kids and nat. N. start with 1

n is successor of not more than one other natural number,
so $n' = m' \implies n = m$

Complete induction: start with 1 and take each successor.
Then we obtain all nat. N.

Define sums: $m = 2, n$ nat. N. $\implies (n')' = (n+1)' = n+2$ nat. N.

prove all "rules", e.g. $3+5=5+3$ or $n+m=m+n, (n+m)+p=n+(m+p)$...

Define integers = nat. N. and zero and negative numbers, $0, -1, -2, \dots$, rational e.g., $1/2, 5/4, \dots$ and more difficult concepts of numbers, real, complex, ..., and the corresponding axioms. , numbers, ... + axioms to finally obtain Arithmetic + Axioms

Axioms: are simple well accepted but not provable basic facts = starting point for logically verifiable results

Requirements: They have to be independent complete systems which do not allow contradictions. It must NOT be possible to prove, for instance,

$$5 + 3 = 8 \text{ and } 5 + 3 \neq 8 \text{ not } =$$

Great Success: So, these axioms seemed or mathematicians hoped and some worked hard to be able to prove all essential results in Mathematics starting from a system of axioms.

Hilbert, best mathematician of the last century spent 30 years.

Public starting point: Second Hilbert Problem, presented at the International Congress of Mathematicians 1900, Paris (23 or 24 Problems)

”Nobody shall be able to banish us from the paradise, which Peano has created for us” David Hilbert, 1926

Paradise: Peano axioms, definitions of sums, products, their inversions quotients, new types of numbers with new arithmetic axioms, ..

Most important question: Are these arithmetic axioms free of contradictions.

Shock in Mathematics came by

Gödel’s Theorem of incompleteness, 1931, proved that this question cannot be answered in the framework of these axioms. 1

In Mathematics, generally considered as the most exact of all sciences, there are gaps which cannot be filled and questions that cannot be answered.

New techniques of proofs and some success, but **a complete answer is impossible**

More moderate: For subareas, e.g. my own area, axioms are possible.

BUT today more important: General knowledge in mathematics

My Area: Nonlinear problems for various components interacting, breaking bar or hall roof, dynamics for earth magma, new methods for Big Bang??,

1. Real Life Problem \Leftrightarrow 2. Mathematical Model \Leftrightarrow 3. Computer remodelled

Show: For known and my many approximation methods

Computer solution approximates \Leftrightarrow solution of mathematical model
 $? \Leftrightarrow ?$ solution of real life problem

More precisely: Theory of convergence for approximation methods for nonlinear Partial Differential Equations . Similar structural properties for many methods allow axiomatic approach, e.g.,



Fig. 2

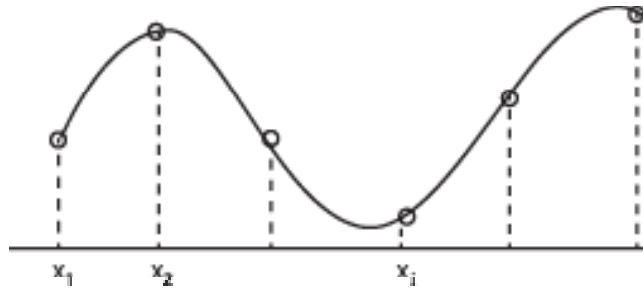


Fig. 3

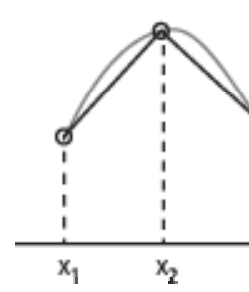


Fig. 4

Function approximated by values in some points or by piecewise linear functions

Consistency: function \approx piecewise linear function

Stability: Small perturbations disturb only a little bit.

Convergence: $y'' = \sin y + + + \dots y''^h = \sin y^h$ yields $y^h(x_i) \approx y(x_i)$

The solutions of nonlinear problems usually depend here upon the moisture in the cold air. Then suddenly more interesting solutions arise from simple ones. The spider's web was first discussed for a German TV science show. We consider a short piece of a thread in a spider web. At the beginning it looks like a straight line. Dew lies like a hose in different thickness around it. For more and more dew the forces on the surface cause that it will change as shown in the next Figures. An originally straight piece is getting heavier and starts to bend simultaneously on the whole spider web. Difficult mathematics is needed to solve this problem with the computer.



Figure 0.2: Dew drops on spider webs: a symmetry breaking bifurcation ⁰⁻¹⁷

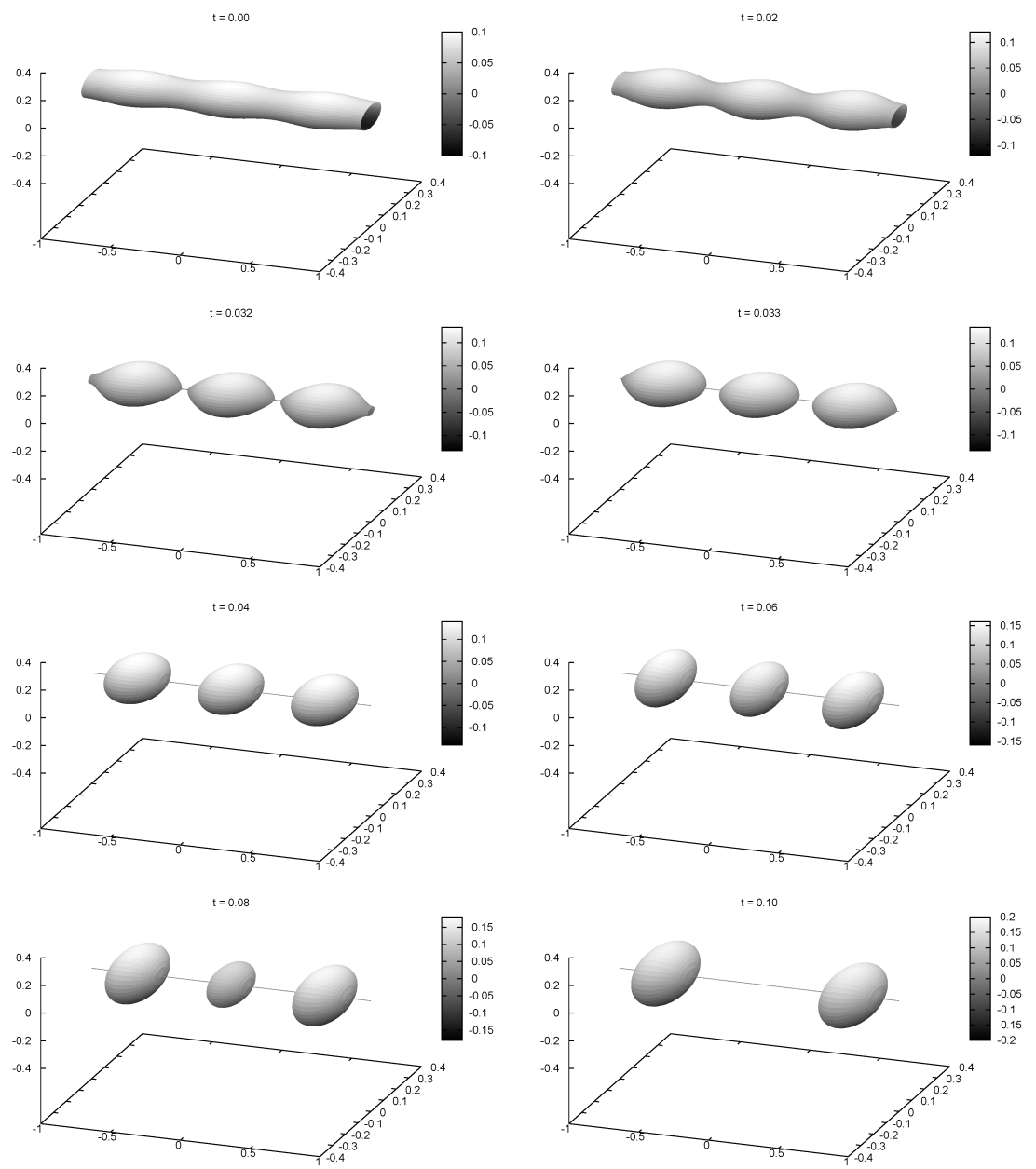


Figure 0.3: Perturbed tube approaching an interim stationary state con-

The very successful applications in applied Mathematics, Physics, other sciences and Ingeneering strongly surpass areas which might be globally proved starting with axioms. Only "local" systems of axioms are possible. This is often only justified by special cases of the mathematical theory or numerical simulation with the corresponding experiments.

A Complementary World View:

We have discussed the methodological Atheism in Science and Mathematics: All types of scientifically based claims, e.g., transcendence, are **extremely problematic and questionable, in fact unproven claims beyond the agreed borderlines. So let us go for a Complementary World View:**

We have claimed that Atheism is not a logical consequence of Science, but of the personal World view or Weltanschauung, cf. Lennox[6, 7]. So I feel very well as a **theistic Scientist**, believe in my God and Heavenly Father. And I am in the extremely good company of Kopernikus, Galilei, Keppler , Newton, Maxwell, many Nobel price winners, e.g. Planck, Einstein, Heisenberg, all of them with strong historical influence and world wide fame, and Pope Benedict.

Heisenberg :The first drink from the cup of science makes atheistic. But at the bottom of the cup God is waiting

I start with a Glass window in the Cathedral in Ulm/Germany. It shows the different aspects, before we come later on to my second talk



Figure 0.4: Part of the window of promise in the cathedral in Ulm, ca 1980

Stained glass window. Its Very impressive part shows

Science and faith as two complementary ways for explaining the reality.

In the middle the Cosmos:

The very bright centre shows **Big Bang**

in spirals we observe the

blue background indicating the dark matter

and the system of red galaxies with suns and planets.

The two diagonals show the interpretation of the world by science and by faith. My, well supported **personal World view or Weltanschauung.**

1. **Faith: Emotional, shining colours** Diagonal starting in the left upper corner shows Abraham and three angels visiting him, and down the diagonal you see at the other side a praying person looking up to the world and to Abraham with his visitors.

2. **Science: Rational, only white and gray colours** 5 of the most brilliant scientists of history look through the cosmos up to the symbols of their mathematical and physical life results. You see Kopernikus, Kepler, Galilei, Newton, Einstein.

Our Heavenly Father admitted his Children the freedom to love an believe in him or to say NO! So I absolutely do NOT intend to prove the faith, but attempt building a bridge: The preceding experiences can increase willingness to believe.

Summary, success and crises:

Physics: Based upon experiments new theories are formulated. This is repeated . Repeating experiments has to show the same results by measurable data, originally but no longer independent of the experimenter. Duality is unavoidable for describing complex situations, cf. Heisenberg ' s uncertainty relation. A strong abstraction is unavoidable and strongly reduces the "complex reality". **So essential aspects, transcendence, are excluded. But unproven claims beyond these borderlines are stated in Philosophy(Positivism), partially even wrong speculations, for instance, much of the new atheism.**

Mathematics: A proof for an existing global system of axioms, an well accepted correct foundation, free of contradictions is impossible. The very successful applications of Mathematics strongly surpasses local and global 'systems of axioms.

In these totally different areas of research strong crises in Mathematics and Physics have been generated and only partially mastered. Nevertheless successfully continued progress. Finally a Complementary World View will encourage Faith.

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