Invariants of coevolution

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Rudolf Steiner [0]: „We can only find nature outside us if first we know her within us.”

I. Method and Language

Hilbert's program: Hilbert suggested that a first step before considering "truth" (semantic) one should consider finite (syntax).

Feynman's program [1]: "In physics we need Babylonian method and not the Euclidean or Greek method."

Ramsey's method allows the elimination of theoretical terms from a theory by replacing them with existentially quantified predicate variables.

Gödel [2]:
"The essence of the theory of types:
- – Functions with different kind of arguments cannot replace each other
- – Only in such a way that ambiguity is eliminated e.g by substituting a constant for the variable
- – We have realizations on different levels."

Gilles Deleuse [3]:
„We should speak of a dialectics of the calculus rather than a metaphysics”

James Arthur[4]:
„The trace formula is a general identity:

$$\textbf{GTF} \quad \sum \{ \textbf{geometric terms} \} = \sum \{ \textbf{spectral terms} \}$$

The spectral terms contain arithmetic information of a fundamental nature. However, they are highly inaccessible „spectral” actually, in the non mathematical meaning of the word. The geometric terms are quite explicit but they are have the drawback of being very complicated.”

For classical duality a and a^{-1} we get $a + a^{-1} \geq 2$ for a as a positive real numbers.
The Big Bang is not about being a^{-1} (of now), but about becoming a^{-1} and a.

Wigner said:
„The probability of the existence of self reproducing units e.g. organisms is zero." (title)
See also Hoyle: „The mathematics of evolution”.

What is duality for **R** number system?

Wigner was suggested („Two kinds of reality"):
 – a single one
 – for communicating my ideas to other

We must have the chain for communicating.
We get $a + a^{-1} \geq 4$; $a = 2 + \sqrt{3}, 2 - \sqrt{3}$

Duality between R and Q($\sqrt{3}$):

	R	Q($\sqrt{3}$)
the basis	Hamel	explit
the field extension over Q	maximal	minimal
order	line	poset
a Kantanian category	a posteriori	a priori
the modal logic	S4, S4.3	S4.2
Roads of mathematics comprehension	topology	algebra
the fundamental constants	exp1	$[\overline{2,1}]$
causality	bottom up	top down

The modern science is a desert of detail.

Dirac[5] said:
„It's not really fundamental. It's collecting a mass information and one doesn't know really how to get the basic ideas"

6th Hilbert problem[6]:
"To treat is same manner, by means of axioms, those physical sciences in which mathematics plays an important part, in first rank are theory of probabilities and mechanics."

Wiener was demonstrated the axiomatization: „Fields in terms of a single operation"

$$xRy = 1 - x/y$$

For the time series, $x \leq y$, $y \neq 0$, we get the normalization in [0,1].

The Lorentz factor is not about the property of time. It's interpretation the sqrt function:

$$1 - (x/y) = sqrt[\ 1 - (x/y)^2\ ]$$
$$(x/y)^2 - x/y = 0$$

The relation x/y is idempotent (not x, y)

Turing [7]:
"A property f of positive integers is axiomatic if and only if where is a compatable g of two positive integers, such that f is true if and only if there is a positive integers such what g(x, y) is true."

II. Atom – Cosmos

Wheeler[8]: „Explain time? Not without explaining existence. Explain existence? Not without explaining time"

Hamilton [9] show that if algebra is to be regarded as science at all, then it must be science of pure time. The tendency of modern science elimination of time is a consequence of the problem with the successor. See Emile Meyerson - "Identity and Reality".

Meet 1.
Riemann explained that if you want to understand a complex function – you need to understand the locations of it's zeros.

Bech Nielsen[10]:
"The original model and the dual model are typically very different, but observable quantities are identical for the two models."

The Big Bang was started 13,798 milliard years ago. For start of life, start of the multicellular organisms, the Cambrian explosion of life, the permian mass extinction we get the eigenvalues.

$$13775 / 3691 \rightarrow 2+\sqrt{3}$$
$$3691 / 989 \rightarrow 2+\sqrt{3}$$
$$989 / 265 \rightarrow 2+\sqrt{3}$$
$$13775 / 265 \rightarrow (2+\sqrt{3})^3 \approx 52$$

$$2 + \sqrt{3} = [3, \overline{1, 2}]; \; 3/1, \, 4/1, \, 11/3, \, 15/4, \, 41/11, \, 56/15, \, 153/41, \, 209/56, \, 571/153, \, 780/209$$

Terence Tao[11]:
„The scaling invariance is only present as stated in the absence of an external force"

Mac Diarmid (Nobel lectures):
„The polymer is a Field Effect configuration at a very low temperature (2K) is representation historical quantum leap – superconductivity in an organic polymer"

For the Planck spacecraft results we have:

$$2,726K / 2K \rightarrow (1+\sqrt{3}) / 2$$

Mac Lane[12]:
„One and the same mathematical structure has many different realizations"

Whitehead [13]:
"An isolated system is not the conception of substantial independence from remaider of things, but of freedom from causal contingent dependence."

What is the direct relation between mathematics and physics? The measure without instruments.

$$362 \text{ days} / 265 \text{ days} \rightarrow [\overline{1, 2}]$$

The natural experiment must started from the experience all people.
It's a condition of complete simplicity.

Gödel [2]: "The unit classes are fictions introduced to simplify the calculus like the points of infinity in geometry."

Real operations (one day, …) is the basis element of reality.

Meet 2.
Freedman Dyson[14] („Time without end: Physics and biology in an open universe"):
„All mater decays to iron in 10^{1500} years."

Heisuke Hironaka[15]:
„Algebra can become sort of abstraction nonsense, playing with symbol without knows what it's for."

It's a problem of consistent representation. We haven't the consistent in modern languages. It's Wilhelm von Humbolt, not Gődel. **Direct team the essential information** – it's conception of Wilhelm von Humbolt.

The Big Bang was stopped on the atom 4 He. We are made from a supernovae. Everything will be Fe. We get:

$$209 / 56 \rightarrow 2 + \sqrt{3}$$
$$209 / 4 \approx 52$$

Eddington[16]:
„Structural concept the part is a symbol having no properties except as a constituted of the group structure of a set of parts"

For 265 stable nucleus of the atom we get:

$$\sum A_i / Z_i = 209 / 82 \approx ((1 + \sqrt{3}) / 2)^3$$

Meet 3.
What is a simple? $2+2 = 4$ or 137,03599...
Proof $2+2 = 4$ for complex number system (N. Megill) have a total of 25932 steps.

Bohr's letter to Dirac[17]:
"$\hbar c / e^2$ is large compared with unity does not only indicate the actual limit of the applicability of the quantum theory in its present form, but at same time ensures it's consistency within these limit."

Dekker[18] ("Prime number in quadratic fields"):
"Primes near the hyperbolas $x^2 - 3y^2 = \pm 1$. Prime numbers 2, 3, 23..."

$$2 * 3 * 23 = 138$$
muon – electron mass ration = 3 * 3 * 23 = 207
It's a way to Q($\sqrt{3}$).

Eliot [19]:
"The formal word precise, but not pedantic."
You must know difference between strong – weak (generative capacity).
See Noam Chomsky ("Aspects of theory of syntax").

Meet 4.

The Big Bang was started with a law of succession, how one process evolves globally into another.

The optimal stopping as problem of the successor (not probability)

	R	$Q(\sqrt{3}), Z(\sqrt{3})$
The secretary problem	e^{-1}	$(1+\sqrt{3})^{-1}$
The cup catastrophe	$V(t, a, b) = 0.25t^4 + 0.5at^2 + b$	$V((1+\sqrt{3}), a, b)$
The Moser problem	$(n - A_i) / \sqrt{(2n)} \to 1$	$n = 2+\sqrt{3}, A_i = 1$
The Gauss harmonic	1, 2, 3	$1, 2+\sqrt{3}, 3 +2\sqrt{3}$
The universal curve	Menger sponge $\ln(20) / \ln(3)$	$[\overline{2, 1}]$
Laplaces Law of Succession	$(S+1) / (n + 2)$	$[\overline{1, 2}]$

III. Symmetry – Asymmetry

P. W. Anderson[20]:
„If we start from any one unsymmetrical state, the system will make transitions to other so only by adding up all the possible unsymmetrical states in a symmetrical way can we get a stationary state.”

Meet 1:
P. Curie:
„It is the asymmetry that creates the phenomena.”

Continued fraction expansions correspond to so called RL – sequences.

$$R = \begin{vmatrix} 1 & 1 \\ 0 & 1 \end{vmatrix}$$

$$L = \begin{vmatrix} 1 & 0 \\ 1 & 1 \end{vmatrix}$$

$$R^n = \begin{vmatrix} 1 & n \\ 0 & 1 \end{vmatrix} \quad \textbf{– the classical measurement}$$

Max Born[17]:
„A perfect theory should be able to derive the constants by purely mathematical reasoning without recourse to experience.”

Elementary geometry of Tarsky have relations:

– between (3 points) captures the affine aspect of geometry
– equidistant (4 points) captures the metric aspect

Using relation between and asymmetry we get:

$$\mathbf{RLR} = \begin{vmatrix} 2 & 3 \\ 1 & 2 \end{vmatrix} - \text{with trace formula:} \quad 2 + 2 = (2 + \sqrt{3}) + (2 - \sqrt{3})$$

Equidistant = automorphism + real operations of unit class

Meet 2:
Herman Weyl[21]:
„Objective means respects with group of automorphism. ''

The real number has only trivial automorphism. $Q(\sqrt{3})$ have two automorphisms: $\mathbf{a + b\sqrt{3}, a - b\sqrt{3}}$. It's basis of the trace formula.

Gödel [2]:
" For a well defined system of axioms and rules the questions of their consistency is, of course itself a well-defined mathematical question."

The fundamental automorphism is the group of all bijections. If we using the group of all bijections we must know the difference between Greece rhetoric and Judaism rhetoric.

Greece rhetoric	Judaism rhetoric
Line	Involution
Induction / Deduction	Abduction
Abstract	Concrete
Linear form	Binary form

Meet 3:
Freedman Dyson[22]: „People thought there were only two kinds of matter; the kind that is ordered in perfect crystal and the kind that is disordered and just a jumble of atom. The quasicrystal comes between it has long range order, but it doesn't have regular spacing that is a big suprise."

Brouwer formulated the choice sequence which a seen as becoming in time a thus as growing rather than an abstract infinite object. It's conception of growing quasicrystal.

Growing Quasicrystal	Dyson Quasicrystal
One dimension	One, Two or Three dimensions
Hidden Symmetry	Aperiodic
Local and Global Finite	Local Finite
Automorphism	Fourier Transform

Atiyah[23]:
„In Linear analysis one of the most powerful tolls is Fourier theory. But in nonlinear theories, how to replace a Fourier Transform is one of the big challenges."

Basis to understand the human body in mathematical terms is conception:

Any system can't be finite sum different itself.

IV. Brain – Body

Eliot[19]: „Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?"

Meet 1.
Schrödinger wrote in „What is life", that behaviour of organisms is analogy to behaviour object near $0\,^{0}K$.

$$(99,98^{0}C – 0^{0}C) / 36,6^{0}C → 1 + \sqrt{3}$$

$$(646^{0}K – 0^{0}K) / 99,98^{0}K → 3 + 2\sqrt{3} = [\overline{6,2}]$$

Temperature Curie for Fe:
$$1043^{0}K / 646^{0}K → (1 + \sqrt{5}) / 2 → [\,\overline{1}\,]$$

See the Last torus in KAM theory.
For LUCA (the last universal common ancestor) we get:

$$50^{0}C / 36,6^{0}C → (1 + \sqrt{3}) / 2$$

We get essence of duality.

Witten[24]: „Often model B is „easy" and model A is „hard."

It's the way to field $Q(\sqrt{3}, \sqrt{5})$. Both Kołmogorov's and Moser's proofs are based on the fast iteration method, not on real operations.

Meet 2.
For spermatogenesis we get the eigenvalues:

$$265 / 28 → 6 + 2\sqrt{3} = [\,9, \overline{2, 6}\,]$$
$$71 / 28 → 6 – 2\sqrt{3} = [\,2, 1, 1, \overline{6, 2}\,]$$

For a single operation of Wiener we get:

$$(6 + 2\sqrt{3}) / (6 – 2\sqrt{3}) → 2 + \sqrt{3}$$

Rilke about Rodin[25]:
"He starts with the points of the strongest contact as being the culminating points. "

Whitehead [13]:
"The difficulty with the quantum theory is that, on this hypothesis, we have to picture the atom as providing a limited number of definite grooves."

Meet 3:
Hamilton [9]:
"In algebra relations are between **Successive states** of some changing thing or thought. In other words algebra is not about material process, but something more general that could be applied to both matter and mind."

For the human brain we get:

$$1351g / 362g \rightarrow 2 + \sqrt{3}$$

Only the whole is quantum

Anderson[20]:
"The new symmetry new called broken symmetry, because the original symmetry is no longer evident."
The reality is becoming, not being.

See also Hayflick limit 52, Hausdorff dimension of the human brain, short code of Neumann. It's way to relation between special Lie groups. G_2 (14), F4 (52), E6 (78), E7 (133), E8 (248). For sequence of difference we get G2 (14) with Cartan matrix with eigenvalues $2 + \sqrt{3}$, $2 - \sqrt{3}$.

We need the second-logic order.

Meet 4.
Fritzsch[26]:
"For SU(5) we have unification $\alpha_{un} = 0,03853$" $\rightarrow$ 2(26-15√3)

Weinberg[27]:
"Lifetime of protons are $2,1 * 10^{33}$ and $5,5 * 10^{32}$ (years)."
The problem is not simply that some primitive recursions are too long. The problem is structural.

Lemaĭtre[28] ("The Beginning of the World from the Point of View of Quantum Theory"):
"The present state of quantum theory suggest a beginning of the world very different from the present order or Nature Thermodynamical principles from the point of view of quantum theory may by states as follows: If we go back in the course of time we must find fewer an fewer quantum until we find the energy if the universum packed in a few or even in unique quantum."

The status of successor in mathematics is easy. The status of successor in reality is extremal difficult. Mathematics and physics studies the subject, and not just the object. Time is the symbol outside itself. Only R and Q($\sqrt{3}$) have the common semantic field. Physics with R number system is not about the force, but about regression to the force. Timeless laws have only the status Quo Bias.

We need truth (as the experience all people),
not only trick (as standing on the shoulders of giants).

"We shall not cease from exploring
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time."

– Thomas Stearns Eliot [19]

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