



Institut H21
volby a svobodná společnost

EXTENDED RATIONALITY

Consciousness, transcendence and wisdom:
implications for leaders and societies

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PERSONAL STORIES

limits to materialist expertise

economy: self-referential loops

health: linear reductionist bias

mathematics: unexplainable aesthetics



THE GREATEST SELF-DECEPTION ENGINE

human rationality vs. truth

Evolution has built your brain to win arguments, not to find truth. It built you to defend your tribe, to protect your ego, and to maintain your status in the social hierarchy. None of these goals require you to be right.

Higher intelligence means more self-deception.

Life is about questioning.

Richard Feynman, US Nobel prize physicist

I KNOW THAT I KNOW NOTHING



without dogma, science becomes a heap of doubts

Karel Čapek

to claim existence, science needs observation



the observer is involved in “creating” reality



yet the observer is part of reality



the observer is involved in “creating” itself



reality fundamentally depends on observational **CONTEXT**
(a filter, perspective, dogma)



METAPHYSICS

observation + rationality + context = truth

we see things not as they are, but as we are
Immanuel Kant

*everything we hear is an opinion, not a fact;
everything we see is a perspective, not the truth*
Marcus Aurelius

*truth is access to what is unchanging, eternal, and intelligible;
not an opinion about the physical world*
Plato

THE MISSING CONTEXT

The Emperor's New Clothes



where is metaphysics today? where is philosophy?

was Čapek the small child
in the story about the new clothes, who said:

. . . but he has nothing on . . .

MATERIALIST METAPHYSICS

does it unravel under scrutiny?



reality exists independently of us
the double slit experiment !

distinct things are trackable over time
indistinguishable electrons !

complex systems can be explained by simpler parts
emergent order !

patterns can be compressed into permanent testable rules
Godel's incompleteness !

TRANSCENDENCE

an unprovable context



The Little Prince:

what is essential is invisible to the eye

meaning, purpose, intuition, emotional truth

CONTEXT ACROSS CIVILISATIONS



still inspiring

Indigenous ecological systems, 2000-500 BCE
context over universals

Babylonian science, 1800-500 BCE
arithmetic structure over conceptual physics

Taoist China, 600-200 BCE
process over objects

Indian / Buddhist traditions, 500 BCE-200 CE
relations over essences

Greek geometry, 600-200 BCE
form over process

Islamic Golden Age science, 800-1250 CE
unity of knowledge over disciplinary separation

Christian Europe, 1100-1700 CE
symbolic meaning over empirical mechanism

DUALITY OF WISDOM

observation and context



reductionist vs. holistic

scientific method vs. metaphysical foundation

the left brain hemisphere vs. the right brain hemisphere
(Ian McGilchrist)



METAPHYSICAL POINT ONE

**Suppression of transcendence
was utilitarian, not philosophical or empirical**

PRE 20th CENTURY

morality arises from faith



Of all the dispositions and habits which lead to political prosperity, religion and morality are indispensable supports.

George Washington, US President

If God does not exist, everything is permitted.

Fyodor Dostoevsky, Russian writer

True civilization rests on moral principles revealed through religion and refined by reason.

Muhammad Abduh, Egyptian Islamic scholar

Moral order rooted in Confucian teaching is essential for the survival of the state.

Kang Youwei, Chinese philosopher



THE 20th CENTURY

rejection of transcendence was utilitarian

answer to war injustices



freedom from theocratic autocracies



innovation without a burden of absolute morality



consumption and progress as idols



grounds for global technocracy



MODERN RELIGION

faith is losing its original meaning

PERSONALISATION: faith is a psychological phenomenon

RELATIVISM: faith is a choice, not a path to objective truth

RATIONALISATION: prophecies and sacredness are not real

ETHICIZATION: faith must align with secular ethics

UTILITARIANISM: faith should bring measurable benefits

SCIENTIFICATION: science has decisive authority



METAPHYSICAL POINT TWO

Mathematics and the principal consciousness
as two foundational blocks of reality

NARRROW RATIONALITY (NR)

the world is mechanical and reductionist



science aims to prove
universal natural laws

Steve Hawking
spontaneous creation

each time when
scientific theories
collapse, internal
conflict emerges

UNIVERSAL NATURAL LAWS
(permanent, discoverable)



MEASURABLE REALITY
(matter, information, evolving)

no universal intent,
purpose, beauty, love or
objective morality

the world is entirely
governed by
“technocratic” natural
laws

nihilism



NR DOES NOT LEAD TO OBJECTIVE TRUTH

falsifiability is not enough

Question A:

Are the laws of particle physics valid inside the Sun?

Question B:

Did the universe come to its existence intentionally?

None of the claims is falsifiable, both seem intuitively right.

NR answers **YES to A and NO to B.**

EXTENDED RATIONALITY (ER)

the world is neither mechanical nor reductionist



← discovering the divine
(the Creator, the truth) →

discovering beauty in mathematics,
tools for scientific study

discovering the ultimate purpose,
love, good vs. evil (morality)

MATHEMATICS
the ultimate INTELLECT
the eternal structure

THE PRIMARY CONCIIOUSNESS
the ultimate WILL
the eternal meaning and purpose

**ROLE FOR EMPIRICAL
SCIENCE**

empirical scientific
study of reality,
HOW do events happen

MEASURABLE REALITY
the ultimate CREATION,
evolving information depicted as matter

philosophical study
of the purpose,
WHY do events happen



MATHEMATICS

the 1st observer-independent metaphysical category

foundational for logic

intrinsically aesthetic

eternal and omnipresent

essential for formation of reality

fundamental for distinction of being from not being



THE PRIMARY CONSCIOUSNESS

the 2nd observer-independent metaphysical category

Mathematics underpins natural laws. Yet it does not fully explain the reasons behind emergence of phenomena, which are:

- complex
- coherent
- spontaneous
- based on oscillation (vibration)
- non-reducible (unexplainable just from their parts)

for example: molecules, living organisms up to galaxies



THE PRIMARY CONSCIOUSNESS

axiomatic foundation of non-reducible complexity

axiom 1

a nonspatial **CONSCIOUS SOUL**
is assigned to each non-reducible complex phenomena



THE PRIMARY CONSCIOUSNESS

axiomatic foundation of non-reducible complexity

axiom 2

FREE WILL of such souls chooses objectives
for their phenomena under the constraints of natural laws



THE PRIMARY CONSCIOUSNESS

axiomatic foundation of non-reducible complexity

axiom 3

if a soul chooses to support coherence
and objectives of higher-level phenomena,
COHERENCE of its own phenomena is reinforced

(e.g., living beings in ecosystems, cells in bodies)



THE PRIMARY CONSCIOUSNESS

axiomatic foundation of non-reducible complexity

axiom 4

THE PRIMARY CONSCIOUSNESS,
the the soul of the universe,
determines the ultimate objective

(the ultimate will, meaning, purpose, love, goodness)



THE PRIMARY CONSCIOUSNESS

may shed light on some key mysteries

prophecies

emergence

reason for vibrations

near death experiences

the hard problem of consciousness

Is such metaphysics weaker than that of materialistic science?

No. It is better holistically balanced.

THE PRIMARY CONSCIOUSNESS

philosophical implications



evolutionary choices are conscious

free will and accountability truly exist

non-material conscious mind influences reality

morality is real and it is based on the primaty consciousness

THE PATH TO EXTENDED RATIONALITY

a paradigm change due to AI and social singularity



disruption of economies

collapse of materialist beliefs

freedom and communities over universal entitlements

social & environmental harmony without freedom infringement

transcendent grounding of knowledge, morality and purpose

science based on knowledge, rationality and context

geopolitical multipolarity

FROM EXPERTS TO ER LEADERS

human empowerment and accountability



NR EXPERTS in specific fields

complex tasks are addressed through expert consensus

it is assumed that consensus will always form and it will be objective

replaceable by AI, no need for human context

no direct personal accountability



ER LEADERS strong in mathematics, holistic judgement and morality

complex tasks addressed through holistic judgement, inputs from science

focus on being mathematically and morally right, not always consensual

not replaceable by AI, human must decide context

personal accountability

TO INDIVIDUALS AND LEADERS

the necessity to resist irrationality and NR



To individuals:

- resist latent transcendence-phobia
- search for and pursue the principal purpose
- pursue rationality and determination

To ER leaders:

- understand mathematical rationality
- recognize default human unity around the principal purpose
- think holistically, draw expertise from science and AI



METAPHYSICAL POINT THREE

Art in Mathematics -
a bridge between mathematics and the primary consciousness

ART IN MATHEMATICS



*... I had a vision of
number 12*

ART IN MATHEMATICS



12 21

ART IN MATHEMATICS



$$21^4$$

200 000

$$12^5$$

250 000

$$(12*21)^2$$

60 000

ART IN MATHEMATICS



Aesthetic numbers

First order aesthetic numbers

121

$$144 = 12^2$$

$$252 = 12 * 21$$

$$441 = 21^2$$

444 sum of digits 12

777 sum of digits 21

Second order aesthetic numbers

108

$12 * 3^2$, cultural significance

212

encodes both 12 and 21

345, 543

sequence and sum of digits 12

678, 876

sequence and sum of digits 21

363

$3 * 121$ and sum of digits 12

125

5^3 , connection to dodecahedron

512

2^9 , connection to dodecahedron

496

perfect number

ART IN MATHEMATICS



12 21

ART IN MATHEMATICS



12

21

37

73

ART IN MATHEMATICS



First prime greater than 73 with mirror property:

$$p(n) = 143,787,341$$

$$\text{for } n = 8,114,118$$

Within primes lower than 10^{10} , the only instance other than for 7-th prime 17 and 21-st prime 73, is 181,440-th prime 2,475,989:

$$2 * 4 * 7 * 5 * 9 * 8 * 9 = 181,440$$

ART IN MATHEMATICS



12 21
37 73

ART IN MATHEMATICS



12 21
37 73

$$12 * 37 = 444$$

ART IN MATHEMATICS



12 21
37 73

$$12 * 37 = 444$$

$$12 * 73 = 876$$

ART IN MATHEMATICS



12 21
37 73

$$12 * 37 = 444$$

$$12 * 73 = 876$$

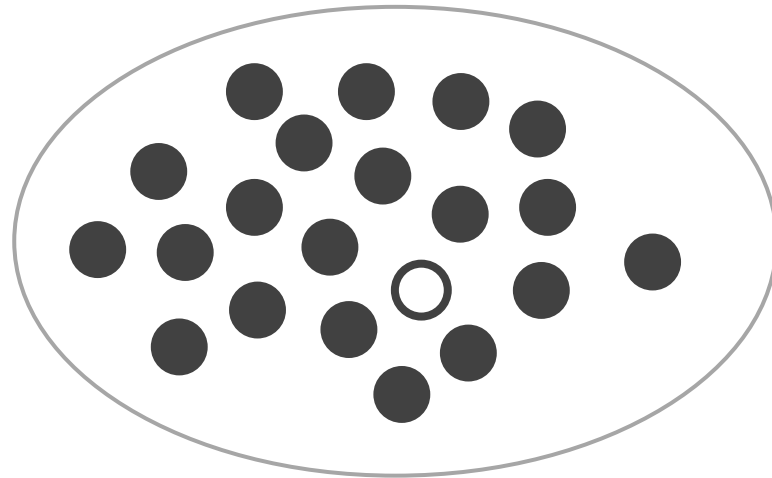
$$21 * 37 = 777$$

ART IN MATHEMATICS

Aesthetic numbers



Probability of selecting at least two first and one second order for three independent trials:



$$3 * \frac{6}{900} * \frac{6}{900} * \frac{10}{900} + \left(\frac{6}{900}\right)^3 = 1,777 * 10^{-6}$$

ART IN MATHEMATICS



Second generation aesthetic numbers

ART IN MATHEMATICS



271

$$3 = 2+1 = \frac{21}{7} = \frac{7-1}{2} = \sqrt{2+7} = \sqrt[3]{27}$$

ART IN MATHEMATICS



271

irrational number e
probability $1/900$

ART IN MATHEMATICS



271

irrational number e
probability $1/900$

$271^2 = 73,441 = 73[21^2]$
probability less than $42/90,000$

ART IN MATHEMATICS



271

irrational number e
probability $1/900$

$271^2 = 73,441 = 73[21^2]$
probability less than $42/90,000$

$271 = 4*73 - 21 = 7*37 + 12$
probability approx. $6.173*10^{-3}$

ART IN MATHEMATICS



271

irrational number e

probability $1/900$

$$271^2 = 73,441 = 73[21^2]$$

probability less than $42/90,000$

$$271 = 4*73 - 21 = 7*37 + 12$$

probability approx. $6.173*10^{-3}$

$$271^{-1} = 0.\overline{00369}$$

exceptionally short period

$$271*369 = 99,999$$

type "Nikolas Tesla number" in Google...

ART IN MATHEMATICS



Claim:

The probability of Randomness Universe (which is a superset of Hawking's Spontaneous creation) is less than

$$10^{-14}$$

ART IN MATHEMATICS



$$37 * 73 = 2701$$

$$271 = [100 e]$$

$$12 * 37 = 444$$

$$3 = 2 + 1 = \frac{21}{7} = \frac{7-1}{2} = \sqrt{2+7} = \sqrt[3]{27}$$

$$\frac{1}{271} = 0.\overline{00369}$$

$$P_{12+21} = 137$$

$$271 \equiv -21 \pmod{73}$$

$$271 \equiv 12 \pmod{37}$$

$$P_{2*37} = 373$$

$$271 * 369 = 99,999$$

$$73 = 2 * 37 - 1$$

$$12 * 73 = 876$$

$$271 = P_{21+37}$$

$$21 * 37 = 777$$

$$271^2 = 73,441 = 73[21^2]$$

ART IN MATHEMATICS



ART IN MATHEMATICS



"The mystery of the fine-structure constant is perhaps the most profound mystery of all." **Max Born** (1882–1970)

"The fine-structure constant is a fundamental constant whose significance is yet to be fully understood." **Albert Einstein** (1879-1955)

"Theoretical physics is a waste of time unless you can explain 137".
Paul Dirac (1902–1984)

"When I die, my first question to the Devil will be, What is the meaning of the Fine-structure constant?" **Wolfgang Pauli**, Austrian theoretical physicist (1900-1958)

ART IN MATHEMATICS



Richard P. Feynman, 1918-1988:

„Immediately you would like to know where this number for a coupling comes from: is it related to pi or perhaps to the base of natural logarithms? Nobody knows.“

ART IN MATHEMATICS



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„It's one of the greatest damn mysteries of physics: a magic number that comes to us with no understanding by humans. You might say the "hand of God" wrote that number, and "we don't know how He pushed His pencil.“

ART IN MATHEMATICS



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„Immediately you would like to know where this number for a coupling comes from: is it related to pi or perhaps to the base of natural logarithms? Nobody knows.“

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„We know what kind of a dance to do experimentally to measure this number very accurately, but we don't know what kind of dance to do on the computer to make this number come out – without putting it in secretly!"

ART IN MATHEMATICS



$$\alpha^{-1} = 137,0359991$$

ART IN MATHEMATICS



$$\alpha^{-1} = 137,0359991$$
$$= P_{12+21} +$$

kde $P_{12+21} = 137$ je 33. prvočíslo

ART IN MATHEMATICS



$$\begin{aligned}\alpha^{-1} &= 137,0359991 \\ &= P_{12+21} + \frac{73 - 37}{10^3} -\end{aligned}$$

kde $P_{12+21} = 137$ je 33. prvočíslo

ART IN MATHEMATICS



$$\begin{aligned}\alpha^{-1} &= 137,0359991 \\ &= P_{12+21} + \frac{73 - 37}{10^3} - \frac{21 - 12}{10^7}\end{aligned}$$

kde $P_{12+21} = 137$ je 33. prvočíslo

ART IN MATHEMATICS



Conclusion:

Aesthetic numbers offer an exceptionally beautiful formula for the physical constant of fine structure, which defines the current scientific model of physical reality, and which we have so far only been able to measure, not calculate.