

# Square Wheels Or Real Dynamics?

*by François Le Rouge*

## Plan

### I- PRIMARY COLORS

Where the benefit of re-unifying Science and Art is argued.

### II- LOST IN TRANSLATION

Where the impossibility of splitting the relativity and the quanta physics is proved.

### III- ZENO VERSUS BUGS BUNNY

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### IV- ABOVE A BED OF ATOMIC MUSHROOMS

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## I

### Primary Colors

*'Better fly low as a Swallow than, as the Kite, making very high circles above lowest things.'*  
Dante Alighieri

I must first of all warn the reader that the short statement he is going to read is the fruit of an artist's observations. This sketchy article is in fact out of a wider 'work in progress' devoted to æsthetic problems. My approach of Science is a cross-over approach than can cause surprise.

It is better to know where the author is coming from to understand his logic better. Before immersing myself in Physics and Mathematics I studied Art History during a few years without stopping to draw and paint, in Paris, on the feet of Montmartre Hill.

I jumped from Art-History to Science because I was not satisfied by G.W.F. Hegel's *Æsthetics* on a precise important point (I have to add that Hegel's 'aura' is in the Artistic Circle about the same than Newton's or Einstein's in the Scientific).

Hegel indeed in his *Æsthetics* lessons -not less than one thousand and two hundred pages-, is attributing a magic power to Light(1). As the Estate is becoming in his Political Philosophy a kind of autonomous Divinity, Hegel is perceiving Light in Art as a kind of self-normative Spirit; the dialectic Progress in Art is -to sum up- in Hegel's opinion a Progress towards a bigger Spirituality that mingles with Light!

Hegel's Theory was not corresponding to my experience as a painter. I thought I. Newton would be clearer on the subject of Light. Predestinated name of 'new-ton' is even enough to attract an artist! Nothing is surprising in the fact that a few painters close to the German artistic stream known under the name of '*Bauhaus*' did not waited for me to examine Newton's theory -such as Kandinsky, Klee or Malevitch.

Then, from Newton, step by step, I came to N. Bohr, L. de Broglie, M. Planck, H. Poincare, E. Einstein, etc. always tracking the 'Sacred Light' of Hegel. It appeared to me rather quickly then that Art and Science are not only sharing some tools or methods but that they have in a 'Historic reference' very similar trajectories. Briefly I would say that last artistic and scientific developments can both be described in terms of 'Photographics' or 'Kinematics'.

Therefore the Duality of the Particle on a side and the Wave on the other side does recall the hesitation of Hegel between Music and Painting as the terminus or the last stage for his Art-History.

## II

### Lost in translation

*'Until now, I regarded Language as 'transparent' and had never paid attention to how the Language is related to 'non-Language' World.'*

B. Russell - 'My Philosophical Development'

Light does not only allow to build a bridge between Art and Physics. Light does contain the thermic dynamism too and the light-ray passes through the Theory of Relativity AND the 'Quanta Physics'. Even the homothetic two dimensions Space of Helmholtz that plays its part in 'Quanta Physics' is related to Light-ray!(2).

From Light to Heat one can jump to Motion, from Motion to Speed and from Speed to Time. This is the problem of 'interference rings'.

Even if the idea of Time or the one of Temperature are almost 'intimate', the question of Time is not less a pressing question for everybody that cannot be avoided. I mean that you can separate life and dead from Physics with artifices but that would be out off the subject here, which leads obviously to burrow in the actual status of Time in Physics.

So the Question of Time and its nature is a 'signal' to join a higher point of view on the intrication and not a lower one. Ask the problem properly and it is half solved.

Analogy with Art is a way to introduce the idea of Language that is here, as you will see, 'primary'.

**Language is always a conventional and partial mood to express phenomenons or things, human relationships. Ransom of the Language is discontinuity.** Either if it is 'oral' or 'written' Language, artistic Language, Geometry or Chinese, every kind of Language that is to say 'Code' is discontinuous 'as a tongue in motion'.

There is no risk as soon as you keep in mind that there is a distance, a while between discontinuous Human Language and Reality, mostly continuous as an Apple. No risk to produce a 'teleological' Natural philosophy or Physics, **'teological' that is to say a Physics that would loan to Nature the laws of Language.** Because in this 'teleological' optic Physics would loose its dynamism to become static (in the political sense as much as the scientific one). And Static Mathematics is a non-sense, just crosswords!

That Time is a subtle phenomenon, many metaphors of the language are showing it. Metaphors are flying in every directions: 'Arrow of Time', 'Wheel of Time', 'Circle', 'Suspended sword of Damocles', 'Grain-leather Skin', Chronos, 'Swastika Cross', 'Ultima Hora Necat' of a Sun-dial, 'Perfume of Nostalgia', 'Clock', etc. And the Sector, the Vector too, which is a special kind of arrow, not supposed to be poisoned, is a kind of metaphor or translation. And as much words as much different Metaphysics in the background. The distance between 'factor Time' and Metaphysics is of course a legal, a conventional distance.

If every kind of Language does imply 'discontinuity', each Language is not as discontinuous as its neighbour. From an indo-european language to another, one can notice differences rather easily. For instance, Latin language is more discontinuous than Greek language, German more discontinuous than Italian or English, etc.

In the Art field that is particularly dear to my heart, there are many degrees too. Music for instance, based on intermezzos, chromatic game, rythm, measure's beat, Music is more discontinuous than the Sculpture. To strengthen the stroke: music tends to be 'information' although sculpture tends to be 'formation'.

### III

## Zeno versus Bugs Bunny

*'Equal Things are benefiting of the same qualities and can be reversed'*  
Aristotle - 'Topics'

At this Stadium I want to use one of the famous paradoxes of Zeno of Elea to illustrate my Statement and dig the prime idea of 'Language'. Zeno once again! The less that one can say about this story of 'Achilles running after a tortoise' is that it is exciting the debates on Natural Philosophy and Metaphysics from the mists of Time as the problem of 'squaring the circle' does -and for the same reasons(3).

Paradox is that Achilles cannot rejoin a Tortoise besides his velocity. The 'time' that Achilles needs *on his side* to rejoin the Tortoise's starting point, she takes it *on her side* to run a new distance, *until the Infinity*, letting athlete Achilles eternally behind. Whatever Zeno's intended to proof with that, **his demonstration does reveal that the algebraic language is the means to translate a dynamic motion into a 'static motion'**. More than that: either the Tortoise is running 'in line' or bolting in a circular Stadium, her speed is showing us the 'sine qua non' conditions of algebraic language:

- postulate of Infinity, that makes the proportionality ratio between Time and Space possible; it drives to 'think' Speed as a 'continuous' or 'unvariable' or 'regular' phenomenon;
- and dichotomy, fraction's bar that makes possible to divide simultaneity of Achilles' and the Tortoise's simultaneous dynamic motions in two static ratio's.

A. Einstein in his 'Restricted Relativity Theory' as in the 'General' one does use the same process: a space-time orthographic projection drives him to divide motion into two vectors first; one vector of 'absolute speed', the other of 'relative speed', which is a differential algebraic speed. In the dynamic facts, positive differential of speed does not allow to a passenger running in a train to join the train station faster than the train does itself but to join the bar in the train faster than a sitting passenger. As Zeno, Einstein is playing with equality of phenomena that are not equals.

**One can say that the 'Worm is in the Apple' since the 'Restricted Theory'**. In the 'General Relativity', to the vectorial 'coincidence' of Time and Space in the speed the punctual 'coincidence' of Time and Space in the 'Instant' or 'Event' will be added (readers can start thinking both in terms of 'Quanta Physics' from here)(4). Notice that the word 'instant' is hiding the idea of Space without which you cannot define an Instant/coincidence/event nevertheless. Inadequacy between language and facts is easy to perceive here.

'Simultaneity' is not more relative than the speed of Achilles is but Einstein does play with the measurement's dichotomy between the symmetric measurement and the disymmetric measurement of one 'Event'. **The symmetry idea is introduced here after the differential idea by the 'event'**. Differential is coming from the idea of speed, that is to say 'vector', Symmetry is coming from the idea of 'event', that is to say 'middle point'.

Put your Sunglasses off because light does not play the first part here as spectators in Zeno's stadium. **Light gives only the reason why Zeno and Einstein's paradoxes, made with the same components, seem to divert in two opposite directions;** why if everything tends to be quite in Zeno's demonstration, everything tends to oscillate or move in Einstein's one, although neither motion nor peace are contained in Algebra.

The 'Strong Value' in Zeno's trick is Space. The translation is a translation of Space property to Time through speed rates; after the dichotomy, in the 'reunification', Motion and Time values are 'smashed' by the Space. The idea of continuity of space triumphated in Greek Natural Philosophy and it is still preserved until Newton's Mathematics at least(5).

Contrarily, in Einstein's trick, the 'basis' is Speed and the translation is from Time's 'property' to Space in the 'General Theory'. The sun ray is the medium that Einstein uses to change time and speed into vectors, wether the ray is perceived as a right or curved line. To put Einstein into Algebra at his turn, one can write that Einstein = 1/Zeno (Of course Einstein is not 'fallen down from the sky' and his idea of using the sun ray is derivating from Newton's one. But I must restrain me here to what is necessary to understand the connexion between the 'Quanta Theory' and its twin 'General Relativity theory' of Einstein; prolegomena and their

consequences will be studied in a further and wider article. 'Disentangling' is what I am concentrating on here.).

I 'open a circle' here to say that C. Rovelli's argumentation that is discussed on the virtual 'fq(x)i Forum' is next to Zeno's Science, next to the gender antithesis between Time and Space that the Greek Old Master is suggesting. One can guess that Zeno wanted to underline the subtlety of Time and Motion compared to Space and Matter(6).

The best depiction that Art does offer of both Zeno's and Einstein's 'kinesis' are in my opinion the Cartoons of the Warner Brothers company, such as Bugs-Bunny, Tweety and Pussycat, etc. Most of the gags of these cartoons are based on the multiplication of characters dimensions or things dimensions caused mostly by shocks. Space and Time of Cartoons are relative too. Typically, it is made either of a very intimate idea of time: Bugs Bunny does not fall if he does not estimate it is Time to do it. Or characters are contrarily collated to an algebraic strong space. On a comic mood, translations from a reference to another one are made. Dynamic motion becomes static and static becomes dynamic too.

In the Cartoon language, Motion vectors are replaced by images, added to give the illusion of continuous motion -with the help of retinal permanence. Einstein's illusive Dynamics is based on a differential: this 'differential' is in the 'Loony Tunes' of W.B.C. the small difference from an image-segment to another image-segment.

H. Poincare's (1854-1912) objection against Einstein is that it is not even possible to define a Symmetry in a World ruled by 'General Relativity'(7). In fact Einstein is based on what he denies. Same for Cartoons: you cannot watch 'Bugs Bunny' fantasy if you are Bugs Bunny yourself. **In the Algebra, the original postulate is always biased, as the word 'Rabbit' is biased compared to a real Rabbit.** Algebraic infinity is an APPROXIMATION of spatial reality. B. Russel's quotation on top is very interesting because he is still defining the Nature as a 'non-Language' reality. Comparison with the video-game player is in my opinion available here: What is real? Nature or computed Nature?

Deeper than Poincare's objection are Aristotle's remarks on Zeno's algebraic demo that can be extended to new Algebraic language(8).

Beyond Zeno's or Einstein's paralogisms, what is primary (essential) to see here is the optic illusion generated. Algebraic language is suggesting the impression of 'equality' between reality and language. As if there was no 'parallax!' 'When-where' the Sun does enter the silvery surface of the lake: the TELEOLOGY is there! At this instant of equality which procures the dangerous ecstasy of power, squaring the circle ecstasy.

Therefore, it is as easy to deduce Symmetry and Infinity from natural phenomenons as loosing a grain of wheat in a stook of Indian corn, but taking the way back is as difficult as to find the wheat grain again. That is why Aristotle refuses to build on the sand of paralogism. The almost experimental sight of Einstein's demonstration with two observers strengthen the illusion.

Where everything seems to be petrified with 'sculptor' Zeno, everything is moving in Einstein's 'musical' theory. The wonderful multiplication of dimensions made by 'Superstring Theoricians' is not a miracle but 'Fata Morgana'.

New digression: Either Garrett Lisi's figure, or Douglas Bundy's article on the forum ('A mystic Dream of Four') can be expounded as attempts to recover the architecture that fails. D. Bundy is enumerating how 'String Theoricians' are mixing carrots and their packing blindly.

## IV

### Above a Bed of Atomic Mushrooms

*'Rationalists, as Spiders do, make Webs from their own Substance.'*  
Francis Bacon of Verulam - 'Novum Organum'

At this point the exploration of Algebraic language is rather complete to understand that the 'contact points' between 'Quanta Theory' and 'Einstein's Theory' are due to the fact

that they are two rivers joining far up. Or twin theories from the same matrix. Dividing them is as useless as just keeping one or multiplying.

So I do not want to take the risk to be too boring in long passing the 'Quanta Physics' through a sieve at its turn. It is more interesting to watch 'Quanta Physics' through the prism of its subtle differences with 'General relativity'.

The difference between 'Quanta physics' and the 'General relativity' is of the same ratio than the difference between the Restricted and the General Relativity: a ratio of two. 'Restricted Relativity' is binary Algebra; 'Quanta Physics' is quadrily Algebra where 'blocks' of Time or 'Stone' are used as unit of Time instead of binary vectors. 'Cellar' theory is an appropriate design for Quanta Physics!

Secondary remarks of Aristotle is useful here to be as clear as possible. Aristotle explains that the 'Infinity postulate' cannot only be seen in terms of addition of vectors (line segments or circle segments) but in terms of 'division' or 'quantity'.

**Aristotle does not only permit to understand that the two arithmetic infinity postulates have the same origin, that division is subtraction and addition is multiplication, but that the postulate of infinity is useless in the Algebra field of 'Measurement' or 'Quantification'.**

That leads to see 'Quanta Physics' and 'Restricted Relativity Theory' as two different degrees of the same language. 'Fractal Arithmetics' is not new. And 'Group Mathematics' is just an Amalgam.

Symmetry is more obvious in the 'Quanta Physics' because of the dividing turn and the fractal numbers distribution around a centre, although 'Relativity Theory' is issuing anamorphosis like you can see on the famous painting of W. Holbein ('The Ambassadors').

Symmetry is obvious in the curve that does illustrate the 'Central Limit Theorem' (Pivot of Gauss is Symmetry too). And this symmetric shape is the trademark of Statics. B. Russell underlines that it is only after, 'a posteriori' that Time does appear through speed ratio as strong and continuous. In other words, a photography, even 'instant photography' does not catch Dynamism but gives only a vectorial illusion of Dynamism. No Dynamism in the Probabilities too where 'a posteriori' is an extrapolation of 'a priori' events or coincidences. A 'fake' Time is determined in Probability Theories too(9). Anamorphosis of Poisson-Boltzmann Curve is hiding the Symmetry but Anamorphosis is a multiplication or a division of the Symmetry based on extrapolation.

**'Geolocalisation', 'differential', 'event', 'instant', 'symmetry', 'fractal numbers', 'probability', 'statistic', 'group theory', 'dualism': these are typical words of an IDEOLOGY of Dynamics and Energy.** No need to say this would not be a problem if 'Quanta Physics' and Einstein's prolegomena were only IQ exercises and not supposed to guide the Modern Science. In this perspective there is nothing to expect from the gigantic costly 'experience' of 'Large Hadron Collider' in France.

By means substance was dropped for the shadow, Matter for Algebra. But in the zenith or at midnight the shadow is resorbing.

## V

### Black Hole in Modern Physics

*'How do one proof that something is impossible? As soon as the demonstration is done that there is a contradiction between the ideas contained in its definition.'*

G. Berkeley - 'Three Dialogues between Hylas and Philonous'

More important than Einstein's 'Relativity' or 'Quanta Physics' disintegration I made is the coming now chapter: it is about the REASONS that drove Physics to become such an entangled ball. Amongst the more recent reasons, 'Globalization' must be quoted. From the beginning of the XXth Century as a result of globalization, Metaphysics was swallowed up by Physics. Science became a sort of Mist Castle haunted by the Ghost of Metaphysics. He is everywhere and he is nowhere at the same time, and cause of misunderstanding is this lack of Criteria and Hierarchy.

Algebra appeared for sure as the ideal neutral ground for international Scientists like the Olympic Games are. **Algebra appeared as a ground where Physicians and Mathematicians from every origins could debate, putting their cultural or personal prejudices on a side.** Dynamism leaked from this, as the Olympic Games became an absurd competition for a handful of space-time dust. In fact it is like Metaphysics was seen in terms of 'standard-distance' from a common center -that does not exist of course. This is a Vortex Science that ends in its arithmetic center. And Scientists do not know if they have to invite the Ghost at their table ('String theoreticians') or cast him out (C. Rovelli).

Transposition of Geometry and Algebra is the 'knot' and early beginnings of this disorder has its roots in the French XVIIth Century in particular. Probability Theory has been born at this Epoch. Mathematician Blaise Pascal (1623-1662) for instance is typical of the effort to transpose Geometry into Algebra. That does involve a very narrow idea of Metaphysics and in fact the knowledges of Pascal in Astronomy were very thin.

B. Pascal is not lonely: the definition of Geometry by the French Philosopher R. Descartes (1596-1650) is: '*A Science that teach the MEASUREMENT of all sorts of Bodies.*' It is the matrix of Einstein's opinion about Geometry, splitted up from Nature. The idea of interstitial measurement or quantification is gaining ground. Meanwhile the Arithmetics or the Algebra was seen as an approximation of Geometry before, it is the opposite from XVIIth: Geometry is becoming the approximative idea.

Notice that this algebraic French Science is characterized by 'new' attempts to approximate the circle's surface or even to square one circle's arc. Trial of Descartes for example, first 'String Theorician' too!

No doubt that some more recent Philosophers as B. Russel at the end of his life, 'renonciating to Pythagore' as he said, was moving backward and that his evolution was a dynamic motion(9). Mathematician F.L.G. Frege can be mentioned too, who wished at least Mathematics to be built on Geometry again.

To be clearer than Frege: French XVIIth is the theater of the triumph of Analysis on Synthesis, of Measurement on Shape, of the Paradigm on the Metaphor (of Baroque in Art).

I cannot refrain from adding that this slipping from Geometry to Algebra takes place in France during the 'absolute' power of Louis XIVth, not to say 'infinite' or 'total' power.

**I must add too that Einstein's theories are chronologically issuing from this 'Quantic reflexion'** although they seem to rule the high Spheres and 'Quanta Physics' is devoted to small Particles; although Einstein's declared intention (same for H. Poincare) was to 'tune' high spheres and small particles.

In the same perspective I see Douglas Bundy and Garrett Lisi as two Metronomes wishing to put harmony in the jangling music of 'SuperString Theory'. Is it a coincidence if G. Lisi is living near the Tahoe Lake and Moutains, running on Snow Matter? Is it a coincidence if G. Lisi is a free-lance against the more 'legal', the more 'conventional' Theory? I do not think so. But Geometry to Algebra road is a 'one way road'. Bundy and Lisi recall Astronomer J. Kepler too (impressed by 'mystic' number four), who lost many years to try to discover the articulation of Planets in numbers before deciding to find the Universe Architecture in Geometry(10). Refusing to square the circle, Bundy and Lisi are trying instead to put the sphere in a cube.

Not far away is C. Rovelli's method that consists -to make an analogy- to 'throw the Circle away and keep the square'. Circle figure is equivalent here to Time and 'Relativity Theory' and 'Relativity Theory' to Metaphysics ('Cognition' is the word that Rovelli is using). Similar teological method drives to split the particle and the wave in two with a mirror. The "Wave" plays the part of Metaphysics and the 'Particle' plays the part of Physics in this static 'kinesis'(11).

## VI

### The 'Titanic' Orchestra?

*'But it is the property of common Mathematics to stay at the level of quantitative shadows.'*

Robert Fludd - 'Picturae'

The Rules of the 'fq(x)i competition' do force me to be more abrupt now and to restrain my developments. I just want to give a sketch of the new perspectives to which my new point of view on actual theological Science leads. Coming back to Geometry and Art forces me to revisit lots of theories such as:

- Modern Theory in Mathematics, including trigonometry, 'Group theory', 'Series', 'Integral and Fractal arithmetics' that are determined as 'Probability Theory' and 'Statistics' by useless hypothesis growing like toxic mushrooms (it is not surprising that some data-projections of 'anti-matter' looks like they were deduced from material Sphere, betraying so their static origins)(12). Postulate of 'accident' is in the 'Probability Theory' derived from Infinity postulate, chance too dimly defined by H. Poincare as the 'measure of dark' because it is more than that the cause of dark.
- Modern Geometry promoted by N.I. Lobatchevski (1793-1856), H. Helmholtz (1851-1894), E. Beltrami (1835-1900), B. Riemann (1826-1866), etc. that is not Geometry but Arithmetics deduced from Euclide's positive Geometry. The 'linear' geometric figures of Euclide's '*Elements*' are not 'realistic' for the good reason that they are not a binary algebraic approach but an architectural one, coming from the Sphere and not from one Circle's arc. Parthenon temple is based on Geometry although Eiffel Tower in Paris is based on Algebra.
- Penetration of electro-magnetism laws in Physics must be revisited as it seems to be an immaterial phenomenon compared to other phenomenons.
- But the inertia and the gravitation laws used by Newton are concerned too, and, I would say 'first of all'. I am still working on forces and refraction laws that a geometric guideline leads to see more in terms of 'Architectonics' than 'vectors' or 'angles' (Here one can see that Riemann's 'spheric' approach is not Geometry but geolocalization).
- Until the idea of elliptic trajectories of Planet's that seems to be governed by the algebraic Metaphysics too.

I hope that my French naïvety and lack of Irony will not prevent the Anglo-Saxon readers against the content of my statement and that they will only pay attention to the scientific arguments only.

I hope but see that Modern Economic Science based on Probability Theory just collided with an Iceberg a few weeks ago. It would be a mistake to think that the Liner is made of tight compartments and to ask -after this interruption of First-class Deck Conversations- the Titanic Orchestra to continue to play Music.

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