

# Introduction to the Ontology of Knowledge

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### Introduction

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This text aims to introduce Ontology of Knowledge (OK) as an ontological model.

According to OK these are not the world and its forms that make themselves intelligible to the subject but a principle of knowledge: the Logos, which gives meaning, which gives forms to a Reality that is otherwise formless, unspeakable.

The Spirit, as a logical system, thus plays the central role; it creates forms, gives existence to the objects it represents, animates the representation it has of itself and the world.

The OK, however, is not idealism because knowledge is conceived as a principle of order: the Logos, applied to a reality of pure logic, free of any materialist, anthropologic or psychological *a-priori*.

In that sense, Reality and Spirit have the same nature. That's where the OK fills the gaps left open by Kant and Schopenhauer.

The OK does not propose another reality than that described by common sense or science but another mode of representation.

The OK is compatible with the current state of science and common sense, even though it opens the door to breakthrough interpretations.

This text shows that the laws of the world, as we know them, are what appear to the knowledge at the same time as the Logos gives meaning to all Facts and Beings of our representation.

### The sources

Some references to "great" thinkers will locate OK among existing ontological proposals.

• Since the OK inverts the sense of intelligibility, our first reference will be **Descartes'** Cogito. The OK refers to this translation of Descartes' "metaphysical meditations"

*"..This proposition: I am, I exist, is necessarily true, whenever I pronounce it, or when I conceive it in my mind. » .*

The formulation chosen has many advantages on the famous "ego cogito, ergo sum":

It defines existence as a logical statement (a proposition), acted out by a conscious thought (thought is therefore not a mere proof of existence) and whose truth is not universal but limited to the subject.

The existence of the subject is not a state but an act, the act that enunciates self-knowledge. So much so that as soon as the act ceases, the subject's existence ends.

It is a meta-ontological as much as a meta-logical judgement. It proves no more than a mere "I/subject".

The OK does not claim that this interpretation corresponds to Descartes' thought. But what about the ontological thoughts of Descartes, knowing that in view of Galileo's woes, he had expressed his resolve to protect and partly conceal his thoughts?

The evidence then imposes a more general formulation of the Cogito such as: "... the proposal 'I am, I exist', is necessarily true, whenever I pronounce or come to my mind a (any) proposal"

The existence of the subject would not be a state but an act, the act by which the subject gives meaning to his knowledge.

To give meaning to my knowledge would be a sufficient condition for my existence.

•Our second reference will be **Kant** and the "Critique of Pure Reason"(ref CRP) where Kant operates a metaphysical revolution by reversing the roles between the object and the knowing subject, as this extract shows :

*" Until now it was assumed that all our knowledge had to be settled on objects; but, in this hypothesis, all the efforts tried to establish on them some judgment a priori by concepts, which would have increased our knowledge, did not lead to anything. So let's finally try to see if we will not be happier in the problems of metaphysics assuming that the objects have to be adjusted to our knowledge, which already fits better with the desired possibility of an a priori knowledge. "*

Kant does not exclude a reality in itself, but the only reality that can be the subject of knowledge is phenomenal, that is to say as it appears to our minds after passing through the filter of a priori elements and after being categorized and classified by pure concepts.

*«Experience itself is a mode of knowledge that requires the concurrence of the understanding of which I must presuppose the rule in myself before the objects be given to me, therefore a priori, and this rule is expressed through a priori concepts on which all the objects of experience must necessarily be adjusted and with which they must agree (...) we know a priori of things only what we put ourselves. "*

Most of what the OK takes from Kant is in these two quotes and boils down to :

**-If there is a “reality in itself” it is unspeakable as such.**

**-We know of reality only the forms that our understanding gives us.**

**-The laws of knowledge apply before the laws of the world as we represent it.**

•The third genius to which we refer is that of **Schopenhauer** which, on the premises posed by Descartes and Kant, produced the logical edifice that would have (and we will return to this conditional) end 14 centuries of errors in Western metaphysics.

The first excerpt will be borrowed from “The quadruple nature of the principle of sufficient reason” :

Ref QNPR P212: *... the proposition “I know” is the last abstraction of which we are capable, but this proposition is identical to this one “There are objects for me”, and the latter is identical with this other “I am subject”, which contains nothing more than the simple “me”.*

This is the meta-ontological judgment that states the identity of “I am” as subject of Cogito and “I know” as the subject of the representation of the world.

**-“I am”=“I know”**

The second quote will be:

Ref QNPR P212: *As if supposing a subject, the object is assumed at the same time, and conversely, the object being supposed, the subject is found at the same time; as, therefore, being subject means exactly the same thing as having an object, and being an object the same as being known by a subject; similarly, when an object is determined in any way, immediately the subject is stated as knowing absolutely the same way.*

Expressing the identity of object and subject, this quote associated with the previous, sets out that the “I am” and “I know” have the same object. It states in substance:

**- I am what I know and what I know, it's me.**

The identity of nature between the “I” and “the world I know” is the opposite of an idealism that denies existence to the objects of knowledge. However, it does not postulate their material or even physical nature.

The third quotation, borrowed from “*The world as representation and as will*”, confirms:

Ref MCRV P48 *"There is causality only in and for the understanding; thus the real world, that is to say active \*, is always as such conditioned by the understanding, without which it*

would be nothing.

*But this reason is not the only one, as, in general, no object can be conceived without a subject, we must refuse to the dogmatists the very possibility of the reality which they attribute to the external world, founded according to them, on its independence from the subject. The entire objective world is and remains representation, and for that reason is absolutely and eternally conditioned by the subject; in other words, the universe has a transcendental ideality. It does not follow that it is an illusion ... "*

\* Author's note : Schopenhauer considers material reality as a series of causalities without origin which he names "activity"

These quotations, which summarize quite well what the OK takes from the theories of Kant and Schopenhauer, also make it possible to reveal the contradiction, the lack of focus of their theories, which gives to any attentive reader a feeling of vagueness, of a failed act, that of theories left somewhere between a pure idealism of which they defend themselves and which would in fact say nothing of the nature of the Spirit and a realism which would say nothing of the Reality defined as indescribable.

This feeling is all the more painful because any reader with a mind free from prejudices perceives in these texts the potentiality of a prodigious leap for the understanding of our relation to the world.

It is perhaps because of their lack of clarity about the real nature of the Spirit and the World that neither Kant nor Schopenhauer could upset as much as they would have of science and common sense. Perhaps Kant and Schopenhauer, given the magnitude of the revolution induced by their ideas, lacked freedom and abandonment vis-à-vis old ideas and left too many scoria which have fragilized the steel of their thought.

The lack of focus of Kant's theory was emphasized in 1816 by Maine de Biran (Ref NoK ), who criticized him for artificially separating the primitive will from the understanding.

The blur of Schopenhauer's vision appears, for example, when he describes causality as the origin of the change from one state to another state of the object :

Knowing that the object is the "unified" representation of a multiplicity of forms a priori, conceived by the understanding, and that the state of the object is the representation of that multiplicity in a state of knowledge, it follows that the causal relation is itself the unified representation of a multiplicity of causal relationships linking one state of knowledge to another.

Schopenhauer even writes: Ref QNPR *"When a state, to be the condition of the production of a new state, contains all the determining conditions except one, it is customary to call it the ultimate cause. This is true, in that we stick to the last change, which is decisive here; but this reserve once made, note that a determinative character in the causal state, by being the last, has no superiority over the others to establish in a general way the causal union between the objects . .... However, it is the entire state that is the cause of the next state, and then it is in deed indifferent in what time order these determinations have effected a junction"*

It follows that what is represented as the causal relationship from a state to the next state is in fact the "unified" representation of the set of all determinations of all prior states to the next state\*.

Schopenhauer should have better differentiated "the causal link as a form" from "an activity vacant of form". The "formal causality" being the product of the subject's understanding and "the activity vacant of form" being what really deserves the name of Reality *independent from the subject*.

\* The notions of time, state, previous and next will be revisited in their turn.

The distinction between "formal causality" and «activity vacant of form» would help dissipating the vagueness of Kant's and Schopenhauer's theories in the sense that it becomes

possible to state that: first: *The world in its form is entirely conditioned by the understanding*, and second: *Reality is "activity vacant form"*, which the OK designates as *"Interdependence"*. On this consolidated basis, the OK then shows how the "Reality vacant of form" represents itself and knows itself, according to transcendent principles of extreme simplicity.

Schopenhauer just as Kant, although they have shown that the understanding is prime, i.e. it intervenes as a priori condition of any experience, have not crossed the Rubicon with a true merger of Spirit and World, they also failed to reverse the direction of intelligibility.

This is what Paul Langevin said: ( ref CESP)

*"Planck suggested that the quantum of light is something to which the notions of spatial and temporal extension do not apply. Man must learn to see space and time not as objective realities, but which must now be transcended. They are not objective realities, independent of consciousness, and perhaps no such thing exists."*

Let's concede however, that some errors in Schopenhauer's statements are related to notions not yet known at his time; for example:

(Ref QNPR P 228) By condemning reciprocation (reciprocal causality) as giving only vicious circles when it relates to notions that are not equivalent, Schopenhauer presumes the arrow of time and thus lets unseen the concept of causal attractor.

(Ref QNPR §20) Schopenhauer writes that *"...the change occurs and it appears to the subject by the understanding"* which leads to another impasse because if the change is causality without reciprocation, that is to say bound to the arrow of time and if the causality is without beginning then this imposes on him the theology of infinite time.

▪The fourth genius to which we will refer will be that of **Henri Poincaré**.

A key contribution to the OK is in this short excerpt from his book: " Science and the hypothesis" (Ref S & H: Page 80 )

*"When we say that we localize such object in such point of space, what does it mean?*

*It simply means that we represent to ourselves the movements that must be done to achieve this object; and please do not say that to represent these movements, we must project them in space and that the notion of space must, therefore, pre-exist.*

*When I say that we represent these movements, I mean only that we represent to ourselves the muscular sensations which accompany them and which have no geometrical character and which, consequently, do not imply the pre-existence of the notion of space"*

This sentence is fundamental in that it deconstructs any link between mathematical concepts (such as the space) by which science formally describes the world and an assumed form of reality.

Poincaré's conception goes far beyond Relativity popularized by Einstein.

The formalisms of Einstein's theory operate directly on objects of representation: position, point, line, distance, time, geodesic ... on mathematized forms; although Einstein defended himself of that.

This operational, demonstrable, verifiable aspect, satisfies the science of today that has detached itself from the ontological question, but it tends to make us think unduly of space as something physically existing, described by means of geometry; to make us forget the constructed and conceptual aspect of space.

At the end of the 19th century, H. Poincaré laid the foundations for a new branch of mathematics, the theory of dynamic systems.

This theory shows that systems of step by step action, by repeated application of the same law of transformation, governed by deterministic and reversible laws, could evolve over the long term in an intrinsically indeterminate way, or lead to chaos.

It then shows us that the resulting chaos could have definite general statistical properties, universal and stable.

Poincaré even showed that the chaotic character of an evolution was a condition for the appearance of what must be called a universal order that can be represented in an ordered space. Let us understand that: relations of order, relative cardinalities appear, without reference to absolute referential, in the form of comparative probabilities. These relationships are universal in that they embrace elements that do not have immediate or traceable interactions with each other.

Could it be that the vacuity of order that a formless reality would present be precisely the condition of its ordered representation, according to the laws of large numbers?

Then the question arises:

"Is the order of the world we represent an isomorphism of a world "in reality" ordered, or is it a property emerging from the chaotic flow of logical relationships that bind the knowing subject to reality?

Are the laws that order the universe the **physical** laws of a world in vis-à-vis, or are they the **mathematical** properties of the chaos of logical interdependencies that constitute Knowledge of the subject? "

•Our last quotations are borrowed the **Buddha** and his exegetes, when they try to make us understand the concept of **Vacuity**.

Extract of a Buddha's Sôûtra "... *absolute truth transcends all conventions; it is truly unborn, incessant and beyond the form and meaning of words, beyond the subject who knows and what he knows.*"

Extract from "The walk towards enlightenment" from Pandit Shantideva. "*We affirm that there are two truths concerning all things included in samsara and nirvana: a relative truth in the apparent mode, in which realities, as much as they are, only appear, and an absolute truth in real mode, where the Real, as such, is the very emptiness. Each of these two truths is indisputable at its level.*

*If they were different in the absolute and identical in the relative, each of these propositions would present four defects, as we learn in the absolute commentary of the meaning, which specifies that they are neither identical nor different.*"

*"Forms are empty, there is no emptiness other than forms or forms other than emptiness."*

These texts solicit from the reader neither belief nor interest in their exoticism, but reasoned understanding. They must be studied for what they are: a true metaphysics, just like those of Plato and Aristotle and it is in that capacity that they were taken over by great Western philosophers such as W. Schopenhauer or the founders of quantum theory as W. Eisenberg.

The quotes above illustrate two notions that the OK takes up:

- There is on the one hand: an absolute reality, uncreated, beyond all forms, beyond the knowing subject and on the other hand: formal relative truths that appear and disappear (note : for the subject) along time.

-This absolute Reality and these relative truths are not "two realities" but only one: Reality being unspeakable at its level can only be said by means of relative truths, and these truths, which appear to the mind, are only modes of order of absolute Reality.

## **Ontology of Knowledge**

The first proposition of the Ontology of Knowledge (OK) is the meta-ontological judgment from Cogito:

**- *I am certain to exist as "I / subject".***

The "I / subject" is what states and proves itself by the act of any statement, but it tells us nothing of an "I / object" nor of a "world / object". Nothing of what is stated.

Then come two postulates :

**- *There is something else besides this "I / subject" which we will name the Reality.***

The "I / subject" is not all Reality. This does not mean that the "I / subject" is of a different nature than the Reality, or even that we can establish an absolute division between the "I / subject" and Reality.

**- *The "I / subject" and Reality are interdependent.***

The concept of interdependence can be stated as follows:

**- *Any part of Reality contributes to the reality of any other part.***

It will be clarified shortly, note that it is different from the concept of causal relationship.

NB: To give meaning to the term "Interdependence", we used the term of "part" to which we must therefore give meaning.

From these three premises the OK develops the following reasoning:

Since the "I / subject" and Reality are interdependent, at least the Interdependence is a reality.

By virtue of Occam's principle, why not make Interdependence the sole essence of Reality, the only ontological reality and declare:

**- *Reality is Interdependence***

This Reality has in itself no referential *a priori*, no more space than time that of any quality to order it.

To Reality no form, no enunciable attributes, such as Being, Unity, multiplicity, finiteness, continuity etc. can be attached *a priori*.

The concepts of present moment or simultaneity do not make sense.

The concept of state does not apply to Reality in itself. No *a priori* rule allows defining a "surface" which could be called "state of Reality". Beyond the impossibility of defining a state in itself, it would be impossible, for lack of attributes, to qualify a state of Reality.

Reality is neither created nor uncreated. It owes its reality only to itself. But it's not a block.

It's not "all-the-Reality" which owes its reality to "all-the-Reality", but each part of the Reality which owes (partially) its reality to any other part.

**- *The reality is inform***

This lack of reference, primarily time reference, gives to Interdependence a particular sense.

We can say that :

**- *Interdependence is In- act.***

It is strongly recommended to read now [Annex II](#) to understand what precisely means In-act in comparison to "everlasting" or "immutable". If the Reality has no referential, no order *a priori*, what is a part? How is a partition of Reality possible?

If Reality would not be cuttable, it would be unspeakable. Can Reality be cut?

The following lines will show what principle allows the unspeakable reality to "know itself".

Let's imagine Reality in a discontinuous form.

For that, let's create two heuristic concepts: the element and the interdependence link.

If two elements of Reality A and B are interdependent, the reality of A depends In-act of the reality of B and vice versa.

Let's note:  $A \leftrightarrow B$

This link of interdependence is In-act, the sign  $\leftrightarrow$  does not have here universal value, it is valid only for the relation between A and B which themselves are realities In-act and not variables. The sign  $\leftrightarrow$  does not introduce a condition: (if A then B) but Interdependence (A because B and vice versa).

Consider the interdependencies  $B \leftrightarrow C$ ,  $C \leftrightarrow D$ ,  $C \leftrightarrow E$ , etc....

We can then build a network stemming from A (Point of view) by conjoining, step by step, interdependent elements. At the  $n^{\text{th}}$  addition, this network is naturally a part of Reality. We call such a network stemming from A : a **Knowledge**.

**- A Knowledge is a bundle of Interdependencies stemming from a Point of View**

Although this discontinuous model is a simplification, it highlights the essential characteristics of a Knowledge according to the OK: It is a structure of Interdependencies, relative to a Point of view. It builds-off from this Point of view, following the Interdependency relationships, by absorption of its logical neighbourhood.

Let us note that the knowledge thus defined does not require any *prior* law, nothing that is not already in the definition of Reality.

Now we need to define at what conditions Knowledge is both separable and interdependent from Reality. For that we will use the new heuristic concept of proliferation.

**Proliferation** : This concept means that an element is statistically interdependent with more than two (ie  $2 + \varepsilon$ ) other elements (see Figure 1 below).

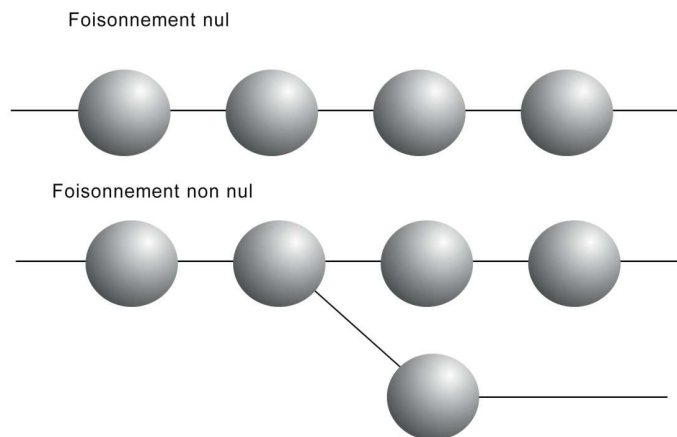


figure 1 (NB: « foisonnement » means proliferation)

Case 1: If the proliferation is zero, the Knowledge (the chain) stemming from A is obviously cuttable, by simply "cutting" both links. It is also through these links that the cut part is interdependent of the rest. But we can then say that the reality of A is equivalent to the reality of B: similarly between B and C, C and D, etc.... So what is the point of designating them as different? We will come back to this question.

Case 2: If the proliferation is not zero, as soon as the number of interdependencies is high, not only the potency of the network stemming from A but also its complexity become infinite: the network of elements and interdependencies stemming from A exceeds any possibility of cut, because at the  $n^{\text{th}}$  divergence, the neighbourhood (the interface) of the Knowledge would

contain  $(1 + \varepsilon)^n$  elements. To "cut" the Knowledge stemming from A from the rest of Reality it would then necessitate a cut of infinite dimension because:

$\forall N > 1$ , when  $n \rightarrow +\infty$ ,  $(1 + \varepsilon)^n / n^N \rightarrow \infty$ .

Shall we think that the Reality would be inseparable in parts, not cuttable?

In fact, no, we will see that a principle of aggregation tends to reduce the complexity of Knowledge.

To grasp this principle let's define the heuristic concept of loop:

- In the simple case of zero proliferation, if the chain  $A \leftrightarrow B \leftrightarrow C \leftrightarrow D \leftrightarrow \dots$  closes on A so that  $A \leftrightarrow B \leftrightarrow C \leftrightarrow D \leftrightarrow \dots \leftrightarrow A$  we say that this chain forms a loop.

- In the case of a nonzero proliferation, the notion of loop can be generalized to a case where the network of links of interdependence globally closes on itself (as a ball could we say).

In absolute terms, the loop would be totally cut off from Reality, constituting a part in itself, independent of reality, a self-created element.

In the general case we will say that the generalized interdependence loop is a statistical singularity, having a minimum neighbourhood, a number of links with the Reality less than  $n^N$  as mentioned above, that is to say forming a part separable from reality by a cut in N dimensions or less.

Let's now postulate that the probability of the existence of loops in a Knowledge grows and approaches 1 when the complexity increases.

In a Knowledge stemming from A, a proliferation greater than 1 leads to complexity and therefore necessarily to the existence of loops, constituting "new elements", having a minimum neighbourhood.

This aggregation of Knowledge applies *ad libitum*, as long as the complexity is not "exhausted", that is to say, until the proliferation tends to zero, without being able to reach zero proliferation because when complexity goes, the probability of loops tends to disappear. From this principle results an asymptotic equilibrium between expansion and aggregation of knowledge, where the proliferation tends asymptotically toward zero.

As it absorbs its logical neighbourhood, the knowledge is aggregated into elements. It has possible cutting surfaces of finite dimension.

At the asymptote ( $\varepsilon = 0$ ), it would be Individuation.

Note that this equilibrium is necessary in itself. It does not require any law *a priori* or any *ad-hoc* constant. The principle described above is sufficient cause.

We will name this principle the **Logos**

Nevertheless, the question arises: "Are statistical laws transcendent, can they be the formal cause of their object?"

To answer this question and complete our discontinuous heuristic model, note that the Point of view A, is not the true origin of the Knowledge, in that it is itself a loop, a compound part, its components are themselves compound parts and so on. The decomposition of A can repeat endlessly.

We will say that

***-a Knowledge is unfounded, without foundation, without primary element.***

It follows that, in our heuristic model, the notion of element can be abandoned, replaced by a singular (cuttable) configuration of Interdependencies.

But if the elements A and B are unfounded, the link  $A \leftrightarrow B$  loses at the same time its foundation. One must substitute to it the Interdependence between "the unfounded multiplicity of A" and "the unfounded multiplicity of B". The link of Interdependence is therefore itself without foundation.

***-In unfounded Reality, there is no being in itself, nothing that is One in reality.***



That answers our question: "Statistical laws do not need to be transcendent; it is enough that their objects are unfounded"

The **Point of view** has therefore no reality itself. The true subject of Knowledge is not "something real", it is not a being.

The true subject of the Knowledge is the asymptote that we have described above, a mode of order such that the proliferation would be zero, it is the vanishing point towards which seems to converge the ordering of Knowledge by the Logos.

We could say that the knowing subject, the "I" of the Knowledge, the Point of View is **Individuation**, dynamic, unachievable, to take again the concept developed by G. Simondon (ref ILFI)

***-The Point of View is the subject of Knowledge, it is Individuation.***

As we understand, the words Point of view, Knowledge, Subject, Individuation, used here refer to concepts of pure logic, stripped by the OSC of their materialistic, anthropomorphic, and psychological implications.

Certainly the terms are not chosen without ulterior motives, but the relationship between the concepts attached to the terms by the OK and their common sense will not be dealt with in this article.

We are eventually rid of our discontinuous heuristic model

In the Reality without forms the principle of Logos feeds on Interdependence to let appear statistically infinity of infinity of surfaces (or N-dimensional cuts) of minimum

Interdependency which delimit logical parts.

Each part is related to its logical neighbourhood through the cut that delimits it and which is therefore the place of its logical expansion.

***- The Logos aggregates a Knowledge in parts separable by cuts.***

The logical expansion from a Point of view is named a "**Knowledge**"

Although Knowledge is unlimited, one can designate a "**State of knowledge**", which is a N-dimensional cut that delimitates a part of its expansion.

A cuttable part that appears in a Knowledge is named "**Fact of Knowledge**"

A Fact of Knowledge "comprehends" other Facts of Knowledge and is comprehended by other Facts of Knowledge. This creates a principle of order relative to the Point of view.

***- The Logos ordains Facts of Knowledge***

NB: Although some terms (part, link, loop, neighbourhood, surface, N-dimensional cut, etc.) have, in their common sense, a geometric connotation, let's remind here that it is pure logic without any *a priori* of form.

The Logos is the principle of an application from Reality to Reality

The Logos modifies in no way the Reality In-act.

A Knowledge is nothing but a part of Reality.

The Logos is only a principle of aggregation, separation and order, in the sense given by B. Russel to those terms in its mathematical philosophy (ref MP).

It should be noted that, to apply, the Logos does not require any referential, no order, no space *a priori* in relation to which would be made an order.

In this sense, the Interdependence gives Reality its own principle of separation and order, or more precisely separations and orders.

Indeed, any Element of Knowledge is possibly the initial point of a bundle of interdependencies. Any Fact of Knowledge is potentially a Point of View.

From a Point of View, the laws that determine separations and aggregations are non-deterministic. It follows that a Point of View is in fact the origin of infinity of infinities of course.

Reality has infinity of infinities of Points of View, each Point of view being the possible origin of infinity of infinities of logical paths (of Knowledge).

**- *The Reality has infinity of infinity of infinity of infinities of ordered Knowledges.***

And since an order defined by the Logos does not affect the Reality, orders are not exclusive:

**- *All possible Knowledges are actual.***

We can also say:

**- *In an Interdependent Reality In-act, disorder is impossible***

We could also say that a disorder of interdependencies is metastable. Singular configurations necessarily exist there which, each one, is the germ of a setting in order according to the laws of the Logos. We could also say that, having no prior reference, Reality offers no resistance to its setting in order by the Logos

A Knowledge is a set of interdependencies In-act but does not make sense as such. We saw however that it is possible *in principle* to define cuts that delimit "States of Knowledge".

These cuts are not real limits. The cut of a logical Fact is an interface to its logical "neighbourhood". But in topology, if each element of a logical set is surrounded by a neighbourhood, this set can not conceptually contain its own boundary. A Knowledge, like a Fact of Knowledge, can have no limit, no definite boundary, they can only have a horizon.

**-*The cut of a Fact of Knowledge is not a limit but a horizon***

**-*The cut of a Knowledge is not a limit but a horizon***

A cut is the place of an **Act** or a set of **Acts**. It is the place of Interdependencies between a State- or a Fact-of Knowledge, and its logical neighbourhood. It is through this cut that knowledge extends into Reality In-act, and since there is a necessary balance between expansion and aggregation, it is also through this Act of expansion that new Facts of Knowledge will appear in the Knowledge, which themselves will be the seeds of a new ordering of Knowledge.

To each State of knowledge, several paths of expansion are possible, from which several modes of aggregation in new Facts of knowledge would result.

**- *The cut of a Knowledge carries the Act by which it extends and directs its expansion.***

We shouldn't be fooled by the usual meaning of the words cut, place, surface, state...because we describe a logical system and not physical or geometric. The attributes usually attached to these words are most often undefined, meaningless. Each image that presents to us is misleading.

For example : The Act which we designate as a cut or a place has nothing geometric, it concretizes a certain balance between expansion and aggregation where a Fact does exist to the representation globally rather than with all its details.

▪If we can say that a Fact of Knowledge is provided with a cut, it would be absurd to locate its component Facts with respect to the cut of the compound Fact.

▪If we can define the cut of a Fact of Knowledge as its present moment, the content In-act of this Fact does not belong to this present moment. The present moment of the cut means nothing for the content In-act of the Fact.

We see that a Knowledge is not of a nature other than Reality In-act, it is a mode of order. To borrow the Buddhist notions, we could say that the Reality In-act is the "absolute truth" and that the Knowledge is the "relative truth".

We could also use the ancient Greek texts and say that the Reality In-act is KHAOS and that Knowledge is the KOSMOS, that is to say KHAOS ordered by the LOGOS; except for the fact that according to the OK there is not only one KOSMOS but infinity of infinities of Knowledges of KOSMOS.

### **OK vs metaphysical grounding**

Although the OK and the grounding are in many ways very different concepts and probably not compatible, similarities of vocabulary could lead to confusion between the notions that both handle.

These confusions would ultimately impair the proper understanding of the OK.

To whoever may feel it necessary, the article "The concept of grounding and the OK" (Ref CoG) aims to dispel these possible confusions, for the benefit of a better understanding of the OK.

### **LOGOS**

The LOGOS principle, essentially logical and mathematical, is simple, transcendent and universal.

The LOGOS does not change the informal Reality which is essentially immutable. The Facts of Knowledge are not new realities, the only reality remains Interdependence.

The LOGOS is statistical. In our model, the agglomeration of Interdependence in loops must above all be considered as the eigen solution or rather a combination of the eigen solutions of the statistical principle that is LOGOS.

Among the resulting properties of Logos are the quantification of the Facts (the Fact is the equivalent of an attractor in a chaotic evolution) and the sensitivity to the Point of View (equivalent to the initial conditions of a chaotic evolution).

LOGOS is relative in that, depending to the Point of view, its application gives infinities of orders (representations) to this immutable reality.

We must return to this point: the Fact of Knowledge is "in reality" neither a being nor a quality of being in the present. It does not happen to a Fact to be interdependent but rather it is the Fact that results from a particular structure of Interdependence. Interdependence is the only reality and the Fact as a quality of being is only a representation. The example of a whirlpool illustrates this difference: the whirlpool at the water surface is not actually a being but a particular organization of speeds. It is also not a set of drops of water because the drops pass while the vortex remains.

***- The Fact of Knowledge has no substance, it is only structure.***

The difficulty in representing this new ontology is that we can access reality only through thought, whereas thought itself is part of reality. Our consciousness of the real is built in us through the Logos, which imposes on us the Fact as a semantic element.

***- The Fact of Knowledge is born in us before consciousness.***

The Unity of the Fact of Knowledge is not a quality or a form in the place and the present of the Fact (there is no place, no present in reality). The Unity of the Fact has no other reality than the infinite network of interdependence that gives it meaning. That Reality In-act is masked and transformed by the Logos in an individualized semantic content.

***- The eigen solutions of the Logos are the forms of the world :***

The following lines show different eigen solutions of the Logos associated with different concepts of form of our world.

- When a part of Reality is absolutely closed on itself, there is no need for a cut. Being cut-off from Reality, this part would Exist only for itself. As we approach this asymptotic

solution, our geometrical vision of the world proposes the form of an event with its causes and consequences.

- Then comes the zero-proliferation solution that we could symbolize by  $A \leftrightarrow A \leftrightarrow A \leftrightarrow A \leftrightarrow A \dots$  where A determines itself indefinitely. The cut that would isolate such a chain would be dimensionless (2 points) which defines, in our geometry, a one-dimensional space. We recognize the concept of a Being and its Becoming. The reality of A being unfounded, the relation  $A \leftrightarrow A$  is not a simple reflexivity, a simple relation of the same to the same. The unity of A and its persistence, as they appear to us, are based on the principle of individuation.
- Then comes the non-zero proliferation solution, non-zero but low enough that we can cut the Knowledge by a continuum of finite-dimension: 1,2,3, and so on. Give special mention if the cut is a three dimensions continuum. According to our geometry, this case corresponds to the concept of a four-dimensional space; the three-dimensional cut is the «Present of a spatial representation». At each point of this 3D cut, the configuration of the “cut-off” interdependencies defines a one-dimensional "Becoming" (time) vector.

These examples have certainly no scientific value; they show us nevertheless that the eigen solutions of the Logos contain in power the form and the laws of the universe. The laws of the world, as they appear to us, are like a residue of the attribution of meaning: what remains of [Interdependancy](#) after the Logos has made all Facts and Beings exist.

Our representation of the world is a combination of the Logos eigen solutions.

We see, for example, that the present moment of the world is a logical cut that delimits a State of Knowledge and not a present state of the world. The logical "simultaneity" of this 3D cut is in no way applicable to the In-act content of the Knowledge.

If there is a present moment of the "I /subject", the "I /object" is not concerned by this present moment.

**- The In-act Reality of a Fact is not in the present moment of its Meaning.**

The sensation is not a datum, rendered intelligible by the understanding for the use of reason. Interdependencies which increase our Knowledge are diffusely integrated into our Knowledge, our global faculty to know, and it is from this In-act that the Logos brings out Facts of Sensation. This proposition is, in an actualised form, the one made by Maine de Biran two centuries ago (ref. DAI).

To the idea that the reason synthesizes geometrically the universe of knowledge by adding, at every moment, one-by-one, the Facts of sensation revealed for themselves; we must oppose that it is the overall faculty to know that lets emerge out of its In-act, the Fact of sensation, as part of a whole, built, split and ordered globally in the “I/object”.

The Fact of Sensation in its forms and also in its relation to other Facts in the geometric universe of our representation is as much and certainly much more determined by the laws of Knowledge than by the possibility of the form *a priori* of an external cause of the sensation or its position relative to other objects. It is only *a posteriori* that the Logos reveals the invariance and gives them meaning as laws and geometry of the World. The concept of space to which this conclusion leads us is close to that of Poincaré: a universe ordered as a whole by the Logos, whose forms emerge from the “mind /object” to appear to the consciousness of the “mind /subject”; an universe in which objects do not have "by themselves" position, mass, inertia, speed, etc., but where these properties emerge from the subject's overall knowledge.

**- The sensations and all the Facts of Knowledge emerge from our global faculty to know.**

In such a concept of the universe, the ideas of mass, inertia, gravitation, relativity can make sense.

For example: The inertial mass of an object means *«If I move an object in my representation of the universe, all the representation is affected» «To move an object, I need to change my representation of the world»*

### **The laws of the Logos act first**

If we try to "think our thought", how can we believe for a moment that the phenomenon **that represents**, whose complex, burgeoning and chaotic structure we recognize, would have such a plasticity that it could at any moment and in an instant; adapt to the **represented** phenomenon to produce the image of it, not as a simple file in the brain, not as a mere projection on a screen, but as the lived image, integrated by the knowing subject to all his knowledge.

You will tell me "The spirit anticipates!".

But what is the parting, in the new image, between anticipation (endogenous) and actualisation, and since the actualisation is done through sensation, what is in the sensation the part of the actually new signal (exogenous signal) and the part of the understanding? And we have just shown that the apperception of a sensation is probably only emerging *retrospectively* out of the overall capacity to know.

"To anticipate", is that not "extrapolate" the present knowledge as Conjectures on new feelings?

From this reflection how not to perceive that the phenomenon **that represents** is of a complexity surpassing by far the one of the **represented** phenomenon (the determinations coming from the supposed world in vis-à-vis) and that the forms imposed by the laws of the Knowledge will have a preponderance far superior to those imposed by supposed laws of the world on the represented phenomenon.

How can we not understand that what determines the form of change are above all the laws of knowledge, and since Kant and Schopenhauer have shown that the change in knowledge is the necessary condition *a priori* of all meaning, we must then admit that

**- It is the laws of Knowledge that lead the world of our representations!**

They determine, from the present knowledge, what new determinations it will take into account, what new Facts will arise.

So it is not the change of the Reality of the world that brings with it the change of the infinitely adaptable knowledge of the subject but it is the Representation which feeds on the Reality vacant of form, it is the Knowledge of the subject which at every moment absorbs its logical neighbourhood and gives it forms according to its own laws; to become itself.

**- It is not the world which changes according to its laws but our Knowledge which extends and is ordered according to the laws of the Logos.**

### **Meaning**

The reality has modes of order.

There are Knowledge In-act and the Acts of knowing. Until now, we have seen that a Knowledge is defined only as part of reality of which an Act of knowing is the expansion horizon.

But we have not given meaning to the Knowledge. We have not figured how a Knowledge may mean.

If we do not specify what the meaning is in Reality: what is the use of saying "the world is representation"?

To the reader who would have time and patience, we recommend reading the text

"Mathematical fact vs syntactical Fact" in the [annex I](#).

This text shows that the lack of foundation of a logic is not making of it a mere syntax of meaningless propositions. More precisely it shows that the meta-judgment of proper application of syntax is Meaning by itself. The syntax itself and by extension the meta-logic, do not have to be considered as external or overhanging the Facts of logic. The syntactic Facts and meta-logical Facts at all levels are born of the Logos and are of the same nature as the logical Facts. A Judgment on a Fact of Knowledge is a Fact of Knowledge.

The meaning of the Fact of Knowledge has the same nature as the Fact itself.

**- *A class of logical Facts is a logical Fact***

**- *The meaning of a Logical Fact is a Logical Fact***

An unfounded Knowledge, that is to say without primary semantic Fact, can take meaning.

In the absolute, by a Fact of Knowledge a "part" In-act of a Knowledge is comprehended (in the logical sense and not in the geometric sense) as an unfounded set. The Fact constitutes a singularity (an attractor) of the bundle of a Knowledge. For a given Knowledge, the average probability of "travelling through" a given interdependence link is zero ( $1/\infty$ , just as the probability of choosing a given real number over an interval is zero), whereas the links taking part in an attractor (a loop) are travelled infinitely. As a result, the attractor, the Fact, has a non-zero probability to be travelled.

We see there a quantitative aspect (a measure) to qualify the **Existence** of the Fact of Knowledge.

The term to **Exist** has for the OK a specific meaning: to Exist does not mean "to be in reality" but:

**- *A Fact Exists if it appears to a Knowledge with a non-zero probability.***

The Fact of Knowledge must be understood not as the substance of Knowledge but as a structural element of Knowledge, a non-zero probability of being travelled by Knowledge. The Fact of Knowledge is not a reality in itself, its Existence is linked to a Knowledge and relative to this Knowledge.

The Fact of Knowledge is not a particular disposition, In-act, of the interdependencies constituting its Reality, it results from the laws of the statistic that govern the course of Interdependences stemming from a Point of View. (As in statistical physics the appearance of an attractor depends on the initial condition).

To say that the Fact of Knowledge has an Existence with non-zero measure is also to say that there is a non-zero domain of Points of View for which this Fact of Knowledge appears to Exist.

**- *A Fact of Knowledge Exists if it appears to a non-empty set of Points of view.***

The Existence of a Fact for a Point of view is also a law of probability on the existence of that Fact in other Points of view.

The Existence of a Fact is therefore a Fact, the meta-Fact that unites the Knowledges that com-prehend it.

Since the subject is nothing but Representation, the Existence of a Fact for the subject is therefore also a law of probability over his own persistence.

The Existence of a Fact for the subject is also probability of Existence and therefore persistence of the subject. This law of probability of other "I" is in a way the "measure" of the Existence (of its importance as per Whitehead) of a Fact for a given subject.

That's its meaning.

The Act of making Sense of a Fact of My Knowledge is also one of the Acts that Individuates my Knowledge.

There is not: on the one hand an individuated knowledge that could be considered as an ability to know, as a perspective (see ref LAMG) specific to the subject, a kind of "piping" leading the meaning to converge towards the subject, and on the other hand a flow of

determinations, which follow these convergent pipes to finally form a present knowledge of the world.

There is no: on the one hand the subject knowing and on the other hand what he knows. The subject knowing and knowledge of the subject are one and the same Act, one and the same process. And certainly not a thing or the state of a thing.

The persistence of a Fact in my representation is also my persistence.

Here's the general formulation of Cogito: "... the proposition 'I am, I exist', is necessarily true, whenever ... comes to my mind a ... "proposition". We see that the propositions that appear to me are my existence.

This expression can be transposed even more obviously to Humanity: "The Act of giving common meaning to the Facts of our Knowledges is also the Act by which we Exist as Humanity." Or: "A culture and the works of this culture are one and the same dynamic."

We are going to show now that the Meaning of a Knowledge does not require to have a reality in vis-à-vis for reference.

The Facts of Knowledge are unfounded, proposals such as  $A = B$  or even  $A = A$  can not take the common sense of a component to component equivalence, or of an equivalence of content In-act or of an equivalence of being. Such propositions would be improvable and therefore meaningless as Knowledge.

The solution to give the proposition  $A = B$  an operational meaning, testable by experience within the very framework of Knowledge, would be: " $A = B$ " means that from Facts A or B Existing to a Knowledge, one can conjecture similar expansions.

The truth of the proposition  $A = B$  is therefore relative to a Knowledge C and its truth value is the probability of achievement of a conjecture made on the expansion of C.

Although the In-act of a Fact of Knowledge (whether A or B) is inaccessible to a Knowledge, there is a relation between this In-act and the distribution of probability on the outcomes of the Act.

**- The distribution of probability that links a Fact to its expansion is the Meaning of the Fact,**

The Meaning makes it possible to conjecture the probable expansion of the Fact.

**- The Act of expansion updates the Meaning of a Knowledge.**

Although all probable achievements are actualized in reality (for all possible orders are actual), the expansion of a Knowledge will only let some Facts appear.

**- It is by the Act that Knowledge irreversibly directs its expansion.**

Note that the term "conjecture" only applies to an anthropomorphic understanding of the word Knowledge. For a Knowledge according to the OK, the **Meaning** of a Fact of Knowledge is the meta-Fact that there is a distribution of probability on the new knowledge that it generates. This meta-Fact exists because it binds knowledges for which the distribution of probability is analogous.

Although the reality of the Facts of Knowledge is unfounded, the Meaning revealed by the Act makes it possible to represent them by sets of infinitely lesser complexity and to order them into a Knowledge.

**-The Meaning reduces the complexity of the Fact.**

If we try again to "think our thoughts", because of its underlying chaotic nature, the expansion of thought has continuities. The new sensations are not independent of the current state of thought, it is what allows the anticipation already evoked.

A state of sensations carries in itself laws of singular probabilities on other sensations. Some of the possible future sensations are more likely than others.

The reality of meaning is the existence of these singular laws of probability, of an interdependence between a sensation and those which will follow. These continuities make possible conjectures on future Knowledge from current Knowledge.

**- *Meaning is a conjecture.***

Thus, not only the sign "Socrates" has for a Meaning the conjecture of the sensations of old, wise, ugly, generous ... but the sign "red" associated for example with the sign "apple" has for a Meaning the conjecture of the next sensations of sweetness, tenderness, etc ...

**- *The raison d'être of the meaning is that it anticipates in an efficient way the future sensations,*** the future increases of the Knowledge of the subject. Note that these best paths to the "I" to come are "In-act", already possible, already probable before they come to make sense.

This phenomenon is reinforced by itself because the semantic anticipation of a future sensation increases the probability of its realization.

It is remarkable that the sense thus defined refers to knowledge itself and in no way to a form *per se* of the real, to which it is enough just to be chaotic, to have no form in reality. What does it matter that there is no Socrates/object having in reality the formal attributes of old age, ugliness, wisdom and generosity, it does not matter either that an apple is not red in reality, what matters is the persistence of specific probability links between a state of Knowledge and the following.

The form is the persistence of this semantic attractor, of this loop of probabilities that unites the sign to its semantic neighbourhood; it is the label (the symbol?) of the conjecture that can be drawn from it. It is the meta-knowledge of the meaning of a knowledge.

We note that, just as for the signifier of language, the form (the formal label) attached to the concept is arbitrary. Just as the acoustic image associated with the concept of Socrates is arbitrary, the formal label associated with the concept of red is arbitrary; only matters the efficiency of conjectures, the persistence of singular relations of probability, in their individual as well as relative truth.

**-*The form of the sensation is arbitrary; the Meaning is in the persistence of the links***

**- *A Knowledge can not be but only Exist.***

A Knowledge is not a "thing"

Although the reality of a State of Knowledge is by definition an In-Act bundle, it can only Exist, that is to say, make sense for another Knowledge.

A Knowledge has truth (Meaning) only in relation to a Knowledge that comprehends it (in both senses of the term) and gives it formal Existence, the reality of this Knowledge being itself an In-Act bundle.

**-*Through the Act (of expansion), a Knowledge gives Meaning, gives Existence to the Reality In-act that it comprehends.***

This dynamic relationship between the In-act and the Existence deserves strictly the name of **Anima** (what animates) of the Knowledge.

**The Anima** is the result of the complementarity of the In-act and the Act. The In-Act Exists by the Act that gives it Meaning, the Act is a law of probability on the In-act.

Without the Act, the In-act could not Exist; without the In-act, the Act would be without Power and without Will.

The Meaning of a Knowledge is expressed by the Knowledge that comprehends it.

There is nothing new here: Is not our thought the expression of our thought, is not life the expression of life, does not a logical theory require a larger theory to express its truth?

The relationship of a Knowledge to the Knowledge that expresses it is irreversible by nature and not by accident. It is not the complexity of the interdependencies of one State of



Knowledge to another that makes any return unlikely, but the logical principle that a truth can only be expressed by a truth more vast who comprehends it.

**- The attribution of Meaning appears to Knowledge as an irreversible flow.**

The result is an order relationship between a content and a semantic container, what is comprehended and what comprehends.

**-The attribution of meaning ordains Knowledge.**

We have seen that the Facts of Knowledge appear together with complexity.

The appearance of Facts of Knowledge does not reduce complexity in Reality.

Nevertheless, by replacing the In-Act of the Fact by a conjecture, by the Meaning, it tends to "mask" this complexity to Knowledge.

The example of the referendum below illustrates quite well this concept of unification by meaning.

The population solicited by a referendum carries with it an opinion diffuse in time and space. No individual carries within him the Meaning of the opinion. There is in reality no state of opinion. An opinion poll, however, will give the unitary Meaning of a conjecture about the outcome of a future event.

The relation between the diffuse whole and its possible developments (the law of probability) unifies the meaning. The innumerable reality of the signifier is replaced by a conjecture on a countable dimension of future experiences. It is the same for the pressure or the temperature of a gas.

Each Fact of Knowledge constitutes an "interior" horizon, a logical limit on which the complexity of the Fact In-Act is replaced by the relative simplicity of conjectures.

Thus defined, a Knowledge comprises a subset of Reality, closed by a horizon, such that everything seems to have taken on meaning, to Exist.

As an exercise, I suggest the reader to apply this principle to his vision of the world:

*The present moment of the world is the cut that delimits the present state of my Knowledge.*

*On this cut, the unthinkable complexity of its causal content is replaced by attributes and laws.*

*The meaning of these attributes and laws is the basis of the conjectures I can make about my future sensations.*

With this proposal, the OK updates the allegory of Plato's cave.

**- The Meaning is on the horizon of Knowledge.**

### **The question of the present moment.**

The sensation contains in itself an apparent paradox :

The sensation appears as One and present to the thought/subject,

The whole world appears present to the thought/subject

The subject appears to himself as One and present.

Yet the sensation as well as the concept of an object, are diffuse sets, regardless of their nature as thought/object. How is it that in spite of these evidences on the level of the thought/object, the sign appears One and present to the thought/subject?

We have seen that the innumerable reality of the signifier is replaced by a conjecture on a countable set of future experiences.

The unification by the Meaning does not change suddenly and in block the In-act into a fact.

It must be considered as an extended and permanent flow of unification of which the asymptotic target will be the Cartesian "I /subject", always pushed away by the very principle that generates it.

This principle of unification of the "I" should be neared to the principle of **Individuation** developed by G. Simondon (Ref. ILFI).

Since Einstein, we know that in the world of our representations, the simultaneity of distant entities does not correspond to anything real. The sensation (and by extension any Fact of Knowledge) is never synchronous in reality because, being necessarily complex, it could not be one and synchronous at the same time.

If the Fact In-act (which is never really synchronous) appears as present to the subject this is simply because the present moment of the subject is the Act that gives Meaning to his In-Act. The present moment of the Fact and its Act (of expansion) are a single signifier.

The present moment of a Fact is not an external reference but is included in its concept of Unity.

The present moment of the subject and his Act (of expansion) are a single signifier.

The present moment is not defined for the thought/object (the In-act) but only for the thought/subject (the Act), for the "I".

The "I" is on the semantic asymptote where all meanings coincide.

***-The present moment of a Fact is the asymptotic unity of its Meaning.***

The concept of each Fact is a present moment and it is the semantic interdependence of concepts that causes the convergence of all these present moments to a present moment of the knowing subject, the "I".

We must not then consider the "I" as if it were situated in a present moment that would be in vis-à-vis to him and would be applicable to all the Facts of that state of mind, but on the contrary consider the present moment as constitutive of "I", as immanent to "I".

The idea of present moment is already included in the "I" from the Cogito.

The synchronicity of the representation results from the very nature of what we call the State of mind of the subject: the Meanings of the Facts (considered as containers, logical attractors of the thought) are progressively subsumed towards this purely semantic thing that is the representation of the world by the "I".

***-The present moment of the subject is the asymptotic individuation of his Meaning.***

At each stage of this semantic aggregation, the present moment of the "compound" Fact does not formally refer to the present moments of the "component" Facts.

There is not a present moment which would bathe the fusion of the components in a compound but creation, in the compound, of its own present moment.

***- The "I/subject" is alone to know his present moment.***

***-The present moment of Facts is not the present moment of the subject.***

In reality, there is no synchronicity neither of sensations/objects, nor of Facts/objects, nor of thought/object, but creation of a present semantic moment as the asymptote of the process of unification and individuation of the Knowledge of the subject.

Interdependence being the only ontological reality, we must abandon the common vision of a world made up of "beings present to which it happens to change of state".

Change is not an "accident of the being" but, on the contrary, it is the Fact that is a singularity of interdependence. One could almost say that the being is a singularity of the changing and that its present moment is one of the attributes of its Existence.

The process that synthesizes Facts and merges them in the present moment of the subject is Logos, a principle that transcends understanding and consciousness.

We have also shown that "the present moment of the subject is the asymptotic individualization of his Meaning." The present moment is therefore a synthesis specific to the subject. The subject is not the result of a synthesis but the synthesis itself, of which the subject and his present moment are the virtual focal point.

## **The question of the form of the world**

The above proposition concerning the formal concept of present time can be generalized to all concepts of form.

It applies generally for the subsumption of the thought/object by the thought/subject.

The "compound" is not the formal combination of "component" sensations (which would be absurd) but the circulation of interdependencies (laws of reciprocal probability) between these sensations.

The representation is not a transposition of the form of the real but the creation of predicates, and the concept of being is not the formal fusion of sensations but the creation of a semantic entity.

***-The form of the Fact that comprehends is not the fusion of the forms of the Facts that are comprehended.***

Each stage of unification of the Knowledge is creation of new forms.

The formal reference of sensation to the object in vis-à-vis is impossible and useless.

This principle was already there in the theory of multiplicities: According to Husserl, the "objects" of a multiplicity are defined and exist not according to a "proper" reality (eigentlich), but according to their relationship to the other objects of the multiplicity, the reality that Husserl (and before him Brentano) calls "unproper" (uneigentlich).

The existence of an object of multiplicity is only extensionally dicible and in the language of the multiplicity. The internal reality, the proper reality of objects could only be described by an "intensional" language, each object being considered itself as a multiplicity. But this "intensional" language does not take up any of the words, none of the syntaxes of the "extensional" language.

As for the objects of the world as they appear to us, the space-time in which we describe their "extensional" reality does not apply to describe their "intensional" reality. It should also be noted that this extensional language is not a priori or universal, it is none other than the structure of my perspective of the world as a knowing subject. My perspective of the world is the structure of the multiplicity in which "I" represent myself.

Saying something about the "inside" of a Fact of Knowledge is a bit like saying something about the inside of a stone: it takes an Act, an additional cut, a n-dimensional interface ( $n < 4$ ) through which a new meaning will appear that can be represented, that can Exist in the multiplicity in which we stand.

But we have already written: "The Act of giving meaning to a Fact of My Knowledge is also one of the Acts that Individuates my Knowledge." There is not on the one hand the facts of the world and on the other hand the perspective that we have of it. The perspective is none other than the law of probability of the appearance of the singularities that make up the Facts. This perspective represents how the meaning of our knowledge individuates in us in the form of facts of the world.

The objects of our world Exist for us according to our perspective and this perspective is inoperative beyond our horizon of knowledge

The purely semantic nature of the unification principle proposed by the OK is different from the principle of individuation enunciated by G. Simondon. (ref ILFI); although keeping the general idea that the knowing subject is individuation of Knowledge. In this the OK allows a considerable reduction of the number of a priori assumptions necessary for its coherence.

Let us emphasize (and G Simondon emphasized it before) that convergence or individuation is not a process of which the "I" would be the result but it is its essence, its very principle.

The "I" is and will always be the asymptotic target of convergence.

It follows that the progressive unveiling, the change of Point of view does not reveal another

"I" although it results from an extension of himself. The "I" always knows himself as "myself".

NB: It is essential to keep in mind that this principle of unification is semantic and not spatio-temporal, physical or material. Without this permanent effort to distinguish the thought/object from the thought/subject, which is the only one of which we are certain, all ontological reflection is lost in confusion and is finally digested again by the theology of a world in vis-à-vis.

### **Back to the Anima or the subject's time**

What makes the subject's time is this:

The representation of his Knowledge by the subject is limited by a horizon.

For the subject the meaning of his Knowledge is in a truly unknowable ratio to the All of his Knowledge and the Knowledge is immeasurable to the All of the Real.

A Knowledge is possibly an infinite journey, even unfounded although these terms are meaningless beyond the horizon of meaning.

The Whole of representation, far from being the All of Knowledge is only a cut in it and the meaning is produced by the Act of crossing this cut, this horizon.

But let's make it clear again what the horizon of meaning is:

When I describe an atom, the extensional meaning is that of the atom considered below this horizon, in the multiplicity of which I am the focal point. The meaning is defined by the interdependencies of the atom-as-One with the other objects of my multiplicity according to my perspective.

But there is no atom on the one hand and the particles that make it up on the other hand.

Beyond the horizon that carries the meaning of the atom, there is no other reality that would be particles. The atom and its components are one and the same reality. It is the same reality that appears under different meanings. There are not even "actually" atoms, particles or quarks etc.

Crossing the horizon is purely semantic, it is not crossing towards another reality.

Nor is there a inner "space-time" of the atom. As we have already seen, the language that describes the atom as an object does not prevail to describe its proper nature.

The question "where and at what moment are the components of the atom ?" would then make no sense?

To know where and at what moment the components are, I have to cross the horizon of the meaning of the atom, in the hope that one or some new cuts will make the particles appear to me, describable in the language of my multiplicity.

The words "hope" as "bet" are misleading because, in a reality not subject to time, all cuts, all possible orders are Actual beyond the horizon of meaning.

So the components could appear to me in all possible positions and moments.

However, from my perspective, not all of these possibilities are equiprobable.

If the thought/subject is blind, if it does not yet make sense of this "something beyond its horizon", it is nevertheless interdependent of it. The perspective I have of the atom-as-One in my multiplicity actually contains a law of probability on the existence and spatial-temporal positions of the components that might appear there.

Let us understand that this law of probability that crosses the horizon of meaning is neither a gamble, nor a hope, nor a psychological judgment but an In-act reality. (see ref BQOC)

This reality is concealed from us by the fact that the interdependence links dicible in the language of the multiplicity of the subject are themselves only meaning. These

interdependence links as they may Exist for the subject are in an unknowable ratio to their In-act reality.

Here we join Kolmogorov's philosophical conception of probabilities:

In a meadow are 10,000 black and white sheep. If I count the sheep, neither the amount of sheep nor the proportion of white or black sheep changes. The chronological order of my account also has nothing to do with the reality of the presence of sheep.

The proportion that appears to me at the time  $t=500$  sheep in my account, contains de jure and de facto the law of probability of a proportion on the whole.

Why ? Because the meaning of my knowledge is closed by a horizon that conceals the unfathomable reality. Beyond this horizon, the interdependencies to which my measure gives meaning and which therefore Exist at the rank 500 extend "In-act" to the 10,000 sheep. These interdependencies are the reality of proportion, the proportion as a value is only the meaning that represents this reality in the one-dimensional universe of the Act of Counting, in my universe at the moment  $t=500$ .

Although each of the 500 sheep seems to me individuated, black or white, the reality that takes on this meaning extends far beyond the one sheep, the 500 sheep, the 10,000 sheep and my overall representation.

The error of principle often committed is to transpose, beyond the horizon of meaning, the universe resulting from the Acts that structure the universe of the subject, below the horizon. This error leads us to believe that space-time that affects the Meaning also affects Reality and thus to consider causality (which is meaning) as a reality, the change of the Meaning as a change "in reality", and probability as a "bet" on something not yet happened.

Assuming that the subject is a representation of the world, we now understand that the question "why does this representation change?" needs to be revisited.

The knowing subject is limited by the horizon of meaning.

We will see that the mode of this finitude animates the Spirit and conditions the flow of life itself. From an anthropogenic point of view we could say that it is the greatest gift that nature has ever given us.

Schopenhauer writes: *"The self that represents itself, the subject of knowledge can never become itself representation or object, because, as the necessary correlate of all representations, it is their very condition... Therefore there is no knowledge of knowledge, because this would require the subject to part from knowledge and still be able to know knowledge, which is impossible. »*

Ref "QRPR" - 41 p 275 276

This quote actually sets out two proposals:

- The subject cannot Exist as an object for himself
- Knowledge cannot represent its own principles.

As J. Schopenhauer says, it is true that a Knowledge, as a closed logical system, could not justify its own truth, to represent itself as One.

The same terms obviously apply to a multiplicity according to Husserl's definition: a multiplicity cannot define itself extensionally as an object.

As far as arithmetic is concerned, K Gödel has demonstrated that a theory can only be proven true by a larger theory.

The answer to Schopenhauer is this: What is real is not beings but interdependencies.

The reality of meaning is not the state of beings but the interdependence between Facts of Knowledge. Meaning is not "something" but the In-act probability of something. The subject is not an object but an Act.

The meaning of the subject is not the state of his Knowledge but the interdependence between the Facts of his Knowledge.

G. Simondon has shown us in his own words: the subject is not the result of an individuation, it is its very principle, the subject is "becoming oneself".

In this G. Simondon highlights a new evidence: The subject is not simply the crossing of the horizon, what we call the Act of Expansion. For the subject this Act is individuating, it converges towards the Unity of the subject.

There is not on one side "what the subject knows" and "how he knows" on the other side.

There is no on the one hand a present representation of the world and on the other hand the preconditions for its representation, but a single process of aggregation of meaning towards this virtual point that is the "I".

We have seen that the Meaning of a Fact and of all the knowledge of the subject is a law of probability on the persistence of the subject i.e. on its expansion/individuation.

"In reality" the subject is not a being but Meaning. He is the Meaning of his Knowledge, the Act which at the same time extends and individuates it, the probability of another self.

As Kant could have written: the continuity of the world is my own continuity.

The expansion of the Meaning of a Knowledge in its neighbourhood is therefore its very essence.

The Fact contains in itself and In-act the law of probability of other Facts but exists only by those other Facts. The Sense is the meta-Fact of possible interdependencies, i.e. Actual but which will come to Exist only by their fusion within the subject in unveiling of himself.

This disclosure is irreversible, although the bonds of interdependence are reciprocal.

The finitude of our Knowledge and the fact that it exists by pushing back its horizon constitute the principle of its Anima, the soul of the knowing subject.

The present moment being, in essence, linked to the "I" of the thought/subject, the necessary and irreversible unveiling of new Facts is interpreted by the thought/subject as a change in the representation, as the time of the world, whereas it is a change of its extension.

In conclusion and in answer to Schopenhauer, the subject is not, for himself, an object of knowledge. Nevertheless he Exists to himself and gives meaning to the world, he comes to know his thoughts, by pushing, in a necessary and irreversible manner his horizon of representation. As "I/subject" he is essentially the focal point of this expansion.

For the OK the essence of time is first in the "present moment" constituted by any Fact of Knowledge; then by the subsumption of these present moments in a present moment of the subject, then in the anima who wants that the In-act can only take meaning by being stated in the Act which comprehends it; and finally by the order relationship between what is understood and what understands.

Raised at the highest level of individuation, that is to say, at the asymptote of the Logos' actualization, these principles are subsumed in the representation of "my becoming".

***-The Anima animates the representation that the subject has of himself and the world.***

***-The relation of what understands to what is understood orders the representation.***

***-Anima creates a subjective time that appears to be the time of the world.***

***-The form-time is consubstantial of the meaning.***

### **About Power and Will**

Let's take for granted that there is no formal "reality" to which we could refer our propositions and concepts. The Sense of our propositions and concepts is a distribution of probability on the sensations or thoughts to come:

***-Representation is conjecture.***

To understand how a Knowledge contains *de jure* conjecture, let's consider the example of draws in an infinite set of random values [Supposing that the distribution of values results from their dependence on an infinite and diffuse system of common causes]. The distribution obtained after the thousandth draw gives the sense of my experience and allows me to make a conjecture on the next draws.

But the Reality of the thousand values already revealed as well as of their singular distribution, as well as of the singular distribution of the future draws is In-act in the infinite

system of common causes. There is no mystery in the relationship between my experience and the conjectures it allows. Everything is there, In-act and without foundation.

The Sense of my Knowledge in the thousandth draw is only the setting into Facts of the infinite and diffuse system of common causes which themselves are only the setting into Facts of other causes etc ... The thousand values are Facts of my Knowledge, the singular distribution of results is a meta-fact of my Knowledge, the confidence that I can have on the result of the next draws is also a meta-fact of my (of our) Knowledge.

***-The Conjecture is a Fact of Knowledge***

To the concept "Aristotle", the subject associates the probable sensations of "old", "ugly" "smart" "generous" etc ...

The Fact of Knowledge "snow" integrates In-act the conjecture of the sensation of white, cold etc. The Act of thinking about the concept of "snow" gives rise to the subject's expectation, that is to say, the concept of "cold" "white" etc.

***-The Act reveals what is In-act.***

There is no difference in content between the concept of "snow" and the propositions "snow is white" and "I think, I believe, I know that snow is white" etc ... The Meaning is not the impotent expectation of an unveiling, because we have seen that the expansion of Knowledge is necessary and that the State of Knowledge contains In-act the laws of probability of its expansion.

***- The Knowledge contains In-act the Power that drives its expansion and the Will that directs it.***

***- The object of the Will comes to Exist by the Act of Expansion of Knowledge.***

There is no difference in nature between Knowledge, Conjecture, Desire, Will.

It is necessary to redefine the meaning of Will for a Knowledge whose Future Facts are in Power in its Reality.

At the highest level of abstraction Self-knowledge is the Conjecture, the Will of oneself, the Belief, which is also absolute Desire, to recognize oneself as oneself the next moment.

Our individuation is a principle of knowledge: the Logos that ensures the persistent unity of "I". Yet we want to believe that the world is provided with beings that persist and become.

What we have shown for Knowledge also applies to the Fact of Knowledge.

***- The Fact of Knowledge contains In-act the Power that drives its expansion and the Will that directs it.***

In particular, a compound Fact is nothing more than the "reciprocal expectations" between component Facts, the meta-Fact that each component Fact will the other component Facts, that each component Fact contains In-act the conjecture of the other component Facts.

Thus, the unity of the compound Fact must not be associated with interactions between the component Facts, external to these, in a space-time external to these, but to the logical Will of Interdependence contained In-act in the component Facts and rendered actual as a compound meta-Fact.

**About truth**

The concept of "snow", is associated with sound sensations (nēj), visual (white), physical (cold), emotional (pleasure), etc ...

Each of these sensations contains in it a small probability of the other sensations and the concept of "snow" is nothing more than the circulation of these reciprocal probabilities.

This reciprocal expectation between all these sensations **is** the concept of snow.

The concept of snow is not "composed" of these sensations, nor is it the "container" of these sensations.

The sign of the snow concept is not related to those of its components.

We have seen in particular that the Fact of Knowledge creates its own present moment.

The present time of the Fact, simultaneous, without duration replaces the circulation of expectations. At the level of the compound Fact, the circulation of expectations becomes a self-determining truth, a logical, semantic loop.

The truth of a Fact is not based on the truth of the Facts: sensations, signs, concepts that it unites but on the circulation of their interdependencies.

***-The truth of a Fact is the circulation of Interdependencies between the Facts it unites.***

***-Any Fact of Knowledge is true to itself.***

This construction of truth continues throughout the union of the Facts by their interdependencies, toward the eternally present truth of "I" and its representation of the world.

The truth of "I", the cogito is the asymptotic truth following this principle of union of Facts of Knowledge. Let's underline again the brilliant intuition of G. Simondon

***-The truth of "I" is Individuation***

From this definition of truth it follows that the propositions "The snow is white" and "It is true that snow is white" are equivalent.

### **About the Power of the Logos**

We could judge implausible that the ordering of logical interdependence by the Logos, based on simple laws of probability, can confer the logical Facts, a Power or Will that would explain the phenomena of the world we represent.

How could we believe that we are only moved by our representation ?

By the very laws of our mind, we are led to consider the logical facts, the beings as One.

Thus the statistical interdependence from a logical fact to another seems to us weakly restrictive, likewise for a countable infinity of logical facts, maybe also for a continuum of finite dimension (once formalized Interdependence in a continuum).

But for the OK, the Fact is unfounded. Facts A or B for example, contain In-act infinities of infinities of component Facts. The interdependence between A and B brings into play all the combinations of interdependencies between the component Facts of A and B. It is to these fantastic infinities, strictly unthinkable, that the statistical laws of the Logos apply.

***-The statistical interdependence in unfounded Reality is infinitely stronger than in any continuum, whatever the number of dimensions.***

We then understand what Power and Will the Logos' Laws give to a Fact or State of Knowledge to determine its Becoming.

We can only repeat:

***- The principle of the Logos who rule the evolution of knowledges, is infinitely more powerful than the physical laws that govern the evolution of the world.***

***-A Knowledge, set by the principle of the Logos is infinitely more persistent than the world regulated by the laws of physics.***

In deed,

***-The laws of the world of our Representations are the residue of the appearance of the Facts of Knowledge.***

### **About uniqueness of the course of Knowledge.**

A Knowledge directs its expansion among a distribution of probability on future Facts.

This distribution relates to a reality In-act, not a choice between various futures not yet arrived. All possible Knowledges are actual.



One could ask “does my Knowledge also take other branches?”; “are there other “me” with other futures?”

This is a wrong question, because “I” am Individuation.

The very fact that I exist is the balance between expansion and aggregation of my knowledge that steadily converges towards “me”.

From “me” to “me” there is infinity of paths actually travelled; but all converge.

The power of that convergence is so strong for a Knowledge of such a complexity as “me” that a split is impossible.

Let’s consider the reproduction process: how many cells does it take before Individuation is irreversible?

One could also ask “are there several universes with several futures?”

There is no All of the Universe “in reality” and therefore no unity nor multiplicity “in reality” of the Universe. The “All” of the Universe is a form for a Knowledge, unified by Knowledge itself and limited by the horizon of this knowledge.

It is only for a Knowledge that the Universe seems to Exist and to happen.

It is the Act of knowledge that creates forms, time and the succession of forms.

Nothing happens “in reality”.

The universe is my Knowledge and my Knowledge it’s “me”.

Once again: from “me” (the universe I know) to “me” (the universe I know) there is infinity of paths actually travelled; but all converge towards “the universe I know”.

The principle of individuation is first and only from this principle can the idea of a universe take meaning.

And yet, “I” am not alone; there are other “Individuations” appear to Exist for my Knowledge. Do they also exist “in reality”; i.e. independent of my Knowledge?

If yes, does that jeopardize the all OK model?

It will need another article to discuss this question.

That said the number of possible and therefore actual orders, i.e. Knowledges, i.e.

Representations certainly exceeds our ability to conceive of it. However, it would be a mistake to consider these as Existing.

### **About anthropocentrism of our representations**

In a Darwinian mode we might think that the Logos' laws give us “by chance a selective advantage: the ability to represent.

We might think that the representation of the world by Facts is essential to us because we could not represent the All without reducing its complexity, without the Facts and that, by chance, the laws of the Logos lead in a necessary way to the Facts of Knowledge.

The OK forces us to deepen this reflection and to make the following epistemological remark:

**- Darwin's theory states the principle that allows us to state it.**

This raises the question: Is the theory of evolution basically miscible in the Cogito in a paraphrase of Descartes’ statement:

*“This proposition: There is a principle which makes me exist, is necessarily true, whenever I pronounce it, or when I conceive it in my mind.”*

Which leads to logical equality: “There is a principle that makes me exist = “I” exist = I conceive in my mind the thought that “I” exist = There is a principle that makes me think »?

Raised at the level of principles the Cogito tells us: “the principle that makes me Exist is included in the principle that makes me think” and not the other way around, because my primary certainty is to think.

To finally say:

**- I \* am Logos**

The "I / object" is Logos In-act and the "I/subject" is the asymptotic Act of the Logos \*.

The "I/object" is Knowledge In-act and the "I/subject" is the Act of understanding my \* Knowledge.

Here is the clarity that Kant and Schopenhauer missed.

This epistemological remark applies to our representation of the world and its laws:

The laws of the world are necessary to us as much as we are necessary to them.

- Without laws of the world we would not be.

- Without subject, there are no objects, no relationships and no laws. (Ref MOND)

The epistemological remark is then stated :

**-The laws of the world state the principles that allow us\* to state them**

Which leads us to the equality: " "I" am true for myself = the world I represent is true."

And finally :

**-The world is the Act of understanding my\* Knowledge**

It follows that, despite our efforts and convictions, any representation of the world is anthropocentric. Not for lack of rigor or for pride or belief but necessarily.

\* Everyone understands that there is a "I" of Humanity and beyond even a "I" "of all the conscious on earth and can even be a "I" of systems of all kinds we designed interdependent with each other. (Ref : SOLI)

Annex I :  
**Mathematical fact - Syntax**

Idea Force: The absence of a foundation of mathematics or logic does not mean that it is a mere syntax, because Syntactic Facts and Meta-logical Facts at all levels arise from the Logos and are of the same nature as Logical facts.

This text refers to the article "Gödel: Des théorèmes d'incomplétude à la théorie des concepts of Jacqueline Boniface " review Noesis .

The "dispute" between Gödel, who defends the existence of the mathematical fact and Carnap, who considers mathematics as a simple syntax, can be transposed at the ontological level. The question would be: "If we cannot find a basis for the being (a first being, a substance, a logical Fact) may it be that the world is nothing more than the arrangement (the syntax, the order) of meaningless symbols, of nothing at all?" "Can we separate order and meaning?"

To see that more clearly, some precisions:

-First, for the OK, the subject carrying the point of view can not isolate itself from its object. This is particularly true in a conceptual domain such as logic. As long as logic has an object, a logical proposition makes sense only in the (logical) relation between the subject who states it and what it claims to qualify. It follows that the universality of a proposition can only be a profession of faith, because the theory to which the proposition belongs, was it coherent, is constructed by and in the point of view. We must not confuse "invariance" and "universality". So there is only meta-logic proposition.

-It also follows that a logical being can not have a limit, a defined boundary. The logical being is itself a point of view on what gives it meaning; it represents its logical "neighbourhood". Its neighbourhood is its universe. But in topology, if each element of a logical set is surrounded by a neighbourhood, this set can not contain, i.e. represent, its own boundary. Being can have only a horizon.

*NB : These remarks show the ontological character of Gödel's demonstrations.*

-The term "mathematical fact" is misleading. A mathematical fact is a concept. But every concept is in essence constructed. A concept is not the recognition of a universal truth by nature but the attribution of meaning to a multiplicity by a subject. The attribution of meaning is not a pure activity of the mind but a process of reality, of which the mind is a part. The mathematical fact is a meta-mathematical concept in that it recognizes the validity of the process that gives it meaning.

-The syntax is not a set of arbitrary rules. If it were a free creation of the human mind, it would nevertheless find its origin in the relation between the object and the subject. Syntax is a modality of designation of invariants identified by a subject (Science is a point of view) in a logical system. The effectiveness of this mode of designation is itself based on invariance. The identification of this invariance is a process of reality.

The syntactic rule qualifies the relations between designated mathematical facts, in the same way that the mathematical fact qualifies the relations between logical propositions.

Unity in fact, whether mathematical or syntactic, is not in itself, as an intrinsic characteristic, but expresses a singularity in the organization of a set of inferences.

It is not necessary that the propositions connected by these inferences be founded by primary constituents, by a substance. The "fact" (whether logical or syntactical) is not founded by a substance; it is born of the- and in the structure, at all levels.

In this sense one can speak with as much legitimacy of the "syntactic fact" as of the "mathematical fact". Both are of the same conceptual nature. There is neither more nor less arbitrariness in the statement of a syntactic fact than in the recognition of a mathematical fact. In conclusion, the lack of foundation of a set of logical inferences does not preclude the existence of "facts" that will not be meaningless or arbitrary creations. These facts will nevertheless be concepts, relative to a subject, built step by step.

Being and order are two modes of designation of the same reality.

## Annex II

### Reality is a logical system In-act

Reality is Interdependence In-act, “out of time”, a concept very different from that of “eternity” which means: “to last all the time”.

Interdependence In-act (A because B and vice versa) is a concept very different from the logical causal relation between two facts (A is the cause of B).

Reality is logically unfounded; there is no being in reality.

We do not have adequate mental images in the physical world for these concepts, in fact unthinkable as facts of the physical world with attributes. But these strange attributes are not unthinkable.

To think of them, one must think of the world as a logical and not a physical system.

Let's take as an example of logical system: a language (dead). A dead language is «out of time” in this that the relationship between word and concept are without reference to time.

The interdependence between terms is neither causal nor conditional. Snow is not the cause of white. A language is unfounded since there is no first word. Except for the reference to an object vis-à-vis, any word can and must be justified by other words, infinitely.

#### Return on the In-act and the Act

The example of the book also introduces the concept of Act.

Indeed, a language, a book, a posited calculation, a logical theory In-act do not make sense as such, they only make sense by the Act: the act of speaking, reading, calculating, inferring.

The sounds, the words, the propositions of the language are In-act but make sense only by the Act which defines a certain mode of order, according to certain rules.

Note that the In-Act is not the result of the Act; the In-Act is not the sum of the Acts.

*For OK, what we are is not the cumulative result of our actions but the Act by which we become.*

The story told by the book is not the result of reading *but it Exists by the Act of reading.*

In an interactive book, the reader, by the Act of reading, selects the story that happens among In-act stories. We see that the In-act (the book) is out of time and that it is the laws of the Act (the process of reading) that impose a dynamic of expansion on Knowledge.

This example (in its limits of validity) makes it possible to visualize the relation of the In-act to the Knowledge through the Act: There is the substance of the book which would be the **In-act** of the printed letters. There is the **Act** of Reading, by letter after letter expansion of what is read. Finally, there is **Knowledge**, which is the accumulation of what is read and ordered in the form of **Facts of Knowledge**.

Interdependence In-act, which constitutes in a way the substance of Reality, is true before being comprehended by the expansion of a Knowledge, that is to say before the Act which understands it.

One could push a little more the use of this example by noting that a major part of the Act of reading is for the reader to conjecture the next words out of his actual knowledge. This shows that the In-act of the reader's knowledge already contains a distribution of probabilities on its future expansion.

There ends the validity of the example of the book, because if the book contains In-act a narrative already formalized (organized in series of letters ); the Reality is vacant of forms and it is the laws of Logos which, in guiding the expansion of Knowledge, build its story step by step.

### Annex III

### Consciousness

**Wolfgang Ernst Pauli** is an Austrian physicist known for his definition of the principle of exclusion in quantum mechanics, which earned him the Nobel Prize in physics in 1945. Pauli (like so many others) wondered much about the meaning of the principle of complementarity and the role played by the observer and the observation device.

*(Ref PM & P ) p. 183 It is easy to come to the idea of comparing the inner process of sensible perception and, more generally, any appearance of a new content of consciousness, with observation in physics, because the measuring instruments of these can be considered as technical extensions of the observer's sensory organs. In the case of sensible perception, however, the new content of consciousness becomes an integral part of the perceiving subject. As the unconscious escapes the quantitative measure and therefore the mathematical description, and as any increase in consciousness (or conscientization) modifies by necessity, by action in return, the unconscious, we must expect in this case (of the unconscious) a "problem of observation", a problem which certainly has analogies with that of observation in atomic physics (NDLR at the quantum scale), but involves even more considerable difficulties.*

It seems obvious that a "state of consciousness" can represent to itself only part of the reality that constitutes it; A potentially tiny part of this reality.

This is not a psychological or metabolic question, but a pure question of logic; A mathematical question.

As Gödel has shown for the restricted domain of arithmetic, there must be, in the logical theory of consciousness, true propositions that consciousness can not represent as true; Semantic elements not conscious.

To continue the analogy with Gödel's work, one could say that consciousness is the meta-logic of our "states of consciousness". The one that states the propositions, the one that declares "this is a thought" "this is true".

The rest is in a way the language of the utterance, which is real as the logical substance of "consciousness" but does not appear, "does not exist" as such for consciousness. This is, *inter alia*, the network, the extraordinarily complex field of interdependencies which connects the signal to the sense and meaning.

Though, consciousness, this part that "takes shape", presents itself to us as the "present self". Then the question arises: where, in what space is the logical substance of consciousness, and in what temporality?

Does the proposition "I am" contain (logically) the language by which it is pronounced?

We do not know very well to distinguish the container from the contents of this kind of bottle of Klein.

As W. Pauli writes, *"measuring instruments can be considered as technical extensions of the observer's sense organs."* (*Ibid*)

Can not sensory organs themselves be considered as extensions of consciousness, and all the physical or logical phenomena that "make a step" between the observed object and the consciousness of the observing subject ?

To illustrate this, a few quotes from CG Jung about what he calls *The Archetype*, borrowed again from W. Pauli (*ibid*):

Psychologische Typen (1921)

- *The primordial image, which I have called elsewhere "archetype" is a preliminary stage of the idea, it is the mother cell.*

- Über die Energetik der Seele (Psychologische Abhandlungen, 1928)

*Archetypes are typical forms of the grasping of the real, and everywhere we see the regular recurrence, in the same way, of certain modes of this seizure, it is an archetype ...*

- Psychology und Religion (1940)

*(We admit) That a certain unconscious conditioning is present as a priori received by heredity. By such a hypothesis, I naturally do not mean the hereditary transmission of representations, which it would be difficult or impossible to prove. I suppose rather that the inherited characteristic must be something like the formal possibility of reproducing the same ideas or at least similar ideas.*

*By the notion of archetype, I mean a property or a structural conditioning peculiar to the psyche in its relation to the brain, whatever it may be.*

- Von der Wurzeln der Bewusstseins (1954)

*We must always remain aware that what we mean by "archetype" escapes in itself from the direct grasping by the representation, but rather produces effects that make possible representations, which are the archetypal images.*

*... .. the psychic "Ultra Violet" that is the archetype, is an area which on one hand has no physiological characteristics and also can not be considered either as ultimately psychic although it manifests itself in terms of the psyche*

*... the archetypes have a nature that can not be described as psychic*

*... Archetypes only appear in observation and in experience, and by organizing representations, which always happens unconsciously and, for this reason, can never be found a posteriori.*

- Aion (1951)

*... certain complex factors of representation, which I call archetypes, of which the existence as unconscious organizers of representations can be assumed.*

- Wurzeln

*The word "Archetype" is an explanatory reformulation of the Platonic eidos (the Idea)*

The definition of the "archetype" given by CG Jung through these lines corresponds quite precisely to what the Ontology of Knowledge (OK ) refers to as the "eigen solutions" of the Logos.

The Logos is a mode of self-organization of interdependence links. His nature is mathematical. Although essentially unpredictable, it presents specific solutions that, applied to a field of interdependence, define singularities. These singularities are the constitutive elements of the representation of the real, in the form of Facts, carrying attributes, in an ordered state space.

To be clear, we must distinguish 4 concepts :

- The principle Logos, which is no more than a statistical law, possibly transcending all reality, which should be compared to the principle of organization of thought in the form of archetypes proposed by CG Jung.

- The generic eigen solutions of this law, which should be compared with generic archetypes or Platonic Ideas (eg the circle, distance) or the concept of attractors of the mathematics of dynamic systems.

- The eigen solutions instantiated by a given course, from a given point of view, which will then have to be related to instantiated archetypes (eg the moon that I see seems to me round

and far) or an attractor appearing for a given application iterated from a given initial condition.

- The complex assemblages of eigen solutions or eigen vectors (whether general or instantiated) which constitute the forms, the attributes of the Facts.

For the OK, from the moment when the "organizing principle " by archetype concerns the metabolic, neuropsychological processes of thought, even if its own nature is not physical; its field of action can not be limited by either the brain, the material body of the subject, or the physical vectors of its observation. Because any attempt to define a precise boundary between the physical world and thought is hopeless: The evolution that created my capacity to perceive, the hereditary or cultural component of the archetype, the circumstances that placed me in relation to the observed object, all this must be considered as one of the aspects, in the very long term it is true, of this process of constitution of meaning. All of this is part of the substratum prior to conscious representation.

The gap between the logical "substance" of consciousness and the reality it observes is indefinite. If, therefore, the Logos extends its field of application to all reality, we have no reason to consider the constitution of meaning as limited to Human, nor to the individual in his spatial extension, and human species, or even the living.

Meaning elements, instantiated "archetypes", are possible in all reality depending of the "initial condition" of the path (i.e. the Point of view or individual consciousness as far as CG Jung is concerned). They are the singularities, the germs of potential forms.

We are today convinced that the retrospective path from the consciousness of the subject to the "Reality" that it represents, will never meet with a substance, a primary particle or a first truth. This "substance" is therefore "absolutely infinite"; it is an unfounded whole in the sense of set theory. Consciousness, the meta-proposition that expresses "I am and I represent the real" has as its substance all the logical interdependencies that plunge into the real, endless journey, infinite set because unfounded.

Here is what sheds light on the vision of the fathers of Quantum Mechanics : Pauli, Bohr, Heisenberg ... concerning the observation of phenomena at the atomic scale.

To quote W Pauli again (ibid, p.157)

*" The indivisibility of elementary quantum processes (finite value of the quantum of action) is manifested in the indeterminate character of the interaction between the means of observation (the subject) and the observed system (the object); .... Indeed, any observation is an interference of indeterminable magnitude which modifies both the device of the experiment and the system to which it relates, and this interference interrupts the causal relations between the phenomena that precede it and those that follow it. "*

We have seen that it is not the observed system which is affected by the means and conditions of observation (and therefore by consciousness) but the course of knowledge which depends on its initial conditions. Nothing changes in the observed reality.

It should be noted that

- on the one hand, the path presents a " *sensitive dependence on the initial condition* ", which means that a representation by a State of Consciousness has necessarily a random part,  
- on the other hand, the attractor is a quantized singularity of the path, which means that the representation of Facts: beings, forms, states, will appear, disappear and change in a quantified way.



Let us now turn our gaze towards the "downstream" path of consciousness:

Consciousness is such a logical theory that is diffused through its logical neighbourhood, just as a mathematical theory gives birth, from deductions to deductions, to a new theory.

The new logical theory all at once "contains" the old and represents it as its "previous state".

Note that all "new" inferences were true before being demonstrated by the new theory, only their meta logical status changes from "true" to that of "demonstrated" that is logically

integrated with the (logical) existence of the subject who states it.

The transition from an old theory to a new one must not be considered as a change but as the diffusion of a meta-logical status on an immutable logical substratum.

We note that each "demonstration" of a new truth is an irreversible act.

The Becoming of Consciousness is therefore not a change but the irreversible diffusion of a meta-logical Point of view that "gives shape" gradually to new truths.

The substance that flows "downstream"; becoming consciousness is the same immutable reality and without defined limits as the substance that is travelled "upstream" by the consciousness that observes.

## Annex IV

### **Systems without state**

The first condition to define the state of a system as defined by Clausius or Boltzmann is the idea that there is a present moment of the system.

For the OK this idea does not correspond to any reality.

What is real in the simultaneity of the microstates of a system?

How to conceive a state that would be in reality "without temporal thickness"? On what foundations could we define in a system a surface that could be called a state while the reality of a thermodynamic system is a set of interdependencies?

In reality, there is no present moment of a closed and isolated system, except that of the observer, resulting from a choice of point of view; through means of observation which themselves result from his knowledge and his works.

An observation (the physical means and the psychic act) consists in integrating new interdependencies into the Observer's Knowledge. Observer Knowledge is self-representing in a time and space created by him to "tidy up" all its Facts of Knowledge.

There is no state of the system but only a state of knowledge of the system.

There is, in fact, no initial state, nor final state, nor evolution "with time" of the system, but only an initial state of Knowledge and its evolution by increasing Knowledge.

The system is not in time, it is our Knowledge of the system that is in time.

Our Knowledge is the Trojan horse that introduces time (and space) into an isolated and closed system.

The meaning is only applied to the system by the Knowledge of the observer through the observation device.

Within an isolated system, the state as present moment but also the state as quality, have no reality. These are pure concepts attached to the Knowledge of human; anthropocentric by definition.

If we do not want to prejudge the space-time in the system, we must see the system as a set of true interdependencies "outside of any referential"; as an All In-act.

A "past" of the system is a meaningless notion. There can be no physical initial state (no more macroscopic than microscopic)

The initial state is thus not an initial property of the system but an initial Fact of Knowledge, an initial ordering of the Knowledge of the system, defined by the observer's own work.

The state of the system appears to a Knowledge with the asymptotic form that it gives it, limited by its horizon.

This form is fully integrated and ordered in the total knowledge of the universe acquired by the observer at the moment he calls the moment of Knowledge.

In the universe of our Knowledge, we seem to have physically "manipulated" the system to create an initial state.

In deed the real system "without reference" is immutable.

Our Knowledge, by the experimental device which it has itself conceived and realized, has turned itself towards a State of knowledge statistically improbable to lead to what it will call "an initial state of the system, out of equilibrium".

The observer has himself brought his Knowledge to a Point of view where the system appears to him in imbalance.

Then, what we call system evolution is actually the increase of our knowledge of the system, by its expansion into the immutable reality of the system; As if each Fact of Knowledge

newly acquired revealed to us a little of its own structure and brought out other Facts of Knowledge.

In this perspective, the second law of thermodynamics does not relate to the evolution of systems but to the development of our knowledge of systems.

It then appears to us in all its simplicity:

The Knowledge of the system increases cumulatively by its diffusion in the system and integrates with our global knowledge of the world.

Whatever the initial state of Knowledge, it can only evolve globally towards a form corresponding to the most probable Facts of Knowledge, the least singular.

*"This is not the world that becomes, it is our Knowledge that travels a reality In-act"*

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