

THE THEORY OF YIN AND YANG IN TCM AND BIOCOSMOLOGY

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ABSTRACT. *In Axial time Cosmology was established by Aristotle. The interpretation of his framework includes, in all cases, the 4 basic cosmic (Aristotelian) causes: 1) Materialis, 2) Formalis, 3) Efficiens, 4) Finalis. This framework could easily be translated and modified into: 1) Primary Elements; 2) Formatives (the operation system, i.e. like Unix OS, Microsoft Windows OS, or Apple OS); 3) Efficients (with 1.Primary Elements and 2.Formatives; with the driving force, depending on what kind of products appear); 4) Finals, the final outcomes of causality; how accountable it is. This framework can be called as Classic Cosmology. It actually implies and creates two kinds of cosmology: A) Conventional Cosmology, for the study of non-life objects; B) Advanced Cosmology (Biocosmology) – for the study of the subjects (systems) of life. Conventional Cosmology includes: 1) Primary Elements: matter, energy, quantity (number), space and time; 2) Formals: under the role of Newtonian Mechanics (mathematics, logics, empiricism); 3) Efficients: with energy as the driving force, herein products are molecules, complexes of molecules, inorganic, organic, complexes of organic structures; 4) Finals: rationalism (matter, energy, quantity or number, space and time; and their behavior under the theory of Newtonian Mechanics) – the rule of physics. In Advanced Cosmology – Biocosmology, 1) Primary Elements: free energy, negative entropy, temperature, space, Branch’s couplings, and other thermodynamic parameters; 2) Formals: under the role of thermodynamics – more precisely, advanced non-equilibrium thermodynamics (life system, wisdom system); 3) Efficients: free energy as the driving force, products are thermodynamics microsystems, classic thermodynamic systems, classic non-equilibrium thermodynamic systems, advanced non-equilibrium thermodynamic systems (the theory of Yin and Yang), intellectual advanced non-equilibrium thermodynamic systems (the theory of Major Confucian); 4) Finals: accountable – reasonable non-rationalism; free energy, negative entropy, temperature, space, Branch’s couplings and other thermodynamic parameters and their behaviors under the theory of advanced non-equilibrium thermodynamics – order of nature. The cosmology frameworks are the same, but their contents are different. Due to Conventional Cosmology’s inability to express the existence of negative entropy and Branch’s couplings¹ in the system of Biocosmology, Biocosmology is more fundamental and complete than Conventional Cosmology. Conventional Cosmology “exists” as a subset of Advanced Cosmology. Based on this conclusion, any complex (manifold) form of Conventional Cosmology is not able to thoroughly and completely express Biocosmology.*

KEYWORDS: *Branch’s coupling, negative entropy, Newtonian Mechanics, Advanced non-equilibrium thermodynamics, Conventional Cosmology, Biocosmology*

¹ “**Branch’s coupling**” (single) and “**Branch’s couplings**” (plural) is the central notion that I have proposed and introduced into origination and development of the conception of advanced non-equilibrium thermodynamics. The thermodynamics system is like the ‘Trunk’, and within this System there are many levels (‘Branches’) of thermodynamic negentropy. With the input (inflow) of negative entropy, many interrelations (‘couplings’) emerge between the levels (‘Branches’), which realize dissipative effects; and which (couplings’) function is to organize and maintain the stability (existence) of the level, levels and the whole non-equilibrium system. “Branches coupling” has some similarity with the notion from the thermodynamics of phase change - “the crystallization point”, but it refers mainly to the study of life systems and their immanent (intrinsic) activity, and not to non-life systems and extrinsic physicalist causality. In general, the “Branches couplings” vital function is the realization of the growth and evolution of the given advanced non-equilibrium thermodynamic system. For more details, please, see the chapter “Branch’s Coupling” in my book “TCM and Metaphysics”.

1. Part one. Introduction

Recently, I was invited to study some articles regarding the issues of Biocosmology. While exploring the works of my interest in this field, I found my own work matches the Biocosmological principles and the approach in general. Therefore, now, I try to co-ordinate my scholar endeavors with the Biocosmological research.

In principle, the theory of Yin and Yang is the cornerstone of TCM (Traditional Chinese Medicine). But what is the theoretical basis of Yin and Yang? More than 30 years ago, I started to research this subject.

From investigation of Schrodinger's "What is Life?" to Prigogine's "non-equilibrium thermodynamics", I found out that a life system is the system of advanced non-equilibrium thermodynamics. The parameters between the theory of advanced non-equilibrium thermodynamics and the parameters of the theory of Yin and Yang closely match. Due to the further study, I confirmed that the theory of Yin and Yang regards the system of advanced non-equilibrium thermodynamics. I also found that the theory of Major Confucian (Confucian system) regards the system of intellectual advanced non-equilibrium thermodynamics.

So, both the theory of Yin and Yang and the theory of Major Confucian are the theories that relate to the study of life system, and both of them (expressing life systems) correlate with the theory of advanced non-equilibrium thermodynamics. High levels of negative entropy and rich Branches couplings are characteristics of both systems.

Arguing in detail, I stress on the following points:

1) Any life system can be considered a thermodynamics system. In this thermodynamics system, there are huge numbers of thermodynamics micro-systems. In each micro-system, there are many thermodynamics "points", and in each point, there are four parameters: 1) free energy (E), 2) negative entropy (S), 3) temperature (T), and 4) space (V). Branch's couplings (B), is the potential and the parameter for negative entropy.

2) These thermodynamics points consist of different branches for coupling.

3) Triggered by the inflow of negative entropy, and under the role of advanced non-equilibrium thermodynamics system, thermodynamics "points" can jump from the first level up to the second level, and then higher. Due to dissipative effects, these thermodynamics "points" could fall back to the first level. Then, these phenomena create the so-called Branch's couplings. With this basic process again and again, this thermodynamics system could evolve to classic non-equilibrium thermodynamics system. Further, all this can evolve to an advanced non-equilibrium thermodynamics system. And even further, this can evolve to the intellectual advanced non-equilibrium thermodynamics system.

The higher level of the thermodynamics system, the higher level of negative entropy and the richer Branch's couplings are.

So, the life system possesses very high levels of negative entropy and, thus, it has very rich Branch's couplings.

Firstly, let us characterize non-life system. There are: matter, energy, quantity, space, and time, operating under Newtonian Mechanics. During the evolutionary

process they produce: molecules, inorganic, organic, complex organic systems. The non-life system's level of negative entropy is very low; their Branch's couplings are not rich.

2. Part Two. The Biocosmology Framework

Neo-Aristotelian scholars revived Aristotle's theory of Cosmology. To point a fact, I am not going to involve the whole theory. Actually, I am more interested in the framework of the so-called Four-Causality. The idea is to assign this Four-Causality to (Bio)Cosmology.

The mathematical framework of Cosmology is an actual Classic Cosmology. Under this Classic Cosmology, there are:

- A) Conventional Cosmology;
- B) Biocosmology.

They both have the same framework: 1) Materialis, 2) Formalis, 3) Efficiens and 4) Finalis.

This framework could easily be translated and modified into:

- 1. Primary Elements;
- 2. Formals (the operating system, i.e. like Unix OS, Microsoft Windows OS, or Apple OS);
- 3. Efficients (a. Primary Elements; b. Formals (the operation system); with the driving force producing kinds of products);
- 4. Finals, the final outcome of causality; how accountable it is.

3. Part Three. Conventional Cosmology

Conventional Cosmology is applied for non-life system (and is inherent for the Western scientific system). It includes:

- 1. Primary Elements: matter, energy, quantity, space, time;
- 2. Formals (the operation system): the theory of generalized Newtonian mechanics (mathematics, logics, and empiricism);
- 3. Efficients (with: a. Primary Elements; b. Formals (the operation system) with the driving force – energy, appear kinds of products as): atoms, molecules, inorganic molecular compounds, organic molecular compounds, complex of molecular compounds, primary life, and advanced life;
- 4. Finals, the final outcome of causality; how accountable it is.
 - a) For non-life – rationalism, in terms of causality, fully accountable;
 - b) For life – rationalism, in terms of causality, not fully accountable. (The reason is: Conventional Cosmology is not able to reveal negative entropy and Branch's couplings)

4. Part Four. Biocosmology

Herein, we have:

- 1. Primary Elements: free energy, negative entropy, Branch's couplings, temperature, and space;
- 2. Formals: (the operation system, i.e. Unix OS, Microsoft Windows OS, or Apple

OS): the theory of advanced thermodynamics; the theory of advanced non-equilibrium thermodynamics (the theory of Yin and Yang); the theory of intellectual advance non-equilibrium thermodynamics (the theory of Major Confucian);

3. Efficientes (with a. Primary Elements; b. Formals; with the driving force of free energy, we have kinds of products as): a) classic non-equilibrium thermodynamics system; b) advanced non-equilibrium thermodynamics system – life system; c) intellectual advanced non-equilibrium thermodynamics system – wisdom system; d) special compact intellectual advanced non-equilibrium thermodynamics system – high level wisdom system.

4. Finals, the final outcome of causality; depends on their accountability;

a) For life – reasonable non-rationalism, accountable – it is able to reveal negative entropy and Branch's couplings.

b) For non-life, using downgrade and due to Boltzmann's conversion, it could represent rationalism, which then becomes accountable.

Part Five. Comparison between Conventional Cosmology and Biocosmology

We could do some comparisons between Conventional Cosmology and Biocosmology from the basis of: 1) Primary Elements; 2) Formals (the operation system), and further discuss the difference between the 3) Efficientes, what kinds of products appear, and 4) Finals, the final outcome of causality; how accountable it is.

1. From the Primary Elements:

A) Conventional Cosmology, the Primary Elements are: matter, energy, quantity, space and time;

B) Biocosmology, the Primary Elements are: negative entropy, free energy, temperature, space, Branch's couplings, and other thermodynamic fundamentals.

In negative entropy, free energy, temperature, space, Branch's couplings, and other thermodynamic fundamentals, with Boltzmann's conversion – they all can be formulated in: $F=ma$; (here, F – Free energy, m – Matter, a – Acceleration); so, we have matter, energy, quantity, space and time as the “secondary” Primary Elements.

So, roughly speaking, Biocosmology and its Primary Elements include:

Negative entropy, free energy, temperature, space, Branch's couplings, and other thermodynamic fundamentals;

Additionally, the “secondary” Primary Elements are matter, energy, quantity, space and time.

Therefore, from the viewpoint of Primary Elements, matter, energy, quantity, space, and time are the “secondary” Primary Elements; and negative entropy, free energy, temperature, Branch's couplings, and other thermodynamic fundamentals are the “principle” Primary Elements.

If we assign the “secondary” Primary Elements material set of energy, quantity, space, and time as “a”, its projection on the “principle” Primary Elements is assigned “A”. Then, we assign the “principle” Primary Elements: negative entropy, free energy, temperature, Branch's couplings, and other thermodynamic fundamentals as “B”. So we get $C = B - A$; C is a complement set, and obviously, C is a very rich set.

2. From the Formals (the operational system):

A) For Conventional Cosmology: the theory of generalized Newtonian Mechanics;

B) For Biocosmology: the theories of advanced thermodynamics consist of (a) the theory of advanced non-equilibrium thermodynamics – the theory of Yin and Yang – life systems, (b) the theory of intellectual advanced non-equilibrium thermodynamics – the theory of “I Ching” – wisdom system, and (c) the theory of special intellectual advanced non-equilibrium thermodynamics – the theory of Major Confucian – high level wisdom system.

Both Conventional Cosmology and Biocosmology can be applied to the life system.

Conventional Cosmology cannot express the existence of negative entropy, nor the existence of Branch’s couplings. Both of them are the *a priori*, not “regular”, as well as not “random” from the perspective of Newtonian Mechanics.

Biocosmology pursues advanced thermodynamics to study the life system, with theories of advanced non-equilibrium thermodynamics (the theory of Yin and Yang) as well as intellectual advanced non-equilibrium thermodynamics (the theory of Major Confucian). It can completely and clearly express negative entropy as well as Branch’s couplings. So, Biocosmology contains Conventional Cosmology and is much more complete and fundamental than Conventional Cosmology.

If we assign the theory of Newtonian Mechanics as “d”, its projection on the “space” of advanced thermodynamics system is assigned “D”. We assign the advanced thermodynamics system as “E”. So we get $F = E - D$. F is a complementary set, and obviously, F is not an empty set, but is a very rich set.

From the above comparisons of 1) Conventional Cosmology and 2) Biocosmology, the results obtained can be shown in Diagrams A and B:

Diagram A – Biocosmology Domain (BE)

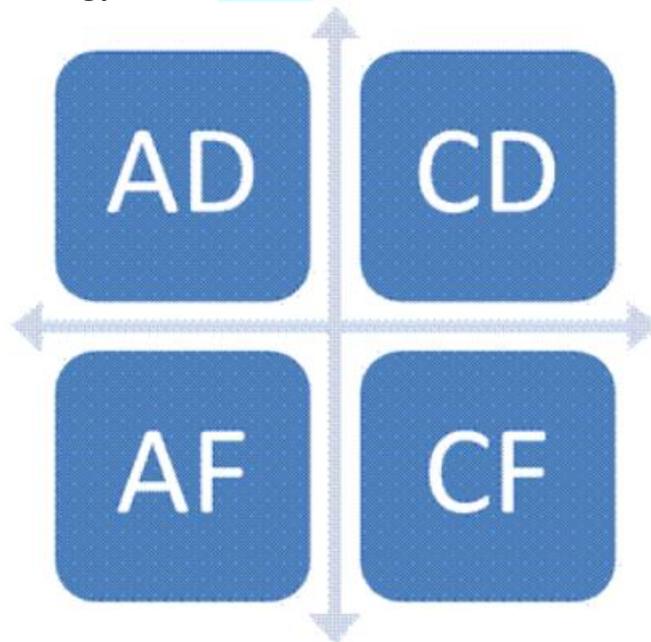


Diagram 1.

In Diagram 1, AD, AF, CD, and CF represent the mathematics “Domain” of

Biocosmology (BE), which is the advanced thermodynamics system. AD is one of its manifolds which relates to Conventional Cosmology, the system of Newtonian Mechanics. Conventional Cosmology projects into parts of the advanced thermodynamics system and then becomes a content component of that part of the advanced thermodynamics system.

Here, it needs to be noted that with the Boltzmann anti-conversion, Conventional Cosmology is able to project into the advanced thermodynamics system with “help” of some manifolds of the advanced thermodynamics system, specifically, negative entropy and Branch’s couplings. So, Conventional Cosmology has its contents as a part of AD. Diagram 2 illustrates this relationship.

Diagram 2 – Conventional Cosmology, Manifold-Subset (AD) of the Biocosmology Domain (BE)

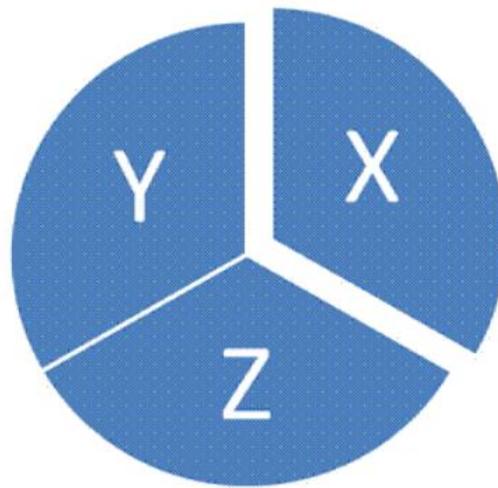


Diagram 2

XYZ represents AD. AD is a manifold that is a subset of the Biocosmology domain (BE).

X is the part of Conventional Cosmology that projects into AD. Y and Z “help” X to project into AD. Y is the part of the advanced thermodynamics system’s negative entropy that “help” X in subset AD. Z is the part of the advanced thermodynamics system’s Branch’s couplings that “help” X in subset AD.

From Diagram 1 and Diagram 2, we know, through the Boltzmann anti-conversion, that Conventional Cosmology (X) projects into the Biocosmology domain (BE) as a subset (AD) of (BE), and BE is the advanced non-equilibrium thermodynamics system. Conventional Cosmology is a content component of a subset of the advanced thermodynamics system.

From the previous two diagrams, we can clearly acknowledge that for expressing the world, there are remarkable differences between Conventional Cosmology (the theory of generalized Newtonian Mechanics) and Biocosmology (which correlates with the theory of advanced thermodynamics).

Particular for the life system, Conventional Cosmology is only able to present a

small content that is a subset of the existence of the life system, while Biocosmology is able to express the life system completely and thoroughly. Strictly speaking, Conventional Cosmology has a small content of Bio-Cosmology. From common sense, the part that Conventional Cosmology delivers could be considered as a part of the life system, but from the position of topology, there is neither isomorphism nor homomorphism between Conventional Cosmology and Biocosmology.

Conventional Cosmology, (represented by generalized Newtonian Mechanics) is the system of Western rationalism. Biocosmology (correlating with the theories of Yin and Yang, and of Major Confucian) actually matches the system of Chinese philosophy, which we could call as reasonable non-rationalism.

Using the metaphor of a camera, the life system captured with the camera of Conventional Cosmology only yields limited information – a picture of rationalism. Through the Boltzmann anti-conversion, the picture of rationalism is mapped into the system of advanced thermodynamics. This Boltzmann anti-conversion both maps this picture of rationalism into the system of advanced thermodynamics, and also brings out deep information of this system of advanced thermodynamics that relates to the picture of rationalism. That includes negative entropy, Branch's couplings and the whole system of advanced thermodynamics. With the Boltzmann anti-conversion, we get a new picture of life. Here the Boltzmann anti-conversion plays the role of a “magnifying distorting mirror”.

After this Boltzmann anti-conversion (“magnifying distorting mirror”), negative entropy, Branch's couplings and the whole system of advanced thermodynamics show up. We get a new picture which has more information of the life system, but this new picture is “distorted.” It cannot be recognized by Conventional Cosmology anymore, but with the “magic glasses” of Biocosmology (represented by the theory of Yin and Yang, and the theory of Major Confucian), this new picture can be shown up completely and thoroughly, and be clearly recognized. Therefore, metaphorically, the Boltzmann anti-conversion is the “magnifying distorting mirror”, the theory of Yin and Yang, and the theory of Major Confucian are the “magic glasses”.

From the viewpoint of the theory of advanced thermodynamics, each life system has the parameters of negative entropy, i.e. Branch's couplings and other thermodynamics fundamentals are actual therein. From the standpoint of rationalism, these are essentially the *a priori* (not on site), chaotic (but not random) fundamentals. Rationalism and Conventional Cosmology does not have the resources and abilities to express these existences. But for Biocosmology and, thus, for the theory of Yin and Yang, and the theory of Major Confucian – all this is essential for the existence and evolution. With the whole system of advanced thermodynamics, the life system could be expressed nicely and completely. An Expression of the life system can be compared to capturing images by a “camera”. For the "camera" of rationalism (Conventional Cosmology), its “camera” resolution is 10 pixels per inch (PPI). For reasonable non-rationalism (Biocosmology), its “camera” resolution is 100, even 1000 pixels per inch (PPI). There are huge differences in the degree of accuracy between Conventional Cosmology and Biocosmology. That is why we are trying to develop Biocosmology in order to realize profound explorations of life systems.

6. Part Six. Two Questions

6.1. Question 1

Conventional Cosmology belongs to so-called rationalism. What do Biocosmology, the theory of Yin and Yang, and the theory of Major Confucian belong to?

In the above discussion, we call them reasonable non-rationalism. What does it mean?

Conventional Cosmology is rationalism, and the working “Domain” is the domain of rationalism. Due to Diagram 1 and Diagram 2, X is the domain of rationalism.

If some theories work beyond the “Domain” of rationalism (X), of course, we cannot say it is rationalism. The domain of Biocosmology is well outside the domain of rationalism, far beyond the domain of Conventional Cosmology; it is clearly not the domain of rationalism.

Therefore, the domain (BE) where Biocosmology works can be called the domain of non-rationalism. In fact, for the existence of life from the viewpoint of Conventional Cosmology, its’ four causalities are not able to hold. The presence of life delivered by Conventional Cosmology could not be “trusted” and it is not accountable. It cannot be measured (not measurable), incomplete (not complete), not dense (not compactable), and not perfected (not accountable). Therefore, from the perspective of rationalism, this “non-trusted” and “non-accountable” domain should be called non-rationalism (the presence after processing by the so-called “magnifying distorted mirror”). But this is the territory of the Biocosmology domain (BE), with the new parameters (Primary Elements): negative entropy, free energy, temperature, space, and Branch’s couplings; and the new operation system (Formals): the theory of advanced non-equilibrium thermodynamics (the theory of Yin and Yang), and the theory of intellectual advanced non-equilibrium thermodynamics (the theory of Major Confucian). The life system could be expressed nicely and completely with the “magic glasses” as the theory of Yin and Yang, and the theory of Major Confucian. By means of the theories of Yin and Yang, and of Major Confucian, each detail of the life system can be disclosed. The existence of life systems, developed under these theories (the theory of Yin and Yang, and the theory of Major Confucian), is measurable (measurable), full (complete), compact (compact), and complete in causality (accountable).

From the perspective of rationalism (Conventional Cosmology – the framework of Newtonian Mechanics), the existence of life systems is not credible (not accountable). Therefore, life systems belong to non-rationalism. In the theory of advanced non-equilibrium thermodynamics (the theory of Yin and Yang, and theory of Major Confucian), the existence of life systems could be fully delivered, and is accountable. Therefore, it becomes a reasonable existence. From up here we see the existence of life systems is non-rational from the viewpoint of Conventional Cosmology, however, it is also reasonable from the viewpoint of Biocosmology. To sum up, Biocosmology and the theories of Yin and Yang, and of Major Confucian belong to reasonable non-rationalism.

Moreover, we can make it clearer that the theory of Yin and Yang, and the theory of Major Confucian belong to reasonable non-rationalism. From the Conventional

Cosmology perspective, what is discussed in Biocosmology (the theory of Yin and Yang, and the theory of Major Confucian) belongs to non-rationalism, and the domain discussed is beyond the scope of rationalism, so they belong to non-rationalism. But at a high-level (Biocosmology), the discussion is reasonable, therefore, as a life system, the theory of Yin and Yang, and the theory of Major Confucian, could be called reasonable non-rationalism. Theoretically, from the standpoint of the philosophy of language, the propositions of the theories of Yin and Yang, and of Major Confucian (which represent reasonable non-rationalism) – they are really consistent and match very well.

Looking at the degree of reasonableness, causality and accountability that characterizes reasonable non-rationalism and rationalism, it can be deduced that reasonable non-rationalism is elicited from Biocosmology, while rationalism is elicited from Conventional Cosmology. The system of Conventional Cosmology is the content of a subset of Biocosmology, and is downgraded from the superset of Biocosmology. So, for causality, and accountability, Biocosmology is much more fundamental and complete than Conventional Cosmology. Therefore, reasonable non-rationalism is much more reasonable than rationalism. Here, we could summarize that the accountable standard established by rationalism is the “general standard of accountability”, while the accountable standard established by reasonable non-rationalism is the “advanced standard of accountability”. Obviously, for reasonableness, and causality, the “advanced standard of accountability” is much higher than the “general standard of accountability.”

Due to huge differences between Conventional Cosmology and Biocosmology, we can distinguish the difference between rationalism and reasonable non-rationalism, the difference between science and philosophy, the difference between *a posteriori* and *a priori*, the difference between the theory of Newtonian Mechanics and the theory of advanced non-equilibrium thermodynamics, and the difference between the Western system and the Chinese system (the theory of Yin and Yang, and the theory of Major Confucian). Since, we could get a conclusion, for the theory of Yin and Yang, and the theory of Major Confucian, they are called reasonable non-rationalism, which actually is a better and more accurate expression than universal rationalism.

6.2. Question 2

Conventional Cosmology yields Western rationalism. However, could Conventional Cosmology, rationalism, and science completely and thoroughly express the life system, or a Biocosmological approach is needed?

We have already acknowledged that there are huge differences between Conventional Cosmology and Biocosmology. From a common sense viewpoint, in considering and study life systems – Conventional Cosmology is a subset of Biocosmology. However, from a more rigorous topological perspective – Conventional Cosmology is not an intrinsic subset of Biocosmology, because their Primary Elements are different. Moreover, the so-called Formals (same as the "function" of configuration) are also different; so they possess neither isomorphism nor homomorphism. Thus, to become a subset of Biocosmology – Conventional Cosmology must be converted to an advanced non-equilibrium thermodynamics system through the Boltzmann anti-conversion. If Conventional Cosmology tries to do so, indeed this process can improve

its credibility and accountability from the standpoint of causality. Without the usage of the Boltzmann anti-conversion, Conventional Cosmology is just a science and physics (Newtonian Mechanics). In turn, with the application of the Boltzmann anti-conversion, it becomes the “thermodynamics”; as well as the specific metaphysics, philosophy and science, which are independent from the previously existing forms.

Substantially, rationalism and science belong to Conventional Cosmology. In turn, the theories of Yin and Yang, and of Major Confucian refer to Biocosmology. Both Conventional Cosmology and Biocosmology correlate with the Aristotelian Classic philosophical system. In general, Conventional cosmology and Biocosmology have the same “academic” frameworks, but the “contents” of the frameworks are different, and they are neither isomorphism, nor homomorphism.

For the life system, if we want to convert the existence of Conventional Cosmology into Biocosmology, the first step is the Boltzmann anti-conversion (“magnifying distorting mirror”). The existence of Newtonian Mechanics might be converted into a system of advanced thermodynamics. Then, the life system from the perspective of Conventional Cosmology becomes a subset of the system of Biocosmology. The second step involves this Conventional Cosmology subset along with other thermodynamic subsets, operating under the framework of the theory of advanced thermodynamics to establish the advanced non-equilibrium thermodynamics system (a new picture after application of the “magnifying distorting mirror”). All this can be realized by the advanced non-equilibrium thermodynamic parameters, which combine the concepts of Yin and Yang and “I Ching”. Further, the process develops the theory of Yin and Yang, and the theory of Major Confucian (“magic glasses”, and 1000 PPI “camera”). After that, the life system becomes measurable.

Therefore, a clear reason is to change the perspective, and to use the notions of negative entropy, free energy, temperature, space as well as Branch’s couplings as the Primary Elements, and apply the theories of advanced thermodynamics (represented by the theory of Yin and Yang, and the theory of Major Confucian) as the Formals, thus transforming the matters under study into measurable, complete, compact, and accountable issues and topics. In this way, we could achieve successful relationship between causality and outcomes. This kind of knowledge, of course, is accountable, credible and reliable, that is why the theory of Yin and Yang, and the theory of Major Confucian are called reasonable non-rationalism.

7. Part Seven. Comparison between Conventional Cosmology and Biocosmology

There are many differences between “general causality” and “advanced causality”. General causality is only a small component of a subset of advanced causality. So, as for causality, general causality is lower than advanced causality, and advanced causality is higher than general causality. General causality is subsumed under, and is controlled by advanced causality. The proposition, concept, theory and system which operate under general causality need to be re-examined by advanced causality; they need to be re-verified by advanced causality.

Conventional Cosmology needs the application of the Boltzmann anti-conversion – in order to improve its credibility, reliability, and accountability. Each life system

possesses negative entropy and congenital Branch's couplings. Therefore, Conventional Cosmology cannot have sufficient resources and abilities to develop the study of a life system completely and thoroughly. Biocosmology (correlating with the theory of Yin and Yang, and the theory of Major Confucian) has sufficient resources and ability to grasp the parameters of negative entropy as well as Branch's couplings and other so-called *a priori presence* (this presence is *a priori* – not on site, chaotic – but not fully random).

Substantially, the perspective of reasonable non-rationalism, under advanced causality (represented by Biocosmology and modern application of the theories of Yin and Yang, and of Major Confucian) – could be applied to re-examine and re-verify the propositions, concepts, ideas, theories, and systems derived from rationalism. It is a significant moment for Conventional Cosmology, rationalism, and modern science, when applied to the life system and life related systems – they produce effects that are seriously flawed (expressing inabilities); and these serious flaws (defects) refer not to the “technical” level, but are embedded at the “fundamental” level.

In this regard, we might discuss the issues of modern Western medicine. The latter, in principle, is a powerful system of knowledge, regarding the systems of human life as well. Of course, the achievements of Western medicine are incredible. At the same time, it deals mainly with Disease (pathology), but not with Health (whole healthy ontogenesis of the individual) as the normal evolutionary (natural) process. Therefore, its development should correlate with (and be based on) the foundations that are capable to treat the complexity of life systems. These are the aforementioned concept of Biocosmology, the theories of Yin and Yang, and of Major Confucian. However, Western medicine still is based on the theory of rationalism and positivist science, which belong to Conventional Cosmology, but not to Advanced Cosmology (Biocosmology). That is why serious flaws in the development of Western medicine are enrooted at the “fundamental” level. Western medicine's understanding of the human body system (in terms of causality theory) is based on a minimum standard of general causality. It lacks the purposeful causes which are the main feature of life system (especially of human being and her/his healthy ontogenesis). In fact, the time has come for the Western medicine to re-think, re-examine, and perhaps even re-write some of the basic theories of medicine.

8. Part Eight. Conclusion and Discussion

1. Conventional Cosmology expresses rationalism and science, i.e. is sufficient for expressing systems with a low negative entropy. Thus, Conventional Cosmology is not completely sufficient for the study of life systems. Biocosmology, correlating with the theories of Yin and Yang, and of Major Confucian, is therefore particularly useful. It has developed reasonable non-rationalism, and the latter can deal with the “order of nature”. Reasonable non-rationalism establishes advanced causality which is the highest standard for the issues of causality, while rationalism establishes general causality which realizes the low standard for aetiological knowledge. Therefore, rationalism needs to be re-examined in the light of reasonable non-rationalism.

2. First of all, we need to comprehend the difference between Conventional

Cosmology and Biocosmology:

A) In Primary Elements, the fact is that “free energy” could produce the parameter of “energy” from the concept of classic thermodynamics. Matter could be derived from Newtonian Mechanics ($F=ma$) by “free energy”. Further, Conventional Cosmology’s Primary Elements of matter, energy, quantity, space and time become Biocosmology’s “secondary” Primary Elements. Thus, Biocosmology includes both Primary Elements of free energy, negative entropy, temperature, space, Branch’s coupling, and other thermodynamics fundamentals, and “secondary” Primary Elements of matter, energy, quantity, space and time. For Conventional Cosmology, the Primary Elements are only matter, energy, number (quantity), space and time. Therefore, from the viewpoint of Primary Elements, Biocosmology is more fundamental and complete than Conventional Cosmology.

B) Due to the same reasons, for the Formals (operation system) – Conventional Cosmology does not have the resource and ability to express negative entropy and rich Branch’s coupling; thus, it is subordinate to Biocosmology. So, from the viewpoint of Formals, Biocosmology is more fundamental and complete than Conventional Cosmology. With these two aspects in mind, it is not so difficult to understand the difference between Conventional Cosmology and Biocosmology.

3. There are numerous non-life systems in the world. For these non-life systems, Conventional Cosmology, rationalism, science, and general causality are the good and reliable basis. In turn, in regard to multiple life systems, Conventional Cosmology, rationalism, science, and general causality do not form the sufficient basis of resources and abilities to deal with all the issues. Therefore, Biocosmology and the theories of Yin and Yang, and of Major Confucian, as well as reasonable non-rationalism and advanced causality in general – constitute a good perspective for the future development.

4. In historical relation, since the Axial time – under pressures of survival and development – people (particularly the Westerner) had firstly developed the rationalism. These developments were applied chiefly to non-life systems. The great success of this development was realized in the construction of the whole Western civilization. Moreover, it was so much successful that rationalism and positivistic science, and Conventional Cosmology on the whole became a widespread and cornerstone feature of the common life. Likewise, Western medicine is a bright example of the efficiency of this way of development. At the same time, we have now many (insoluble, by usual means) social and global problems.

5. The main conclusion is that rationalism and positivistic science, and Conventional Cosmology are not good enough for the study and treatment of life systems (or systems related to life). Global problems of today is the evidence of this thesis.

6. Even within academic communities (in relation to the issues of life systems and life processes), many scientists confirm the limitations of rationalism and of modern (non-organicist) scientific approaches. They point out that modern positivist science is incapable to deal with complex life system, which are primarily characterized by inherent purposeful causes (forces). These new ideas provoke us to rethink the limitations of both modern rationalism and Conventional Cosmology as a whole.

7. Already more than 30 years ago, the American scholars J. Rifkin and T. Howard initially used the concept of entropy and the concept of dissipation (taken from the theory of classic non-equilibrium thermodynamics) – to explain some quasi-life systems and life systems.

8. Finally, we can conclude and point to the prospect of current and future fruitful interrelations and development of Biocosmology with the theories of Yin and Yang, and of Major Confucian. A cornerstone point is that that these interrelations and development are mutually beneficial and prosperous. Essentially, the collaboration of scientists in both fields might bring about new and magnificent systems of knowledge for medicine, science and philosophy, which perhaps can cause a new revolution in the knowledge of human civilization.

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