

A REPLY TO THE COMMENTS OF GEORGE CHAPOUTHIER ON THE BOOK “TRADITIONAL CHINESE MEDICINE (TCM) AND METAPHYSICS”

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First of all, I would like to thank Prof. Georges Chapouthier. The book, “Traditional Chinese Medicine (TCM) and Metaphysics” is a bulky one. Nowadays, everyone is so busy, but Prof. Georges Chapouthier found an opportunity to explore and critically assess my book, and to give the thoughtful commentaries. I deeply appreciate his relation and cooperation.

1. Besides this (important) reservation, the book does have a dual interest for readers: a detailed analysis of the different techniques of TCM, as mentioned earlier, and also an interesting description of the metaphysical framework currently underlining TCM. Provided however eastern and western metaphysics are conceived for what they are: two likely compatible stances which have yet to find common concepts.

* This is the main purpose of this book. Again, I have to thank Prof. Georges Chapouthier who gave the positive assessment. From the perspective of Western medicine and science, TCM indeed has some treatment remedies, but it does not have any theoretical basis for its current knowledge. Particularly, as the basic theory of TCM, the theory of Yin and Yang is groundless. This book challenges this issue and tries to find the theoretical basis for the theory of Yin and Yang. In the book, I discussed how classic thermodynamics evolved up to classic non-equilibrium thermodynamics, and further evolved up to advanced non-equilibrium thermodynamics. Then, I tried to establish the theory of advanced non-equilibrium thermodynamics as the foundation of the theory of Yin and Yang.

If this is recognized, then the theory of Yin and Yang could have a solid theoretical basis. TCM could also have a solid theoretical basis and no longer seem to be groundless. Then, the so-called Chinese systems: Confucianism, Daoism, TCM and Chinese politics system, – would no longer be groundless and their meanings validated. More importantly, in the world medicine and philosophy, they could have new compounds and facets that could provide good imaginations for future development. These are the most important purposes of this book.

(Book: Preface 3 Part One, Chapter 4, 5, 6, 7, 8, 19, 20, 21, 22, 23, and the Conclusion)

Other issues: Which area does the theory of Yin and Yang belong to? Science or non-science? Rationalism or non-rationalism? Is, in the new light, Darwinian evolution right, or wrong? These are of less importance for this book and could be deferred.

2. This bulky book (of, approximately 700 pages) exposes several aspects of Traditional Chinese Medicine (TCM). I will not discuss here the main contents of the book that sets to analyze singly TCM remedies, from one for migraine or insomnia to effects of TCM for menopause or for sustaining longevity all of which will certainly attract the interest and the attention of medical specialists on these alternative practices.

* 1) Case reports are given in some parts of this book. However, these are not the most important parts, and are not the book's main themes. These case report chapters try to illustrate the limitations of Western Medicine, and how TCM could do something that Western medicine is unable to do. For medical problems that happen at the physics level, Western medicine could do a good job. But for medical problems that happen at the metaphysics level, Western medicine cannot do much, and it has serious limitations with these problems.

(Part Two, Chapter 1 to Chapter 32)

2) Actually, what TCM can do is much more than that. From what I know, many difficult medical problems, for example, heart problems, chronic obstructive pulmonary disease, many types of cancers, Alzheimer's dementia, degenerative neurological diseases, many diseases related to age degeneration, diabetes, skin conditions, hyperactivity disorder, and mental diseases could all benefit from TCM. The TCM approach is primarily based on the theory of Yin and Yang, and not on empiricism.

3) This book is bulky. The theory it expresses – systems with high negative entropy – is a new philosophical “territory” which few people have substantially studied before. The idea is so unconventional that it is easily misinterpreted, misunderstood, and not even understood at all. The theory of advanced non-equilibrium thermodynamics comes from Prigogine's theory of classic non-equilibrium thermodynamics. At the same time, Prigogine's theory is essentially different. The theory of classic non-equilibrium thermodynamics posed limited numbers of *Branches couplings*¹, which resulted in a low level of negative entropy, enabling it to be expressed by approaching the general theory of Newtonian Mechanics. Thus, Prigogine's theory has become the part of the conventional science.

¹ “**Branch's coupling**” (single) and “**Branches 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”.

In turn, the theory of advanced non-equilibrium thermodynamics poses huge numbers of Branches couplings, which result in a high level of negative entropy.

The theory of advanced non-equilibrium thermodynamics cannot be expressed in terms of the general theory of Newtonian Mechanics. Hence, it cannot be the part of modern science, but might be treated, instead, as a part of philosophy. Under such conditions, it is quite easy for the general public (and even scholars) to mix them up and get confused. Therefore, it is really difficult to elaborate the framework of the theory of advanced non-equilibrium thermodynamics and introduce it to the conventional scientific world. Due to these conditions, I tried to elaborate and introduce it from different angles and levels: from the theory of advanced thermodynamics, from Western medicine, from TCM, from Chinese philosophy, from Western philosophy, from religious doctrines, from culture, and so on. In the issue, all these approaches make this book pretty bulky. Substantially, each chapter reflects my thoughts and usually is not “conventional”. Each chapter also explains how this new theory (and the new domain or field of knowledge) works in different ways with varied discussions to provide enough help for readers to enter this exciting field.

3. Subsequently I will focus only on that which has been indicated in the title of this book, in its prefaces and in the earlier part of its exciting field which is primarily: the relationship between TCM and philosophy.

* That is right. For each scholar who reads my book, a reason is to pay more attention to Preface 3, Part One, Chapter 4, 5, 6, 7, 8, 19, 20, 21, 22, 23; and the Conclusion. But, the new “territory” (field of knowledge) that the theory of Yin and Yang introduces – this “territory” is still not “conventional”. So, I advise the readers to understand the concepts of classic non-equilibrium thermodynamics, advanced non-equilibrium thermodynamics, negative entropy, and Branches couplings. Thus, they can enter this new “territory” where a lot of exciting discoveries can happen.

4. The author, Dr. Wong Ming has done studies on TCM and on western medicine and he recounts how, to date, he has failed in his attempt “to find out the theoretical basis of TCM under the view of the western medicine” (p. 6), as western medicine contains no possible equivalent of the balance between yin and yang which is so important in TCM.

* This has been my experience. Theoretically, the theory of Yin and Yang is not only the idea of the so-called balance; it is the theory regarding the advanced non-equilibrium thermodynamics system. Human systems, under the perspective of the theory of Newtonian Mechanics, could be expressed by Western medicine. However, there are neither concepts of negative entropy, Branches couplings, nor a concept of the so-called “order of nature”. On the other hand, for the human body system, under the perspective of the theory of advanced non-equilibrium thermodynamics system, it could be expressed as a Yin and Yang system, as TCM, just relying on the use of the concepts of negative entropy, Branches couplings, and the concept of the so-called “order of nature”. Matter, energy, quantity, space, and time are the primary elements

for the theory of Western medicine, while negative entropy, free energy, temperature, and Branches couplings are the primary elements of the theory of Yin and Yang, the basic theory of TCM. Theoretically, Western medicine is not able to express the basic idea of the theory of Yin and Yang, nor the essential contents of TCM. However, theoretically speaking, the theory of Yin and Yang could include the contents of Western medicine. Of course, the theory of Yin and Yang has not been developed thoroughly and a lot of work is to be done.

In common understanding, for the West, the human body is a machine, and Western medicine tries to fix and manage this machine. For the East, represented by the Chinese system, the human body is a life system, and TCM tries to reshape and enrich this life system.

5. Furthermore, according to him, TCM cannot be fathomed by the application of the normal, traditional (materialistic) scientific approach, based on basic physics, chemistry or mathematics. .

* This is true. The human body is considered as an advanced non-equilibrium thermodynamics system, and in this system the existences of *a posteriori* and *a priori* contents take place. However, modern science is based on physics, chemistry and mathematics. Modern scientific approach, therefore, is able to express only the existence of *a posteriori* contents, i.e. the existence of matter, energy, quantity, space and time and their behaviors under other systems with the primary elements of matter, energy, quantity, space and time (a kind of dual rationalism). By contrast, modern science is powerless to explain the existence of the *a priori* contents of advanced non-equilibrium thermodynamics systems, related to huge numbers of Branches couplings, and high levels of negative entropy.

In turn, the theory of Yin and Yang could nicely express the *a priori*, negative entropy, and Branches couplings. In the issue, one approach deals with the existence of *a posteriori* contents (modern science), the other works on the existence of *a priori* contents (the theory of Yin and Yang), and each acts in a completely different “territory” (domain or field of knowledge). Naturally, the theory of Yin and Yang “cannot be fathomed by the application of the normal, traditional (materialistic) scientific approach, based on basic physics, chemistry or mathematics.”

6. However, he admits that he was profoundly influenced by propositions that were developed by Schrödinger in his book entitled “What is life?” that developed out the concept on negative entropy. He was also equally impressed by Prigogine’s description of “non-equilibrium thermodynamics”.

* 1) I give very high credit for Schrödinger’s book entitled “What is Life?” and Prigogine’s theory of “non-equilibrium thermodynamics”. Due to their theories, combined with the idea of Yin and Yang from the “I Ching” and the “Textbook of the Yellow Emperor”, and along with studies I had done on TCM, Western medicine, Chinese philosophy, and Western philosophy, I developed and established the theory of advanced non-equilibrium thermodynamics. Finally, I reached the conclusion that the Yin and Yang theory of TCM, indeed, regards the advanced non-equilibrium

thermodynamics system.

2) Prigogine's theory of "non-equilibrium thermodynamics" is the theory of classic non-equilibrium thermodynamics, while the theory I developed is the theory of advanced non-equilibrium thermodynamics. There is a fundamental difference between these theories: the theory of classic non-equilibrium thermodynamics pursues the Boltzmann conversion and, thus, converts the existence of advanced thermodynamics systems into the system of Newtonian Mechanics, and, by that means, – applying the scientific approach to express the system. Prigogine's system is characterized by the limited number of Branches couplings, low negative entropy, large number of *a posteriori* contents, and smaller number of *a priori* contents. In the issue, therefore, it could be addressed to modern science. In turn, the theory of advanced non-equilibrium thermodynamics pursues the Boltzmann anti-conversion and relates to the understanding of enormous numbers of Branches couplings, high negative entropy, a lot of *a priori* (immanent, intrinsic) contents, and less *a posteriori* (extrinsic, physicalist) contents; therefore, it could not be addressed to science. (Read attachment 1-1, 1-2, 1-3, 1-4)

Making the conclusion I can say that Prigogine's theory of classic non-equilibrium thermodynamics is treated as a form of science. By contrast, the theory of advanced non equilibrium thermodynamics and the theory of Yin and Yang still are not accepted by modern science.

7. Although Wong Ming had referred to these recent sources, he opted to steer from direct contradictions with the proponents of western medicine and therefore, clearly prefers not to assimilate TCM to the status of an accepted science.

* This is true. An advanced non-equilibrium thermodynamics system (characterized by rich Branches couplings, negative entropy, and *a priori* contents), if it is converted by the Boltzmann conversion into the system of Newtonian Mechanics, – it could be revealed only with information loss that jeopardize the constitution of the system. Substantially, the Yin and Yang theory is the theory that correlates with the advanced non-equilibrium thermodynamics system. On the other hand, the theory of Yin and Yang cannot be adequately assimilated with Newtonian Mechanics. (Read attachments 1-1, 1-2, 1-3, 1-4, 1-5, 1-6).

8. He is trying to advocate that beyond scientific explanations such as that expounded by Prigogine's models, TCM offers space for a new metaphysical stance. According to this new theory "the human body is an organic, high order, high negative entropy and 'compact' non-equilibrium thermodynamics systems (p. 8). The author goes as far as to say that TCM belong to a "non rationalist view" (p. 9)!

* First of all, this is not the most important issue in this book – to refer the theory of Yin and Yang to a scientific or unscientific approach.

Nevertheless, I still insist that the theory of Yin and Yang is not science (the reason is discussed above), and that it does not belong to rationalism.

When the Axial age began, Western civilization developed rationalism.

From the point of view of thermodynamics, the primary elements (parameters) of a natural system are: negative entropy, free energy, temperature, Branches couplings, quantity (number), space, time, and some other thermodynamics contents; while matter and energy are the secondary elements for the natural system.

I admit that the Western wisdom is dominated by “yang”. Naturally, therefore, firstly the notions of matter, energy, quantity (number), space, and time were revealed. Afterwards, on these basic elements, rationalism was constructed – as the mainstream organ of Western civilization. Likewise, rationalism is the philosophical system that relates to the beings of matter, energy, quantity, space, and time, and their rational behaviors (mathematics and logics, empiricism), eventually evolved into science. Here, in the case of non-life systems, rationalism is “completely accountable” to deal with the interrelations between the “cause” and “effect”. However, in respect to life systems, rationalism is actually not “accountable”, for it does not include the existence of negative entropy, Branches couplings and other *a priori* contents. Thus, modern rationalism has significant deficiencies in relation to life systems. Therefore, concerning the study of a life system, rationalism is not “accountable”; hence it is not reasonable to the full extent.

For the Chinese, their wisdom system belonged to the so-called “yin-yang balance” conditions. They firstly revealed, herein, the beings of free energy, negative entropy, temperature, Branches couplings, and some other thermodynamics contents. Relying on these basic notions (i.e., their equivalents), the reasonable non-rationalism was constructed and, further, developed into the mainstream organ of Chinese civilization.

The theory of Yin and Yang and the Chinese cultural system on the whole makes possible the understanding of the “cause and effect” interrelations and makes “accountable” the primary elements: free energy, negative entropy, temperature inasmuch as the interrelations, Branches couplings, some other thermodynamics contents, and their advanced non-equilibrium thermodynamics behaviors. However, because this domain is not modern rationalism, I call the approach of Yin and Yang theory as non-rationalism. In turn, inasmuch as herein “cause” and “effect” relationship also becomes “accountable”, therefore I call this approach as *reasonable non-rationalism*. This is precisely the origination of the term “reasonable non-rationalism”. Substantially, based on the primary perception of negative entropy, Branches couplings and other *a priori* elements, the theory of Yin and Yang could plough out the secondary basic notions of matter, energy, quantity, space and time. In this way, in relation to the life system, the theory of Yin and Yang brings about “accountability” of the interrelations between the “cause” and “effect” under study. Likewise, it is actually “accountable” for the non-life system, although it needs the elaboration of proper paths to make it so.

Significantly, “rational”, “accountable” and “reasonable” are not the same. Some rational things might be not reasonable and accountable. Some reasonable and accountable things might be not rational. Many people could get confused by this fact. In the domain of philosophy, however, we should try to clearly differentiate

them.

Elucidating the notions “accountable” and “reasonable”, I want to emphasize two standards: 1) modern rationalism serves for the study of non-life systems (Junior standard); 2) reasonable non-rationalism serves for the study of life systems (Senior standard). In accordance with the respective domains they belong to, we also might arrive at the conclusion: the Junior standard is a subset of the Senior standard.

Non-rationalism appears from a big “empty space” (or “empty field”), wherein modern rationalism and science are unable to treat life systems.

Non-rationalism includes existentialism, the theory of vitality, religious doctrines, part of the language philosophy, the moral and ethics issues in philosophy, and so on. Conventional philosophy treats it as non-rationalism; however, the theory of Yin and Yang exists exactly in this domain. Actually, the theory of Yin and Yang is the reasonable non-rationalism, for, it is accountable; while other forms of non-rationalism are not accountable. Thus, the “empty field” which is beyond the domain of rationalism – this field might be treated as a metaphysical domain that includes the theory of Yin and Yang.

9. Throughout his medical practice in the west, Wong Ming acknowledges that he had resorted to TCM (such as herbal prescriptions) for his patients and recognizes that “the treatment results turned better” (p. 9). But he holds fast to his conviction that these therapeutic successes do not fall in line with a rationalist point of view: “The TCM is not the knowledge of science, it is the knowledge of philosophy, it is a kind of metaphysics” (p. 10). “This book is about the knowledge of a kind of non rationalism” (p. 11).

* TCM is based on the theory of Yin and Yang, but it is also a practice that includes some experience, too. So, TCM and the theory of Yin and Yang are slightly different. TCM includes a part that is based on the theory of Yin and Yang and a part that is based on experience; the former is the major, essential part, and the latter is the minor, not essential part. The theory of Yin and Yang realizes reasonable non-rationalism; its standard for accountability is based on the Senior standard. The minor part (that is based on experience) has the standard for accountability that is based on the Junior standard.

10. I totally disagree on this concept. If TCM contains therapeutic value, which seems to be the case, then it can be classified under what is commonly called “scientific” or “rational” knowledge where, since the time of Aristotle, the same causes have been found to give reproducible effects.

* As we know, the criteria of science are: 1) foundation on mathematics and logic, 2) reproducibility of the results; and 3) falsifiability.

The theory of Yin and Yang applies its own methodological approach. Its standard of accountability is not based on mathematics and logic, and not on rationalism under the Junior standard of accountability; but it relies on the advanced thermodynamics. Substantially, the theory of Yin and Yang could neither be repeatable nor falsifiable, because Branches couplings have *a priori* essence; they are

not observable in the experiment, as well as not regular and not randomized. So, for TCM, the part that is based on the theory of Yin and Yang is not science, and this is the major, essential part of TCM. For TCM, there is another part which is based on experience; this part could belong to rationalism and science, but it has the minor, not the essential significance. In my book, “Traditional Chinese medicine and Metaphysics”, I examined this major part of TCM.

An essential moment is that both rationalism and reasonable non-rationalism can yield accountable outcomes. Consequently, accountable outcomes come from both rationalism and reasonable non-rationalism, and not exclusively from rationalism.

Creation of the rationalist exploratory approach wherein the criterion of the truth is both sensory and intellectual was the great achievement of Aristotle’s philosophy. However, Aristotle’s philosophy might imply more than that.

In Aristotle’s original philosophy, its idea of reason, the theory of causality was quite general and broad. It consisted of four parts (from my point of view):

1. Material cause – “*causa materialis*” (in our modern understanding – ‘material composition’);
2. Formal cause – “*causa formalis*” – ‘the structural-morphological organization’ (the program for formation);
3. Efficient cause – “*causa efficiens*” – ‘the driving force for 1. Material cause, and 2. Formal cause;
4. Final cause – “*causa finalis*” – ‘purposeful or telic causality’ (causality for summarizing and assessment).

This was a generous idea; it could be likewise translated into:

- 1) Primary elements;
- 2) Forming;
- 3) Driving forces (causes) and their effects (products);
- 4) Accountability (accountable interrelations between causes and effects);

Aiming at accountability and assessment of causes and effects we might rely at (construct) the two frameworks:

1. Mechanics view – based on the observation and study of things “from outside” (i.e. of non-life systems that have no negative entropy);
2. Bio-view – based on the observation and study of the subjects of life “from inside” (i.e. of life systems that have high negative entropy).

To study these issues in detail, using the framework stated above, we have:

- 1) Mechanics view:

A. *Primary elements*: matter, energy, quantity (number), space and time (any system consists of these basic elements);

B. *Forming* – how matter, energy, quantity (number), space and time work together to form more complicated systems (their physical activity and chemical reactions under the role of physical substances, creating different forms);

C. *Efficient* – how does the system (composition) behave inside and outside, applying the concept of energy;

D. *Final cause* – the issues of accountability and reproducibility: interrelations between causes and effects; the system’s constitution; completeness of the system.

In summary, mechanics view deals with matter, energy, quantity (number), space and time as the primary elements, with their behaviors that is based on Newtonian Mechanics; and which constitute the system. Finally, the system becomes measurable and accountable due to our analysis and summarizing of its causes and effects.

Herein, I also draw a parallel with four types of causality in Aristotle's philosophy, which I call "Aristotle's Conventional Cosmology" and "Aristotle's Conventional Rationalism", as well as the Junior standard of accountability.

2) Bio-view:

A. *Primary elements*: free energy, negative entropy, temperature, Branches couplings, some other thermodynamics contents, quantity (number), space and time; also including secondary primary elements – matter and energy. Any life system consists of these basic elements;

B. *Forming* – how free energy, negative entropy, temperature, Branches couplings, some other thermodynamics contents, together with matter, energy, quantity (number), space and time work jointly to form more complicated systems. The special issues deal with thermodynamics activity, triggered by the inflow of external negative entropy, with the mobilization of Branches couplings inside the system, within the laws of thermodynamics. The special issue is also the evolution of thermodynamics systems: from classic thermodynamics systems – to classic non-equilibrium thermodynamics systems, further – to advanced non-equilibrium thermodynamics systems: and, ultimately – to intellectual advanced non-equilibrium thermodynamics systems (my conception is a type of this system);

C. *Efficient* – how this system (composition) behaves inside and outside, applying the concept of free energy;

D. *Final cause* – the constitution of the system, including the issues of interrelations between causes and effects, and of reproducibility and completeness of the system.

In summary, Bio-view deals with the primary elements of free energy, negative entropy, temperature, Branches couplings, some other thermodynamics contents; together with the secondary elements of matter, energy, number, space and time, and their behaviors within the realm of thermodynamics (precisely of the advanced non-equilibrium thermodynamics). These existences constitute thermodynamics systems, evolving eventually to the life system.

Essentially, Bio-view corresponds with the treatment of Aristotle's philosophy – "Aristotle's Biocosmology", herein in the form of reasonable non-rationalism.

In general, this is the Senior standard of accountability, wherein "*the same causes have been found to give reproducible effects*".

In the contemporary Western world, its everyday life conditions and daily practices, people interaction with the outside world (objectivity) lack negative entropy. Under the constant pressure of survival and development (that is well disclosed in the concept of Heidegger), and, additionally, due to domination of the Western world by "yang" (from the point of view of Yin-Yang nature), Western people adopted rationalism first. Therefore, through inherent nature, the Western

culture originated and developed rationalism, and, on this basis, further Newtonian Mechanics, physics, chemistry, mathematics, industry, technology, and modernism (and so on) naturally appeared. Since the time Newtonian Mechanics emerged, rationalism (i.e. “Conventional Rationalism”) got a huge boost and became the mainstream of Western philosophy – the dominant idea for accountability and reproducibility. In turn, naturally, reasonable non-rationalism had ceased to be the leading organ in culture – was no longer the Senior standard for accountability and reproducibility

By contrast, Chinese culture, according to their Yin-Yang nature and perception of the world on the basis of “Yin and Yang balance” – the major part of Chinese culture was (is) constituted by reasonable non-rationalism, while the minor part – by rationalism (“Conventional Rationalism”). This is the puzzle of China for the Western mind. How could the Chinese system, which to a lesser degree used this rationalism, develop quite an impressive civilization? However, the answer is clear: Chinese culture followed reasonable non-rationalism as the major way of the world cognition, and which (reasonable non-rationalism) is not less powerful than conventional rationalism.

In the Western world, rationalism currently dominates while reasonable non-rationalism is deep in secondary roles. This is a normal state of affairs in respect to the study of non-life systems, but regarding life systems – this disposition certainly causes problems and, even, disasters (we regularly watch these unfortunate effects throughout the world).

Reasonable non-rationalism might be just one way out of this situation – to use the methodology of the Senior standard for accountability (reproducibility) of the processes under study. This perspective ought to be realized precisely with the agency of the Biocosmological Association – for the study of life systems, based on the four-causal original aetiology of Aristotle. This form of neo-Aristotelism pursues the right methodology (based on the original Aristotelian aetiology) and the right sphere of research (life systems), and, thus, might develop the right results to revolutionize the current philosophy and science. I do appreciate this route of development.

I also claim that there is a close relationship between the theory of Yin and Yang (which I try to rationalize on the basis of the theory of advanced non-equilibrium thermodynamics), and the theory of Biocosmology – a form of neo-Aristotelism that is based on the four-causal original aetiology. I consider that the theory of Yin and Yang could provide a valuable contribution to Biocosmology, and, in turn, Biocosmology could be the best showcase for the theory of Yin and Yang. I look forward to work together and approach fruitful results in our collaboration.

11. Then TCM have to be called a rational system, which means a system that can be described by a clear succession of arguments (similar to the ones listed in this book), even if the theoretical basis of TCM remains (up to now) different from the (present) basis of western medicine.

* Accountability cannot be rational (if we take into account the “conventional

rationalism”).

Here are two more examples. Cardizem (the trade name of diltiazem) is considered to be an effective anti-hypertension medication. It efficiently lowers high blood pressure. Hence, according to rationalism, control of blood pressure at low (normal) values can be treated as the positive factor for the increase in life expectancy. However, the results turned out to be quite the opposite, leading to the decrease in life expectancy.

In general, in modern medicine, many specialists advocate EBM (Evidence Based Medicine), including the problem of increasing the patient’s duration of life. To my mind, however, EBM is rather a tentative method, not a means for the thorough solution of problems. Exactly the introduction of the TCM approach into Western medicine could bring about the sought-for results. Indeed, from the viewpoint of the theory of advanced non-equilibrium thermodynamics, Cardizem is good at the physical level of being (in the light of Newtonian Mechanics), but it is harmful at the metaphysical level of being (in the light of the advanced non-equilibrium thermodynamics), inasmuch as it causes Yin and Yang imbalance and, thereby, early patients deaths.

Another example is the Pray therapy. From the viewpoint of rationalism, Pray therapy is naturally inactive at the physical level. Then, how can it be effective? In other words, the Pray therapy is not accountable from the modern rationalist standpoint. In turn, based on the theory of Yin and Yang, we might explain that the Pray therapy can decrease the “Fire of the Metaphysical Liver”, and thus can help the patient’s anxiety. Therefore, now, it becomes accountable (explainable) by virtue of the means of reasonable non-rationalism.

These two examples show that there are cases when the life system (and its well-being) cannot be explained by modern rationalism, but becomes accountable by virtue of the theory of Yin and Yang. In other words, as regards the issues of accountability, although “*TCM does not have to be called a rational system*” (from the standpoint of modern rationalism), the means of TCM and the theory of Yin and Yang appears to be efficient in the field that is beyond the domain of modern rationalism.

12. This is not the first case in scientific history when a phenomena that appears “non-rational” beside the state of science at a given time, finally had a proper (rational) explanation. Movements of the planets in space, epidemics like the plague during the Middle Ages, the reason why children resemble their parents, similarities between monkeys and human beings (I will revert to the Darwinian theory in the latter part) and the alchemy of transforming lead into gold, had all been considered, at a certain moment, as non-rational observations or assumptions, before eventually given each, a logical, rational explanation.

* I can distinguish three kinds of “non-rational” within the so called “non-rational – the thing unknown”:

1) First, some non-life systems (that lack negative entropy), mentioned above by Prof. Chapouthier – were the unknown non-life phenomena because of their high

complicacy that could not be understood in full by science, and were considered as “non-rational”. Lately, they became accountable for the rational approach, and, thus, rationalism has expressed a lot of opportunities for the comprehension of these systems.

2) Second, if a system under study is the life system which has rich Branches couplings and which is the “*a priori*, not on site, not regular and not randomized” whole system. Therefore, a life system is not the object for a rationalist approach. At the same time, dealing with some issues of life systems, physics plays a major role in the assessment of their causality and accountability. In this way, rationalism does have enough resources to explore life systems. Therefore, as it was stated above, some parts of the system are accountable at the physical level of being, and some parts (that are involved into the metaphysical level of being) are not accountable.

3) Third, here we deal with the level of a life system wherein the metaphysical being plays a major role in its causality. Substantially, this level is characterized by high negative entropy. It can be exemplified by the “order of nature” wherein the Branches couplings have the absolute domination. In respect to these systems, rationalism is unable to bring about worthy results.

The theory of Yin and Yang belongs to the third type. TCM belongs to the third type too. At the same time, both theories do not belong to the first type of non-life phenomena.

Therefore, the expression “*finally had a proper (rational) explanation*” fully corresponds to the first type of non-life systems, and partially relates to the second type of life systems (and can prevail in those with a major physical role). However, in relation to the third type of life systems (with a major metaphysics role) – it could not prevail in principle.

13. Science acknowledges the observation of reproducible data, and thus TCM clearly has a place in science, whereas scientific theories, which can evolve (improve) along the passage of time, allot a larger space to metaphysics. But both movements – observation and theorization – are connected.

* Here, Prof. Georges Chapouthier mentioned “*the observation of reproducible data*,” implying the approach of empiricism.

In this respect, I might propose two kinds of observations that could have reproducible results.

1) For empiricism in Western philosophy, the observable phenomena are: matter, energy, quantity, space, time or their derivatives. The process of theorization is realized by mathematics and logic, which are the main constituents of rationalism.

2) For TCM, and the theory of Yin and Yang, the observable phenomena are: negative entropy, free energy, temperature, Branches couplings, and other thermodynamics parameters; while matter, energy, quantity, space and time are not the subjects of study. The process of theorization is correlated with the theory of advanced non-equilibrium thermodynamics (but is not based on mathematics and logic) – this is the reasonable non-rationalism.

Prof. Georges Chapouthier commented, “*Science acknowledges the observation*

of reproducible data, and thus TCM clearly has a place in science,”...“observation and theorization - are connected”. This concept indicates that all theories which may have reproducible data must be referred to science, implying that TCM must be in accord with rationalist theories and science on the whole.

That is not true. Rationalism leads to reproducible data, and reasonable non-rationalism also provides reproducible data. I could say more, reasonable non-rationalism can yield even higher levels of reproducible data. Nevertheless, firstly, we need to understand the difference between rationalism and reasonable non-rationalism on the issue of reproducible data.

Still, a common trend exists both in the West and, even, in China: many people, including scholars do not make any distinction between them. Most believe that all theories that have reproducible data actually relate to rationalism and science. This misleads people and could result in bad consequences. My differentiation of these two distinct approaches is given above.

14. The fact that TCM mimic some data of modern physics, such as Prigogine’s thermodynamics, leads us to consider that an explanation that is compatible to both western and eastern metaphysics, is probable.

* Inspired by the ideas of Schrodinger and Prigogine (of the theory of non-equilibrium thermodynamics), I developed the theory of advanced non-equilibrium thermodynamics (in correspondence with the theory of Yin and Yang). As discussed above, my theory is essentially different from Prigogine’s theory of non-equilibrium thermodynamics. The distinctive essence of my theory is a great number of Branches couplings, high levels of negative entropy, as well as the “*a priori*, not on site, not regular and not randomized” essence. In the issue, this theory cannot be compatible with a system of Newtonian Mechanics. Consequently, it cannot be compatible with modern science and rationalism. Therefore, I consider the theory of advanced non-equilibrium thermodynamics as intrinsically metaphysical and philosophical.

Prof. Chapouthier’s thesis is valuable: “*an explanation that is compatible to both western and eastern metaphysics is probable*”. That is a wise and valuable idea; and, likewise, exactly what I try to do. However, in current circumstances, from the point of view of modern philosophy of language – this time is yet to come. Still, the main conceptual systems of the East and West are profoundly different. The primary elements typical for the Western thinking are: matter, energy, quantity, space, time and their interrelations within Newtonian Mechanics. By contrast, the main primary elements for the Eastern thinking (represented by the Chinese system) are: negative entropy, free energy, temperature and space; in terms of thermodynamics – this is the advanced non-equilibrium thermodynamics. They are profoundly different and incompatible, and in our current time we are unable to unify them. However, hopefully the interconnection between the theory of advanced non-equilibrium thermodynamics and the theory of Yin and Yang could build the bridge between the Western and Eastern systems of thought.

However, this expected result is possible exclusively if rationalism (Junior standard) is regarded as a subset (constituent part) of reasonable non-rationalism

(Senior standard). In other words, the sought-for result is achievable in a form of the integration of modern rationalism into the proposed reasonable non-rationalism, but not in modern understanding of the integration as a form of the takeover of reasonable non-rationalism into modern science and conventional rationalism.

15. In his book, “La Methode”, Edgar Morin, a modern day French philosopher of complex systems, takes the example to the yin/yang balance in TCM as a theoretical model of order and harmony including antagonistic properties, which would perfectly fit a modern (western) description of complexity.

* “La Methode” by Edgar Morin is certainly a really interesting work. This book will undoubtedly become the subject of my next study. The point is, however, that when Western scholars explore the ideas of the Chinese system, they usually study it from the viewpoint of Western philosophy which is still based on the theory of rationalism (the theory of generalized Newtonian Mechanics); or with the idea of dialectics, moral doctrine and so on. But the wisdom of the Chinese system is beyond these domains of knowledge.

The Chinese system (the theory of Yin and Yang) is the theory that relates to the system of advanced non-equilibrium thermodynamics. It studies the “*a priori* substances which are not on site, not regular, and not randomized”; and it regards high negative entropy and rich Branches couplings. I am afraid that the theory of complexity does not have enough resources to adequately explore such a system that involves *a priori* substances, negative entropy, and Branches couplings. I hope and encourage Western scholars to apply the theory of advanced non-equilibrium thermodynamics to explore the Chinese system, including the theory of Yin and Yang. If they do so, some amazing things (discoveries) can be brought to their mind.

16. I thus reject the reference to “non rationality” as claimed by the author. Art, poetry, fantasy and dreams entail non-rational activities. TCM does not seem to belong to this non-rational manifestation. Indeed “the Chinese system is a system with profound wisdom” (p. 12). I believe that this profound wisdom is rational.

* As it follows from the above, the theory of Yin and Yang and the theory of advanced non-equilibrium thermodynamics are equivalents (from the methodological point of view). In the advanced non-equilibrium thermodynamics system, Branches couplings are the dominant existence, which is *a priori*, not on site, not regular and not randomized. But the system still poses statistical properties. It lacks the three criteria of science: 1) foundation on mathematics and logic, 2) reproducibility of the results; and 3) falsifiability. From this standpoint, it is not a scientific approach and not the rationalism. (Book, Part One, Chapter 4)

For accountability, there are two standards: 1) the Junior standard, which is based on rationalism – the framework of Newtonian Mechanics, and 2) the Senior standard, which is based on reasonable non-rationalism – the framework of advanced non-equilibrium thermodynamics. As I tried to previously substantiate (chiefly in respect to accountability), the advanced non-equilibrium thermodynamics and the

theory of Yin and Yang (based on the reasonable non-rationalism) is more fundamental than Newtonian Mechanics (based on conventional rationalism). That is why I say that it is the profound wisdom. In all cases, effectiveness means accountability; but it does not necessarily mean rationalism. As regards to accountability, reasonable non-rationalism is more fundamental than rationalism. At the same time, in relation to non-rationalism, there are different levels of reasonableness. The theory of Yin and Yang has high levels of reasonableness, art has middle levels of reasonableness, and fantasy has low levels of reasonableness. So, from the viewpoint of the Senior standard of accountability, the theory of Yin and Yang is completely accountable, art is partially accountable, and fantasy is completely not accountable.

17. Besides this (important) reservation, the book does have a dual interest for readers: a detailed analysis of the different techniques of TCM, as mentioned earlier, and also an interesting description of the metaphysical framework currently underlining TCM. Provided however eastern and western metaphysics are conceived for what they are: two likely compatible stances which have yet to find common concepts.

* That is the main purpose of my book. Representation of the TCM's metaphysical framework is quite difficult, for, it needs a lot of substantial and thoughtful work. Prof. George Chapouthier gave this framework a positive assessment, and I deeply appreciate this relation. Immediately, I am glad to start the preparation of the new work that would deal precisely with the issues stated by Prof. Chapouthier, and which could contribute to a more clear perception of the metaphysical and methodological bases of the advanced non-equilibrium thermodynamics (and, through that basis, – of the theory of Yin and Yang, and TCM).

18. I would like to conclude with another final and important philosophical criticism, based on Darwin's theory. It would indeed be a mistake to refuse eastern points of views in the name of (present) western scopes, and, on this score, the author is right. But it would be also wrong and dangerous, in the name of eastern scopes, to suppress western stances, like what the author does.

* Here, I would like to say that I do not underestimate rationalism and the Western system of knowledge on the whole. Due to rationalism, and Newtonian Mechanics (generalized Newtonian Mechanics), different kinds of natural energies were introduced into the life of society. These natural energies realized a rich inflow of external negative entropy into the life of human society. All this greatly lifted society's level of negative entropy. This became the basis for the development of industry, science, modernism, the general improvement of human life, and has pushed human civilization forward to a new higher level, including glorious modernism. Indeed, rationalism works greatly for the non-life system. But for life systems, as is stated above, modern scientific (rationalist) ideology absorbed (and masked) reasonable non-rationalism, shielded the existence of Branches couplings,

and insulated the existence of negative entropy. In the issue, when conventional rationalism deals with the study of life systems (directly or indirectly), it faces serious difficulties. Darwin's theory of Evolution exemplifies the aforesaid theses.

What is evolution? Rationalism (represented by Darwin) essentially considers the evolutionary process as the morphological evolution. In reality, however, evolution means the gradual (micro- and macro-) complication of life systems. Then, what are the causes of this evolutionary (ascending in complexity) change? Rationalism considered the system as a machine, and, therefore, – nothing could change inside this machine; in other words, any change must primarily come from the outside. Thus, the outside environment plays a decisive, if not the definitive role, that was called “Natural Selection” and “survival of the fittest”.

In turn, the theory of Yin and Yang (reasonable non-rationalism) considers essentially the substance of inherent negative entropy that uplifts, and that generates the evolutionary process. Thus, the theory of Yin and Yang (reasonable non-rationalism) easily answers the question “What causes the change?” – considering that a life system naturally possesses negative entropy and has numerous Branches couplings for self-lifting (in the complexity of organization) and realization of the evolutionary process. In turn, mobilization of Branches couplings is realized by the substantially intrinsic (immanent) factors. The inflow of external negative entropy only plays the role of a trigger. Therefore, the immanent factor (Branch's coupling) plays the decisive role.

Which position is more correct? To my mind, the answer is evident – any life system is more likely to be the advanced thermodynamics system than a mechanical system.

19. Thus, in my conclusion, I would also like to evoke Darwin and his evolution theory. Wong Ming maintains that human beings are not (naked) apes, since, according to him, “the mankind was not evolved from the monkey” (p. 531). As Darwinian, I cannot accept that and the author's refusal to consider the evidence of scientific observations. Evolution theory has been proven by so many facts and findings (fossils, physiological data, embryologic processes, genetic measures...) and therefore it is difficult to contest Darwin's theory.

* Why did the so-called intelligent design appear? This is because Darwin's theory has great difficulties in explaining the meaningful direction of evolution. Darwin is a follower of rationalist mechanical methodology, thus, according to the rules of physics – evolution cannot have a meaningful direction, even using the mechanism of the so-called “natural selection”. In turn, this kind of meaningful direction of evolution could be answered by the theory of Yin and Yang (based on the methodology of reasonable non-rationalism). The theory of Yin and Yang is able to study the substantial things that are *a priori*, not on site, not regular and not randomized, and which are determined by Branches couplings. The so-called meaningful direction of evolution is actually the manifestation of Branches couplings activity, as well as manifestation of the so-called “order of nature”.

20. And the fact that the human brain contains a much higher level of negative entropy than the brain of an ape, does not change anything about the shared origin of human beings and apes.

* A long time ago, the morphology between human beings and apes could have been similar. Even the level of negative entropy may have been similar, but not the content of negative entropy that was significantly different since the origination of Homo sapiens. If we applied the time differential over their respective negative entropy, greater differences would be revealed. This is exactly the cause and explanation why apes and humans have such different paths of evolution.

21. Finally, without minimising the value of this book for its information on TCM and its metaphysical element, I would like to re-assert here, my conviction that human beings are closely linked to apes and monkeys.

* Humans were linked to apes and monkeys, but it does not mean that humans evolved from apes or monkeys.

This new concept on evolution, based on the theory of advanced non-equilibrium thermodynamics, needs time to be developed and recognized. People are familiar with rationalism, but it is not so easy (in the era of conventional rationalism's domination) to be familiar with reasonable non-rationalism. However, hopefully, scholars will spend more time studying the theory of advanced non-equilibrium thermodynamics, and afterwards, people can understand and treat this new concept better, including its theoretical development and practical application.

In the end, I repeat that Darwin's theory is a good vehicle to make accountable the phenomena and processes of "*a posteriori*" survival and development, but it cannot become the theory of "*a priori*" evolution. In the true evolution, a key moment is the uplifting (ascent) of the level of negative entropy, and wherein the decisive role is given to mobilization of Branches couplings. In the issue, the "intrinsic thermodynamical" essence of a life system is much more important than the "extrinsic mechanical" physics.