Appendix A
The Outline of Triad Philosophy: A Philosophical Idea for Merging Western and Eastern Thoughts

The triad philosophy is introduced based on triad logic. The systematical core ideas include triad ontology, triad epistemology and triad axiology. The triad ontology is characterized by objective knowledge (Li), objective matter (Ch'i) and subjective spirit (Hs'in). Triad epistemology is characterized by experiencing, studying and thinking. Triad axiology consists of honesty, charity and forgiveness.

A.1 Introduction

Currently people need a contemporary philosophy in which Western and Eastern philosophical ideas of excellence can be melted together for processing all things in the world. Synthesizing Western, Chinese and Eastern thought,[1] I introduce the triad philosophy based on triad logic.

In triad logic, there exist triad operators (+, ∗, R) and three values(1, 0, −1). Their value table fits an extended Lukasiewicz L_3 (Lukasiewicz, 1930) system shown as follows.[2]

+	1	0	−1
1	1	1	1
0	1	0	0
−1	1	0	−1

∗	1	0	−1
1	1	0	−1
0	0	0	−1
−1	−1	−1	−1

R	1	0	−1
1	−1	−1	0
0	−1	0	1
−1	0	1	1

That is a non-symmetric ternary logic (Haaparanta 2000).

On the basis of the value table above, the following logic laws can be set up (Eldon 2000).

[1] Here, Kant's philosophy, Popper's philosophy, philosophy of I Ching and Buddhism are particularly considered.

[2] Lukasiewicz logic used values 0, 1, 2.

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A.1.1 The exchange law

$$A + B = B + A \quad A \times B = B \times A \quad ARB = BRA$$

A.1.2 The combination law

$$(A + B) + C = A + (B + C) \quad (A \times B) \times C = A \times (B \times C)$$

A.1.3 The distribution law

$$A \times (B + C) = (A \times B) + (A \times C) \quad AR(B + C) = (ARB) \times (ARC)$$
$$AR(B \times C) = (ARB) + (ARC)$$

Based on the logic system, sentences will be classified as positive sentences (true value, 1), indefinite sentences (no value, 0) and negative sentences (false value, −1) in language. Thus, triad philosophy can be developed based on triad language logic.

A.2 Triad Ontology

A.2.1 Category Origin

The concept Onto(s), which comes from Western philosophy, means the essence(s) of existing things. In Western philosophy, there are objective knowledge, which means the idea of Li (rightness) in Chinese philosophy or the idea of Brahman in Indian philosophy; objective matter, which means the idea of Ch'i (vapor) in Chinese philosophy or the idea of Maya in Indian philosophy; subjective spirit, which means the idea of Hs'in (mind) in Chinese philosophy or the idea of Atman in Indian philosophy. Referring to Popper's idea (Popper 1972) of objective matter (World 1), subjective spirit (World 2) and objective knowledge (World 3), I can construct triad ontology as follows.

A.2.2 Structure Construction

Synthesizing objective knowledge (rightness, Brahman), objective matter (vapor, Maya) and subjective spirit (mind, Atman) in Western, Chinese and Indian philosophy, triad ontology is constructed as in Fig. A.1.

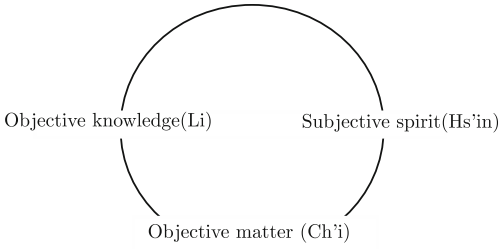

Fig. A.1 Triad ontology

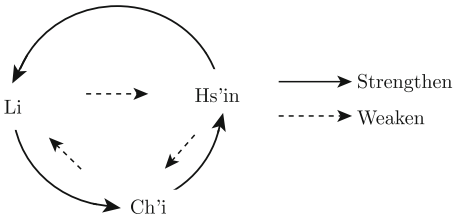

Fig. A.2 The relations in triad ontology

Referring to onto-hermeneutics (Cheng 1996), Li in Chinese philosophy and Brahman in Indian philosophy can be interpreted as objective knowledge in Western philosophy, so are Ch'i and Maya as objective matter and Hs'in and Atman as subjective spirit. Figure A-1 means that objective knowledge (namely rightness or Brahman), objective matter (namely vapor or Maya) and subjective spirit (namely mind or Atman) exist at the same time.[3]

A.2.3 Function Development

Considering the relations in triad ontology, there is Fig. A.2 for reference.

That is an idea from the relations of five elements in Chinese philosophy.

Triad methodology, or the triad thinking pattern, can be introduced by triad ontology. The triad method is a system method in which there are three main groups or elements. The three groups or elements construct a triad relation as in Fig. A.3.

In that system, Group A includes foundation/basis element(s), Group B includes motivation/power element(s) and Group C contains regulation/adjustment element(s).

Every triad method system or subsystem may be dominated by three main elements. When a system is controlled by three elements A, B, C, the system may be called a one-order triad system. When A is divided as A1, A2, A3, B as B1, B2, B3 and C as C1, C2, C3, the system that contains nine elements may be called a two-order triad system (Fig. A.4).

Generally, a system which consists of m elements may be called $(n-1)+\frac{m}{3^n}$

[3]Differing from Popper's philosophy, here objective knowledge, objective matter and subjective spirit constructed a triad structure.

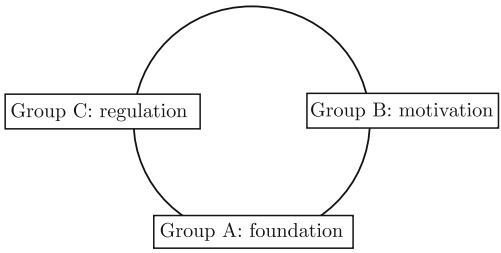

Fig. A.3 Triad methodology

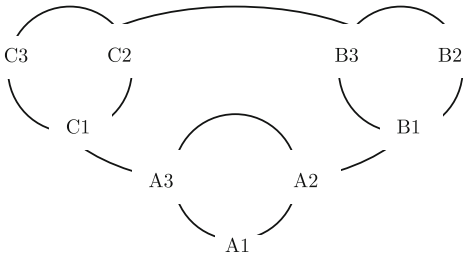

Fig. A.4 Two order triad system

order triad system. When $m \in [1, 3]$, $n = 1$; when $m \in [4, 9]$, $n = 2$; when $m \in [10, 27]$, $n = 3$.

In Wittgenstein's Tractatus Logic-philosophy (Wittgenstein 1974), the basic philosophic problem is the relation of said and shown. In triad philosophy, it is a triad relation.

A.3 Triad Epistemology

A.3.1 Category Origin

The generation and development of knowledge must be a process. At the beginning, knowledge came from experiencing. After people concluded some principles or rules from experiences, they could think based on the principles or rules and got knowledge. When knowledge was accumulated and organized into a system, people could get knowledge through learning or studying.

A.3.2 Structure Construction

Thus, there are three sources of knowledge, i.e., experiencing (acting), thinking (pondering) and studying (learning), which together construct triad epistemology as Fig. A.5.

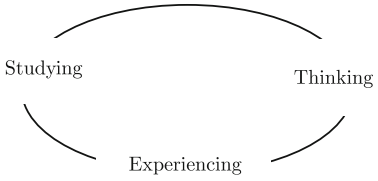

Fig. A.5 Triad epistemology

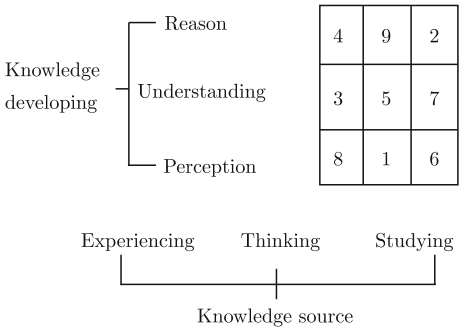

Fig. A.6 Cognition frame

Considering Kant's philosophy (Kant 1929), experiencing, thinking and studying may undergo the process of "perception → understanding → reason". Combining Kant's epistemological line with Chinese "nine squares" as a "cognition frame" for memory, triad epistemology can be shown in Fig. A.6.

The numbers express the importance order. The larger the number is, the more important is, for the kind of knowledge that contributes to modern knowledge.

There are some examples for explaining the order above.

A.3.2.1 Examples of reason-thinking (order 9)

(1) Euler's formula: $\exp(iz)=\cos z + i\sin z$.

(2) Newton's gravity law: $F = G\frac{m_1 m_2}{r^2}$.

(3) Knowledge is power.

A.3.2.2 Examples of perception-experiencing (order 8)

(1) All that glitters are not gold.

(2) A rolling stone gathers no moss.

(3) Rome was not built in a day.

A.3.2.3 Examples of understanding-studying (order 7)

(1) $0+1=1, 1+1=2, \cdots, 9+1=10, 10+1=11, \cdots, 99+1=100\cdots$

(2) $0 \times 1=0, 1 \times 1=1, \cdots, 2 \times 2=4, 2 \times 3=6, \cdots, 9 \times 9=81\cdots$

(3) One day equals 24 h and one hour equals 60 min.

A.3.3 Function Development

Human knowledge can be induced by perception, understanding and reason on the basis of nature, society and mankind. At the beginning, knowledge came from experiencing with perception and gradually literature, arts and natural philosophy were produced. Then natural, social sciences and humanities were introduced based on thinking and studying with understanding and reason. Step by step, physics became the core of natural sciences, economics of social sciences and philosophy of humanities.

Now, I can conclude three principles and three laws as the core of human knowledge.

Principle I (cycle principle): there are a lot of cycles in the world. That is the basis of existing things. The cycle principle is expressed as the chemical periodic table, TCA cycle, economic cycle and many other periodic phenomena.

Principle II (harmony principle): all parts of the world relate to each other. That is the adjustment for existing things. The harmony principle is expressed as symmetry, poetic rhyme, music harmonics and other harmonic phenomena.

Principle III (optimization principle): optimization is the direction for development in the world. That is the power of existing things. The optimization principle can be expressed as the least action law, maximum profit and minimum cost rules and other optimum phenomena.

Law 1: substance never vanishes. That is the foundation of objective matter.

Law 2: spirit never dies away. That is the foundation of subjective spirit.

Law 3: logic never confuses. That is the foundation of objective knowledge.

The three principles and three laws set up the basis of the world and construct the framework of contemporary knowledge.[4]

A.4 Triad Axiology

A.4.1 Category Origin

In Western philosophy, truth, goodness and beauty are keywords for axiology. And in Chinese and Eastern philosophy, honesty, charity and forgiveness are strengthened. Honesty reflects the true; charity means the good; and forgiveness shows the beauty. So, honesty (the true), charity (the good) and forgiveness (the beauty) construct the triad axiology.[5]

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[4] If a contemporary philosophy can not explain contemporary knowledge, it is untenable.

[5] In my point of view, mass axiology means ethics and personal axiology expresses the outlook of life.

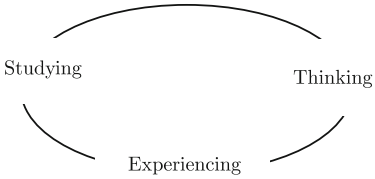

Fig. A.7 Triad axiology

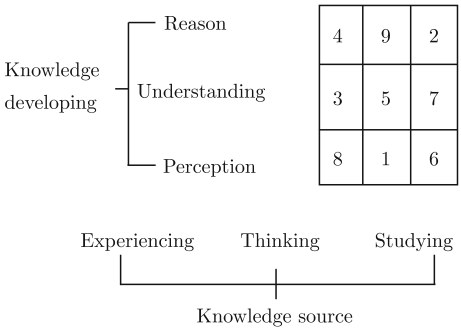

Fig. A.8 Structure of humanity

A.4.2 Structure Construction

In triad axiology, the triad relation is shown in Fig. A.7.

Triad axiology means that we should generally be charitable to everyone as a condition of maintaining basic ecological balance and people should forgive each other and should be sincere in society.

A.4.3 Function Development

An ideal humanity or personality is the unity of charity, forgiveness and honesty. I propose that humanity has a complex multi-level inner structure, which contains physiological, psychological and philosophical levels. It is a two-order triad system (Fig. A.8).

In that system, charity (goodness) is the dynamic source of kindness, volition and imagination, which construct the psychological level. So are forgiveness (beauty) of consciousness, love, emotion for the physiological level and honesty (truth) of perception, reason, understanding for the philosophical level. The triad outlook of life derives from the structure of humanity.

Logic, science and law result from reason. Courage, willpower and war are caused by volition. And joy, anger, anxiety, fear (terror) and the arts come from emotion. At the physiological level, volition is motivation; at the psychological level, love is primary; at the philosophical level, reason is power. Humanity may mainly be a

trinity of volition, love and reason. Certainly, we can not ignore other natures, for example, there will be no hope without imagination.

Paying attention to kindness and developing reason are necessary paths for training an ideal personality.

The moral levels will adapt to the social civilization and economic levels. In the future, people can choose suitable life standards based on their conditions. There are three standards for choice:

(1) High standard (the sage view of life): charity for everything and forgiveness for everyone. Someone who is glad to help others and to act for society will say: "I like to be charitable to the world, to forgive all people and to be honest in society."

(2) Middle standard (the gentleman's view of life): keep goodness in mind and be upright in action. Someone who is peaceful and modest will say: "I will keep charity and forgiveness for good people and honesty in society."

(3) Low standard (the masses view of life): do not destroy social safety. Someone who dislikes helping others, but does not hurt others either will say: "I am charitable only to myself, forgiveness is only for my friends; but I am honest in society."

If most people can get to the middle standard in a society, the social morality will be good. Even the low standard will lead to peace and quietness. The base is to keep "honesty in society."

I think that agricultural civilization, industrial civilization and knowledge (information) civilization will co-exist in the future. The triad civilization (society) will need triad axiology.

A.5 Conclusion

Triad ontology, triad epistemology and triad axiology construct the main framework of triad philosophy. In triad ontology, the main elements are objective knowledge (rightness, Brahman), objective matter (vapor, Maya) and subjective spirit (mind, Atman). In triad epistemology, the main elements are experiencing (acting), thinking (pondering) and studying (learning). And in triad axiology, the main elements are honesty (truth), charity (goodness) and forgiveness (beauty).

That is an outline of triad philosophy. Deeper research into triad ontology, triad epistemology and triad axiology will be separately studied. I hope the triad philosophy will provide a reference system for contemporary philosophy.

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Note: this chapter is revised and simplified by the following paper: Eldon, F. Y. 2000. Triad philosophy and triad science based on triad logic. *Journal of Zhejiang University (Science)*, 1(4): 467–475

Appendix B
Main Publications (1998–2016) of Prof. Dr. Fred Y. Ye

Peer Reviewed Articles in Physics

Ye, F.Y.: The physical linked-measure works as vortex with linking to turbulence. Phys. J. **1**(3): 209–215 (2015).

Ye, F.Y.: The linked-measure and linked-field for linking micro-particles to macro-cosmos with dispelling dark matter and dark energy. Phys. J. **1**(2): 89–96 (2015).

Ye, F.Y.: The Clifford-Finslerian linked-field leads branching multiverse. Phys. J. **1**(3), 375–381 (2015).

Ye, F.Y.: Curvature mass inside hadrons, linking gravity to QCD. Natl. Sci. **5**(2), 182–186 (2013).

Ye, F.Y. A Clifford-Finslerian physical unification and fractal dynamics. Chaos, Solitons and Fractals **41**(5): 2301–2305 (2009).

Ye, F.Y.: From chaos to unification, U theory vs. M theory. Chaos, Solitons and Fractals **42**(1), 89–93 (2009).

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Ye, F.Y.: Complex economic metrics linking to scaling money supply. Euro-Asian J. Econ. Finance **3**(3): 188–194 (2015).

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Zhang, L., Glänzel, W., Ye, F.Y.: The dynamic evolution of core documents: an experimental study based on *h*-related literature 2005–2013. Scientometrics **106**(1), 369–381 (2016).

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