

A Contemporary Reading of Confucius in the Light of the Yi Jing and Complexity Theory

By

Wei-Bin Zhang

A Contemporary Reading of Confucius in the Light of the Yi Jing and Complexity Theory

By Wei-Bin Zhang

This book first published 2025

Ethics International Press Ltd, UK

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Copyright © 2025 by Wei-Bin Zhang

All rights for this book reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical photocopying, recording or otherwise, without the prior permission of the copyright owner.

Print Book ISBN: 978-1-83711-085-8

eBook ISBN: 978-1-83711-086-5

Table of Contents

Preface and Acknowledgements	viii
Chapter 1: Confucius in the Light of Complexity Theory	1
1.1 Confucius: From the Poor to the Sage.....	2
1.2 The Yi Jing Vision, <i>Yin-Yang</i> Pairs Interactions, and Complexity Theory	10
1.3 Some Insights into the Yi Jing Vision from Complexity Theory	19
1.4 Reading Confucius is to Assemble a Complex Jigsaw Puzzle	22
Chapter 2: Life as a Process of Search, Learning, Creation, and Construction	27
2.1 The Gentleman Who Searches for and Follows Dao	27
2.2 Dao Cannot Enlarge Man, but Man Can Enlarge (Manifestations of) Dao	32
2.3 Man Is Dutiful but not a Mere Tool to Society	34
2.4 Life Is to Enlarge Oneself and Then Others	36
2.5 Learning from Ancient Sages and Cultivation with Rituals	40
2.6 Epoch-Dependent Personal Characters	43
2.7 Persistence in Learning with the Main Goal	45
2.8 Situation Dependent Consequences of Action and Grasping Opportunity	49
2.9 Manner, Verbal Expression, and Appearance	51
2.10 On Wealth and Social Status	58
2.11 On Leisure, Cultivation, and Happiness	62
2.12 A Few Desires and Pleasures in Association with Moral Education	69

Chapter 3: Family, Personal Relations, and Human Networking 73

3.1 Confucius' Golden Rule	74
3.2 Reciprocity as the Connector of Human Relations	79
3.3 Trust, Honesty, and Faithfulness for the Gentleman	82
3.4 The Family Based on Filial Piety as the Basis of Social Life	84
3.5 Associate Those Who Will Raise You Up	88
3.6 Virtuous Environment as a Factor for Cultivation.....	90

Chapter 4: Social and Economic Structures with

Benevolent Government	93
4.1 A Hierarchical Social System Based on Human Capital.....	94
4.2 Social Mobility with Human Capital and Education	97
4.3 Rituals versus Law in Governing	101
4.4 Government of the People, for the People, and by Benevolence	106
4.5 The Benevolent Ruler	110
4.6 Administration with Talented and Dutiful Officials	116
4.7 A Frugal and Benevolent Government with Low Taxation	122

Chapter 5: Some Western Thinkers on Confucius and

Confucianism	127
5.1 Leibniz (1646–1716) on Yi Jing and Confucius	128
5.2 Christian Woll (1679–1754) on Confucius	132
5.3 Immanuel Kant (1724–1804) on Confucianism.....	135
5.4 Voltaire (1694–1778) on Confucius.....	138
5.5 Francois Quesnay (1694–1774) on Confucius	140
5.6 Adam Smith (1723–1790) and Confucianism.....	141
5.7 Max Weber (1864–1920) on Confucianism	148

Chapter 6: Confucius in a Globalizing Village	151
6.1 Confucius in a Globalizing World: Chaotic World and Stable Principles	153
6.2 Confucian Belief and Value System for a Harmonious Society	159
6.3 Some Important Issues Almost Missed in <i>The Analects</i>	162
6.4 Confucius and Globalizing East Asia.....	169
References.....	177

Preface and Acknowledgements

The father, the son. China fell many times and rose many times as a civilization in the way that Confucius inspired:

Our greatest glory is not in never falling but rising every time we fall.

The saying also portrays the oscillatory acceptances and rejections of Confucius in China. Once China starts to move towards a prosperous direction, Confucius will be increasingly respected. The Cultural Revolution was an example of mass collective destruction resulting from criticism of Confucianism initiated by the May Fourth intellectual generation from the late 1910s. The national ruins caused by passionate young Chinese intellectuals were deep and lasting. Chairman Mao was one of the most influential men in modern China. He was influenced by the cultural environment that denied everything Confucian when he was a young librarian at Beijing University. In recent years, movements in many Chinese communities eulogized Confucius.

Confucius was idolized, neglected, or disdained over centuries in China, Korea, Vietnam, Japan, and the West. Some great European thinkers in the Age of Enlightenment admired Confucius. He was generally neglected in the West in the last century. There are only a few studies on how Confucius' basic ideas can be integrated with Western rational thought. As a boy (6-15 years old), I lived in the middle of the "criticize Confucius" campaign during the Great Cultural Revolution in mainland China. Chinese people were not allowed to know what Confucius said and meant during the period. I encountered Confucius' *The Analects* in English about 35 years ago in Umeå city, Sweden. It was the first time that I read Confucius. Since then, I have found something new from reading it each time.

As I have shown in my research in complexity theory (Zhang, 1991, 2023a, 2023b, 2024a), it is time that East Asia's rationality (based on the Yi Jing) and Western rationality based on Newtonian vision can be integrated with modern rationality based on complexity theory. The recent

developments in complexity theory show the limitations of the traditional Newtonian approach to man and society. It is a great challenge to re-examine Chinese civilization, especially Confucius, in the light of complexity theory. This book is to apply some general ideas from complexity theory to provide a modern reading of Confucius. It also applies modern thought to explore Confucius and his implications for getting the hang of contemporary East Asian societies.

I am very grateful to Publisher Sarah Palmer, Publisher Ben Williams, and the anonymous referee for constructive suggestions. Throughout the book, all the citations are said by Confucius, if without a special mention. For instance, “A man who speaks eloquently and appears insinuatingly is seldom virtuous. [1:3]” in the text means “Confucius said: A man...” in paragraph 3 of Chapter 1 in *The Analects*. There are two Romanization systems for pronouncing Chinese terms: the Wade-Giles system (e.g., I Ching, Confucius, or Lao Tzu) and the *pin yin* system (e.g., Kong Zi or Lao Zi). This book uses the *pinyin* system, except for some names for the Chinese terms in quotations and Confucius and Confucianism (since they are still widely used). In quotations, I make the conversion, for instance, from Lao Tzu to Lao Zi. There are some quotes that I don’t provide the sources for as almost all of them are from <https://www.brainyquote.com>, with a few exceptions. The author made the translations of *The Analects of Confucius* based on the translations by James Legge (1814-1897, *Confucius*, 1992) and A. Charles Muller (2020). I sincerely appreciate and thank the sources. I am grateful to my wife, Gao Xiao, for caring. I am grateful to APU, in which I have worked for 24 years, for the supportive environment.

Wei-Bin Zhang

Beppu, Winter 2024

Chapter 1

Confucius in the Light of Complexity Theory

I admire Confucius. He was the first man who did not receive divine inspiration.

Voltaire (1694-1778)

Like some other ancient civilizations, China draws its basic ideas from that time of awakening between 800 and 200 B.C., the age of the Greek and Indian philosophers and the Hebrew prophets. The territory of contemporary China was composed of many feudal states in the fifth century B.C. The period from the fifth to the third centuries B.C. is called the "Period of the Warring States." It is also referred to as "the Period of the Philosophers." Schools of thought mushroomed. Confucius formed his thoughts during this chaotic but relatively free environment. His thought formed the dominant "official ideology" for social, cultural, and political organizations in China, Korea, Vietnam, and Japan for some centuries before the West forced these regions to open to Western civilization (Fung, 1948; Sun, 2013; Yao, 2000, Yang, 2022). Schuman (2015) describes Confucius as perhaps the most important philosopher in history. Schuman observes that throughout East Asia, Confucius's influence can be seen in everything from business practices and family relationships to educational standards and government policies. Even as Western ideas from Christianity to Communism have bombarded the region, Confucius's doctrine has endured as the foundation of East Asian culture.

Confucius is generally considered the most important and influential thinker in Chinese civilization. After Confucius passed away, schools, institutions, and temples were established in his honor in China and abroad for over 2000 years. His genealogy lists over two million people alive as his descendants. Confucian scholars enjoyed public glory moments and were repeatedly persecuted during their long history. In modern times, Mao started a political propaganda campaign against Confucianism in mainland China In 1973.

1.1 Confucius: From the Poor to the Sage

Confucius, the glory of the nations and the sage of the Absolute East, was a middleman. He is the Washington of Philosophy, the moderator ... of modern history.

Ralph Waldo Emerson (1803-82, *Journals*)

Men's mindset is much influenced by the environment that they have experienced. Environmental differences might also strongly affect how sages of different cultures establish their value systems. For instance, being brought up in an environment served by enslaved people, Aristotle might have considered the slave system a natural part of human society. Living in poverty and having to earn a living by providing services to different masters of various cultures for most of his lifetime, Confucius might highly evaluate diligence and believe in human equality by nature. Born into a prince and having a free and luxurious lifestyle in youth, Buddha might know little about the necessity and pleasure of physical labor and be able to enjoy and highly evaluate spiritual aspects of life. It is still a challenging issue in modern sciences related to how man's mindset is personally and collectively affected by and affects society and the environment.

Confucius was born in 551 B.C. in Shantung Province in mainland China. It is alleged that he was descended from a noble family. His father divorced his first wife and married a fifteen-year-old girl, who gave birth to Confucius. It is also conjectured that Confucius was an illegitimate child or a child born out of wedlock. It is generally agreed that his father died soon after he was born. The widowed mother brought him up in poverty. He did not receive formal education in the early years of his life. His home environment in childhood and early youth differed from what might be commonly found in a traditional society in which there was a strict division of labor and consumption between the husband and wife. His mother played the role of both father and mother. She might profoundly influence how Confucius felt and thought about life and society.

Confucius' home state, Lu, was a patrician state founded by the Duke of Zhou. His ancestors were granted the right to rule the state by the founders of the Zhou dynasty. Nevertheless, by Confucius' time, the political power was no longer in the hands of the supposed leader, the duke. The state power was in the hands of the leaders of three warlord clans. Each of them lived in a large, fortified palace town within which each had his court as if he were the legitimate ruler of the state. The duke's court became an almost empty show. This is similar to the entire dynasty. The Zhou throne was a figurehead ruler. He had virtually no real power over any of the feudal states. When Confucius was born, these states competed. During Confucius' lifetime, his state was characterized by political chaos. The power of the ducal house had gradually been taken away by the three cadet branches of the ruling clan. A warlord strongman led each of the three branches. They competed severely. The state had declined and finally was absorbed into its much larger neighbor, Qi.

Confucius' first schooling probably began at the age of seven. He was poor and fond of learning in his youth. He sketched his life:

At fifteen, my heart was set on learning; at thirty, I was mature and established; at forty, I would not be confused by affairs; at fifty, I knew the fate of my life; at sixty, my ear was obedient; at seventy, I acted according to my heart without transgressing what was right. [2.4]

The stage of "my ear was obedient" might correspond to what Marcus Aurelius (121–180) – Roman emperor (161–180) and a stoic philosopher – refers to: "Learn to be indifferent to what makes no difference." It should be mentioned that The *Meditations* of Marcus Aurelius is widely read as an inexhaustible source of wisdom (e.g., Hadot, 2021). Although it is beyond this book's concern, it is interesting to compare Confucius and Aurelius, who are still called wise men across cultures. Confucius seems to play, learn, and work freely and passionately without any other fixed purpose, perhaps except heavy burdens for earning a living. His playtime should be limited because his family was poor,

and he must work. It seems that Confucius is a self-made man and loves to learn from all sources:

Zi Gong was asked: "From whom did Confucius get his learning?" He replied: "... Why would he need to get knowledge from a certain teacher?" [19.22]

Zi Qin asked Zi Gong: "When our master stays in a country, he will soon learn all about its government. Does he require the information? Or is it provided to him?" Zi Gong replied, "He is cordial, upright, courteous, temperate, and obliging. His characters enable him to get information." [1.10]

As a scholar who earned a living by providing services to rulers in different cultures, Confucius would pay attention to local governing, culture, and traditions. Confucius never perceived himself as a sage or someone superior or supremacy, perhaps owing to his hard growth path:

In a hamlet of ten families, someone may be as loyal and trustworthy as I am but not so fond of learning. [5.28]

I dare not claim to be a sage or a perfectly virtuous man. But I strive to become such without satiety and teach others without weariness. [3.34]

Perhaps owing to a natural lack of interest in external material conditions and his life experiences of poverty in earlier years, he could easily enjoy life with a simple lifestyle:

I am happy even with coarse rice to eat, water to drink, and my arm as a pillow. Wealth and honors obtained not in a fairway are like floating clouds. [7.16]

This reminds Socrates' famous saying: "He is richest who is content with the least, for content is the wealth of nature." Except for his love of learning without anything fixed, Confucius considered himself ordinary. To earn a living, he did many (perhaps low-) skilled jobs in his youth:

My family was poor as a youth, so I had to learn many worldly skills. Are these skills necessary for a gentleman? Of course, they are not. [9.6]

What he experienced and learned might not be experienced by those born into fortune. His thought system is unique among ancient thinkers, perhaps because of his birth and life experiences. For instance, it might be impossible for him to think of slavery as a natural or reasonable phenomenon. He might not perceive social immobility naturally (significantly upward) through learning or other decent efforts. He classified man according to virtue and knowledge. An immobile caste system is perhaps beyond his imagination. As mentioned later, it might also be impossible for him to imagine that any party formed under some fixed principles has anything to do with Dao in the long term. The implication of Confucius' thought can help us to see why the contemporary Chinese Communist Party cannot fully allow scholars to interpret what Confucius taught.

At nineteen, Confucius was married. His first son, named Li, was born a year later. He had undoubtedly one son and perhaps several children. Nothing is known of other children except that he has at least one son and one daughter. His daughter was married to one of his disciples. His mother passed away when he was in his twenties. Confucius mourned and isolated himself for 27 months. At nineteen, he entered his official career in Lu, being a granary overseer in his district and engaging in a successful term of office. In the following year, he was employed in charge of grazing grounds. His first job was as a clerk overseeing pastures of oxen and sheep. He lived on what he could get from teaching and serving in minor government positions in Lu. Confucius began government service at the age of 32. He has since then served in many roles. His late career was centered on serving the government, teaching youth, and transmitting ancient culture to posterity. Having observed the perspectives of many states, he saw the defects and merits of different state systems. His outlook was comparative and international. At fifty-one, he was a magistrate and became minister of justice the same year. At fifty-six, he began traveling with some of his pupils.

He spent almost thirteen years traveling through nine states with some of his pupils. He advised these rulers, administrators, and warlords. Nevertheless, no one seriously listened to him and adopted his vision of government. Several of his disciples traveled with him and endured bitter hardships. He never found a feudal ruler who would follow his advice and offer him official patronage. No ruler showed genuine interest in his ideas.

At sixty-eight, he returned to his state to teach and perhaps to write and edit the Classics. He continued to teach and work on the documents and songs that eventually formed part of the Confucian classics. He devoted the rest of his life to teaching. His most outstanding achievement is in education. Chen (1994) considers Confucius, first and foremost, an ideal teacher, both a transmitter and an originator, and both a creator and a conservator of ancient Chinese culture (see also Chin, 2007, 2014). He wanted to carry out social reform through education and moral cultivation. His ideal society is characterized by harmony within the individual and society. He had a strong soul, as Thomas Carlyle (1795 – 1881), a British historian and philosopher, describes: “Permanence, perseverance, and persistence despite all obstacles, discouragements, and impossibilities: It is this, that in all things distinguishes the strong soul from the weak.” Confucius had a lasting impact on Chinese cultural formation owing to his ideas and personality. He demonstrated human excellence through what Socrates describes: “I know you won’t believe me, but the highest form of Human Excellence is to question oneself and others.”

It is alleged that young Confucius was fond of playing with rituals and sacrifices. He was the first to offer to instruct private individuals and set up a school for all young men, irrespective of their status and means. Confucius was a great supporter of popular education. He is the first person in Chinese history to devote much of his life to teaching. He sought to inaugurate private education, make education accessible to all, and offer education to establish character instead of only for vocation. He gathered around him a group of disciples. Confucius was curious about things. In his teaching, he harbored no foregone conclu-

sions, arbitrary predetermination, or obstinacy. Among his pupils were able envoys, efficient administrators, respected counselors, and influential teachers. He was the first professional teacher in China to teach people literature and principles of conduct. Out of twenty-two students mentioned in the *Analects*, nine attained important posts ranging from diplomats to town managers and chief administrators of the state.

Confucius confirmed his appreciation of the Yi Jing:

If several years were added to my life, I would use the time to study Yi Jing and not make incredible mistakes. [7.17]

He made the above statement when he was in the late sixties. It is alleged that during the final years of his life, Confucius devoted much time to studying and interpreting the Yi Jing. The Yi Jing enables the mind to visualize affairs as an organ with yin-yang pairs habitually. There has been a controversy about how much Confucius contributed to interpretations of the Yi Jing. He did speak about some ancient sages with high praise. He frequently mentioned the ancient sage emperors Yao, Shun, and Duke Zhou as models. But he never advised that it is necessary to imitate them to govern. Confucius recognized that institutions should be ready to make or accept proper changes. He considered himself the transmission of the ancient cultural heritage to his disciples. He looked back to the past to look to ideal men rather than supernatural beings for inspiration. What he aspired to is totality rather than partial truths or concrete ideas.

Confucius self-evaluated: "In letters, I am perhaps equal to other men, but the character of the superior man, carrying out in his conduct what he professes, is what I have not yet attained." He is concerned with rituals, customs, and manners. These behaviors are often naturally nursed in the proper environment from childhood. However, he learned most of these behaviors after he became an adult. That is perhaps why he had been consciously and deeply concerned with the implications of these common habitual behaviors and customs. Confucius said:

These things worry me: having virtue without cultivation, having knowledge without teaching, hearing what is just without following to do, and knowing wrong without correction. [7.3]

He attempted to engage with state affairs, public life, and teaching. He showed great interest in learning but not so much in social recognition and reputation:

I will not be afflicted at men's not knowing me; I will be afflicted that I do not know men. [1.16]

Taste and mindset are formed owing to born traits and environment. As a boy raised in poverty and born with a natural propensity to learn, it would be reasonable to expect him to consider money and social status as transitorily colorful and attractive clouds.

Confucius did not consider himself an original thinker. He called himself a transmitter who loves old customs and rituals and makes efforts to resurrect them:

I am a transmitter, not a constructor. I believe in and love the teachings of the ancients. [7.1]

Be quiet in learning, studying without satiety, and teaching others without weariness: Which belong(s) to me? [7.2]

A persistent passion for learning characterizes Confucius. He is the master of his fate and soul. His fate has little to do with any person, culture, or state, as Dao directs his fate. What he left demonstrates him as a great scholar. He warned people over a thousand years ago that a bit of learning is dangerous. Having traveled to various states and cultures and met with multiple talented people, he portrays himself as:

I am not born with the possession of knowledge. I am fond of the ancient teachings and earnest in knowing. [7.20]

There may be those who can act creatively without knowing why. I am not that type. I listen widely, select the good points,

and follow them. I observe broadly and understand what I observe: this is a secondary level of knowledge. [7.28]

He achieves wisdom, according to Socrates: "True wisdom comes to each of us when we realize how little we understand life, ourselves, and the world around us." Applying ancient teachings, he explained what was going on in the world. He conceived persistently and broadly with the Yi Jing vision. He finally formed a system about how men could live harmoniously together. When he was old, he was fussy with manners and food. He would not sit unless his mat were straight. He was also obsessive. He loved music and was mainly concerned with the role of music in personal cultivation and moral education. He related his emotional engagement with music:

When Confucius was in Qi, he heard the music of Shao and, for three months, did not know the taste of flesh. He said, "I never knew music could have been made so excellent. [7.14]

An ancient Greek philosopher, Pythagoras (570–495 BC), believed, "The highest goal of music is to connect one's soul to their Divine Nature, not entertainment." Confucius described himself as a man who forgets to eat when he is engaged in solving a problem. When he was joyful, he thought no more of his worries. He was not aware of the onset of old age. He died at the age of 72. His life reminds one of what H.W. Longfellow (1807–1882), an American poet, sketches: "Let us, then, be up and doing, with a heart for any fate, still achieving, still pursuing, learn to labor and to wait."

Confucius' followers idolized the master:

Zi Gong said, "Confucius cannot be slandered. The virtue of other men is like a small hill that can be climbed. Confucius is like the sun and the moon. There is no way they can be climbed over." [19.24]

What Alexander the Great boosts is also applicable to Confucius, in a foreign tone, "Make your goals and ambitions large enough to ignite a

fire within your spirit. With these held at the forefront of your mind, the temptations of petty distractions will be burned to ashes.” Plato illustrates what he values highly: “You’re my Star, a stargazer too, and I wish that I were Heaven, with a billion eyes to look at you.” Confucius’ students admired the master:

In admiration of Confucius, Yan Yuan sighed and said: “Looking up to his doctrine, it gets higher. I tried to penetrate, but it got firmer. I see it in front, and suddenly, it appears to be behind. My master skillfully guides his students step by step. He enlarged my mind with learning and cultivated me with propriety. I want to give up his doctrine, but I can’t. I have exhausted my ability, yet something new is approaching me. I want to follow it, but there is no way. [9.11]

Why many million people smeared Confucius during the Cultural Revolution is perhaps even beyond the comprehension of contemporary Chinese youth. Confucius has been periodically called the sage and the source of social evils in China as Chinese history cyclically repeats the rice-field-based Chinese character idealized by Confucius and practically directed by Han Feizi (Zhang, 2024b).

1.2 The Yi Jing Vision, Yin-Yang Pairs Interactions, and Complexity Theory

Chinese thought is characterized by the vision that things operate through cooperation and competition (interdependence between the *yin* and *yang*). This vision is in contrast with the dominant Newtonian vision of the world. For instance, in this vision, relations between different social classes are situation-dependent in that relations can be either in conflict or in harmony, depending on the circumstances of the entire system. For instance, Jewish people culturally, socially, intellectually as well as economically co-exist with white people in harmony in the American culture. Still, Jewish relations with white people in Europe were not in harmony before WWII. Marx’s historical vision of class struggle

is narrow-minded and destructive, as global history in the last hundred years demonstrates. The Yi Jing mindset perceives history as class cooperation versus class struggle. The visionary difference has made it almost impossible for those educated in Newtonian sciences to fully comprehend or appreciate the Yi Jing way of thinking and vice versa.

Unlike Newton's mechanics, the Chinese *yin-yang* system has been applied as the source of spirits and insights into complexity. Different people widely use the Yi Jing to solve various problems. It is a symbolic system that describes objective facts, represents ideas, and clarifies meanings. It shows the interdependence between reasoning and emotions. It hides rich and deep psychic images. These images are revealed to act as a bridge between man's consciousness and unconsciousness. It assists one in uncovering the mysteries of one's unconsciousness. The Yi Jing framed Chinese, Japanese, Korean, and Vietnamese ways of vision, intuition, emotion, and thinking before these regions started to learn extensively from the West.

The Yi Jing uses the *yin-yang* pairs to represent complexity and employs abstract ideas to represent concrete objects. The system is aesthetically attractive. It was initially a manual of division based on simple trigrams. The system of philosophy has evolved from the trigrams. The Yi Jing holds that the world is the dynamic unity and unification of *yin* and *yang*, where the *yin* represents, for instance, the receptive and the potential, and the *yang* represents the creative and the actual. The texts consist of sixty-four hexagrams and judgments. The hexagrams were supposed to symbolize all situations. Each hexagram comprises linear signs, the judgment of the whole hexagram, and the text about the individual lines. Each hexagram is supposed to represent one or more phenomena of nature, society, or personal. All the hexagrams are supposed to be symbolic representations of the complexity of movement of natural, social, or individual phenomena. The discovery of the Eight Trigrams (three-line symbols) is attributed to the first of the legendary Five Emperors, Fu Xi (ruled 2852-2737 B.C.). Fu Xi designated an unbroken (—) and a broken (--) line as elementary symbols for the universe. The emperor devised the two lines and their symbolic

significance. The unbroken line stands for *yang*, which means man, positiveness, progress, clarity, strength, and light. The broken line represents *yin*, which means woman, negativeness, declination, obscurity, weakness, and darkness. Thus, the *yin* and *yang* express the two extremes or poles of universal phenomena. The universe comes to be a result of the interactions between the two opposing universal forces of *yin* and *yang*. Using the two lines, Fu Xi invented the eight trigrams. The Eight Trigrams show only eight patterns of phenomena. The difference between the Newtonian vision and the *yin-yang* world vision with the eight trigrams is reflected in the difference between Confucius' approach and Adam Smith's method in exploring the implications of virtue and ethics. Newtonian-trained scholars rationally see Chinese culture as a mystery and irrationality as the Newtonian vision perceives the world differently from the Yi Jing-based one.

The *yin* and *yang* are central to the Chinese cognitive process (e.g., Peng and Nisbett, 1999; Chen, 2001, 2002; Nisbett, 2003; Fang and Olivier, 2011). With the *yin-yang* vision, the Chinese exemplify life and society like a great river, flowing – with the exact mechanism and depending on circumstances – calmly versus violent, predictably versus chaotically, and orderly versus disorderly. This is how Confucius described life with the Yi Jing vision:

Standing by a river, Confucius said, "Life passes on like this, never ceasing day and night!" [9.17]

One might imagine how Adam Smith might perceive life: life moves regularly on just like a pendulum, finally becoming stationary. This is how Adam Smith constructed his two celebrated books, *The Wealth of Nations* and *The Theory of Moral Sentiments*, one being isolated from the other about the same human and same society with the Newtonian vision and Newtonian analytical method.

If one combines the eight trigrams in pairs, one gets the sixty-four hexagrams. There is no general agreement about when the Eight Trigrams were combined to form the Sixty-four Hexagrams. It has been alleged that King Wen (r. 1171-1122 B.C.) translated the symbols of the Eight

Trigrams into words. Yi Jing holds that there is diversity between the myriad classes of beings, but there is an analogy between their operations. Although it is beyond the scope of this study, it is easy to mathematically prove that the Chinese vision can be explored by modern chaos theory. The Yi Jing teaches that the essence of the world is interactive and dynamic. Any change has regular or irregular patterns but is operated with some mechanisms. But the final mechanism (Dao) is unidentifiable. Hence, God in the traditional Western sense is different from Dao. Even if the system arrives at either of the extreme poles, the system is not in a healthy (stable or humanistic) state. The actual state of the system will be located somewhere between the two poles. However, this does not mean it is always possible to predict the state. It is only under exceptional circumstances that the system is predictable. Change is not necessarily regular. Regular motion and movement toward a fixed direction are possible but not universal. The Yi Jing emphasizes situation-dependent behavior. As the Newtonian worldview implies, whether a society advances or becomes stationary depends on the situation rather than a belief in linear progress.

This “modern” mathematical or rational interpretation of the Yi Jing was done by Leibniz, who had a lifetime interest in the Yi Jing. He believed the world could be represented by combining the *yin-yang* (0-1) pairs. He developed the binary (0-1) number system. He is called the father of all computer coding. He worked on a prototype for a device that could make calculations. He believed that future machines would be used for accounting, administration, etc. He argued that all kinds of problems could be reduced to manipulating symbols, just as *yin-yang* pairs in the Yi Jing could suggestively solve all critical issues.

Visualizing affairs is essential for understanding and approaching the world. For instance, the Yi Jing implies that things start from Dao, which is ubiquitous but unidentifiable. But this does not mean the world is uncomprehensive and knowledge is unattainable. However, to comprehend the world and accumulate knowledge, one needs two elements: the *yin* (mother, moon, dark, socialism) and the *yang* (father, sun, bright, capitalism). The world is explainable by moving between

the *yin* and the *yang* and combining various *yin-yang* pairs. Paintings are created by combining and moving the *yin-yang* pairs of basic colors; music is made by mixing and rolling the *yin-yang* pairs of introductory notes; the person is understood by combining the feminine-masculine pairs. After East Asia had met with Christianity, they decided to forbid the Western religion partly because the vision that the unique God creates and determines the world does not conform with the vision of the Yi Jing. Still, the Buddhist vision is not controversial with the Yi Jing. Under the Yi Jing vision, religiousness is human nature, but the uniqueness is not because the Yi Jing needs at least two Gods (one for evil and one for perfection).

One may use the *yin-yang* doctrines to characterize the Chinese mindset. Daoism and Confucianism cannot be adequately appreciated without appreciating the Yi Jing. It represents specific patterns of change, not based on the “Newtonian cause and effect” approach. I can identify some *yin-yang* pairs in different thought systems by applying the Yi Jing vision.

Human nature is evil versus good: Human nature is a key issue in Confucianism. Xun Zi assumes human nature to be evil, while Meng Zi assumes human nature to be good. Over history, different Chinese thinkers, except accepting either of the two extremes, assume various “distributions” between the *yin* and the *yang*. Confucius did not fix anything about human nature. In modern ethics, self-interest and sympathy are the two poles. Adam Smith published two important books: *The Wealth of Nations* (Smith, 1776), constructed with the assumption of self-interest, and *The Theory of Sentiments* (Smith, 1759), which was built on sentiments and sympathy. Why he did not write a book focused on the interdependence between the contents of the two books is still a puzzle. I do not think he could integrate economics and ethics because his simplified Newtonian view on man and society did not allow him to visualize and build a logically consistent theory with multiple equilibrium points, even though he planned to make an integration.

Introversion versus extraversion: The two poles are well discussed in modern psychology. The terms are popularized by Carl Jung (1875–

1961). He shows a great interest in the *yin-yang* philosophy (e.g., Jung, 1965). Jung calls a person introverted if the person's behavior is "characterized by orientation in life through subjective psychic contents." In contrast, an extrovert type is "characterized by concentration of interest on the external object." No person has been empirically identified as a pure type of either of the two poles.

Perfect competition versus monopoly: When studying market economy, economics first introduces two extreme markets: perfect competition and monopoly. Perfect competition exists if some market conditions are satisfied. They include many buyers and sellers, ideal information about producers and consumers, both producers and consumers being price takers, perfect factor mobility, no barriers to entry or exit, profit-maximizing producers, and rational consumers. There are also no externalities, zero transaction costs, no network effects, and non-increasing returns to scale. The other pole is a monopoly, meaning only one product supplier exists. Economists have unlimited market structures between the two poles, such as imperfect competition, duopoly, oligopoly, monopolistic competition, and unlimited types of games. This also implies limitless market types between the yin and yang, like personal types in psychology.

Capitalism versus communism and democracy versus dictatorship:

The opposite or complementary poles of the *yin* and *yang* represent the essential stages in the cycle of change. Capitalism refers to the private ownership of the means of production. It is characterized by profit maximization, private property, voluntary exchange, capital accumulation, wage labor, and price determination by competitive markets. Communism fundamentally refers to the common ownership of the means of production. Almost all economies are between the two poles in the real world.

Economic principles explain the collapse of socialist economies and the expansion of government intervention in capitalist systems. Socialism

and capitalism are essential for constructing theories and providing insights into the actual functions of social and economic systems. Still, they are improper for characterizing actual economies because the actuality lies between the two extremes. We also have *yin-yang* pairs: romantic versus classic, liberal versus conservative, left versus right, and heart versus head.

Femininity versus masculinity: In the Chinese yin-yang vision, the two poles do not only imply biological sex but also refer to specific behaviors or behavioral patterns. Like introversion and extraversion, there are rare purely feminine or masculine extreme types of persons. In modern universities, some male young teachers spend more hours on skincare than female teachers. Behavioral changes in different genders are associated with social and economic changes.

Micro versus macro: The Yi Jing builds a macro world on the foundation of micro individuals. There are unlimited dynamic interactions between individuals and the whole. Relations are organic and situation-dependent. Modern economics and modern sciences struggle to find micro worlds and macro realities. The general economic theory (Zhang, 2020) provides the first comprehensive framework to connect various theories with equations connecting micro individuals and firms with national and global economic performances.

Stability versus instability: Sustainability is key to describing long-term social and economic evolution perspectives in social sciences and economics. Sustainability is related to the idea of stability in evolutionary systems. Stability versus instability is another pair that allows us to grasp the behavior of evolutionary systems. Humor is often characterized by turning points from stability (predictability) to instability (unpredictability). Stock markets are structurally unstable, while German (and Swedish) cars are famously stable. Men can send machines to Mars because they can guarantee their stability. If stability is not guaranteed, a one-inch deviation from the target midway will send the machines some million miles from Mars. The human – not necessarily female, as modern history demonstrates – heart is a famously unstable system.

Other examples of *yin-yang* pairs: They are pretty easy to find in Western intellectual worlds and East Asian traditions. Confucianism and Daoism can be seen as the *yang* and the *yin*, complementary elements in Chinese culture and the Chinese mind.

David Hume (1711-1776) observes variation of humans via two extremes: "Heaven and hell suppose two distinct species of men, the good and the bad. But the greatest part of humanity floats betwixt vice and virtue." Kant elucidates: "Intuition and conceptions constitute, therefore, the elements of all our knowledge, so that neither conceptions without an intuition in some way corresponding to them, nor intuition without conceptions, can afford us a cognition." This paragraph is also similarly rooted in Daoism. Heraclitus (535 – 475 BC), an ancient pre-Socratic Greek philosopher, is often mentioned to be similar to Lao Zi. He views: "Opposition brings concord. Out of discord comes the fairest harmony." His dynamic vision might be closely related to the Yi Jing vision. The Austrian theoretical physicist Wolfgang Pauli (1900-1958), who received the Nobel Prize in Physics in 1945, clarifies: "A synthesis embracing both rational understanding and the mystical experience of unity is the mythos, spoken or unspoken, or our present day and age." Niels Bohr (1885 -1962), a Danish physicist who received the Nobel Prize in Physics in 1922, characterizes quantum phenomena as both wave and particle at once. He excogitates his influential notion of complementarity, like the *yin-yang* vision. There are many other pairs, such as rationality versus irrationality, love versus hate, object versus subject, order versus disorder, social harmony versus social chaos, and law versus rite, essential for understanding social and economic behavior on individual and collective levels. Shakespeare's famous quote reflects the dynamic *yin-yang* vision of the complexity of human life:

To be, or not to be, that is the question.

As mentioned before, Leibniz believed that Chinese thought can be represented by 0-1 pairs and effectively represented and operated by a computer. The classical Newtonian vision has served as the model for the growth and evolution of sciences. However, it is not fruitful in

explaining complex organic systems like human societies and biological systems. Prigogine and Stengers (1984) point out: “[Assumptions of classical science] centered around the basic conviction that at some level *the world is simple* and is governed by time-reversible fundamental laws. Today, this appears as an excessive simplification... Who would have expected that most (and perhaps all) elementary particles would be unstable? ... Quantum mechanics has given us the theoretical frames to describe the ongoing transformations of particles into each other... The models considered in classical physics seem to occur only in limited situations.” Applying nonlinear science and chaos theory, I developed synergetic economics to deal with nonlinear interdependence and structural changes in economic systems (Zhang, 1991, 2023a, 2023b). Old structures become unstable due to changes in control parameters. A dynamic system may experience chaos, lock-in phenomena, bifurcations, cycles, catastrophes (butterfly effect), aperiodic oscillations, etc. Applying the “slaving principle,” we can examine the key factors’ dynamics without referring to the remaining factors, which are “enslaved” by potentially unstable modes. The order parameters are the amplitudes of the leading terms of unstable modes. The slaving principle allows us to eliminate the degrees of freedom that refer to the stable modes. There are different attractors in different ‘stages’ of the system’s evolution. Their dynamics describe the emergence of macroscopic patterns. Attractors may be considered as the ‘final patterns’ of the changes. An attractor may be a homogenous state of equilibrium. As the control parameters shift, this homogenous state may bifurcate into periodic and quasi-periodic attractors. The order may also decay into deterministic chaos. Mathematical equations can model all these processes of structural changes. This socioeconomic view is more general than Newtonian in that Newtonian social sciences can only deal with a linearized system. Adam Smith’s economic theory is a typical case of linearized economics. The system will evolve towards a unique equilibrium system. Karl Marx’s economic theory is also linearized. Marx’s worldview fails to follow possible nonlinear capitalist evolution. Marx’s theories have little to do with the processes of capitalism and socialism.

1.3 Some Insights into the Yi Jing Vision from Complexity Theory

Like Socrates, Buddha, and Jesus, Confucius did not write anything that was generally attributed to him. The *Analects*, which this book is focused on, may be called “lecture notes” by his disciples. Disciples compile it after the death of Confucius. It is a collection of his sayings and dialogues on his views on Dao, virtue, learning, education, family, and politics. Confucius has been examined in over a thousand books. The potential implications of his sayings on man and society are still to be explored.

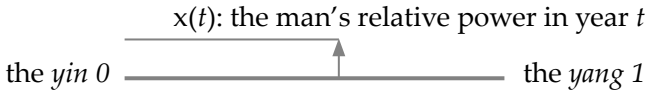
Thought and theory are built on assumptions. If the assumptions, like in Adam Smith’s economic theory, do not correspond to reality, the theory has little to do with reality. This partly explains why so many theories have become “graves” in the academic world. Wrong applications of theory about man and society lead to disasters because the experiments are humans. For instance, China jumped into Marx’s socialist stage without experiencing capitalism. However, Marx’s theory is built on the assumption that socialism appears after capitalism has accumulated great wealth (concentrated in the hands of a few capitalists) and created great stocks of technologies. China had neither capital nor modern technology when it started socialism. After the harsh experiments with socialism, China has entered the track of capitalism (with some so-called Chinese characters) since 1978.

The reasons for re-interest in Confucius are not only owing to the recent changes in East Asian regions but also Confucianism’s broad and deep implications. For instance, Confucius’ thoughts on human growth have withstood the test of history. This is mainly due to his approach to man with the *yin* and *yang* pair. Much of *The Analects* is focused on the commoner and gentleman. The book uses many personal examples to illustrate what man is. In other words, by making explicit the concepts of the commoner and the gentleman, he could describe all types of individuals. In this way, Confucius portrays humans – without mathematics – in a concise manner (not by hundred stories like Honore de Balzac).

To illustrate why Confucius' approach is practical, I use a modern model from chaos theory. I consider a state of the system, which is portrayed by the *yin* position (or the relative power of the *yin* power) or the *yang* position (or the relative power of the *yang* power). For the convenience of expression, I consider that the sum of the *yin* and the *yang* is unity. That is

$$\text{the } yin \text{ power} + \text{the } yang \text{ power} = 1.$$

For instance, in family decision-making, the mother might be dominant, while the father is weak, and vice versa, or both parents have the same weight in deciding family affairs. If I locate the *yin* pole at the origin and the *yang* pole at the unity and assume that the time-dependent state variable moves between the *yin* and *yang* in which in period stands for the distance from the *yin* pole and in for the distance from the *yang*. As the *yin* power + the *yang* power = 1, I have:



For instance, if the woman decides everything at home, I have. In this case, the man has no power. If the woman has no decision power, I have. The man holds all power. In reality, should be between 0 and 1. For instance, when the parent shares the power equally, I have. If the woman is very dominant but the man still has some say in family affairs, I have.

I now use a simple one-dimensional map to illustrate the Chinese mind-set and world vision. The logistic map proposed by Robert May in 1976 (Zhang, 2006) shows the state of the *yang* in period as follows:

$$\frac{x(t+1)}{x(t)} = r [1 - x(t)],$$

which says:

$$\frac{\text{the father's relative power this year}}{\text{the father's relative power last year}} = r \text{ by the mother's relative power last year}$$

The ratio of the father's relative power this year and the father's relative power last year is proportional to the mother's relative power last year power under a given environment measured by parameter. The principle of the power relationship is simple. The simple *yin-yang*-pair interaction can lead to unlimited complicated phenomena, as portrayed in Figure 1.1. For instance, interactions between male and female powers under various physical, cultural, social, and economic conditions lead to unlimited love versus hate and trust versus deception stories across races. The logistic map exhibits all the types of long-term behavior that can be displayed by a dynamic system: stable and unstable fixed points, periodic orbits, aperiodic trajectories, and chaos. Here, random shocks are not required to produce chaos.

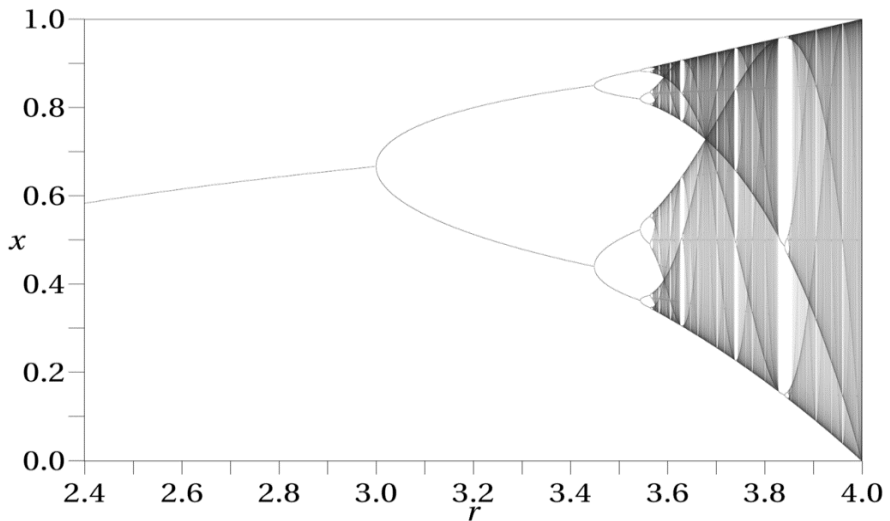


Figure 1.1 *Manifestations of the Yin and Yang*

Source: https://en.wikipedia.org/wiki/Logistic_map

One of the fundamental aspects of chaos is that many different possible motions are simultaneously present in the system. A particular manifestation of this is that there are typically an infinite number of unstable periodic orbits that co-exist with the chaotic motion. Because such “chaotic” trajectories are unstable, estimation errors in parameters or initial conditions, however tiny, will accumulate rapidly into substantial errors in the forecast. The characteristic of extreme sensi-

bility to small perturbations is known as the butterfly effect. The future behavior of such a chaotic model solution cannot be anticipated based on its patterns in the past. Suppose one considers the commoner the yin and the gentleman the yang. one gets hints on how, by considering various external and internal factors, Confucius could “successfully” illustrate multiple personalities by focusing on the characteristics of the commoner and the gentleman.

1.4 Reading Confucius is to Assemble a Complex Jigsaw Puzzle

In physics, the implications of Newtonian equations or Einstein theory – expressed in only a few equations – cannot be fully explored by numerous books with words. This is similarly true in economic theory, such as the Solow model and Walrasian theory. *The Analects* is a seemingly disorganized book. It is long and full of short events and conversations between Confucius and his disciples. Fung (1948:13) describes: “The brief sayings in the Confucian Analects and the philosophy of the *Lao Zi* are not simply conclusions from certain promises which have been lost. They are aphorisms full of suggestiveness. It is the suggestiveness that is attractive. One may gather all the ideas in the *Lao Zi* and write them out in a new book consisting of fifty thousand or even five hundred thousand words. No matter how well this is done, it is just a new book. It may be read alongside the original *Lao Zi* and may help people a great deal to get the hang of the original, but it can never be a substitute.” This problem is addressed by, for instance, Zhang (2002), Fang and Olivier (2011), Wu (2013), and many others. It is challenging to explore the possible implications of a great poem fully. What Wittgenstein exemplifies also hints at how to read Confucius: “Philosophy is like trying to open a safe with a combination lock: each little adjustment of the dials seems to achieve nothing, only when everything is in place does the door open.” This partly explains why many books on Confucius are written in different languages, and more are perhaps to be written. Confucius called his thought an integrated system and considered his insights into the man and society as follows:

I don't murmur against Heaven. I don't grumble against men.
My studies lie at the basis, and my penetration rises high. Who
understands me? Heaven does! [14.35]

Einstein does not expect others to comprehend his theory, which is entirely based on intuition and mathematics. Confucius did not hope that his thought – which is based on almost all of ancient China's cultural stocks, his vast experiences of doing multiple jobs with varied skills and knowledge, meeting and serving different people from varied cultures with different social statuses, traveling to various socioeconomic, geographical regions, and earning income by providing humble services – would be fully appreciated, not to say practiced. Different mindsets have interpreted Confucius' thoughts. The key idea of the Yi Jing is about variety and change. The master himself mentioned this:

Do I possess knowledge? No, I do not think so. Yet if a person appears quite empty, ask a question of me. I investigate the matter from one end to the other and exhaust it. [9.8]

Socrates expresses similarly: "I cannot teach anybody anything. I can only make them think." Confucius instructed that in teaching, he would inform you about all the essential characteristics of the *yin* and the *yang*. You learn that and judge the current situation according to the relative positions of the *yin* and the *yang*. One will find a solution in practice if one understands the principles (the *yin* and the *yang*) and gets further information about the system's location. The Yi Jing holds that events do not happen arbitrarily but follow the immutable Way of Dao as revealed through laws of change. Artists can create almost unlimited paintings with only a few basic colors. Similarly, manifestations of the principles are limitless, but the leading, ruling principles are only a few. This is why Confucianism is practiced in various cultures in many ways, but several principles are commonly applied with different "weights." For instance, in Japanese Confucianism, loyalty is the core value, while in Chinese Confucianism, benevolence is the core value. In practice, Japanese Confucianism fixes social status, while Chinese Confucianism allows social status mobility (mainly through examina-