


Rui-Wu Wang

The End of Rationality and Selfishness

A Story on the Asymmetry,
Uncertainty and the Evolution
of Cooperation

Translated by Juan Wang

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Freud wrote that the history of science is the history of alienation. Copernicus showed that the earth is not at the center of the planetary system, Darwin supported that we are one species of animal among many others, and Freud believed that our rational activities are only part of the unconscious. We can now invert this perspective: We see that human creativity and innovation can be understood as the amplification of laws of nature already present in physics or chemistry.

—Ilya Prigogine the End of Certainty

Those who care most today ask: “How are human beings to be preserved?” But Zarathustra is the only one and the first one to ask: “How shall human being be overcome?”

—Friedrich Nietzsche Thus Spoke Zarathustra

Dedicated to those who have independent human dignity and thought, to those whom I have admired and therefore criticized, and to those who will or are also criticizing me

Preface

Your Culture and Faith will Determine Your View of Science

A well-known instance of such intrusion (the loss of universality of scientific principles, the opposition between religion and science) is the recurring attempt to reintroduce finality into science, allegedly because the reiterated crises of causality prove it to be incompetent single-handed, but actually because it is considered *infra dig* of God Almighty to create a world which He disallowed Himself to tamper with ever after. In this case, the weak spots seized upon are obvious. Neither in the theory of evolution nor in the mind-matter problem has science been able to adumbrate the causal linkage satisfactorily even to its most ardent disciples.¹

—by Erwin Schrödinger

At the beginning of writing the manuscript, my original plan was to take *The Death of Nash—Who is His Most Determined Critic* as the preface, but I felt it was too long, so I had to put it at the end as the postscript. In this postscript, the pluralism is interpreted through the multi-faceted and contradictory features of Nash's character; absolute rationality and selfishness—the embodiment of monism is no longer the life of Nash, nor the future of science. The main idea of the preface that culture and faith will determine our view of science will be discussed in the last chapter *Gods, Ghosts, Come Back! Who Will Fight Against God?* which elaborates that Newtonian mechanics originated from monism in religion, while quantum mechanics is the revival of primitive simple polytheism. I didn't intend to make a preface, but later found that if there was no clear explanation on how selfishness and rationality of “scientific concept” return to human nature and culture, I would have to write another chapter to introduce the scientific logic of rational man in economics and selfishness of natural selection.

The concept of selfishness and rationality is the basis of classical sociology and economics to explain various complicated behaviors of human society, and it is also the initial starting point of Charles Robert Darwin's thought of natural selection to

¹ By Erwin Schrodinger. *Nature and the Greeks. Science and Humanism.* Trans. Bu-Tian Zhang. Commercial publishing House. 2016.

understand biological evolution. However, absolute selfishness and rationality seems to be naturally a “fallacy”: according to the theory of “selfish gene”, parents take pains to raise their children because they want their children to inherit their genes; however, children help their parents selflessly or even recklessly, how can they expect their parents inherit their genes? Similarly, Florence Nightingale kept unmarried all her life and devoted herself to nursing. Henry Norman Bethune aided the Anti-Japanese cause and sacrificed on the Chinese battlefield. For those who are determined to expose the truth despite the suppression of authority and the abandonment of the people, what kind of return can they get from their actions? The workers of bees or workers of ants are desperate to help the queen bee or queen ant. These queens may come from other groups and have no relationship with the altruistic workers. What benefits can those workers get?

No matter whether in emotion or in reality, it is difficult for us to explain our human behaviors with absolute rationality and selfishness as well as the altruistic cooperative behavior of biological individuals. I have reflected and asked questions countless times, and have been struggling and tangled between emotion and reason. After returning to methodology, we found that science is still a part of culture and belongs to human “subjective” behavior. Hence, the paradox may be readily solved.

Stephen Jay Gould, a famous evolutionary biologist of Harvard University, once said bluntly in his book *The Panda's Thumb*, “I think science is not an objective machine to obtain truth, but a typical human activity. People engaged in science are influenced by emotion, hope and cultural prejudice.” The quantum physicist Schrödinger said, “Although the pioneers of modern science seldom learn from the knowledge of the previous centuries, they did revive and continue the ancient science and philosophy.”

Strictly speaking, science is a product of history and a part of human culture. We can even further extend it: science is a kind of faith! In a sense, science is a way of thinking held by devout scientists who are as persistent and determined as believers, rather than the truth of the existence of “objective facts”. The farther and longer we go on the road of science, the more persistent and firmer we will be, and the more steadfast anti-scientism will be produced.

Modern science owes its ideology to Galileo’s experimental repeatability and the causality of Newtonian mechanics. Experimental repeatability is the embodiment of the practical operability of deterministic thinking. That is to say, you can obtain the result, so can others, as the objective law is unchangeable. Newtonian mechanics is to establish the idea of certainty through causal logic relationship. However, are the two cornerstones of modern science really so reliable? In fact, so far, no one in physics can completely repeat Galileo Galilei’s experiment of landing two iron balls at the same time. Similarly, no one in biology can reproduce Gregor Johann Mendel’s pea genetics experiment—the perfect ratio of 3:1 between red pea and white pea. On the contrary, scientific experiments perfectly explain that “Man cannot step into the same river twice”. What is the final conclusion of the causal logic in Newtonian mechanics which is also called typical monism? Newton reasoned out universal gravitation, and the initial force of gravity is the first driving force of God.

Is Newtonian mechanics a science or a fallacy?

The continuation of Galileo's and Newton's scientific systems in social economics and life science is the establishment of the concepts of selfishness and rationality. According to social economics, the motivation of a natural person's various behaviors can be attributed to rationality or selfishness, that is, to maximize their own interests. However, why should we be selfish and maximize our own interests? Obviously, a person with scientific literacy and spirit shouldn't take this for granted! Sigmund Freud attributed the fundamental motive force of human behavior to sex. He thought sex was the first driving force behind all our rational behaviors. Other scientists or philosophers believe it is due to "egocentrism". The fundamental question is: why does sex, rather than other driving forces, determine the rational behavior of human beings? Similarly, what's the driving force behind egocentrism? We finally return to the poisonous apple in Eden which may give us the ultimate explanation. Like Newton's first driving force, the highest degree and ultimate rationality is the extreme Nihilism—God, which reaches the same goal as Laozi's (a great ancient Chinese thinker) famous remark—"Tao that can be described is not universal and eternal Tao. Name that can be named is not universal and eternal Name."

Natural selection theory of Darwin attributed all the dynamics of biological evolution to adaptation suitability, that is, selfish individuals tend to propagate more later generations and increase their life span. However, what is the driving force behind more reproduction and longer life? In his book *Selfish Genes*, Darwin thinks that the essential motive force of individual survival is to inherit more genes to later generations as much as possible, which is the basic premise assumption of kin selection theory. Finally, he thinks that due to the existence of the "replicator", biological individuals tend to duplicate more copies that are the same as themselves, which is a typical philosophical view about the reason of purpose—it means that result is purpose or reason. There is one question that gene selfishness gives no answer: What drives the birth of the superman replicator? Why do genes copy themselves rather than others? At last, it returns to egocentrism and God.

Truth always derives from fallacy. But more often, we have to admit that truth also comes from authority and blind obedience! The king can control your body through violence, meanwhile God can control your soul through education and preaching. Everything is created by God, so any result can be found in reason from God. With the help of missionaries and teachers, God ruled the world. Whether in a country with or without gods, blind people believe in science and God devoutly. But how many people will tenaciously ask: Who is God?

The worship of authority and power make individuals lose themselves. Under the powerful influence of modern science and the baptism of education, even those who have never heard church bells, never doubted causality and monism, let alone God.

Prometheus, why did you steal fire for mankind?—this is the question that God must marvel from the soul when selfishness and rationality face the selfless devil.

God created a secret chamber for himself with monism, which made him not only a success but also imprison himself. Our thoughts collide back and forth in the room of monism, just like a ghost hitting the wall, striving to go ahead, but finally it has returned to its origin.

You have to untie the knot through yourself. Maybe the only way to escape from the secret chamber is to have it destroyed by God himself. However, who is willing to destroy the achievements carved by his own life? What makes God unique is that he can use his own hand or painstakingly cultivate believers to bury themselves! Just as Jesus raised Judas to betray himself. Friedrich Wilhelm Nietzsche, born in a Christian family, asserted: “God is dead!” Nietzsche believed in the dualistic Zoroastrian God Zarathustra, who believed in the idea of samsara that all men are born equal. Born in a devout family, Einstein, Schrodinger and other quantum physicists coax God out of the altar in the name of God, and quietly worship the gods and many little ghosts. Thus, our belief has turned from monotheistic God to gods, to little ghosts, from monism to pluralism.

The chamber of secrets may be broken! However, where will the wings of freedom fly?

There may not be strong causality in the real world, but all “results” are actually included in the process. The formation of a result may be caused by multiple reasons. With a certain cause, there may not be a certain result. Causality may not always exist; thus, the real world will be full of uncertainty.

Why do we always see the sun rise when we wake up every morning? But \$100 carelessly dropped on the ground is always picked up by someone into his pocket and kept for himself?

This paradox is caused by different observation angles and scales! In the Arctic, there is no sunset in summer, while in Antarctica, there is no sunrise in winter. If you are constantly shuttling between the Arctic and Antarctica, you may not have the concept of sunrise and sunset. It is completely chaotic!

Similarly, as a passerby, you think the person who picks up \$100 must keep it for himself. However, if you are a friend of this “mammonist”, there may be a completely different answer. There are a group of orphans waiting for him to buy bread in the house where he picked up the money! Or the monk dedicated \$100 to God! Or the environmentalist turned around and put the \$100 into the donation box. Of course, it could also be the alcoholic person who picks up the money and went to the restaurant to eat and drink. A drunken and hazy person may pick up the money and throw it away! Who can be quite sure what the purpose of the person who picked up \$100 is?

“Those who know too much are inferior to fools!” The absoluteness of monism, like absolute selfishness and rationality, is not the culture and belief of Confucianism, Taoism and Buddhism, nor does ancient Greek culture have this gene.

Schrodinger, who made pioneering contributions to quantum physics, returned to ancient Greek polytheism in his monograph *Nature and The Greeks: Science and Humanism*, and explored the source of the philosophical thought of quantum physics. After declaring the death of God, Nietzsche returned to the idea of samsara, which is the Buddhist idea.

The soul embodies Taoism that “heaven and earth coexist with me, and all things are one with me”, “all things coexist without harming each other, and the Tao runs parallel but not contrary to each other”. It holds that human beings are a part of nature, and human beings are not the center of nature. They share the same spirit with “all men are born equal” in Buddhism (in China, it is common to see Taoist

and Buddhist idols enshrined in the same temples). In Buddhism, the reincarnation of the soul, and in Taoism, “everything in the world is born of something, or is born of nothing” are just the belief that there is a mutual transformation between things, and that there is “Tao can be transformed into Tao, and Tao is unusual” existing in the law. It is such mutual transformation and uncertainty that constitutes the beauty of nature and speculation.

As the Chinese saying goes, “Happiness is where misfortune underlies; misfortune is where happiness depends”, in such an uncertain world, does this mean that the world is in a chaotic and completely unpredictable state? Perhaps not so pessimistic. All beings and all things are like many peaks in a mountain range. There are main peaks, secondary peaks and side peaks. In a period of time, a main peak determines the nature of the whole mountain range, while in another period of time, the main peak may collapse, and other sub-peaks rise to the main peak, forming a new feature of the mountain range. When the main peak is stable, the features of the mountain range are stable and predictable. For human nature, perhaps selfishness and rationality are the main peaks in the mountain range of human nature characteristics, but the peaks of selfishness and rationality may collapse, and other characteristics of human nature will grow into the main peaks.

God may only exist instantaneously, or as Einstein believed in Spinoza, everyone is his own God, and the eternal, dominating God is really dead this time. Human selfishness and rationality, the same as God, cannot be eternal in human nature! All Gods can be gods, and so can little ghosts!

So far, I found that this is not my new scientific discovery!

It is not only the prelude but also the view of science after my rebirth. It is also a journey to find a way to reconstruct the two cornerstones of modern scientism, repetitive experiment and causality logic.

Xi'an, China

Rui-Wu Wang

Acknowledgement

—To those who helped me free from gods and beasts

After nearly 5 years of anguish and excitement, finally I finished this book. “Pain makes hens and poets cackle,” Friedrich Wilhelm Nietzsche once said.² However, I found that I was neither a hen nor a poet, but always hovering between hen and poet, namely between God and the beast. Whether trying to be a god or a beast, I have been selflessly helped by my colleagues, friends and relatives. I am grateful to them for their push and drag, and I’m lucky that I have not been led into heaven by the nihilistic divinity, nor into hell by the devil’s brutality.

In 2000, under the guidance of my postgraduate tutor, Prof. Da-Rong Yang, I came across the fact that the classic cooperative relationship between figs and fig wasps was not always cooperative, but sometimes cooperative and sometimes competitive. This result cannot be explained by existing theories of economics and evolutionary biology. I then sent these results to Robert Aumann, one of the most reputed game theorist and statistician. At that time, he sent me a very enthusiastic reply, saying that this may be a self-organizing phenomenon, and that there is no theory to explain such a phenomenon at present. He encouraged me to persist in this study and commented such exploration is worthy of persisting for a lifetime. Later, I asked if I could come to his lab for a discussion. His reply surprised me: he was in his 70s and the lab had been closed for many years, but as far as I know he was still publishing papers! He won the Nobel Prize in economics in 2005. It was Robert Aumann who encouraged me to stick with my research instead of living at ease.

However, questioning rationality and selfishness, a fundamental concept in economic, social science and evolutionary biology is destined to be a dangerous and challenging one. Our results show that the theory of cooperation in an equilibrium and symmetry system based on the basic concepts of rationality and selfishness is not credible, due to the errors in sampling of its supporting evidence and data analysis.

² Friedrich Wilhelm Nietzsche, translated by Ming-Jia Huang: so, said Zarathustra, Lijiang publishing house, 2007.

When I put the results into a paper, I found that the scientific discovery did not go as well as expected. I can't get my paper published in almost any journal. It was not until 2008 and 2011 that these two papers were finally published with the persistent insistence of Kevin McCann, associate editor of *Journal of Animal Ecology*, a journal of the British ecological society, and with the help of Robert May, a physicist and ecologist and former President of the Royal Society. Another paper found that the evidence supporting kin selection on sex ratio evolution may also be explained by other mechanisms again due to errors in data analysis. The 83-year-old E. O. Wilson, honored as the father of sociobiology and one of Harvard's greatest thinkers and a recipient of both the Crawford and Pulitzer prizes, wrote a recommendation letter to journals for this paper but has not yet worked. It took nearly a decade before it was published in 2015.

Robert Aumann, Robert May and Edward Wilson are the authorities of science today. It is difficult to explain their souls in terms of rationality and selfishness. On the contrary, they perfectly illustrate that human beings can be selfless and possess an irrational divinity. It was them that deeply convinced me that animalistic people could evolve into gods.

In addition to being fortunate enough to get the help of these deities, I was also fortunate enough to have an academic and philosophic discussion with Robert Trivers. After reading the first draft of the paper I sent him, this famous evolutionary biologist (Crawford 2007 recipient), who likes to wander in the red-light district and has no job, wrote me six emails one night to discuss it. When I wrote back to him, there was no reply. In 2013, he wandered off to the University of California, Santa Cruz, to discuss my paper with John Thompson (fellow of the American Academy of Arts and Sciences). Although he never agreed with me directly, I read the manuscript he sent me, *Ignorance of Fools: the Logic Behind Self-deception and Deception* and I even suspected that I had stolen his thoughts in the chapter *Who Is He, Who Is She? It's a complex of man and woman*. Robert Trivers was seen as aggressive, irritable, neurotic and even insane. After reading his books, I asked from time to time: Where are the normal people? He seemed a lone wolf who needs no understanding; he is more like a who Wolf evolved from a god whose animal nature is his divine nature.

No true divinity is free from our beastly bodies. The same is true for me. Scientific research needs funding support. But when almost no papers got published during my difficult period, I was really lucky to get support from leaders of Kunming Institute of Zoology, CAS successively, such as Prof. Wei-Zhi Ji, director of the Institute and my tutor Prof. Jun-Xing Yang, who gave me continued funding, without which I would have given it up and changed my research direction. After graduation, I worked at Kunming Institute of Zoology, CAS, without the publication of any relevant research papers. The NSFC has given me continuous funding even though I have hardly published relevant papers. I sincerely appreciated and understood why NSFC has such a high reputation and esteem in China's scientific community. Under the leadership of Academician Ya-Ping Zhang, Kunming Institute of Zoology, CAS, continued to support me, and I was encouraged to insist on my own research in accordance with my own understanding, which made me unforgettable all my life. Upon completion of the manuscript, Northwestern Polytechnical University granted me a publishing

fund. “God wins the flowers of the world as the gift of human dedication.” I would like to dedicate this poem by Tagore to them.

In the writing process of this book, Prof. Wen Wang, Qiang Qiu and Chi-Yu Zhang discussed and modified some biological details. My friends Yun-Hai Li, Ren-Jun Song, and my assistants Xiao-Min Tian, Xia Zhao and Xia Ye helped me to modify some texts and illustrations. What moved me more is that Mr. Fa-Liang Luo, a Chinese teacher in my middle school, offered his advice for the revision of the manuscript. Post doctors He Zhang, Jian-Xiao Song and graduates Jia-Xu Han, Bei-Bei Hou, Yi-Cong Cheng, Si-Yi Wang, Hong-Long Li, Zhuang-Dong Bai and Ya-Nan Dong participated in many academic discussions in this book. Hong-Long Li, Min-Lan Li, Xia Zhao and Jia-Xu Han helped to make the illustrations. Chao Wang, a Ph.D. in quantum physics, and Jun-Zhou He, a Ph.D. in game theory, helped me with manuscript revision. “Knowing quantum physics is worth losing your job”, Chao Wang says. Working and discussing with colleagues and students who are so devoted to their careers and beliefs, even the hen would cackle like a poet, and the stone would think like *the thinker*.

During the publishing of this book, Prof. Marco Anchetti and Dereck Dunn have helped me a lot with language revision and getting a contact with a suitable publication house. I am neither Lao tzu (the Representative of Chinese Dao) nor Nietzsche, who have conquered the vanities of human nature and are true gods as Nietzsche talks about himself by say Some people are born after death.³ I just worship god, never dare to want to be god, for I did not get rid of my animal nature, thus I would rather be a wolf but a being of divinity. If you are a beast, you need to eat meat and live a life, and you need the vanity once criticized by Nietzsche (e.g., publishing the book). I am grateful to these true friends above, who know my animal nature.

“The sage has become decadent, and the idol is facing the dusk.” I once lost myself because of losing faith, until I saw the soul of my mother. As I wrote in the chapter *The Gods Are Dying, But the Mother Lives Forever*, only my mother knows who I am, a member of the human race, and can help me find my place between a completely empty belief and a completely materialistic reality. Although my mother had gone to heaven, I never felt her leaving.

September 2019

³ Nietzsche, Friedrich. *The Man*. Trans. Zhou-Xing Sun. The Commercial Press, 2016.

Contents

Part I Reflection on Rational and Selfish Values	
1 Introduction: The Paradox of Rationality and Selfishness	3
Selfishness and Altruism—An Eternal Contradiction	3
Competition in Cooperation—The Problem of the “Tragedy of the Commons”	9
Volunteer’s Dilemma	10
Darwin’s Demon	10
Main Idea and Framework of This Book	11
References	13
2 Asymmetry and Uncertainty Selection—Start Thinking with a Hammer	15
Cooperation and Competition—There Are Random Strategies	15
Social Hierarchy and Social Cooperation—Twin Brothers	17
Information Asymmetry	20
Differences in Evolutionary Paths	21
Asymmetric and Uncertain Behavioral Strategies	23
Figs and Fig Wasps—The Mirror Image of Our Human Love and Hate	26
Spatial State Change of Genes Induces Cancerization	34
Annoying Uncertainty—A Beautiful Halo	37
Deterministic—Dead State—Dissipative Structure	41
Super Rational Strategy—Go Your Own Way and Let Others Talk	43
References	45
Part II The Evolutionary Dynamics of Cooperation	
3 Homotropic Inheritance and Outbreak of Mass Incidents—Increasing Pressure Accelerates the Evolution of Altruistic Behavior	49
The Dilemma of Kin or Tag Recognition Mechanism	49

Homotropic Inheritance and the Origin of Sociality 51

Infectious Suicide and the Roots of Terrorism 54

Acceleration in Evolutionary Rate 56

References 57

4 Cooperation: Dynamics of Sexual Selection 59

The Cost of Social Progress—Sexual Repression and Abandonment ... 63

Hero and Villain of the Same Origin, Good or Evil Depends
on the Perspective 65

Your Status Determines Your Profits 70

The More Stable the Environment, the Less Attractive
to the Opposite Sex 72

Gene Exchange, Sexual Reproduction and Entropy Flow 74

Symmetry and Entropy 76

Who is He? Who is She? It’s a Complex of Man and Woman 78

References 80

**5 Cooperation and Slavery—Free Competition to Social
Division of Labor 81**

Completely Free Competition—The Road to Slavery 81

Human Genetic Modification and Human Super Organism 85

Globalization: Evolution of Super Organism and Redundant
Population 88

References 91

6 The Significance of Our Survival 93

Survival Value: The Limitation of the Definition of Fitness 93

Entropy Probability Selection—A Bridge Unifying the Natural
Selection and Neutral Selection 99

Entropy Change in Non-equilibrium State—The Invisible Hand
in the Process of Natural Selection 101

Asymmetry and Coexistence of Species—The Disappearance
of Darwinian Demons 104

Reference 105

Part III Maintaining the Order of Social Cooperation

**7 Union for a Long Time to Divide and Division for a Long
Time to Unite in the Cooperative System 109**

Fists, Shadows, and Dices 112

The Game Between Wei, Shu and Wu—Centralization and Alliance ... 115

Efficiency is the Product of Centralization; Innovation is
the Product of Democracy 120

Two Tigers Are not Allowed in One Mountain, Except One Male
and One Female 122

The Game of Unity and Division is also the Game of Efficiency
and Innovation 124

References 129

8 The Game of New Three Kingdoms—Cooperation and Competition in a Globally Changing World 131

The Bourgeoisie—The Common Enemy and Friend of Different Civilizations 131

The US, China, Russia—Different Pathway Depended Strategies 135

Game Strategy Analysis of the United States, China and Russia 143

Reason Versus Dice 146

The Maintenance of the World Order—The Great Negative Entropy ... 148

Reference 150

9 The Great Unity Between Nations and Human Society 151

The Disappearance of War and Chaos 151

High Degree of Socialization and Great Unity—Integration of Freedom and Slavery 155

Reference 157

10 Path-Dependent Speciation and Stratified Co-existence and Co-prosperity 159

Path-Dependent Speciation 159

Stratified Co-existence and Co-prosperity 162

References 164

11 The Unity of Life and Physics 165

The Consistence Between Biological Sociality and Atomic Physical Structure 165

Wave Particle Duality of Cooperative Systems 168

The Gravity of Social Biological System 170

Egocentrism and Gravitation 173

Planck’s Constant—Can’t I Touch It? 176

Relativity of Observer Scale and Plasticity of Planck Constant 177

The Essence of Planck’s Constant and the Discontinuity of Life Evolution 178

Spatiotemporal Similarity and System Volatility 179

Observation Angle and Scale Determine the Observation Results and Conclusions 181

References 182

12 Discontinuity-Equilibrium Evolution and Evolution Path Dependence 183

Diversity of Species Origin and Evolution Path Dependence 183

The Art Buried Deep Underground—Path-Dependent Speciation Mechanism 190

Multiple Levels of Selection and Evolution 192

References 194

Part IV The Future of Human Beings and Reflection on Humanity

13 The End and Hope of Mankind 197

 The Tragedy of the Evolution of Human Cooperative Behavior 197

 Cultivate an Opponent Who Can Kill You 201

 Humans Will Evolve into Super Organisms, not Global Villages 205

 References 208

14 Come Back Gods and Ghosts. Who Will Fight Against God? 209

 Pluralism and Monism of Human Nature 209

 The Gods Will Die, and the Mother Will Live Forever 213

 References 216

Postscript 217

Part I
Reflection on Rational and Selfish Values

Chapter 1

Introduction: The Paradox of Rationality and Selfishness



As I have emphasized in several other articles, I believe that science is not an objective, certain machine of truth, but a typical human activity, in which people are influenced by emotions, hopes, and cultural prejudices. The cultural tradition of thinking has a great influence on scientific theory and often determines the way people think about conjecture, especially when there is no material to limit people's imagination or conjecture.¹

—Stephen Jay Gould

Selfishness and Altruism—An Eternal Contradiction

But my truth is terrible: because people have been treating lies as the truth.²

—Nietzsche

Sima Qian wrote in his *Shi Ji* (also named *Historical Records*): *Biographies of Merchants*³ that “Hustling for benefit, all come; bustling for benefit, all leave”, expressing the essence of the hustle and bustle of everyday life: all people are chasing for profit! A thousand years later, in the book *the Wealth of Nations*, Adam Smith, generally hailed as the father of modern economics, said in the same way that the invisible hand behind people's behaviors—the selfishness of human nature, always pursues its own interests. The selfishness, or we can use a more elegant word *rationality*, that explains almost all of our economic and social behaviors. We can use selfishness to explain why students study so hard to get into the top universities—rewards are higher. Similarly, selfishness explains why companies or individuals invest large amounts of money or energy in high-risk scientific researches or innovation—such results can yield higher additional profits. Selfishness, or rationality, so often is the basis of classical economics, which has profoundly influenced the social

¹ Written by Goodell [1].

² Written by Nietzsche [2].

³ Written by Qian [3].

sciences, and evolved into one of the basic theoretical premises for our understanding of human behaviors.

The idea has also profoundly influenced evolutionary biologists. Inspired by Adam Smith's *the Wealth of Nations*, Darwin put forward the concept of "survival of the fittest". Natural Selection assumes that individual organism is selfish, and "the fittest" is able to get more interests of individual organisms. Yet when regarding to individual organisms, interests refer to the number of their off springs and how long they can survive, both termed in evolutionary biology as "fitness" that is an organism's total revenue. In a twist on the notion of fitness, Neo-Darwinism holds that the essential unit of biological inheritance is the gene, so the interest of an individual is the probability that passing his or her genes to the next generation and beyond. According to the Neo-Darwinian interpretation of evolution, the frequency of genes that can be passed on to the next generation is the biological benefits.

Selfishness, the invisible hand, has influenced almost all of our understanding of the motives of human activities, and almost the starting point for our understanding of all biological phenomena. Some of Smith's and Darwin's followers even went so far as to believe that all human social activities and biological phenomena could be explained by the concept of invisible hand—selfishness. In the real world, however, there are social or biological phenomena which can't be explained by it. For example, it's difficult for us to explain why Henry Norman Bethune came to China to help Chinese people resist Japanese aggression and finally sacrificed his life here in China. Likewise, it's hard to explain why those terrorists who hijacked planes chose to die with passengers though he bears no animosity towards them on September 11, 2001. In the biological world, there are also a large number of phenomena and behaviors that can't be explained by selfishness—some social insects, such as soldier ants or worker ants, choose to commit suicide to defend their colonies in case of danger or invasion by foreign enemies; Similarly, on the African savannah, it's often been observed that some buffaloes march forward courageously to protect their young from lions; In the Antarctic harshest environment, some penguins steal the eggs belonging to other penguins and bear the risk of severe cold to hatch and raise other penguins' babies. In human society, there are also lots of adoptions, and some people even steal other people's children and raising them as their own children.

When Adam Smith and Darwin put forward their theories, they realized the theoretical dilemma of the notion of selfishness of rational man or the concept of survival of the fittest. Both Adam Smith and Darwin in their time had noticed altruistic behaviors that were contrary to selfishness and rationality, such as human donation to strangers and even sacrificing their own lives to help others, which is quite common in people of all ages and nations, but might be labeled with different colors. Terrorism, which we abhor so much, is essentially an altruistic act. These "extremely brave" people usually resort to means of suicide to attack others, by completely giving up their own lives while taking the lives of others, in the hope that the world will thus pay attention to their groups and their appeals. The global spread of such suicide attacks on innocent people since September 11, these attacks has been an issue that is well worth exploring (we will focus on it in later chapters).

At that time, Adam Smith had already recognized the inexplicability of altruistic social cooperation of the so-called selfish and rational man. He argued, in another monograph that he thought more important, *the Theory of Moral Sentiments*, that man was a higher creature, and could be selfless. Adam Smith made the contradictory premise in the *Theory of Moral Sentiments* and *the Wealth of Nations*. In the *Theory of Moral Sentiments*, people are selfless, while in *the Wealth of Nations*, people are selfish. In the history of science, how selfish individuals engage in altruistic behaviors is called “Smith’s mystery”.

Darwin was also aware of the dilemma that his theory “survival of the fittest” was facing. In the nature, there are highly social insects such as ants, bees, termites. Worker ants (bees) do not reproduce at all, but rather help the queen ants or queen bees to reproduce; Moreover, soldier ants or worker bees often protect their colonies by committing suicide when they encounter natural enemies or external invasion. Apparently, “survival of the fittest” can’t explain the behavior of social insects in which many individuals give up their reproductive rights or even their lives to help others. There is no doubt that reproduction and life should be the best interests of an individual in the course of evolution. Darwin realized that survival of the fittest could not explain these biological phenomena, but he dodged this question in his book *on the Origin of Species*,⁴ noting only that such altruistic behaviors were an adaptation.

By the turn of the nineteenth century, this “scientific” paradox had aroused a collective anxiety of western elites, which stems from the rise of Marxism that regards collectivism as their moral principle, and the oath of admission of the CPC is the direct embodiment of such values. “*I volunteer to join the Communist Party of China (CPC), support the Party’s program, abide by the Party’s constitution, perform Party membership duties, carry out the Party’s decisions, strictly observe Party discipline, keep the secrets of the Party, be loyal to the Party, work actively, and strive for Communism in my whole life. I am always ready to sacrifice everything for the Party and the people, and never defect to the Party.*” The basic ideas and beliefs are totally different to the western values, which believe that human nature is selfish, and only when individuals pursue their own interests selfishly can the interests of the collective or the society be realized. Therefore, the whole politics, economy and law of western society are constructed according to a basic premise that human nature is essentially selfish. The group selection theory has brought a far greater impact on the basic values and theoretical system of the West from the biological nature.

Supporters of group selection theory believe that in biological evolution, the selected unit is not only the individual, but also at the level of group or species. As long as the group or species has an advantage in the competitive process, the group or individual organism can give up its own survival or reproductive interests to help the group. Wynne Edwards, one of the main proponents of the theory, once used the football team analogy that if each individual only wants to score goals with himself, the football team is bound to lose.⁵ The team can only win if individuals give up their own chances to score and give other players the chance and collaborate

⁴ Written by Darwin [4].

⁵ Wynne-Edwards [5].

or cooperate with each other. In the biological world, there are indeed a large number of cases in which individuals in a group sacrifice their own reproductive interests or even their lives to ensure the success of the whole group. The best example of ants is a fire ant, which forms a ball and rolls out of the fire when confronted with a big fire. The outer layers of the ball might be burned to death, but the colony is preserved.

The theory of biological group selection provides the mechanism of biological explanation for Marxism. The Communist movement also raised the questions about the basic values of the West, causing anxiety among western elites. In this social background, W. D. Hamilton, who later became a gifted talent of political economy was born. Under the inspiration of Adam Smith's theory, Hamilton put forward the concept of generalized fitness. The theory was that the units of choice could not be at the level of the individual unit, but at the level of the gene. The theory indicates that the process of natural selection is mainly to increase the frequency of one's genes in the next generation. Take the following analogy, genes are analogous to the commercial activity in which a merchant needs to make more profits, and the individual organism chooses to increase its genetic inheritance frequency. As for an individual organism, if it copies itself, its genes will be 100% inherited, and the correlation coefficient between the two is 1; If it's their own siblings, the coefficient is 0.5; Half siblings, 0.25; and cousin, 0.125; If the correlation is infinitely small enough to be negligible, the coefficient is zero.

Hamilton used the highly social Hymenoptera insects as an example to explain why the worker ants/bees do not reproduce, but rather help the queen reproduce. Social Hymenoptera insects such as ants and bees are mono-diploid species, among whom males are all descended from "unfertilized eggs". An unfertilized egg means an egg without the father's sperm. Thus, these males have only one set of chromosomes from the queen. Females (worker bees) develop from "fertilized eggs", so they have two sets of chromosomes like mammals. Because of this particular "mono-diploid" trait, males inherit 100% from their mothers' gene frequencies, while females, who need meiosis⁶ to produce eggs, inherit 50% from their mothers' gene frequencies. The genetic similarity of each worker ant to its sister queen reaches 0.75, which means they share 75% of their genes. In other diploid species such as mammals, siblings are only 0.5, and parents are only 0.5 to their own children. Hamilton concluded that due to the high genetic similarity between the worker ants and the queen, selecting altruism to help the queen reproduce increased the frequency of her genes in the next generation compared to her own, so it is preferred to choose altruistic cooperative strategies.

Supposing you have one or more sisters, if you take care of one sister and keep her alive, you can add 0.75 genes to your population (if you take care of four sisters, you can add three copies of the genes). By comparison, if you have a child of your own, you gain just 0.5 extra genes. Needless to say, natural selection favors taking care of a sister rather than raising her own children.

⁶ In meiosis of germ cells, chromosomes only replicate once, and cells divide twice in succession. This is a special division mode in which the chromosome number is halved.