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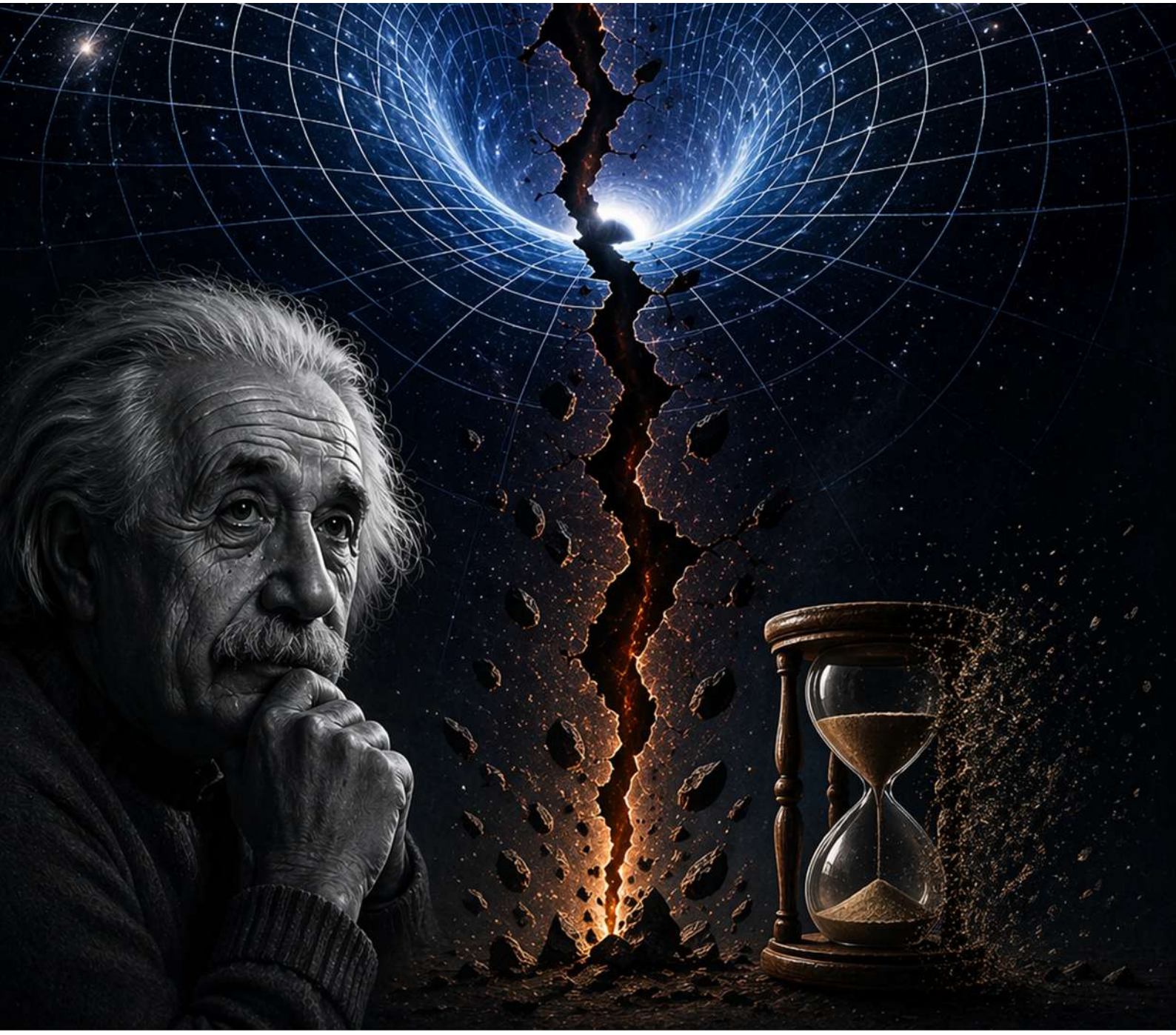
Relativity - Century Fallacy

Criticism is welcome, and debate is encouraged!

Sean Yuxiang Wu, Lü Wu



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Contents

Why is it said that “Relativity is a Century Fallacy”?

The fallacies of “Special Relativity”:

1. Four conditions that are necessary for establishing a relative system but were not stipulated by Einstein:

    1) The distance between the two reference bodies is not defined;

    2) The way in which the two reference bodies are mutually bound is not defined;

    3) The masses of the two reference bodies are not defined;

    4) Einstein denied the existence of absolute simultaneity.

2. Pointing out 12 obvious errors in the foundational paper of special relativity, “On the Electrodynamics of Moving Bodies,” and the monograph “Relativity: The Special and General Theory.”

3. Explaining the pitfalls of simultaneity and synchronization.

4. Proving the principle of **Limited Effect Principle of a Relativistic System**. This principle demonstrates the illusory nature of relativity and shows that time dilation is purely a relativistic illusion.

The fallacies of “General Relativity”:

1. Space is empty; there is nothing in it. How can empty space be bent? Is it “emptiness” that is being bent?

2. There is no time in space itself either. Time describes the things that exist in space. Do not confuse space with the things that exist in space. Space is connected to time through the existence time of the things within it.

3. Time is divided into scale time and existence time. Scale time is determined by humans based on the cycle of the relative motion of the Sun and the Earth, and cannot be affected by a clock that is malfunctioning for some reason. Each existence time describes the process of a thing existing in space.

4. Existence time must distinguish between the time of a unit object and the time of a unit object flow.

5. A single photon, a single person, etc., are all single unit object. A unit object only exists at the moment of “now”; its past is a historical trajectory that no longer exists; its future has not yet arrived.

6. Starlight, rivers, etc., are all unit object flow. The existence time of a unit object flow is the entire process time of that unit object flow, in which every unit object contained within it continuously exists.

7. Points 4, 5, and 6 above are concepts that people did not have before. Minkowski and Einstein combined the concepts of space and time before understanding the true meaning of time, violating the basic principles of scientific research.

Relativity — Century Fallacy

Sean Yuxiang Wu, Lü Wu

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Lü Wu, Sean Yuxiang Wu

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Dedicated This book to:

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About Dr. Yuxiang Wu

2025 published "Use Relativity to Destroy the Enemy"

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2023 published "Big Bang Pseudo-theology"

2021 published "10 Questions To NASA"

2015 – 2019, Published 10 related papers on "Matter Regularity." Published books "Debate of Light and Dark," and "Fading Modern Cosmology."

2005, published "Chinese book: Who Should Talk about Cosmos," one section of it was selected into Chinese College Essence textbook.

2001, again won the World Journal Chinese Novella Essay Contest

1999 to 2007, he served as the dean of the School of Software Engineering, Beijing Normal University Zhuhai Campus, and the director of the Software Research Institute of the Academician Park of Dalian University; Distinguished Professor of Guizhou University; Distinguished Professor and Postgraduate Supervisor of Beijing Wuzi University. Due to acclimatization, he returned to work in the United States in 2007.

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1968, after graduated from junior middle school, worked as a farmer in mountain villages for 10 years.

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2022, Initiated pseudo-theology concept.

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Overview: Understanding the Relativity from the Most Basic Models and Modeling Principles

1

Relativity has become a miracle in the history of human science and technology. In the 1970s, physics books still wrote that general relativity was a subject that needed to be studied further, but today, mainstream science and technology simply bows down to the great authority of the past century and finds various application for it. The government even uses its power to suppress the voices criticizing relativity.

And the contemporary astronomy and cosmology community regards it as a theoretical pillar.

In recent years, the theory of relativity has officially become one of the main scientific pillars of the unscientific myth of the Big Bang of an atom, making any discussion of the universe inseparable from the theory of relativity.

Opinions that differ from the theory of relativity are basically invisible in mainstream academic magazines and media. They are even suppressed through various official institutions, which goes beyond the scope of academic debate.

The methods used by opponents of the theory of relativity are also inappropriate. They are basically entangled in some mathematical derivations or experimental verifications. Such mathematical things can be said to be just some local disputes. Ordinary people cannot understand them, and experts have no way to distinguish whether they are true or not. They are simply disputes that will never be clear. In addition, with the opposition of scholars who live on Einstein's theory, experts and academicians, and even official institutions, it is impossible to succeed in criticizing the theory of relativity from a mathematical perspective. That is a divine knowledge, and ordinary people should not say anything about it. Although there have been constant criticisms of the theory of relativity since its inception, none of them have been successful.

One of the most common arguments is: people have been opposing the theory of relativity for decades, but no one has succeeded in opposing it. How can you succeed? This kind of argument has a huge market, and it also tells people who try to criticize or discuss the theory of relativity that their arguments must be based on irrefutable foundations. This is of course difficult, but it is not impossible.

I remember a short story that is a bit off topic.

When I was writing my master's thesis, I rewrote the optimal length of a mechanized coal mining face in the most authoritative textbook. The idea of this thesis that rewrote the textbook came from a news report in the newspaper. The report said that the Xuzhou Datun Coal Mine

Mining Team set the highest record of mechanized mining output in whole country with a 96-meter-long working face. The coal mining textbook clearly stated that the optimal length of a mechanized coal mining face is about 180 meters and cannot be less than 120 meters, otherwise the production efficiency will drop rapidly as the length of the working face decreases. That is to say, the mechanized mining face must be long enough to allow the coal mining machinery to perform efficiently. However, due to geological conditions, many mines cannot be equipped with long working faces. Therefore, if short working faces can achieve high efficiency, it will be of great significance to coal mines with poor geological conditions. I immediately went to Datun Mine for research and wrote a paper, which was published as the first article of the issue of the "Coal Mining Process Technology" topic in the "Coal Science and Technology" journal.

The point of writing this short story here is that the national record of the highest production at the 96-meter working face was widely publicized on the newspaper throughout the country. There are 14 coal-related colleges and universities, 8 Class A coal industry design institutes, thousands of professors and lecturers who study coal mining, and even academicians of the Chinese Academy of Engineering. There are also nationally high-level scientific research journals such as the "Journal of China Coal Society" and "Coal Science and Technology."

But why did no one show academic interest in the updated news about the length of the working coal face, which has been determined? And let a student like me got the chance to research on this topic of great significance?

This can only show that people's inertial thinking is very powerful.

This situation also applies to the study of the universe and relativity: people should have their own independent thinking, and should not be frightened by what was published by an authoritative organization or the results of research by some authoritative person.

The biggest problem with Einstein's academic thought is that he focused on the establishment and derivation of mathematical models, but basically **ignored the fundamentals of applied mathematical models** - that is, the rationality of the physical model used to derive the applied mathematical model! His style of work has led to unconcealable errors in the theory of relativity, and has also brought about the undesirable consequences of the academic community not paying attention to the rationality of physical models and only focusing on abstract mathematical models in the past century.

What we are going to do in this book is to discuss relativity from a completely new perspective, completely different from the historical criticism of relativity, using a brand new and groundbreaking method, to re-understand relativity from the most **original model and definition**; and to explain the errors of relativity from the perspective of the relationship between **physical models and applied mathematical models**. You will find that our understanding of Einstein's theory of relativity is completely different from past explanations.

1.1 Looking at the special theory of relativity from the relationship between physical models and mathematical models

Here we focus on the following**: When deriving a mathematical model from a physical model, a correct physical model is the most decisive and first necessary condition to ensure that the mathematical model derived from the physical model is also correct!** If the physical model is incorrect, the mathematical model derived from it will never be correct, and the application of the mathematical model derived from it will also be wrong. This kind of error is sometimes intuitive and sometimes hidden, and requires careful consideration.

Let's make a simple illustration by designing a railway bridge.

If we want to build a railway bridge for high-speed trains, we need to examine the various operating condition parameters involved, such as the speed of the train and its maximum load..... If the same data parameters obtained by examining a car on a highway is used to design a high-speed railway bridge, you can imagine what will happen.

And if the design is not well thought out, then various errors will occur after the bridge is built, for example, larger ships cannot pass under the bridge, or the bridge is broken by the heavy load of the vehicle, etc. This design is of course wrong.

In this light, we' ll discuss special relativity from the following two points: the comprehensiveness of the model and the rationality of the model. And reveal some specific error examples.

1. Einstein derived the theory of special relativity by comparing the difference in motion between the two reference frames by comparing a beam of light to a moving object and to a stationary object. For example, by using light rays to be relative to a moving rigid rod or a moving railway carriage, and then to relative to a stationary rigid rod or railway embankment, he can establish a connection between them using simple mathematics, thereby deriving conclusions such as the Lorenz transformation, which means that a light beam that cannot touch any object at all, that is, must be independent of any other object, can change the length of an object relative to the light beam, such as a rigid rod (the moving ruler becomes shorter), and the speed of time flowing on the rigid rod (the time dilation). Mathematical models of special relativity are derived from physical models that are completely disconnected from reality.

The physical model used by Einstein to derive the theory of special relativity can be likened to using a car model to design trains, railways, and bridges. For example, a light beam can't contact the steel rod. But the relative motion between the two is observed, the light can change the length of the rod and also change the time on the rod. This is to derive an erroneous mathematical model of special relativity from a physical model that has nothing to do with reality. The conclusions obtained in this way are hard to convince people.

2. Due to incomplete cognition, the special theory of relativity has a fatal error: Although Einstein discussed the situation of the raven flying over the train, he did not discuss the situation of the raven walking in the train. This allowed him to see only relative simultaneity and firmly deny absolute simultaneity; hence the special theory of relativity.

A similar problem exists in general relativity. For example, light travels along the geodesic line: the light of a celestial body never propagates in a single line but propagates 360° from the source to the surrounding space as a spherical wavefront. When a huge photosphere encounters a relatively very small celestial body like the Sun, which piece or part of the photosphere can travel along which geodesic line? Refer to Figure 1.1 below.

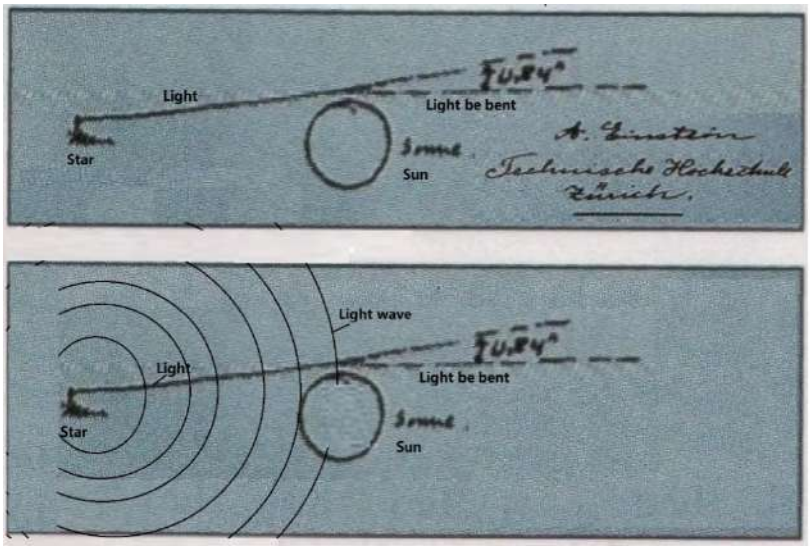


Figure 1.1: How does the star light propagate? Top frame: Einstein's handwriting shows starlight as a single ray bent by the Sun. Bottom frame: The light waves from the star are added to the picture. Now, how are spherical waves bent by the Sun?

In top frame of Figure 1.1, Einstein original handwriting displays the star light as ONE ray that is bent by the Sun. In the bottom frame, the light waves the star was sending out were added to the frame. Now, how the spherical waves be bent by the Sun?

1.2 Viewing general relativity from the basic definition of space and time

Figure 1.2 is the first page of Minkovsky's 1908 paper "Space and Time".

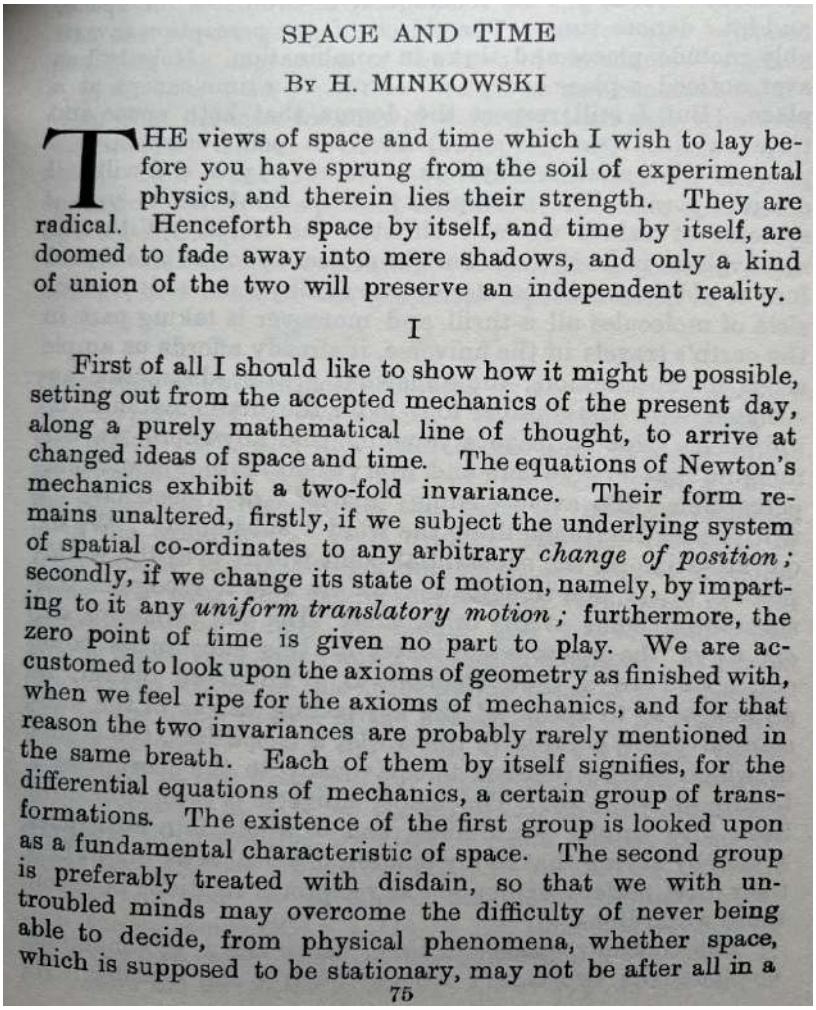
We will discuss space and time in detail in Chapters 3 and 4. But before we do, let's look at where Einstein's concept of space and time came from.

Figure 1.2 is the first page of Minkovsky's paper "Space and Time".

In scientific research, we try our best to break down various related factors and separately study them clearly, and then study the things that have been studied separately together. Space and time should be studied in the same way.

Einstein did not provide any definition of space. He simply used Minkowski's concept of spacetime to combine space and time together to discuss the problem. This actually violates the basic rules of scientific research. In scientific research, each factor should be studied thoroughly individually before combining multiple studied factors together. However, Einstein did not thoroughly understand the true nature of space or time before hastily combining them for his research, which was not a good approach and was unlikely to yield significant results.

What is space? What is the nature of time? To this day, a hundred years later, people still don't understand it very clearly. In this case, it would



SPACE AND TIME

By H. MINKOWSKI

THE views of space and time which I wish to lay before you have sprung from the soil of experimental physics, and therein lies their strength. They are radical. Henceforth space by itself, and time by itself, are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent reality.

I

First of all I should like to show how it might be possible, setting out from the accepted mechanics of the present day, along a purely mathematical line of thought, to arrive at changed ideas of space and time. The equations of Newton's mechanics exhibit a two-fold invariance. Their form remains unaltered, firstly, if we subject the underlying system of spatial co-ordinates to any arbitrary *change of position*; secondly, if we change its state of motion, namely, by imparting to it any *uniform translatory motion*; furthermore, the zero point of time is given no part to play. We are accustomed to look upon the axioms of geometry as finished with, when we feel ripe for the axioms of mechanics, and for that reason the two invariances are probably rarely mentioned in the same breath. Each of them by itself signifies, for the differential equations of mechanics, a certain group of transformations. The existence of the first group is looked upon as a fundamental characteristic of space. The second group is preferably treated with disdain, so that we with untroubled minds may overcome the difficulty of never being able to decide, from physical phenomena, whether space, which is supposed to be stationary, may not be after all in a

75

Figure 1.2: The first page of Minkovsky's 1908 paper "Space and Time"

be entirely inappropriate to mix these two different concepts together in a single study. This is also the root of the problems that arise when we discuss the four-dimensional space-time diagram later.

Let's consider this problem first briefly:

What is space?

Searching the Internet, surprisingly, there are many answers, but none of them are appropriate. So, here we start from the most basic facts to clarify the definition of space.

Our method is to do subtracting operation on the universe in front of us. We remove the sun, the earth, the Milky Way, the nebula and all other celestial bodies from the universe one by one; remove light, wind, animals and plants, even thoughts..., everything, from the universe, and what is left is this place where nothing exists, which is **space**.

This "space" is a place where everything stored in it can be taken out one by one, and these things taken out can be put back one by one.

So, in the most basic sense, **space is an empty place**, with nothing in it.

If you agree with this, then based on this, the general theory of relativity will be broken in one sentence: How can a space with nothing in it be bent? What is it bending about? Is it bending "nothing"?

Please carefully distinguish empty space from the matter contained in the space. Anything like geodesics is **something that space accommodates, not space itself.**

What is the time? Can time go to the past? Is there time in the empty space? If we break down time into **Scale Time** for measuring time and **Existence Time** for describing things, we will find that time is not so abstract and difficult to explain.

We have specifically defined the **Unit Object Time (UOT)** and the **Unit Flow Time (UFT)**, concepts of time that have not been discussed by previous researchers. These are new concepts that are indispensable for accurately describing time in the world; otherwise, the description would be full of errors and omissions. Einstein and Minkowski had absolutely no understanding of this. That is to say, they did not have a sufficient understanding of the nature of time. In this context, arbitrarily combining space and time for research violates the fundamental principles of scientific research and therefore cannot yield any correct results.

Old knowledge should not only be studied seriously, but also be thought about critically. For a lot of knowledge, it will be simpler if we discard all the old and think about it again from the source.

The truth is simple, and this may be one of them.

For 120 years, the theory of relativity has been at the pinnacle of human scientific thought. However, whether it should continue to lead contemporary science is a question for us. Voices questioning the theory of relativity have continued, but since most of them are based on mathematics or experiments, no convincing results have been obtained.

We started from the perspective of examining the rationality of physical models, created a new and simple method to analyze mathematical models, which enabled us to see many problems of the relativity model from a different perspective. Through these intuitive discussions, we believe that relativity should no longer guide human scientific and technological thinking.

I hope our discussion will give you a clearer view of various concepts, so that you can better understand the universe.

From the Fallacy of Physical Model to Mathematical Model to See Theory of Special Relativity.

2

2.1 Introduction

There is a **rod** and a **ray**.

Please think of a way **to make the "ray" affect the length and the time flow on the rod.**

Please think about it, think again. Think freely, think wildly, think eccentrically, think imaginatively; come up with a way. You can set up the ray above the top of the rod, or below, left, right, whatever side of the rod you wish; the ray is 0.001 mm from the rod, or one meter from the rod, or as far as a light year; the rod follows a straight line, or up and down. In short, the ray moves freely; the rod is also free in shape and movement, as long as the set up achieves its purpose: **To make the "ray" affect the length of the rod and the time flow on the "rod" by the relative movement between the ray and the rod.**

Think, think, think ...

Can't think of any good way? Of course, a ray cannot be in contact with the rod because the ray has vanished as soon as it touches the rod. So, the ray and the rod must be **completely independent** from each other! How can two totally independent things affect each other?

If you can't come up with a method, it shows that you are not a master, not a professor, nor among the few select in the world who understand the issue! Certainly, you are not God!

If you come up with a way, then you can complete the following tasks, however fantastical they may seem:

If you put a clock on the rod, the movement of this ray should make the clock on the rod go slower. This situation is called "time dilation" in special relativity theory, or "the moving clock moves slower."

If you put a meter ruler on the rod, the movement of this ray should make the ruler shorter. This situation is called the "moving meter becomes shorter" in the theory of special relativity.

The former reminds us of time travel and long life, even immortality, while the latter frightens me: if, for example, a spacecraft is moving too quickly, the spacecraft shortens along its direction of flight, the engine deforms, and finally the spacecraft disintegrates.

Isn't it amazing, fantastical, mythic?

Let's look at the casting and flaws of this myth from the following two perspectives:

1) Because of Einstein's incomplete consideration of the issues related to the physical model, he based the theory of special relativity on an erroneous mathematical model.
2) Two objects that are physically independent of each other cannot change the physical properties of the other.

In 1), we will take a general look at the four key points that need to be paid attention to in the physical model of the special relativistic system, as well as the obvious problems in Einstein's special relativistic papers and monographs; in 2), we will derive the **Limited Effect Principle of a Relativistic System**.

Before we discuss these points one by one, let us first clarify the basic structure and rules of Einstein's relativity system to ensure that we are discussing the problem in the same context.

2.2 Preliminary knowledge: What is Mr. Einstein's relativistic system?

Before we start discussing the above points, we must make sure that everyone is using the same language very clearly. First of all, we must clarify: What is Mr. Einstein's relativistic system?

When discussing relativity, the first question to ask is: What is relative? What things are relative each other? What are the conditions of relativity? What is the precise definition of the relevant concept? These questions can be summarized in the question of this section: "What is Mr. Einstein's relativistic system?"

Regarding relative systems, Einstein and later researchers of relativity used many terms, such as rigid body, reference system, inertial system, frame, system... For the sake of simplicity, without distorting the original meaning, we will make some simplified descriptions according to Mr. Einstein's original paper (1) "Electrodynamics of Moving Bodies" and monograph (2) "Relativity: Special and General Theory" in which he defined the theory of relativity. If you need a precise definition, you can refer to the paper and monograph. As for the various explanations of other experts and scholars, they will be ignored for the time being. **The articles and monographs mentioned later in this chapter all refer to (1) and (2)**.

We try to explain the problem in a popular way. However, popular science is not a novel after all, and it still takes some time to master it. In particular, the following sections introduce many terms and concepts. I hope you can read these sections slowly and remember the concepts and meanings of the terms marked in bold. These are used a lot in the book. Understand and remember them, and the subsequent reading will be easy and comfortable.

First of all, Mr. Einstein's theory of relativity discusses the relative comparison of the motion between two "things", which belongs to the category of kinematics in physics.

What are these two "things" used for comparison? They can represent single objects, like an infinitely long rod, but this rod is a rigid rod that

cannot change its shape at will; they can also be a system, such as an imaginary very long train carriage. In different applications, this carriage can sometimes be treated as a whole, such as lightning propagating from both ends of the carriage to the middle; it can also be treated as a small subsystem, such as a man moving in the carriage. Depending on the problem, this carriage plays different roles. These are all things imagined by Mr. Einstein. But later he used them on real trains and airplanes.

For the sake of convenience, Mr. Einstein gave a name to the two "things" that make up the relative system, and called them both "**reference-bodies"**. After Mr. Einstein's naming, we put these two things in one called "**reference-body-A**" and the other called "**reference-body-B**". It doesn't matter which of the two things is "A" and which is "B". A can be any of the two reference bodies, and B is the other reference body. The only purpose of dividing them into A and B is to easily distinguish them, which is convenient and clear in the subsequent discussion, saving a lot of words and accurately conveying the ideas to be expressed.

In Mr. Einstein's relativity model, the two relative reference bodies A and B must meet certain requirements. According to his requirements, at least one reference body that must be in uniform linear motion. We specify in the book that **reference-body-A must always be in uniform linear motion**.

The implicit meaning of uniform linear motion is that this linear motion does not rotate, and its **speed does not change**. For example, the speed of a light beam does not change when it goes from one end of a rod to the other end, and then returns from the other end to the starting point. Of course, since Mr. Einstein defined the speed of light as constant, the above conditions are automatically met for light beams. However, if the light beam is replaced by a person walking in a carriage, then it must be stated that the person's back and forth speeds must be the same! This is not redundant nonsense. Because this point is easily overlooked. Even Mr. Einstein himself made mistakes in his monograph(2), which we will discuss in detail later.

Everyone should know: when discussing relativity, it must be done **in a truly qualified relative system**. And in a qualified relative system, the speed of the reference-body must remain constant. If the speed of any of the two reference bodies (stationary can be regarded as a movement with a speed of zero) changes during the entire process of investigation, it is no longer a relative system, and there is no need to discuss it from the perspective of relativity!

The combination of two reference bodies A and B, and **assuming that they meet all other requirements stipulated by Mr. Einstein**, constitutes the **relative system** in Mr. Einstein's theory of relativity. When we talk about the relative system in the theory of relativity in the following parts of this book, **we are referring to the system composed of two reference bodies A and B** that meet the above requirements stipulated by Mr. Einstein. Please remember that at least one of the two reference bodies, which we designate as **reference body A in this book, must be in uniform linear motion**. Because if both reference bodies are stationary, there is no need to study.

Because at least one of the two reference bodies A and B is moving, then we can label reference-body-A as the moving reference body. For example, a beam of light moves back and forth above a long rod in a uniform linear motion. This beam of light is reference-body-A. Reference-body-B can be either stationary or in uniform linear motion. For example, the long

rod in the previous sentence can be stationary or in motion. (This rule actually means: of the two reference bodies in a relative system, one must be moving, while the other can be either moving or stationary.)

If reference-body-B is also moving, we call the system composed of two moving reference bodies a **dynamic system**; and the system only one reference-body-A performing uniform linear motion but reference-body-B being stationary is called a **stationary system**.

Now let's sort out the above six concepts. We will use them repeatedly below, so please understand and keep them in mind:

A relative system *is composed of two* ***reference bodies,*** *A and B. These two reference bodies are called reference bodies A and B respectively, and* ***reference-body-A*** *is always moving. According to whether* ***reference-body-B*** *moves or not, the relative system can be divided into* ***a dynamic system*** *and a* ***static system****.* The six phrases marked in bold italics here refer to the meaning described here when they appear in the following text. For example, "relative system" means "a system composed of two things that meet all the requirements put forward by Mr. Einstein and move relative to each other." (The "all requirements" in this sentence refer to the various requirements put forward by Mr. Einstein for relative motion. We will not list them one by one. It is enough to know that our relative system here meets all the conditions put forward by Mr. Einstein.)

Finally, we consider the following question: What happens if a clock on a spacecraft is simultaneously relative to two reference objects with different velocities? For example, a clock named Ref-A has a velocity VB relative to the clock Ref-B, forming a relative system called A-B. At the same time, Ref-A also has a velocity VC relative to the clock Ref-C, forming a relative system A-C. Do these two relative systems A-B and A-C constitute two reasonable relative systems? What is wrong with the calculated relative results? I call this problem the "single object - multiple reference bodies," a relative system problem. You will see further discussion on this type of related system later when we derive the Relativistic Systems Limited Effects Principle. Here please think about it first.

Now we have begun to step into the door of Mr. Einstein's imaginary theory of relativity.

2.2.1 1. From an overall perspective, there are four essential conditions that must be stipulated for establishing the physical model of the special theory of relativity, but which Einstein did not establish

Based on the preliminary knowledge in the previous section, we know that the special relativity system is composed of two reference bodies. The two reference bodies that make up the relative system must meet basic conditions such as uniform linear motion. But in reality, since Einstein used the relative system as a real physical system, such a rough regulation is far from enough. Based on the various applications of the relative system in the process of Einstein's later discussion of the theory of relativity, we point out four key points that need special attention. These key points are key elements related to the rationality of the relativistic system. They must be considered in application but were completely ignored by Einstein.

Condition 1: Einstein did not specify the physical distance between the two reference bodies in his relativistic physical model

This has led to many errors. The most obvious problem is the time dilation experiment using a clock on a spacecraft ten of thousands of meters above the ground and a clock on the ground to form a relative system (Nave, C. R., 22 August 2005). This experiment shows the official academic recognition of the attitude of relativity, that is, the distance between two reference bodies is arbitrary because Einstein did not make any specific regulations. It can be thousands of meters apart, or it can be two reference bodies that are tightly attached to each other like a train car and a railway embankment.

So, can the American flagpole on the moon form a relative system with the train on the ground? We can think of various relative methods that span countries or even galaxies. In addition, assuming that the distance between the light beam and the steel bar is 1 light year, will the movement of the light beam still affect the length of the steel bar and the time on the bar?

In the model of destroying enemies, the enemies can of course be at any distance. Therefore, any enemy, no matter how far away, can be destroyed at will.

Condition 2: Einstein did not specify the quality of the reference body in his physical model

Einstein did not stipulate the quality of the reference body in the relative system.

From the reference bodies he used, anything as light as a beam of light or a raven, or as heavy as a train carriage or a railway embankment, can be qualified reference bodies in the relative system.

For example, if the steel bar is an alloy steel bar with a diameter of 1,000 meters, a tiny beam of light flying around on it can make its length shorter? Wouldn't that allow the invention of a new efficient casting method?

Can the railway embankment that Einstein often used also be regarded as a steel bar? Can the railway track also be regarded as a steel bar? What about the railroad carriage?

In the model of destroying enemies, even if the enemy hides in the tank, it will be useless. The tank and the enemy can be turned into a ball of light energy.

Condition 3: The relativity system does not stipulate how two objects are bound together to form a relative system and become reference bodies

This actually caused a lot of problems and confusion.

How does a light beam form a relative system with a rigid rod? For example, if there are 10 or 100 rigid rods, how can Einstein make his one light beam form a relative system with the one rod he wants to be relative to? Is there any way to tie the light beam to this rod so that they are be relativistic to each other? And if there are many light beams moving relative to these rods, how to tie a certain light beam to be relative to the specific rod? How to avoid that the rods moving in completely opposite directions are relative to this light beam at the same time? For example, in the experiment of the spacecraft and the ground clock, why does the clock on the spacecraft be relative to the experimental clock on the ground?

What if the clock on the spacecraft also has to be relative to the clock on the plane, or the clock on a train, or even the watch of the runner? Is there any way to prevent this relativity?

This relative situation in which the objects join the relative system automatically without knowing by the experimenter's mind is called **Passive Relative**. Due to the rough and unscientific design of Einstein's physical model, the Passive Relative is inevitable. And many errors arise from this.

In the model of destroying the enemy, since the two reference bodies of the relative system can be bound in thought at will in addition to complying with the motion constraints such as uniform speed, according to the Key Point 1, the enemy can be hit regardless of the distance; according to the Key Point 2, the enemy can be hit regardless of whether he is hiding in a tank or underground. This means that no matter where the enemy is hiding or how he hides, he can be tied up and converted into non-life energy, or say eliminated.

There are many similar questions. Einstein did not specify all of these in detail. This allows us to destroy any enemy at will.

We strictly follow Einstein's teachings to carry out the work of destroying the enemy. So, if the enemy we want to destroy is not destroyed, who should we blame? Should we blame Einstein's scientific Bible-like theory?

I would like to ask contemporary physics masters, especially the editors-in-chief of famous physics magazines, such as Physics Review Letter, which is said to be ranked the first in the world. What do you think about this issue?

Condition 4: Whether the two reference bodies are independent of each other is a key point that the theory of relativity completely ignores

The reference bodies represented by light beams used by Einstein himself basically move completely independently from another reference body in the system. Light beams cannot have direct contact with any object, and the role of electromagnetic fields is not considered in relativity, so the light beams used in the relativity system are completely independent.

Because they are completely independent of each other and have no physical or chemical connection, they actually do not interact in any material way. And if it is just a pure thinking relationship, there should not be any actual effects such as time dilation and length contraction. That is to say, Mr. Einstein's relative system is a purely imaginary system. There is no substantial connection between the two reference bodies that make up the relative system. The relativity between them is completely established by human subjective imagination!

Mr. Einstein liked to use the light beam and rod, or the light beam and anything else in his works, which are impossible to have substantial contact, because the light beam will disappear once it touches any other object. Therefore, in the relative system composed of the light beam and anything, the connection between the light beam and the thing can only exist in people's thinking, there is no substantial contact at all, and of course there is no substantial impact!

All reference bodies used in the dynamic systems in Mr. Einstein's works and papers that meet the relative conditions he proposed are completely unrelated and have no substantial relationship. For example, light beams

and moving rods, light beams and trains, raven flying back and forth above train carriage, man moving in moving carriage and embankments, etc., are all completely independent reference bodies. Later generations carried forward the idea and used the relative conditions of spacecraft and ground clock, which are even more impossible to have any substantial connection between the two reference bodies except for thinking and imagination.

The only exception here is the relative system of a person walking in a moving train carriage and a railway embankment given by Einstein in Section VII of (2). Einstein used this system repeatedly throughout the book of (2). However, this system is full of examples of errors. We can easily point out five errors in the physical model constructed by this short statement, two of which are direct errors and three of which serve as models to prove the errors of Einstein's other statements.

Let us start with a discussion of this short but error-ridden model and then discuss the special theory of relativity in detail.

2.3 2. Twelve problems in special relativity paper (1) and monograph (2)

The short three and a half lines of text in Figure 2.1 below is a physical model given by Einstein at the beginning of Section VI in (2).

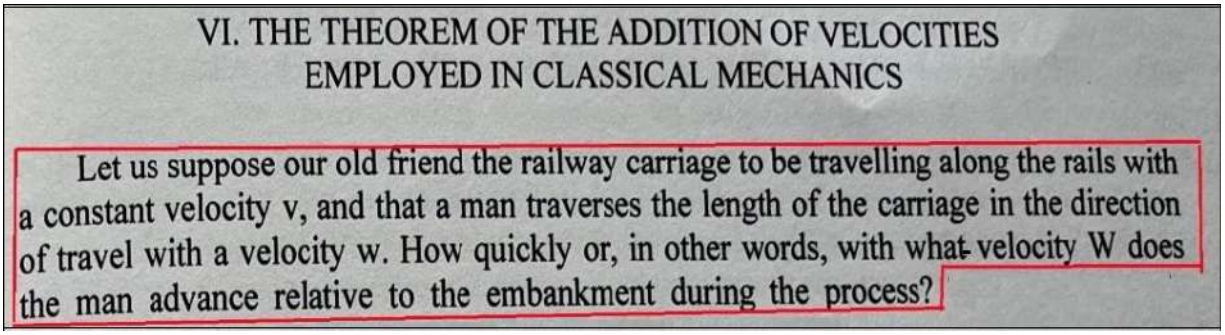
Please read this passage carefully and see if you can find out the problem of the man-carriage-embankment system described in this passage about the theory of special relativity?

It is hard to imagine that there are five direct or indirect relativistic issues in this short paragraph.

Problem 1: This problem is exposed by Einstein's Quotation 1 in Figure 2.1

There are many more errors inherent in Einstein's simple model in Figure 2.1, as well as several errors that can be directly demonstrated using this system model. Let's discuss them one by one.

Einstein's Quotation 1 in Figure 2.1 gives us a model that can be used to prove two of Einstein's mistakes. The first mistake is related to the following quotation 2.



VI. THE THEOREM OF THE ADDITION OF VELOCITIES EMPLOYED IN CLASSICAL MECHANICS

Let us suppose our old friend the railway carriage to be travelling along the rails with a constant velocity v, and that a man traverses the length of the carriage in the direction of travel with a velocity w. How quickly or, in other words, with what velocity W does the man advance relative to the embankment during the process?

Figure 2.1: Einstein's Quotation 1: From Section 6 of Einstein's book (2): "Relativity: The Special and General Theory". Einstein used the above model extensively in the book to discuss his special theory of relativity. The model exposes many problems of the theory of relativity.

Einstein's Quotation 2 is taken from (1) "§1, Definition of Simultaneity" The "universally valid" synchronous transmission rule proposed is as follows:

Suppose a ray of light leaves from A toward B at "A time" t_A, is reflected from B toward A at "B-time" t_B, and arrives back at A at "A-time" t'_A, The two clocks are synchronous by definition if

$t_B - t_A = t'_A - t_B$. *(Formula 2.3)* *

We assume that it is possible for this definition of synchronism to be free from contradictions, and to be so for arbitrarily many points, and that the following relations are therefore generally valid:

1. *If the clock is B is synchronous with the clock in A, then the clock in A is synchronous.*
2. *If the clock in A is synchronous with the clock in B as well as with the clock in C, then the clocks in B and C are also synchronous relative to each other.*

https://einsteinpapers.press.princeton.edu/vol2-trans/156

Using the **man-carriage-embankment** system mentioned in Einstein's previous quote in Figure 2.1, it can be proved that **relation 2 in above Quotation-2 is wrong** and is not a "universally valid" rule.

The proof process is as follows:

In the **man-carriage-embankment** system,

Let the moving **carriage** be **Reference-A-carriage;**

Let the moving **man** be **Reference-B-man**;

Let the static **embankment** be **Reference-C-embankment.**

According to Einstein's Quotation 2, if the motion of two reference bodies satisfies (Formula 1), the two reference bodies are synchronized.

Then:

Reference-A-carriage and Reference-B-man form a relative system that is synchronous. That is, the carriage and the man is synchronized. Because the time used by the man to walk from A-end of the carriage to B-end of the carriage is always equals the time he travels from B-end to A-end.

Similarly, reference-A-carriage and reference-C-embankment are also synchronized, that is, the carriage and the embankment are synchronized.

But reference-B-man and reference-C-embankment are **not synchronized**. That is, the man and the embankment are not synchronized. Because the speed of the man relative to the embankment is the sum of the speed of the man and the speed of the carriage, this back-and-forth speeds are not equal, When the man with a uniform speed w moves in the same direction as the train at a uniform speed v, his speed relative to the embankment is w + v; when he moves in the opposite direction of the train, his speed relative to the embankment is w - v. (Formula 1) does not hold.

Therefore, Figure 2.1 gives a counterexample proves that Einstein's synchronization rule transfer is wrong.

* *"(Formula 2.3)"* These words are added by the author for the convenience of citing the formula in the future. The following (Formula 1) is also added by the author for the same purpose.

Please think about what other problem is hidden in this calculation result?

Problem 2: Revealed by Einstein's Quotation 1 in Figure 2.1

The following is an error exactly the same as the one proved in Problem 1.

Einstein's Quotation 3 Excerpted from the footnote of Section VIII in (2):

"We suppose further that, when three events A, B and C take place in different places in such a manner that, if A is simultaneous with B, and B is simultaneous with C (simultaneous in the sense of the above definition), then the criterion for the simultaneity of the pair of events A, C is also satisfied. This assumption is a physical hypothesis about the law of propagation of light; ***it must certainly be fulfilled if we are to maintain the law of the constancy of the velocity of light in vacuo****."*

https://www.gutenberg.org/files/5001/5001-h/5001-h.htm#ch8

The definition of two events happening simultaneous are that they satisfy (Formula 1), which we will explain in detail later.

Using the same method and steps to prove that the synchronization rule is wrong in question 1, we can prove that Einstein's above statement about the transmission rule of simultaneity is also wrong.

The proof in Problem 1 is copied as follows:

In the **man-carriage-embankment** system, we take the carriage as Reference-A-carriage, the man as Reference-B-man, and the embankment as Reference-C-embankment.

According to Einstein's Quotation 2, which was revised eighteen years later (how it was revised will be explained in detail later), if the movement of the two reference bodies satisfies (Formula 1), the two reference bodies are synchronous, and are also simultaneous. Then:

Reference-A-carriage and Reference-B-man form a relative system that are simultaneous. That is, the carriage and the man is simultaneity.

Reference-A-carriage and Reference-C-embankment are also simultaneous, that is, the carriage and the embankment are simultaneity.

But Reference-B-man and Reference-C-embankment are not simultaneous. That is, the man and the embankment are not simultaneity. Because the speed of the man relative to the embankment is the sum of the speed of the man and the speed of the carriage, and the speed is not equal in the back-and-forth movement, (Formula 1) does not hold.

Problem 3: Use the model of Einstein's Quotation 1 to prove the problem exposed by Einstein's Quotation 3 above

In Question 2, Einstein Quote 3, Einstein defines a simultaneity propagation rule, which states that two things be simultaneous if they satisfy (Formula 1). He then asserts:

"*This assumption is a physical hypothesis about the law of propagation of light;* ***it must certainly be fulfilled if we are to maintain the law of the constancy of the velocity of light in vacuo****."*

Now, we have proved in question 2 that this assumption, namely the assumption of simultaneous transmission, is not valid. Then, how should we view the law of the invariance of the speed of light in a vacuum?

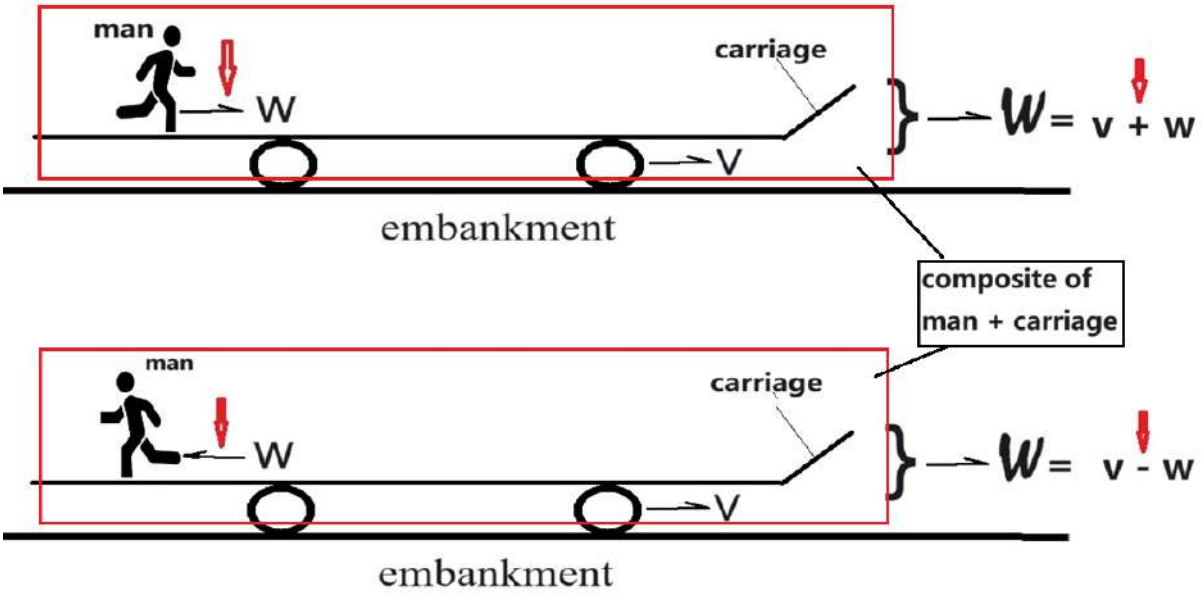


Figure 2.2: Einstein used two moving objects (man + carriage) to form a composite reference body relative to the embankment.

In the process of establishing the theory of relativity, Einstein repeatedly emphasized that the speed of light in a vacuum is constant. It is the basis of the principle of relativity. The rule of simultaneous transmission in Quotation 3 is not valid. Isn't Einstein himself fundamentally denying his own theory of relativity?

Problem 4: Another problem revealed by Einstein's Quotation 1 in Figure 2.1

The **physical model** described in the paragraph in Figure 2.1 **is wrong** for the theory of relativity, because the combination of a man and a carriage cannot be used as one reference body in a relative system and should not be used as one reference body in a relative system to discuss his own theory of relativity!

The composite reference body (man + carriage) in Figure 2.2 has different composite speeds W relative to the embankment when the train is running in different directions. The speed W in the same direction as the carriage is different from the speed W in the opposite direction. This violates the basic requirement that the movement of the reference body in the relative system must have a uniform speed. Therefore, the composite reference body composed of (man + carriage) cannot be used as the reference body of the relative system.

In more detail, if the reference body in Einstein's relative system is moving, it must meet the most basic requirement, that is, the reference body must move in a uniform straight line. From reference Figure 2.2, we can see that the speed of the complex composed of a moving person and a moving carriage is changing. When a person passes through the length L of a carriage with a speed v along the direction of travel of the carriage at a speed w, the speed of this complex is W = w + v, and the time required is L/(w+v); while when the person moves in the opposite direction of the carriage, W = w − v, and the time required is L/(w-v). This violates the most basic requirement for an object to be a reference body in a relative system - to maintain the same speed back and forth.

Einstein used many examples to explain the static and dynamic systems. The most commonly used examples are light beams and moving train carriages, light beams and railway embankments, and light beams and steel bars. He also used a raven as a reference body flying above a carriage as a model of relativity, a person as a reference body walking in a carriage and forming a relative system with the carriage, and so on.

According to Einstein's works, multiple relative systems are also relative to each other at the same time.

According to his own application needs, Einstein designed some physical models of a relative system composed of two reference bodies, but he only abstracted related mathematical models from these physical models according to his own application needs. He did not consider that for a reasonable physical model, it should not only be used for its own application, but also adapt to various application expansions that are not unreasonable.

From the perspective of an engineer who does applied design, we can see that Einstein did not correctly and strictly define these physical models like doing a precision engineering project, and of course he could not use these models correctly according to his own intentions. Therefore, when he used these models, they were already full of loopholes and errors. And when people conducted experiments according to his designs, they were even more varied and did not achieve the purpose of proving or disproving the theory of relativity.

What is interesting is that in Figure 2.1, Einstein constructed a relative system composed of complex reference bodies, which is rarely seen in his works (I have only seen this one model in Einstein's monographs). He gave a wrong model of a non-relativistic system, but used such a system that does not belong to the theory of relativity to discuss and establish his theory of relativity.

Someone may ask: in Einstein's works he used a similar pattern in many places. —Einstein Quotation 4—Einstein said in §2 of (1):

Let a ray of light depart from A at the time t_A, let it be reflected at B at the time t_B, and reach A again at the time t'_A. Taking into consideration the principle of the constancy of the velocity of light we find that

$$t_{\mathrm{B}} - t_{\mathrm{A}} = \frac{r_{\mathrm{AB}}}{c - v} \text{ and } t'_{\mathrm{A}} - t_{\mathrm{B}} = \frac{r_{\mathrm{AB}}}{c + v}$$ *(Formula 1)*

where r_{AB} denotes the length of the moving rod—measured in the stationary system. Observers moving with the moving rod would thus find that the two clocks were not synchronous, while observers in the stationary system would declare the clocks to be synchronous.

https://einsteinpapers.press.princeton.edu/vol2-trans/159

Does (Formula 2) also mean that the speed of light does not meet the requirement that the reference body that must move at a uniform speed? Because the back-and-forth changes in the speed of light in (Formula 2) appear to be (c-v) and (c+v), which are different. Einstein discussed many such patterns, such as lightning shooting from both ends of the carriage, and raven flying over the carriage, which are all the same pattern. Are they all wrong?

The answer is: none of them are wrong. Of all the works of Einstein that I know of, only this one that we just discussed, the man, carriage, and embankment system which Einstein used extensively in (2), is wrong!

Regarding this question, please see the detailed discussion about the speed of light below, which will provide a detailed answer to this question. Please close the book and think about why I said this is right and that is wrong? This is a little bit difficult question. See if you can answer it.

Problem 5: One more problem revealed by Einstein's Quotation 1 in Figure 2.1

In the physical model in Figure 2.1, since the man-carriage complex moves relative to the embankment, we assume that there are two points A and B on the embankment that are far apart. According to (Formula 1), we need to calculate the time required for the combined human-vehicle system to move back and forth between points A and B on the track within the carriage. Assume that the train is heading from A to B. When the person moves from B to A, it is in the opposite direction of the carriage, W = w - v. Since the speed of the person w is much smaller than the running speed v of the carriage, w - v < 0, which means that the person will only get farther and farther away from point A and can never reach point A.

Therefore, the result calculated by (Formula 1) is $t'_A - t_B = -\infty$. In other words, the man-carriage complex will only move in the direction of the train's movement, and will not move against the direction of the train's movement. This is a situation that Einstein's theory does not deal with. From this, it can be seen that the physical model of the man-carriage relative to the embankment given by Einstein in his quotation 1 is not a relativistic model at all and should not be used to discuss theory of relativity.

The short passage in Figure 2.1 is a common physical model that Einstein used extensively in (2), but it has caused so many problems as mentioned above. How can the theoretical abstraction obtained from the application of such erroneous physical models guarantee their correctness?

Problem 6: Einstein's paradoxical statements about the speed of light

Let's look at some of Einstein's contradictory statements about the speed of light.

Einstein's Quotation 5: In the second paragraph at the beginning of (1), he talked the speed of light. In the following §1, he said four times that the speed of light in a vacuum is constant and has nothing to do with the motion state of the observer or the light source:

"……light is always propagated in empty space with a definite velocity c which is independent of the state of motion of the emitting body. These two postulates suffice for the attainment of a simple and consistent theory of the electrodynamics of moving bodies. "

Einstein's Quotation 6: Einstein defined the principle of the constancy of the speed of light at the beginning of §2 of (1):

"*Any ray of light moves in the "stationary" system of co-ordinates with the determined velocity c, whether the ray be emitted by a stationary or by a moving body."*

However, in (1) and (2), Einstein made contradictory statements. In his paper and monograph, he repeatedly violated this principle he set.

Einstein's Quotation 7. In §3 of (1), Einstein said:

An analogous consideration—applied to the axes of Y and Z—it being borne in mind that light is always propagated along these axes, when viewed from the stationary system, with the velocity $\sqrt{c^2 - v^2}$ *gives us*

$\partial\tau/\partial y = 0, \partial\tau/\partial z = 0.$

https://einsteinpapers.press.princeton.edu/vol2-trans/166

Here Einstein calculated that "the speed of light along the axis is $\sqrt{c^2 - v^2}$....."

Problem 7: Einstein's second paradoxical statements about the speed of light

Einstein's Quotation 8. In Section VII of (2), Einstein says:

"*Let us inquire about* ***the velocity of propagation of the ray of light relative to the carriage****. It is obvious that we can here apply the consideration of the previous section, since* ***the ray of light plays the part of the man walking along relatively to the carriage.*** *The velocity W of the man relative to the embankment is here replaced by the velocity of light relative to the embankment.* ***w is the required velocity of light with respect to the carriage****, and we have*

w = c - v*.*

The velocity of propagation of a ray of light relative to the carriage thus comes out ***smaller than c****.*"

The above statements obviously violate the "principle of the constancy of the speed of light in a vacuum" that Einstein himself repeatedly emphasized.

At the end of §2 in (1), a similar problem with the speed of light also appears.

This problem is not a big deal and can be corrected as following calculation. Since the speed of light is constant, **we cannot say that w is the speed of light relative to the carriage w = c – v.** The **speed of light** is constant and **has nothing to do with the motion state of the observer or the light source**.

The **correct statement** should be follows: The speed of light is completely independent and will not be affected by anything. When light travels from point B at the speed of light through the length of the carriage L to the original position of point A, point A has already moved forward a certain distance at the speed v. This distance can be calculated as follows: when the light passes through point A, it has already used t1 = L/c time to move forward to the new position B1, and the distance moved forward is L1 = (L/c). v.

The location of point B1 is

B1 = L + L1 = L +(L/c). v = L (1 + v/c)

Similarly, we can find the position of point B2 and point B3 when the light reaches the speed of light. However, B1 has already let us know that when the light and the carriage move in the same direction, the light needs to catch up with the carriage, so the time it takes to catch up with point A is a little longer than the time it takes for the light to travel the length L of the carriage in a stationary system.

Similarly, we can know that the time it takes for light to reach B from A is slightly less than the time it takes for light to travel the length L of the carriage in a stationary system.

In this way, we have proved that (Formula 1) does not hold in this model, which Einstein wanted to prove, and we have also correctly explained the problem that the speed of light in (Formula 2) has not changed. In our proof, **the speed of light is always constant, and it is the movement of another reference body, the carriage or the rigid rod, that makes (Formula 1) does not hold**. Moreover, the speed of the other reference body is always uniform, and it can be used as a reference body in the relative system. Therefore, this is a qualified relative system. This also answers the question that you should think about before closing the book.

In the relative systems composed of light, rigid rod, flying raven, carriage and embankment that Einstein often used, light and flying raven are completely independent of each other and exist independently in Einstein's theory of relativity, and they always move at a uniform speed.

In addition, it should be pointed out here that Einstein's Quotation 7 says "**The light plays the role of the man walking in the carriage**. The speed W of the man relative to the embankment is replaced here by the speed of the light relative to the embankment." This sentence is incorrect. **Light relative to the carriage and man relative to the carriage are two completely different modes**. Light and the carriage are completely independent of each other, so their speeds cannot be superimposed! However, people walking in a moving carriage are not independent of the carriage but are interdependent, and the speeds of man and carriages must be **superimposed**. Let's discuss this issue in detail.

Problem 8: Problems caused by not considering application conditions

Einstein's physical models often fail to take into account the application conditions, leading to various errors. Here is an example.

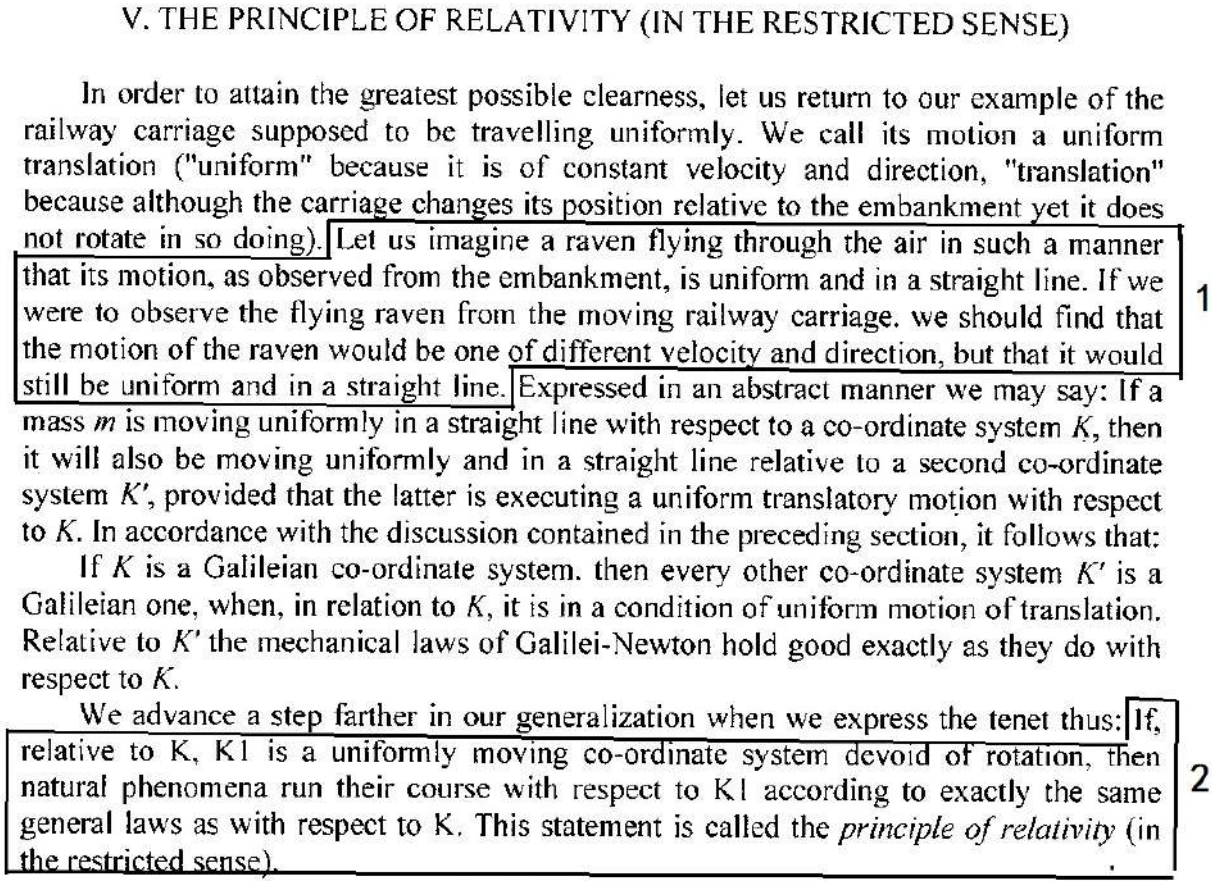
In Section V of (2), "V. THE PRINCIPLE OF RELATIVITY (IN THE RESTRICTED SENSE)," **Einstein's Quotation 9** gives us a new protagonist, the raven (Figure 2.3):

Let's first discuss the content in box 1 in Figure 2.3.

There are obvious problems with the physical model given by Einstein.

First, the main problem with the raven being different from the light beam in the model is that their speeds are very different. Even if the raven is assumed to be moving in a straight line at a uniform speed, Einstein did not set the flying speed of the raven.

When two moving reference bodies are independent of each other, the relative system composed of these two reference bodies cannot maintain synchronicity. Not only can it not be maintained, but it also has certain requirements for the reference bodies. The raven flying over the carriage is independent of the carriage and does not depend on the carriage. When the speed of the raven is less than the speed of the carriage, the raven can never move from one end of the carriage to the other, and it cannot be said to constitute a relative system as a reference body. The mathematical model abstracted from this physical model is completely invalid.



V. THE PRINCIPLE OF RELATIVITY (IN THE RESTRICTED SENSE)

In order to attain the greatest possible clearness, let us return to our example of the railway carriage supposed to be travelling uniformly. We call its motion a uniform translation ("uniform" because it is of constant velocity and direction, "translation" because although the carriage changes its position relative to the embankment yet it does not rotate in so doing). Let us imagine a raven flying through the air in such a manner that its motion, as observed from the embankment, is uniform and in a straight line. If we were to observe the flying raven from the moving railway carriage, we should find that the motion of the raven would be one of different velocity and direction, but that it would still be uniform and in a straight line. Expressed in an abstract manner we may say: If a mass *m* is moving uniformly in a straight line with respect to a co-ordinate system *K*, then it will also be moving uniformly and in a straight line relative to a second co-ordinate system *K'*, provided that the latter is executing a uniform translatory motion with respect to *K*. In accordance with the discussion contained in the preceding section, it follows that:

If *K* is a Galileian co-ordinate system, then every other co-ordinate system *K'* is a Galileian one, when, in relation to *K*, it is in a condition of uniform motion of translation. Relative to *K'* the mechanical laws of Galilei-Newton hold good exactly as they do with respect to *K*.

We advance a step farther in our generalization when we express the tenet thus: If, relative to K, K1 is a uniformly moving co-ordinate system devoid of rotation, then natural phenomena run their course with respect to K1 according to exactly the same general laws as with respect to K. This statement is called the *principle of relativity* (in the restricted sense).

1

2

Figure 2.3: Einstein's Quotation 9 is an excerpt from Section V of (2).

We cannot say that we can ignore the situation where the raven flies slower than the train, because this is something that people will naturally raise questions about. Since the raven's flight is used as a physical model, the raven's flying speed must be considered. The average flying speed of the raven is 25mph, while the minimum average speed of a passenger train is 30mph. At this speed, it is impossible for the raven to fly from one end to the other end of the carriage, and (Formula 1) is completely inapplicable. In addition, the minimum average speed of a freight train can be 25mph. So, if the raven and the carriage are moving at this speed, wouldn't the raven and the carriage look like they are stationary together? How can (Formula 1) be used to determine whether they are synchronized? How to apply Einstein's Lorenz transformation?

As a result of scientific research, such negligence should not be allowed.

And mutually interdependent reference bodies, such as a raven walking in a carriage, no matter how slowly it walks, it will walk from one end of the carriage to the other. But this is exactly the system that maintains absolute simultaneity that Einstein denied the existence of.

In the mathematical model abstracted from this physical model, the movement of the two reference bodies actually has only the same movement mode, and there is no mutual reference value between the two reference bodies. (Formula 2.3) cannot be used, and is therefore completely invalid.

But the more important role of Einstein's Quotation 9 is that it provides a powerful and intuitive example for the doubts in the following ques-

tions and the derivation of the principle of Limited Influence of Relative Systems.

Problem 9: Questioning the rationality of "time dilation" and "moving ruler shortening" in Einstein's theory of relativity

Let's look at this question in conjunction with **Einstein's Quotation 10**. In "§ 4. Physical Meaning of the Equations Obtained in Respect to Moving Rigid Bodies and Moving Clocks" of (1) Einstein said: *"…the X dimension appears shortened in the ratio 1:* $\sqrt{1-v^2/c^2}$*, i.e. the greater the value of v, the greater the shortening. For v = c all moving objects—viewed from the "stationary" system—shrivel up into plane figures…"*

From this there ensues the following peculiar consequence. If at the points A and B of K there are stationary clocks which, viewed in the stationary system, are synchronous; and if the clock at A is moved with the velocity v along the line AB to B, then on its arrival at B the two clocks no longer synchronize, but the clock moved from A to B lags behind the other which has remained at B by 1/2 t(v/c)^2 *(up to magnitudes of fourth and higher order), t being the time occupied in the journey from A to B.*

If we assume that the result proved for a polygonal line is also valid for a continuously curved line, we arrive at this result: If one of two synchronous clocks at A is moved in a closed curve with constant velocity until it returns to A, the journey lasting t seconds, then by the clock which has remained at rest the travelled clock on its arrival at A will be 1/2 t(v/c)^2 *second slow. Thence we conclude that a balance-clock*[7] *at the equator must go more slowly, by a very small amount, than a precisely similar clock situated at one of the poles under otherwise identical conditions."*

In Einstein's discussion in §4 of (1), there is no other physical content except motion and coordinate transformation. The Lorenz transformation is a theory that Einstein likes to borrow. However, the Lorenz transformation is a theory about electromagnetic fields. Can it be extended to entities such as rigid rods, carriages, and embankments? I have discussed this issue from the theoretical perspective of mathematics and physics in "Clarify the Big Bang" at great length, so I don't want to discuss it again here.

I also find it funny. After so many years of research, I have never thought about the following question: Does the change in the length of a rigid body have nothing to do with the quality of the rigid body, the shape of the rigid body, or the force acting on the rigid body, etc.? Does it only have to do with a relative beam of light or its own speed of movement? Can a diamond rod become shorter when it is compared with the movement of a completely independent beam of light? What kind of magical relative motion is this? Does it mean that as long as the mathematics is beautiful, the application can be arbitrary? Will the material world change according to mathematical formulas?

Einstein brought the magic of mathematics to its extreme. However, there are still some loopholes that cannot be fixed.

For example, a beam of light moves relative to a rigid rod. Originally, the light and the rod are completely independent of each other, but Einstein insisted on putting them relative to each other to create length and time problems. So, if I take two beams of light with the same conditions but in completely opposite directions and put them relative to a rigid rod at the same time, what will the result be?

A pendulum clock at the equator, can it only be relative to the clocks at the poles? Can it prevent lightning in the sky from passively relative to it? Can the clocks on the planes traveling north and south not be relative to it? Can it prevent countless passive relative movements? If relative motion will cause time to change, then what kind of time and space chaos will be caused by dozens, hundreds, or even thousands of vehicles moving in all directions at the same time, like thousands of fighter planes fighting in World War II? What kind of chaos would it be if the clocks on each plane indicated different times?

The root of this confusion stems from the problem we discussed regarding Einstein's lack of constraints on the composition of his relativistic system. Since there are no rules governing how two reference frames are chosen or how they relate to each other, nor are there any specifications regarding their distance, mass, etc., the chaotic situation described above is inevitable. For example, in the Hafele-Keating atomic clock experiment of 1971, without any constraints, would the ground-based experimental clock necessarily only be relative to the clock on their airplane? Is there any way to prevent these two clocks from being simultaneously relative to countless other clocks on various vehicles around the world?

In relativity, there is no rationally chosen "preferred frame of reference" because the reference bodies in all of Einstein's examples are independent of each other. He denied absolute dependence. However, two reference bodies with a physical connection can be absolutely dependent. But coordinate independence does not exist because, regardless of where the coordinates are set, other objects outside the two desired reference bodies that make up this relative system can participate in this relative system based on someone's imagination.

Since Einstein paid no attention to the various conditions we discussed earlier, such as the distance, number, binding, etc. between the reference bodies that make up the relative system, any object can participate in countless kinds of passive relativity. According to his theory of relativity, won't these passive relativities affect any calculation or test results?

All these things make us wonder: Isn't Einstein's time dilation and shortening of the moving ruler pure imagination or a product described by mathematics? Is it worth spending a lot of money to verify such a science fiction theory? Can any convincing results be verified?

The explanations of all the problems in this chapter are some previous thoughts. After the **Limited Effect Principle of a Relativistic Systems** (see Section 2.5) is derived later, these explanations seem a bit redundant.

Problem 10: The replacement made a conceptual error

Einstein's Quotation 11. In section VII of (2) Einstein said:

"…since *the ray of light plays the part of the man walking along relatively to the carriage. The velocity W of the man relative to the embankment is here replaced by the velocity of light relative to the embankment.*"

This sentence is wrong. "Light ray relative to the embankment" and "man relative to the embankment" are two completely different model. Their usage cannot be interchanged.

The light and the carriage are independent, so their speeds cannot be added! The light relative to the embankment can also form a static relative system.

But for a person walking in a moving carriage, his speed and the speed of the train must be superimposed. Therefore, two situations arise:

The first case is: the moving carriage is used as a reference body, and the man walking in the carriage is used as another reference body. In the relative system composed of these two reference bodies, (Formula 2.3) holds, that is, the system is synchronized. One feature of this case is that these two reference bodies are not independent of each other. Their movements will affect each other. We will discuss this in detail later.

The second case: Try to combine the moving man and the moving carriage (man + carriage) into a reference body, and the embankment as another reference body, and try to use them to form a relative system. This is the example given by Einstein in VII of (2), which we have discussed in Problems 4 and 5. Such a synthetic superposition is not a qualified reference body and cannot be used to form a relative system. It is not possible to use such a thing that cannot be used as a reference body to form a system model to discuss the theory of relativity, because it violates Einstein's own most basic requirements for relative systems. (Formula 2.3) is also not valid in this case.

More importantly, it undermines Einstein's conclusion that "absolute simultaneity does not exist." We will continue to discuss this issue in detail below.

Problem 11: Is it possible to eliminate enemies using Einstein's theory of relativity?

This is a very interesting topic. Below, we will first briefly and directly explain the three-step process for eliminating any enemy strictly according to the principles of relativity. Later, we will provide a rigorous demonstration and explanation using Einstein's theory of relativity.

We will rigorously and meticulously construct a physical model step by step, following the relevant theories of Einstein's theory of relativity, perform the necessary manipulations, and then implement the elimination of the enemy.

The main steps for eliminating the enemy using relativity are as follows:

> I. Establish a qualified relativistic system that meets Einstein's requirements;
>
> II. Perform the necessary system transformations according to Einstein's theory;
>
> III. Implement Einstein's relevant theories to transform the enemy into a non-human entity.

We will follow these three steps to construct and implement the project of eliminating the enemy using the theory of relativity.

I. Consider a beam of light as reference body A (the light beam), and a stationary or uniformly moving "enemy" as reference body B (the enemy). This forms an Einsteinian relative system.

II. Apply Einstein's theory for the transformation. Einstein states in Section XVIII of (2):

If, as in the quote above, Einstein could transform a stationary, massive object like an embankment into a state of motion, making the train car

If we formulate the general laws of nature as they are obtained from experience, by making use of

(a) the embankment as reference-body,

(b) the railway carriage as reference-body,

then these general laws of nature (e.g. the laws of mechanics or the law of the propagation of light in vacuo) have exactly the same form in both cases.

……

As long as it is moving uniformly, the occupant of the carriage is not sensible of its motion, and it is for this reason that he can unreluctantly interpret the facts of the case as indicating that the ***carriage is at rest****, but the* ***embankment in motion****. Moreover, according to the special principle of relativity, this interpretation is quite* ***justified*** *also from a physical point of view.*

Figure 2.4: Einstein Quotation 12: Excerpted from Section XVIII of Einstein's book (2).

stationary while the embankment moves, would there still be any reference frames in the world where the state of motion is not interchangeable within a relative system?

That is to say, from the perspective of relativity, the motion states of two reference bodies in a relative system are interchangeable. A moving reference body can be regarded as stationary, at the same time the stationary reference body can be regarded as moving.

Then, in the relative system composed of (ReferenceBody-A-lightBeam, ReferenceBody-B-Enemy) that we constructed earlier, applying Einstein's theory above in Figure 1.1, we make the following transformation:

ReferenceBody-A-lightBeam becomes stationary,

ReferenceBody-B-Enemy becomes moving at the speed of light.

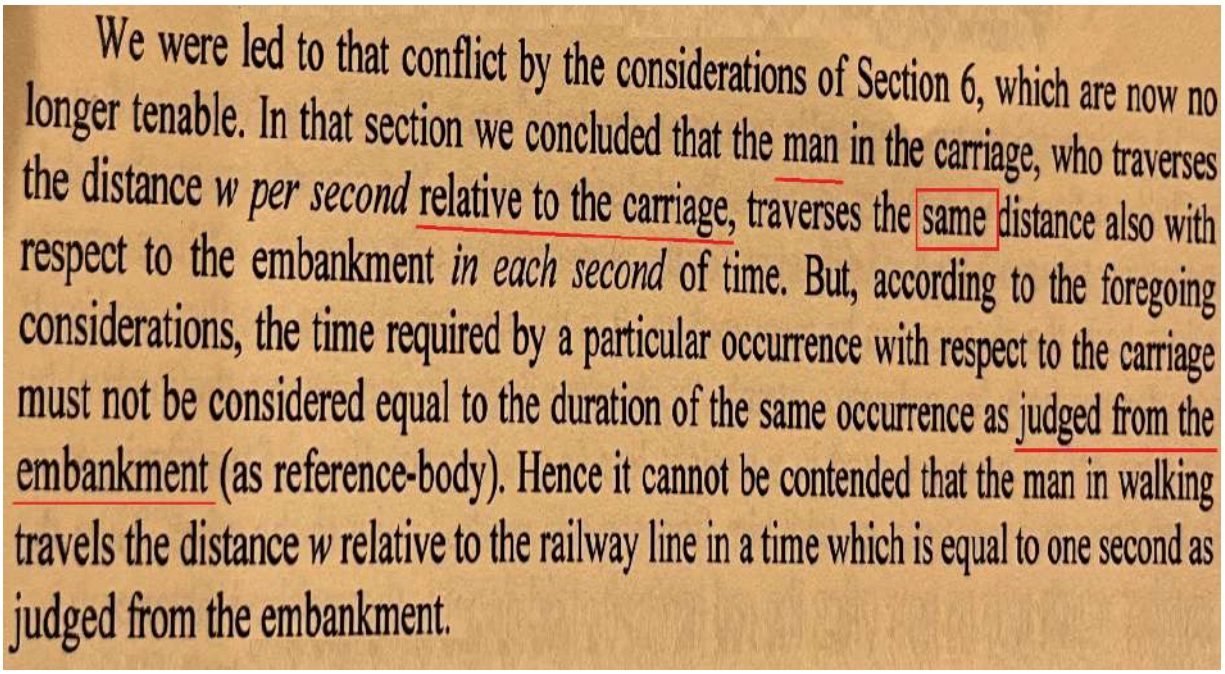
According to Einstein's statement in Figure 1.1 above, this explanation is completely reasonable from the perspective of the principle of special relativity or from the perspective of physics.

So, in this relative system we have constructed, after the transformation according to Einstein's theory, the **light beam is stationary**, while the **enemy moves at the speed of light**.

III. Now we need to use Einstein's famous formula for the conversion of matter and energy. The formula states that matter M moving at the speed of light will be converted into pure energy E according to the formula $E= M C^2$.

Then, substitute the enemy moving at the speed of light into the formula and calculate:

$E = \text{Enemy } C^2$



We were led to that conflict by the considerations of Section 6, which are now no longer tenable. In that section we concluded that the man in the carriage, who traverses the distance *w per second* relative to the carriage, traverses the same distance also with respect to the embankment *in each second* of time. But, according to the foregoing considerations, the time required by a particular occurrence with respect to the carriage must not be considered equal to the duration of the same occurrence as judged from the embankment (as reference-body). Hence it cannot be contended that the man in walking travels the distance *w* relative to the railway line in a time which is equal to one second as judged from the embankment.

Figure 2.5: The text is taken from the last second paragraph of Section IX in (2).

The enemy moving at the speed of light is thus converted into a ball of energy, the magnitude of which is E.

In this way, we have completed the task of destroying the enemy using relativity. The enemy is gone, and only a ball of energy E remains.

Regarding the above program, some relevant details need to be discussed in more depth.

For example, is the enemy arbitrary? Can it be tens of millions of kilometers away from the beam we emit? ...

This has to involve a series of issues such as the basic requirements and properties of Einstein's special theory of relativity. We will leave them for discussion in the main text.

A mouse made noise in the foundation unit of my house. I thought that since I could even destroy the enemy, why not try to destroy it with the theory of relativity? I used a laser to shine in the basement while thinking about the evil mouse. The noise indeed disappeared!

In reality, it's impossible to eliminate the enemy. Strictly following Einstein's theoretical steps, one step at a time, ultimately wouldn't even eliminate mosquitoes, which only proves that Einstein's theory is flawed. Is there any other explanation?

Problem 12: To complicate a simple issue and brought in error by being mysterious

Einstein's writings are also not very good. For example, he made the concepts of simultaneity and synchronization very mysterious. We have touched on some of them in the previous sections, and will discuss them in detail later. He wrote a section about such a simple thing as the one in Figure 2.5 below, but still failed to explain it clearly, and brought a mistake into it. Readers who understand English, please try to translate it to see if you can do it correctly.

The first sentence above says that the speed of the man in the moving carriage relative to the carriage is w, and the speed relative to the embankment is the same, both are w.

Of course, this is completely **wrong**. The speed of the man relative to the carriage is w, but the speed relative to the embankment is the superposition of the speed of the man and the carriage, w+v or w-v. Einstein explained this with an obscure sentence later. To understand this sentence, readers must not only be good at English, but also know a little about mathematics.

In fact, this sentence simply means:

The distance traveled per second by the man in the carriage relative to the carriage is w, but not w relative to the embankment.

It can be explained clearly in one sentence, but the master wrote a paragraph, and it is still full of mistakes and cannot be explained clearly. Such a simple idea was made into a long paragraph by the master. How can people understand his entire paper?

2.4 3. The wrong physical model raises the question of whether the theory of relativity is reasonable or not - the trap of simultaneity and synchronization

Figure 2.6 is §1 in "On the Electrodynamics of Moving Bodies". The original German text in the figure lacks two key words that Einstein quietly added to the English version 18 years later, so it is impossible to know what the exact definition of simultaneity is. Readers can carefully read this section of less than a thousand words and then answer this question. What a writer can write a paper like this?

The founding paper of the special theory of relativity is Einstein's "On the Electrodynamics of Moving Bodies" published in 1905, and the monograph "Relativity: Special and General Theory" published in 1920. The latter is an expansion and supplement of the former. The two have not changed the essence of the problem we are going to discuss.

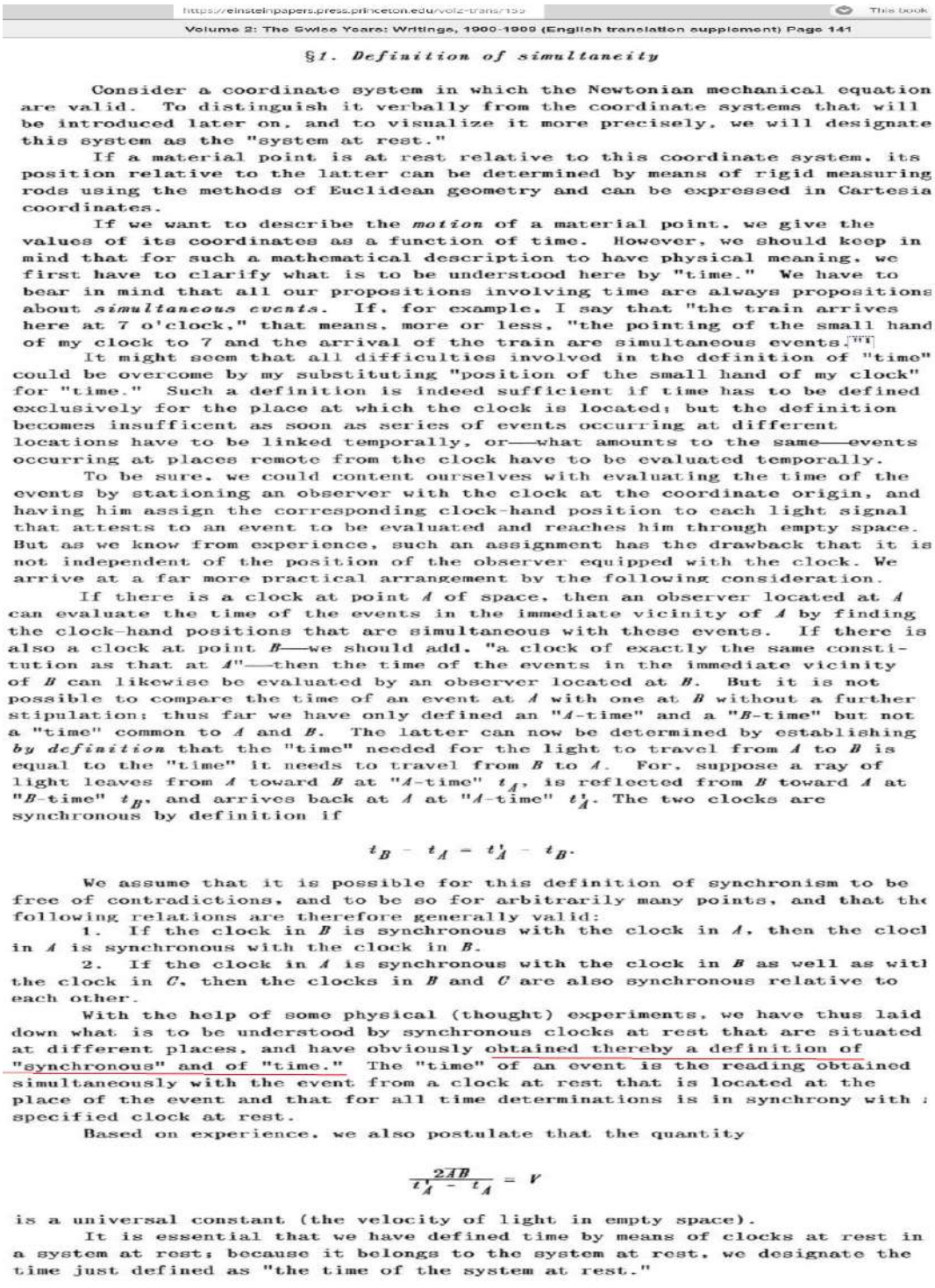
The Pitfalls of "Synchronous" and "Simultaneity"

As the name suggests, this section is used to define the concept of "simultaneity". This also tells us that Einstein believed that the original meaning of the word "simultaneity" did not accurately express the meaning he needed when using the word in relativity, so "simultaneity" needed to be redefined.

So, what is the redefined "simultaneity"? Please read §1 of Figure 2.6 carefully and answer: "What is the exact definition of simultaneity in Einstein's theory of relativity?"

The topic of §1 is "The definition of simultaneity", which is less than 1,100 words. Therefore, it should be easy to answer our question after reading the text in the picture. But in reality, even if you read it ten times, you still cannot answer this simple question confidently and accurately.

As can be seen from §1, Einstein did not give a clear and precise definition of "simultaneity" as the title of the section states. Instead, he gave the following mathematical definition of "synchronization":



https://einsteinpapers.press.princeton.edu/vol2-trans/154 This book

Volume 2: The Swiss Years: Writings, 1900-1909 (English translation supplement) Page 141

§1. *Definition of simultaneity*

Consider a coordinate system in which the Newtonian mechanical equation are valid. To distinguish it verbally from the coordinate systems that will be introduced later on, and to visualize it more precisely, we will designate this system as the "system at rest."

If a material point is at rest relative to this coordinate system, its position relative to the latter can be determined by means of rigid measuring rods using the methods of Euclidean geometry and can be expressed in Cartesia coordinates.

If we want to describe the *motion* of a material point, we give the values of its coordinates as a function of time. However, we should keep in mind that for such a mathematical description to have physical meaning, we first have to clarify what is to be understood here by "time." We have to bear in mind that all our propositions involving time are always propositions about *simultaneous events*. If, for example, I say that "the train arrives here at 7 o'clock," that means, more or less, "the pointing of the small hand of my clock to 7 and the arrival of the train are simultaneous events."[1]

It might seem that all difficulties involved in the definition of "time" could be overcome by my substituting "position of the small hand of my clock" for "time." Such a definition is indeed sufficient if time has to be defined exclusively for the place at which the clock is located; but the definition becomes insufficent as soon as series of events occurring at different locations have to be linked temporally, or——what amounts to the same——events occurring at places remote from the clock have to be evaluated temporally.

To be sure, we could content ourselves with evaluating the time of the events by stationing an observer with the clock at the coordinate origin, and having him assign the corresponding clock-hand position to each light signal that attests to an event to be evaluated and reaches him through empty space. But as we know from experience, such an assignment has the drawback that it is not independent of the position of the observer equipped with the clock. We arrive at a far more practical arrangement by the following consideration.

If there is a clock at point A of space, then an observer located at A can evaluate the time of the events in the immediate vicinity of A by finding the clock-hand positions that are simultaneous with these events. If there is also a clock at point B——we should add, "a clock of exactly the same constitution as that at A"——then the time of the events in the immediate vicinity of B can likewise be evaluated by an observer located at B. But it is not possible to compare the time of an event at A with one at B without a further stipulation; thus far we have only defined an "A-time" and a "B-time" but not a "time" common to A and B. The latter can now be determined by establishing *by definition* that the "time" needed for the light to travel from A to B is equal to the "time" it needs to travel from B to A. For, suppose a ray of light leaves from A toward B at "A-time" t_A, is reflected from B toward A at "B-time" t_B, and arrives back at A at "A-time" t'_A. The two clocks are synchronous by definition if

$$t_B - t_A = t'_A - t_B.$$

We assume that it is possible for this definition of synchronism to be free of contradictions, and to be so for arbitrarily many points, and that the following relations are therefore generally valid:

1. If the clock in B is synchronous with the clock in A, then the clock in A is synchronous with the clock in B.
2. If the clock in A is synchronous with the clock in B as well as with the clock in C, then the clocks in B and C are also synchronous relative to each other.

With the help of some physical (thought) experiments, we have thus laid down what is to be understood by synchronous clocks at rest that are situated at different places, and have obviously obtained thereby a definition of "synchronous" and of "time." The "time" of an event is the reading obtained simultaneously with the event from a clock at rest that is located at the place of the event and that for all time determinations is in synchrony with a specified clock at rest.

Based on experience, we also postulate that the quantity

$$\frac{2AB}{t'_A - t_A} = V$$

is a universal constant (the velocity of light in empty space).

It is essential that we have defined time by means of clocks at rest in a system at rest; because it belongs to the system at rest, we designate the time just defined as "the time of the system at rest."

Figure 2.6: §1 Copied from (2): "Definition of simultaneity" by https://einsteinpapers.press.princeton.edu/vol2-trans/154

"(Formula 2.3)" in above textbox, and "(Formula 1)" in next, and the bolded words, are all added by us for the convenience of description.

suppose a ray of light leaves from A toward B at "A-time" t_A, is reflected from B toward A at "B-time" t_B, and arrives back at A at "A-time" t'_A. The two clocks are synchronous by definition if

$t_B - t_A = t'_A - t_B$ (Formula 2.3)

……

With the help of some physical (thought) experiments, we have thus laid down what is to be understood by synchronous clocks at rest that are situated at different places, and have **obviously obtained** thereby **a definition of "synchronous" and of "time."**

But I don't understand this "obviously": what definition is obviously obtained? Where is the definition of "simultaneity"? What is the definition of "time"?

So Einstein set a trap for readers in §1: the title is "§1 Definition of simultaneity", but he did not give a clear definition of simultaneity, instead gave a precise mathematical definition of "synchronization". Usually, "simultaneity" is not the same as "synchronization".

This trap has trapped many people, and it is certain that many so-called "masters" do not truly understand the theory of relativity.

This trap also protects Einstein's special theory of relativity. Because people cannot clearly understand the special theory of relativity, they have to follow the so-called masters who understand relativity to support relativity. If the definition of simultaneity was clearly written at the beginning, this special theory of relativity might have been refuted long ago.

It was not until 18 years later, in the "On the Electrodynamics of Moving Bodies" included in the book "Principle of Relativity" which Einstein personally arranged for a reprint, that two words were quietly added, making it clear that in Einstein's paper, "simultaneity" and "synchronization" are the same, and they have the same definition!

We spent a lot of time tracking down this answer, please refer to the section "The story of tracking down the correct meaning of the 'definition of simultaneity' in Einstein's paper" later in this chapter.

Through the above discussion, we have made it clear that Einstein's precise definition of "simultaneity" or "synchronization" is (Formula 2.3). That is, in the theory of relativity, if two objects moving relative to each other meet (Formula 2.3), they are "simultaneous" or "synchronous".

So, can we set the conditions for distinguishing relative simultaneity from absolute simultaneity? Yes, we can use (Formula 2.3). But this needs to be done later when analyzing §2 (Fig. 2.7). There is no need for this now.

Theoretical basis of special relativity

See how a light ray changes the length of the rod and the speed of time on the rod in an illusory way - it virtually changes the world in an illusory way.

§2 gives the following model:

Let a ray of light depart from A at the time t_A, let it be reflected at B at the time t_B, and reach A again at the time t'_A. Taking into consideration the principle of the constancy of the velocity of light we find that:

§ 2. On the Relativity of Lengths and Times

The following reflexions are based on the principle of relativity and on the principle of the constancy of the velocity of light. These two principles we define as follows:—

1. The laws by which the states of physical systems undergo change are not affected, whether these changes of state be referred to the one or the other of two systems of co-ordinates in uniform translatory motion.
2. Any ray of light moves in the "stationary" system of co-ordinates with the determined velocity c, whether the ray be emitted by a stationary or by a moving body. Hence

$$\text{velocity} = \frac{\text{light path}}{\text{time interval}}$$

where time interval is to be taken in the sense of the definition in § 1.

Let there be given a stationary rigid rod; and let its length be l as measured by a measuring-rod which is also stationary. We now imagine the axis of the rod lying along the axis of x of the stationary system of co-ordinates, and that a uniform motion of parallel translation with velocity v along the axis of x in the direction of increasing x is then imparted to the rod. We now inquire as to the length of the moving rod, and imagine its length to be ascertained by the following two operations:—

(*a*) The observer moves together with the given measuring-rod and the rod to be measured, and measures the length of the rod directly by superposing the measuring-rod, in just the same way as if all three were at rest.

(*b*) By means of stationary clocks set up in the stationary system and synchronizing in accordance with § 1, the observer ascertains at what points of the stationary system the two ends of the rod to be measured are located at a definite time. The distance between these two points, measured by the measuring-rod already employed, which in this case is at rest, is also a length which may be designated "the length of the rod."

In accordance with the principle of relativity the length to be discovered by the operation (*a*)—we will call it "the length of the rod in the moving system"—must be equal to the length l of the stationary rod.

The length to be discovered by the operation (*b*) we will call "the length of the (moving) rod in the stationary system." This we shall determine on the basis of our two principles, and we shall find that it differs from l.

Current kinematics tacitly assumes that the lengths determined by these two operations are precisely equal, or in other words, that a moving rigid body at the epoch t may in geometrical respects be perfectly represented by *the same* body *at rest* in a definite position.

We imagine further that at the two ends A and B of the rod, clocks are placed which synchronize with the clocks of the stationary system, that is to say that their indications correspond at any instant to the "time of the stationary system" at the places where they happen to be. These clocks are therefore "synchronous in the stationary system."

We imagine further that with each clock there is a moving observer, and that these observers apply to both clocks the criterion established in § 1 for the synchronization of two clocks. Let a ray of light depart from A at the time[4] t_A, let it be reflected at B at the time t_B, and reach A again at the time t'_A. Taking into consideration the principle of the constancy of the velocity of light we find that

$$t_B - t_A = \frac{r_{AB}}{c - v} \quad \text{and} \quad t'_A - t_B = \frac{r_{AB}}{c + v}$$

where r_{AB} denotes the length of the moving rod—measured in the stationary system. Observers moving with the moving rod would thus find that the two clocks were not synchronous, while observers in the stationary system would declare the clocks to be synchronous.

So we see that we cannot attach any *absolute* signification to the concept of simultaneity, but that two events which, viewed from a system of co-ordinates, are simultaneous, can no longer be looked upon as simultaneous events when envisaged from a system which is in motion relatively to that system.

Figure 2.7: §2. On the relativity of length and time in Einstein's paper (1).

$$t_{\mathrm{B}} - t_{\mathrm{A}} = \frac{r_{\mathrm{AB}}}{c - v} \text{ and } t'_{\mathrm{A}} - t_{\mathrm{B}} = \frac{r_{\mathrm{AB}}}{c + v} \quad (2)$$

Where r_{AB} denotes the length of the moving rod—measured in the stationary system. Observers moving with the moving rod would thus find that the two clocks were not synchronous, while observers in the stationary system would declare the clocks to be synchronous.

In the text box above, the reference bodies in this relative system are a ray and a rod. Equation (Formula 1) means that when the rod is moving, the light ray and the moving rod are not synchronized. But when the rod is stationary, the light ray and the stationary rod are synchronized, as described by (Formula 2.3) in §1.

From here, Einstein draws the following conclusions, which are the basis for the establishment of special relativity.

So, we see that we cannot attach any absolute signification to the concept of simultaneity, but that two events which, viewed from a system of coordinates, are simultaneous, can no longer be looked upon as simultaneous events when envisaged from a system which is in motion relatively to that system.

In the relativity system, Einstein thought the static system is synchronous; and the dynamic system is not synchronous. Therefore, absolute simultaneity does not exist, so there is only relative simultaneity. This is the basic theoretical basis for the establishment of the special theory of relativity.

But we will prove below that in a qualified relative system that conforms to Einstein's rules, **absolute simultaneity exists completely**, so the most **basic theoretical basis for the establishment of the special theory of relativity is not solid**.

Why does absolute simultaneity exist?

We discuss this issue on four parts:

1) Regarding the conditions that qualify Einstein's system as a relative system.
2) Regarding absolute and relative simultaneous or synchronous events.
3) Some examples of relative systems used by Einstein.
4) There are many relative systems in the world that maintain absolute simultaneity.

1) A relative system that meets the requirements of Einstein — a qualified relative system

In the foundational paper "On the Electrodynamics of Moving Bodies" published in 1905 and the monograph "Relativity: The Special and General Theory" published 15 years later, Einstein perfected various conditions for relative systems and added many examples of relative systems.

According to Einstein's exposition, the composition conditions of a qualified relative system that meet his requirements are roughly as follows:

A relative system consists of two reference bodies that do inertial motion (i.e., uniform linear non-rotational motion). One of the reference bodies must be moving. The other reference body, if it is moving, defines this relative system as dynamic; if it is stationary, then this relative system is static. We won't clearly specify all other required conditions here, but

implicitly include all other required conditions in our discussion. This means we will be discussing a qualified relative system that meets all of extant Einstein's requirements. All "relative systems" we use in the following discussion refers to such a qualified relative system.

2)Absolute and relative of simultaneous or synchronous

According to the above discussion, if a relative system is to maintain absolute synchronization or simultaneity, the condition that needs to be satisfied is: when the relative system is a dynamic system, the motion result of the dynamic system can always make the (Formula 2.3) in §1 (transcription below) is established, namely:

$t_B - t_A = t'_A - t_B$ (Formula 2.3)

In Einstein's cognition, only the static system satisfies the (Formula 2.3), while the dynamic system does not. That is to say, Einstein believed that in a relative system, only the static system can maintain absolute simultaneity, while the dynamic system cannot maintain absolute simultaneity. Einstein was adamantly against the existence of a dynamic system that maintains absolute simultaneity, because if it existed, the theory of relativity would be untenable.

More than a hundred years ago, when Einstein built the castle of relativity, he buried absolute simultaneity under his relativity castle as the foundation and fertilizer of his theory. For a long time after the publication of the theory of relativity, he had been talking about the non-existence of absolute simultaneity.

In **1905**, Einstein defined the concept of simultaneity in his foundation theory of relativity related in "On the Electrodynamics of Moving Bodies" and, for the first time, put forward the conclusion in §2 that "**we cannot attach any absolute significance to the concept of simultaneity.**"

In **1916**, Einstein published Relativity: Special and General Theories. In the book, Einstein used a lot of space and different roles to illustrate the special theory of relativity, and once again, he explained the significance of relative simultaneity. For example, in the book's Section IX, "Simultaneous Relativity," he used two lightning strikes sent out from its front and back ends of the running train at the same time, with each lightning speeding to the midpoint of the train, and the train also started to move at the same time. The example that lightning cannot meet at the midpoint of the train explains the relativity concept.

In **1920**, in a letter to the Russian philosopher and mathematician, Solovine, Einstein emphasized again: "That is why the theory of relativity **rejects the concept of absolute simultaneity, absolute speed, absolute acceleration**, etc., they can have no unequivocal link with experiences."

Since then, due to Einstein's influence, not only in relativity, but also in physical theory, there has been no absolute simultaneity. Einstein established the theory of relativity by negating absolute simultaneity.

Why did Einstein repeatedly deny the existence of absolute simultaneity?

Because the existence of absolute simultaneity illustrates the utopian nature of the pseudo-god of special relativity.

Everything in nature has an inherent harmonious beauty. This beauty is contained in the relative balance of everything: where there is yin, there is yang; when there is beauty, there is ugliness; dynamic-static, cold-heat, permanent and temporary, relative, absolute, limited and so on.

If something is missing, for example, if there is no heat and only cold, or only ugliness and no beauty, is this world still harmonious?

In philosophy, it is generally considered that relative and absolute are two indispensable aspects of all existence.

But in fact, according to Einstein's definition of absolute and relative simultaneity, we can identify many relative systems that maintain an absolute simultaneous or absolute synchronous character in reality, such as a raven walks back and forth on the running train, or a sprinter running on the Earth ……

Of course, there is no instance of such a relative system that maintains absolute simultaneity in Einstein's work. However, we can analyze the example of maintaining relative relativity in Einstein's work, and we can find what we need.

3) Some examples of relative systems used by Einstein

In 1905, in "On the Electrodynamics of Moving Bodies," Einstein used a very long, rigid rod as Reference-body-B and a light ray moving back and forth at both ends of the long rod as the Reference-body-A. This system of a ray and the moving rigid rod is called a dynamic system. Obviously, this dynamic system is a relative system with relative simultaneity. When the ray moves back and forth over a stationary rigid rod, the relative system of this ray and a rigid rod is called a static system, which has absolute simultaneity.

In 1916, Einstein published <*Relativity: The Special and General Theory*>. In the book, Einstein used a lot of pages and different roles to illustrate the application samples of special relativity. Below we tried to collect **all** of the roles of the examples he used in the book.

In section V: A **raven** flies at a constant speed along the railway embankment. If we observe it from the railway embankment, its motion is uniform and straight. If we observe it from the moving carriage, we will find that it maintains a uniform linear motion, but has different speeds in different directions.

In section VI: The **railway carriage** has a velocity v; a **man** traverses in the same direction of the train carriage with a velocity w. According to classic kinematics, the combined velocity W that the man advances relative to the **embankment** during the process is W = v + w.

In section VII: Replace the man above with a light ray whose velocity is c. w is the speed of light relative to the carriage, that is w = c - v.

In section VIII: There are train carriages running at a constant speed, the railway embankment, lightning from two points A and B opposite each other, and an observer at midpoint M of AB. Here, the definition of simultaneity is: A~TM =B ~TM; that is, if the observer sees lightning from A and B at the same time, then they are said to be simultaneous.

In section IX: There is the train carriage moving at speed v, the railway embankment, lightning from two points A and B, and people moving in the carriage. Two events (such as two lightning strikes, A and B) are simultaneous with respect to the railway embankment, but are they simultaneous with respect to a moving train? The answer is negative.

Section X: The **railway carriage** has a velocity v; a **man** traverses in the opposite direction of the train carriage with a velocity w. According to classic kinematics, the combined velocity W that the man advances relative to the **embankment** during the process is W = v - w.

4)In the world there are many relative systems that maintain absolute simultaneity

By slightly changing the examples of relative system that Einstein used above, the following relative systems can be obtained:

Changing "A ray flies along the rod" to "light wheel rolls on the rod";

Changing "the raven flies back and forth over the train" to "the raven walks back and forth in the train".

Changing "man walks in the train carriage relative to the railway embankment" to " man walks in the train carriage relative to the carriage".

Such modified systems, then, are still qualified relative systems, without violating any of Einstein's rules for a qualified relative system. In fact, an instance of Einstein's relative system is that of a man walking in a train carriage. A raven walking in the train carriage follows the same pattern.

Now, please answer the following elementary-level arithmetic problems:

How long does it take for a person to walk a long train carriage in the same direction along the train's movement? What is the time it takes for a person to walk in the opposite direction to the motion of the train?

How much time does it take for the raven to walk a long train carriage in the same direction along the train's movement? What is the time it takes for the raven to walk in the opposite direction to the motion of the train?

The same questions about the light wheel to roll forward or backward on the moving rod.

The answer is that in all the above-mentioned paired relative system motions, the time used to go back and forth is the same, and they all satisfy (Formula 2.3), that is, they are all systems that maintain absolute simultaneity.

Einstein repeatedly denied the existence of relative systems that maintain absolute simultaneity, but in fact there are countless examples of relative systems that maintain absolute simultaneity,

It is straightforward to prove that a qualified relative system is one that preserves absolute simultaneity, which only need to prove that the relative motion in the system always satisfies (Formula 2.3).

Let's explain this with the following example. We call it **Example-A**.

A relative system consists of a train carriage and an attendant walking back and forth from both ends of the carriage between A to B, the speed of the train carriage is $V_{carriage}$, and of the attendant is V_{man}.

When the train attendant moves from end A to end B of the carriage, he moves in the same direction as the carriage. The speed of the attendant is $V_{man} + V_{carriage}$, but at the same time the carriage leaves him at the speed of $V_{carriage}$. So, his final speed is $(V_{man} + V_{carriage}) - V_{carriage} = V_{man}$.

When the attendant moves from end B to end A of the carriage, he moves in the opposite direction to the carriage moves. The speed of the attendant this is $V_{man} - V_{carriage}$, but at the same time the carriage also carries him at the speed of $V_{carriage}$. So, his final speed is $(V_{man} - V_{carriage}) + V_{carriage} = V_{man}$.

In this relative system, Reference-body-A = train attendant, Reference-body-B = train carriage.

In other words, the speed of the carriage does not affect the speed of the attendant at all. Therefore, even if an ant walks slowly, whether it is from the A end to the B end, or from the B end to the A end, it can finally reach its destination.

In this way, the time it takes for an attendant to go from the A end to the B end of the carriage is always equal to the time from the B end to the A end of the carriage. In other words, **Example-A is a relative system that maintains absolute simultaneity.**

Moreover, even if the system is observed from outside the carriage and train, even if from Mars, it is a relative system that maintains absolute simultaneity.

The calculation results tell us:

The time it takes for a raven to walk through a train carriage in the direction of the train uses the same amount of time as it takes for the raven to walk in the opposite direction of the train!

It takes the same amount of time for a person to move back and forth in a moving carriage!

It takes the same amount of time for the light wheel to roll back and forth on the rod!

That is to say, they are all relative systems that **always conform to (Formula 2.3)**, that is, they are all **relative systems that maintain absolute simultaneity**!

Of course, we can cite many examples of relative systems that maintain absolute simultaneity, which pervade our lives.

Please consider the following small quiz:

Why do sprinters not need to consider the direction of rotation of the Earth when in competition?

Simply considered, the Earth turns from west to east, so when following the direction of the Earth's rotation, the speed should be faster than the reverse because the speed of running along the direction of the Earth's movement is the superposition of the speeds of the athlete and that of the Earth, and the reverse is the two speeds subtracted. Therefore, sprinters should run faster in the direction the Earth is moving than when running in the opposite direction. So, which direction should have a greater impact on world record times for sprinters? Is this correct? Why do races occur wherever they do, without considering the direction athletes run? Shouldn't the world record be as infinitely precise as possible?

An ant crawls at a constant speed on the wall of an elevator. Whether the ant climbs from the bottom of the elevator to the top or from top to bottom doesn't matter. If the ant crawls with the same speed, then the time required for it to go from bottom to top or from top to bottom is the same, no matter whether the elevator is running or not.

People walking back and forth on the deck of a moving ship maintain absolute simultaneity. Likewise, a stewardess walking back and forth on a high-altitude aircraft maintains absolute simultaneity.

.....

All of this means that systems that maintain absolute simultaneity exist in abundance.

So, what makes Einstein ignore and deny the existence of all these systems that maintain absolute simultaneity, and force on us the idea that only systems that maintain relative simultaneity exist? Of course, the requirement imposed by special relativity itself is a significant reason. Otherwise, the mathematical derivation in §3 of Einstein's thesis in, "On the Electrodynamics of Moving Bodies," cannot proceed.

Another reason is that the physical models collected and used by Einstein were not complete, and his understanding of relative systems that maintain absolute simultaneity was flawed. He had always insisted that there was no relative system that maintained absolute simultaneity.

Of course, there are certain conditions for the existence of "absolute." Some things do not have absolute attributes. For example, weather forecasting with our current technology is not absolutely accurate. But arithmetic does have absolute properties. For example, in elementary school arithmetic, 1+1=2 is always correct. In the relative system, if a relative system that always satisfies (Formula 1), then it is the relative system that maintains absolute simultaneity or absolute synchronization. This is determined by the (Formula 1) given by Einstein! That's why we insist on making it clear what "simultaneity" is.

Then why can't we find relative systems that maintain absolute simultaneity before?

To Recognize the existence of relative systems that maintain absolute simultaneity begins with answering the question posed at the beginning of this section: "what is the precise definition of "simultaneity"?

To clearly determine that (Formula 2.3) is not only a formula for defining synchronization, but also a formula for defining simultaneity, is a tough job. It is impossible to get the idea by reading the original German, Spanish, and Chinese versions of Einstein's paper "On the Electrodynamics of Moving Bodies". Only after reading the English version paper quietly revised by Einstein in 1923, 18 years later after the quiet modification made in the English version, added to the original German version published in 1905. Then **finally it can be determined that (Formula 2.3) is the key**.

Applying (Formula 2.3), we can find many relative systems that maintain absolute simultaneity.

Summary of Conditions of the Two Different Forms of Simultaneity in a Relative System

(Formula 2.3) is Einstein's precise definition of the relative system's condition of being in synchronism or simultaneity with mathematics. According to this condition, we can deduce the condition that a relative system maintains absolute simultaneity or absolute synchronization, that is, the system should always satisfy (Formula 2.3).

What is the fundamental difference between a relative system that maintains relative simultaneity or maintains absolute simultaneity? Summary of the above discussion, we can conclude that the conditions for a relative system to maintain absolute simultaneity or only relative simultaneity are as follows:

In a qualified **dynamic** relative system, if two reference bodies are **independent of each other**, this system is a system that ***maintains relative***

simultaneity; if two reference bodies are **interdependent on each other, that is, these two reference bodies have dynamic physical interactions, this system is a system that maintains absolute simultaneity**. Here, "substantial contact" or interdependence is defined as a shared physical collision boundary, distinct from mere mathematical coordinate sharing.

A qualified **static** relative system is a relative system that **maintains absolute simultaneity.**

Due to the simplicity and specialty of static systems, we will not discuss them further. If it is not specified, the relative systems discussed in this book later refer to dynamic systems.

In the examples of relative systems that Einstein used, the majority involve light rays. As the Reference-body-A in the relative system, the light ray must be completely separated from the Reference-body-B, and therefore, they are **completely independent** of each other. The light ray disappears as soon as it meets the Reference-body-B.

Einstein also refers to several Reference-body-As that are not light rays. But they also are independent of the Reference-body-Bs.

Earlier, we mentioned the example of the flying raven that Einstein used. It is a lone ranger flying in the air. It has no direct connection with the other reference bodies and is an independent existence. But if the raven walks or runs on Reference-body-B, the two reference bodies are not independent of each other.

In short, looking at all the examples of various reference bodies in the relative system that Einstein used to aid him in proving the theory of relativity, we find this: The two reference bodies in all examples of the relative systems Einstein used, are completely independent of each other!

In his book "Relativity: Special and General Theory" Einstein said: "it became evident that there is not the least incompatibility between the principle of relativity and the law of propagation of light, and that by systematically holding fast to both these laws a logically rigid theory could be arrived at. This theory has been called the special theory of relativity." Of course, a light ray must be independent of any other object to exist!

Indeed, there is no incompatibility between Einstein's relativity system and the law of light propagation because light, as Reference-body-A, can only constitute a relative system that maintains relative simultaneity; in other words, this light only exists in a system of Einstein's relativity world. However, in a relative system in which Einstein denies its existence of relative simultaneity while maintaining absolute simultaneity, light cannot exist. Of course, this has nothing to do with the two being compatible or incompatible.

When Einstein extended his theory of relativity from light-related laws to the general system of matter in motion, irreconcilable contradictions arose.

Conditions consistent with Einstein's Two Relative Systems: System Maintaining Absolute Simultaneity and Maintaining Relative Simultaneity:

In a qualified relative system consisting of moving Reference-body-A and Reference-body-B:

- If Reference-body-B is stationary, then the relative system is called a static system, and the static system always maintains absolute simultaneity.

- If the Reference-body-B is moving, the relative system is called a dynamic system.

- In the dynamic system, if the Reference-body-A is **independent** of the Reference-body-B, the relative system maintains **relative simultaneity**; this is the relative system that Einstein strongly endorsed.

- In the dynamic system, if the Reference-body-A **inter depends** on the movement of the Reference-body-B, then the relative system maintains **absolute simultaneity**. Einstein strongly denied the existence of this relative system. In such normal relative systems, the two reference bodies that make up the system are interdependent, and the movement of one reference body is necessarily affected by the other one.

This requires us to add a condition to the "Limited Effect Principle of a Relativistic System" (see Section 2.5) that we will derive it later. We' ll do it in item 4.

Questions brought about by Mr. Einstein's example of a system that does not meet the relative conditions

In connection with the previous discussion on the relative system that maintains absolute simultaneity, Einstein's wrong example cannot but lead us to the following doubts:

Why did Einstein create a person-carriage synthetic reference body to be relative to the railway embankment? Aren't the two relative systems composed of either person relative to carriage, or carriage relative to embankment, both simple, clear, and qualified relative systems?

The key point is that the relative systems composed of either by person-carriage or by carriage-embankment are systems that maintain absolute simultaneity. If Einstein used the person-carriage system, then the assertion that Einstein has repeatedly emphasized for many years that "a relative system that maintains absolute simultaneity does not exist" will completely become a wrong view.

What is depressing is: in my memory, although the calculation of the same direction and reverse movement is discussed in the mathematics textbooks of elementary and middle schools, there is no such a pattern as the conductor walking in the moving carriage.

Perhaps Mr. Einstein also saw this, so he only used the flying raven to be relative to the carriage, and the lightning flashing in the air to be relative to the carriage, etc. but never discussed his relative system with the simplest system such as a train attendant being relative to the carriage!

Confusion and Computational Conflict Caused by Passive Relativity from Fantasy Relativity

Now we have made it clear that in a relative system composed of two completely independent reference bodies, there will be no mutual influence between the reference bodies due to their mutual motion. And the relative systems in Einstein's special theory of relativity are all independent of each other, so it is impossible to produce the various phenomena he described.

Below, we assume that the phenomenon of Einstein's "moving ruler becomes shorter" and "moving clock becomes slower" exist. Then extending

the lines of Einstein's thinking, let's suppose Einstein's independent reference bodies really interact with each other as he described. If they did, what kind of magical consequences would arise?

Since there are no strict definitions of relative systems, when the two reference bodies that make up the relative system are independent of each other, any object or system that moves inertially will often become the reference body in the relative system unconsciously or passively. We define this situation as **Passively Relative**.

For example, when using an atomic clock on a spaceship and an atomic clock placed on the ground to do a relativity time dilation test, experts only focus on whether or not the data gained from the ground clock and the clock on the spaceship are different. In reality, however, these two clocks are simultaneously **passively** relative to many different reference bodies, such as white clouds, airplanes, and even birds flying at a constant speed in the air, the rotation of the Earth, countless cars and trains moving at a constant speed, the African male lion running at a constant speed, the whales in the sea … They all can be passively relative to these two clocks, and there is no way to stop them from being so.

Of course, anyone can imagine one object as only being relative to another specific object, but in reality, there is no way to specify such an exclusively relative object, let alone prevent an object from being passively relative to any other moving objects.

There are many moving objects with different speeds that are **passively** relative to the atomic clocks on the spaceship and on the ground. According to Einstein's calculations in theory of relativity, they each will have different effects on the time changes of the two clocks. In fact, for Einstein's system, which maintains relative simultaneity, since the participating reference bodies are completely independent of each other, there will be no connection or link between them. Therefore, in actual application calculations, when a reference body is set to be relative to many other moving reference bodies with different speeds at the same time, the relative calculation will produce contradictory results. But we have not had any way to solve the contradiction yet.

Therefore, we first derive a principle to resolve this contradiction, which is the Limited Effect Principle of a Relativistic System, and then use it to resolve this contradiction.

2.5 4. Derivation of the *Limited Effect Principle of a Relativistic System* — How Einstein was Pecked by a Raven?

Before we delve into a detailed discussion, let's examine the issues related to the flying raven, the new protagonist introduced by Einstein in question 8 of the previous 12 questions. Since the speed of light is too fast, it is easier to gain some intuitive understanding by studying the slower raven.

Please review Einstein's Quotation 9 in Problem 8. That quotation actually provides two relative systems, one is the static system of the raven and the embankment, and the other is the dynamic system of the raven and the moving carriage. When the raven is viewed from the embankment, it keeps flying at a uniform speed; when the raven is viewed from the carriage, the speed of the raven in different directions is different.

Figure 2.8: A train moving at a uniform speed and a raven flying at a uniform speed

Now the question is: when watching the raven's movement from the moving carriage, does the raven's speed really changed, or is it just the "feeling" of the man watching the raven in the carriage (i.e., the raven's speed has not really changed)?

Einstein believed that the raven's speed really changed. (Figure 2.8)

Einstein's vision focuses on the relative system composed of two uniformly moving objects, the raven and the carriage. As can be seen from Figure 2.8 above, when the raven moves in the opposite direction with a uniform speed w, and the train moving at a uniform speed v, the speed of the raven observed by the man in the carriage is w + v; the speed of the carriage observed by the raven is also v + w. This is the result of the mutual observation of the two reference bodies within the relative system, and it is also the result of Einstein's separation of the relative system and its surrounding environment.

A relative system consisting of a pair of independent reference bodies relatively moving at uniform speeds, such as a raven and a train carriage, is limited to the relative system, that is, between the raven and the train carriage (Figure 2.8). More precisely, it is limited to the senses of the man observing the raven in the train carriage. When the man in the carriage observes the flight of the raven, the speed observed for the movement of the raven in the same direction as the carriage or in the opposite direction is different. This is the data obtained by subjective observation and measurement, which is real to the man in the train.

But if we consider the relative system in the real-world environment, as shown in Figure 2.9.

From Figure 2.9 as a whole, apart from the train, whether observed from the embankment or from the surrounding trees and land, the raven's flight state and speed have not changed, and are completely unaffected by the train, the thoughts of the people inside the train car, or any measurements or calculations. From this, the following principle can be deduced.

Limited Effect Principle of a Relativistic System: The calculation results within a relative system are only applicable to the two reference bodies within this relative system; the calculation results cannot be taken outside the relative system to apply to any object outside of that relativistic system, or to these two objects which are no longer serving as reference bodies.

Figure 2.9: A train moving at a uniform speed v, a raven flying at a uniform speed w in the surrounding real-world environment. Please imagine that when a raven is flying in the sky, a train comes, a train leaves, or a train is moving near the flying raven as shown in the picture. Will the train have any effect on the raven's flight? Will the observation, relative calculation, imagination, etc. of the man in the train have any effect on the raven's flight? There is another lady in the train who want to keep the raven in a cage.

That is to say, any relative calculation performed in a relative system only applies to the two reference bodies that constitute this relative system, and changes their states as the reference bodies of the system. However, such calculations performed inside this relative system cannot be taken outside the relative system to change the states of the same two objects when they are outside the relative system and are no longer the reference bodies of the system.

This sentence may be difficult to understand. Let's use the relative system of the raven and the train in Figure 2.9 to further explain.

Assume that the raven moves at a uniform speed w, in the opposite direction to the train moving at a uniform speed v. In the relative system of the raven and the train, the speeds of the two reference bodies, the raven and the train, can be obtained through their own calculations. The man in the train calculates the speed of the reference body raven as v - (-w) = v + w, and the speed of the reference body train calculated from the perspective of the raven is w - (- v) = w + v. In this relative system, the speeds of the two reference bodies, the raven and the train, moving at a uniform speed, are determined in this way.

However, such calculation results cannot be extended to these 2 objects outside the relative system. Refer to Figure 2.9. When observing these two objects from any place or object **outside** the relative system (the raven and the train, note that they are **not reference bodies at this time**), the speed of the raven is still w, and the speed of the train is still v, without any change. When observing from the embankment, from the tree, from the land, from anywhere outside the relative system consisting of the raven and the carriage as reference bodies, their speeds have not changed at all.

From this, we can see that when the raven and the train are used as reference bodies in the relative system, their motion states are changed with different observation angles within the relativistic system, but are only changes within the relativistic system. When from outside the relativistic system observing the motions of these two objects that are no longer of being the reference bodies, their motion states are not affected by the relative calculations.

Figure 2.10: Two trains are running in opposite directions at uniform speeds u and v respectively. How should the relative speed of the raven flying at a uniform speed w be calculated when it forms two relative systems with the two trains?

The conclusion is: when the raven and the train carriage form a relative system as reference bodies, the changes of their motion states within the relative system does not affect their motion states when they are outside the relative system and not as reference bodies but as ordinary objects.

This is the essence of the Limited Effect Principle of a Relativistic System: the calculation results that is obtained within a relative system when an object is used as a reference body, the results should not be applied outside the relative system when the object is no longer a reference body.

As can be seen from Figure 2.9, when the train and the raven are not used as reference bodies to form a relative system, no matter how the man in the train think or calculate, it has no effect on the actual movement of the raven. Of course, the raven has no effect on the movement of the train.

Now let's use the following Figure 2.10 for further analysis.

In Figure 2.10, two trains are being relative to a raven at the same time. Let's use the Limited Effect Principle of a Relativistic System discussed above to analyze it in detail.

When the raven is relative to the upper train in the diagram, which is running at a speed u, the speed observed by the people in the upper train is u-w; when the raven is relative to the lower train in the diagram, which is running at a speed v, the speed observed in the lower train is - (v + w). However, according to the Limited Effect of Principle of a Relativistic System discussed earlier, the speed of the raven outside the relativistic system remains unchanged and is still w.

This proves that the raven can have multiple relative values as being different reference bodies at the same time when it is used as reference bodies simultaneously in the two different relative systems for relative calculations. **It also proves that these multiple calculation values can only be used within the relative system. Outside the relative system, the raven, a non-reference body, always maintains its original velocity value w.**

So, from Figure 2.10, we can see that the same raven in the two different relative systems produce completely two different results, that is, the same raven forms two relative systems with the upper and lower trains at the same time, and got two different relative calculation results.

- When the raven and the upper train in the figure form a relative system called "raven-train-upper", the relative speeds of the reference bodies "raven" and "train-upper" are zero (suppose w = u), that is, the raven and the upper train appear to be stationary. At this

Figure 2.11: Put the raven and trains from Figure 2.10 into a real application environment for observation

time, within this relative system, the speeds of these two reference bodies raven and train-upper are both zero.

- **At the same time** the **same raven** and the lower train in the figure form a relative system called "raven-train-lower ", the relative speeds of the reference body "raven" and the reference body "train-lower " are – (u + v), that is, the raven and the lower train appear to be speeding. At this time, within this relative system, the speeds of these two reference bodies raven and train-lower are both – (u + v).
- However, when we put the raven and the train that constitute these two relative systems back to their application environment, as shown in Figure 2.11 below, the trees, rails, roadbed... do not feel any change in their speeds. The speed of the raven is still w, the speed of the upper train is still u, and the speed of the lower train is still v.

- What we have concluded is that when an object is included in a relative system as a reference body, the state data of the reference body in the relative system will change accordingly with the different conditions of the system. However, this change is limited to the fact that the object is taken as a reference body in this relative system; when the object is separated from the relative system and no longer serves as a reference body, this change of state loses its effectiveness. This means that for the objective world outside the subjectively constructed relative system, any calculation results within the subjectively constructed relative system cannot affect the objective world outside the relative system at all!

This conclusion can be extended to the entire Einstein's relative systems, but it does not apply to relative systems where two reference bodies are interdependent. Coincidentally, Einstein resolutely and consistently denied the existence of a system that maintains absolute simultaneity for decades, so it has no effect on our criticism of the Einstein's imaginary theory of relativity by our Limited Effect Principle of a Relativistic System.

The movement of light relative to any object is independent, and therefore will not be affected by any behavior of another reference body that together with it constitutes a relative system. The invariance of the speed

of a light ray is due to the independence of the light ray, not anything else.

Combined with the four key points that need to be paid attention to in the relative system mentioned above, the essential problem revealed by the Limited Effect Principle of a Relativistic Systems is: in a relative system composed of two objects that are purely mentally bound and named as reference bodies, the results obtained through relative calculations are purely imaginary data and do not have any effect on the motion state or other state of the two objects after they leave the relative system and no longer serve as reference bodies. Since the relative relationship of any two reference bodies is actually originated from an imaginary binding described by Condition 3, there is no solid physical link between these two reference bodies.

The movement of celestial bodies does not change because of relative observation by humans on Earth. All observation results made on a moving reference body can only be used for the reference body, and cannot be used for the object outside the relative system. This essentially means that the various calculations performed within the system have no impact on the real world.

This fully illustrates the **fantasy nature of Einstein's theory of relativity**.

However, Einstein believed that the movement speed of the raven in Figure 2.8 really changed. He applied the results of the relative motion of relative systems derived from this to the Lorentz transformation, and derived the erroneous results that "the moving ruler becomes shorter" and "the moving clock becomes slower".

Time dilation is a pure relative illusion

By tracking the conflicting results of simultaneous relative calculations of a single ground-based clock paired with multiple clocks of different speeds, we show you why we say that time dilation is purely an illusion.

We first construct some relative systems to perform time dilation calculations in **mind**.

Relative experiments were conducted on one ground clock be relative to four clocks in space shuttle and constructed four relative systems at the same time. (Figure 2.5)

Figure 2.5 Ground clock is simultaneously be relative to four clocks on spacecraft with different speeds.

The time dilation calculator in Figure 2.12 was used for calculation. The experiment started at 12 noon. One second later, the first set of experimental data was obtained using the time dilation calculator, as shown in the

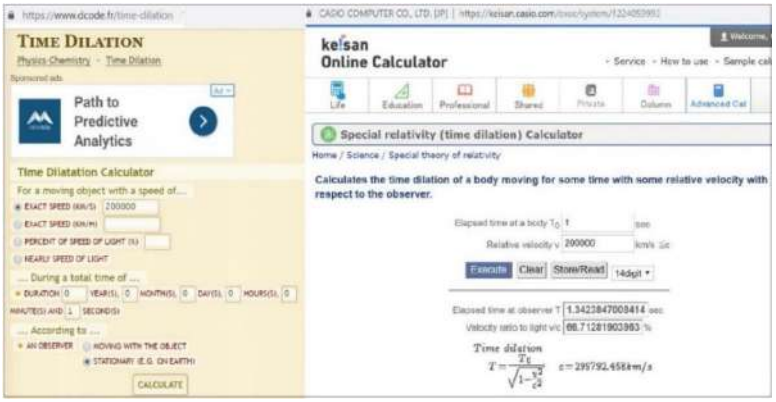


Figure 2.12: Strictly relativistic time dilation calculator provided by CASC COMPUTER CO, LTD

experimental results in the first four rows of Table 1. The spaceship continued to fly until 1800 seconds later, and the second set of experimental data was obtained, as shown in the last four rows of Table 1.

As can be seen from Table 1, as the duration increases, the time dilation value also increases greatly. Therefore, it is easy to verify whether time dilation is true in the experiment.

Table 1 Calculation results of the ground clock at the same time are relative to multiple spacecraft clocks with different speeds

Experiment time second	Spacecraft speed (m/s)	Ground clock time second	Spacecraft time second
1	200000	0.74494293578673	1.3423847008414
1	150000	0.86582546589248	1.1549671837952
1	100000	0.94272742316888	1.0607520004442
1	10000	0.99944352013705	1.0005567897052
1800	200000	59.3589994339	0.64122891504257
1800	150000	58.48583860647	38.940930831342
1800	100000	16.909361703985	49.353600799567
1800	10000	58.998336246698	1.0022214693684

As can be seen from Table 1, as the duration increases, the time dilation value also increases greatly. Therefore, it is easy to verify whether time dilation is true in the experiment.

The ground clock in Table 1 obtained 4 calculation results at 12:01 and 4 results at 12:30. So, at 12:01, which of the four experimental results in the first four rows of Table 1 should the ground clock point to? At 12:30, which of the four of the time data in the last four rows of Table 1 should the ground clock point to?

According to existing knowledge, Einstein's theory of relativity **cannot answer this question**.

This question has been raised in our related works published over the years, and we were unable to answer it before. We can only think that this is a problem with the theory of relativity itself.

However, using the **Limited Effect Principle of a Relativistic System** derived above, this problem can be answered now.

Put the clocks in Figure 2.5 into a real-world context (Figure 2.13).

It should be noted that this relative is the product of imagination. People have no other way to bind the relativity among the clocks, and Einstein did not stipulate how two reference bodies should be relative. People can also imagine that these clocks can be relative to each other at the same time, and many clocks on planes, trains and cars can be relative to each other at the same time... What a chaotic scene that would be.

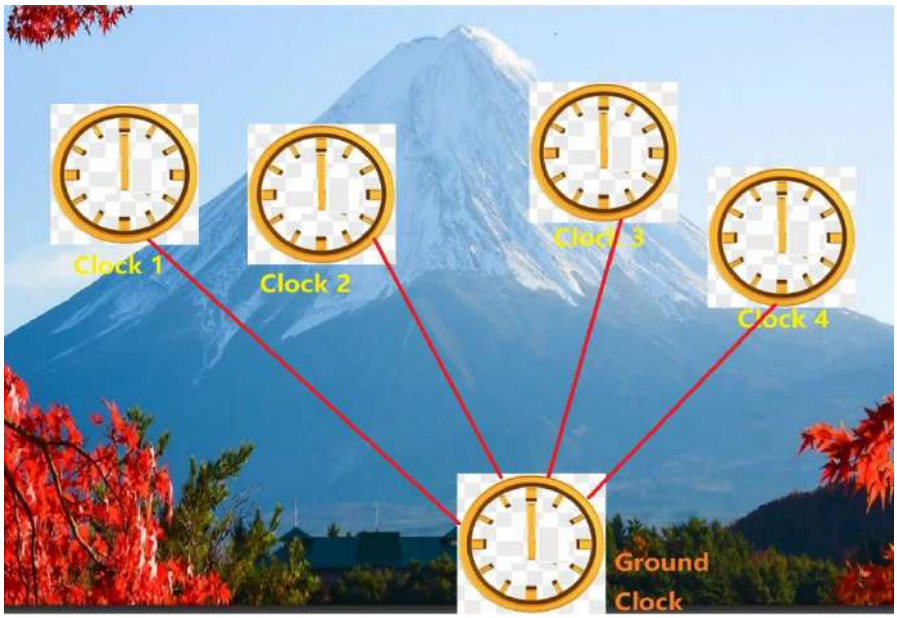


Figure 2.13: The ground clock is relative to the clocks in four spacecrafts with different speeds simultaneously.

system composed of imagination (is there any other way to make these two objects become the reference bodies of this relative system?), and cannot be applied outside this relative system.

Similarly, three other relative systems can be formed at the same time, and the time values of the clocks on each spacecraft obtained simultaneously and the different time values calculated by the ground clock as different reference bodies in these three different relative systems were calculated and displayed in Table 1.

In fact, it is impossible for a ground clock to have four different time indications at the same time. The Limited Effect Principle of a Relativistic System tells us that the four different time values calculated by the ground clock as different reference bodies are not values in the real world and cannot be applied outside each of the four relative systems.

Therefore, a clock on the ground actually only ever displays one value: the value of the clock itself. All other calculated values, derived through relative calculations, cannot be applied to the real world and cannot actually affect the clock on the ground in the real world.

This actually tells us: the time dilation of a relative system is only a kind of data that applies within each relative system and cannot be applied to the real world. **Time dilation is essentially an illusion of relativity**.

Another application example of the Limited Effect Principle of a Relativistic System

Next, we apply the Limited Effect Principle of a Relativistic System to solve the problem of "conflicting results when a ground clock and multiple clocks with different speeds perform relative calculations at the same time" (Table 1).

The conflict calculation results in the previous section are the result of previous research, while the use of the Limited Effect Principle of a Relativistic System to resolve the conflict is a new research result. This solution itself further proves the correctness of the Limited Effect Principle of a Relativistic System.

When the ground clock forms a relative system with the spacecraft at 12 o' clock and the speed of the Clock 1 is 200,000 km/s, after 1 second of flight, the time measured by the ground clock as the reference body is 0.74494293578673 seconds. However, from the outside of this relative system, the time indicated by the ground clock is 12 hours and 1 second. Similarly, at 12:00 when the ground clock forms a relative system with Clock 2 on the spacecraft at 150,000 km/s, after 1 second of flight, the time measured by the ground clock as a reference body is 0.74494293578673 seconds. However, from the outside of this relative system, the time indicated by the ground clock is still 12 hours and 1 second. This inference is also valid for the relative systems consisting of other two spacecraft.

This shows that according to the Limited Effect Principle of a Relativistic System, it can explain the phenomenon that when multiple objects form multiple relative systems with a certain object at the same time, multiple different relative results will be calculated when the object is used as a different reference body in different relative systems.

This also shows that the Limited Effect Principle of a Relativistic System is correct, reasonable and effective to limit the calculation results within the relative system to the relative system. It can explain the situation when an object is used as different reference bodies simultaneously in multiple relativistic systems at the same time, and each of these reference bodies is relative to another reference body in different relativistic systems.

Here is another very strange statement.

The "moving ruler shorten" disaster brought in by Lorenz transformation calculation

According to the theory of shortening of moving ruler in Lorenz transformation, in a high-speed running system, only the length in the same direction as the running direction X axis will change, while the length perpendicular to the running direction X axis remains unchanged.

In this way, a disaster occurs in the theory: if the spacecraft flies at high speed along the X axis, then according to the theory of relativity, the length of all parts of the spacecraft, including the spacecraft itself, will become shorter, which may cause the spacecraft to be unable to fly or even disintegrate.

See the calculation results in Table 2 for examples.

Table 2 Calculation of the length change of the spacecraft when flying at different speeds according to the Lorenz transformation:

Spacecraft speed	Observed length	Observed height	Observed width
0	200 meters	40 meters	60 meters
10 % light speed	199 meters	40 meters	60 meters
86.5 % light speed	100 meters	40 meters	60 meters
99 % light speed	28 meters	40 meters	60 meters
99.99 % light speed	3 meters	40 meters	60 meters

The data in Table 2 tells us that if the length of the spacecraft is 200 meters when it is stationary, then when the spacecraft is flying at 10% of the speed of light, the length of the spacecraft is shortened to 199 meters. If the speed of the spacecraft is 14% of the speed of light, the length in the X direction will be shortened by about 1%. Einstein believes that this is an actual systematic contraction along the X-axis, so it has nothing to do

with the material of the spacecraft, and there is no way to prevent it. This resulted in a major disaster for space travel, in which the relativistic ruler became shorter!

Fortunately, according to the Limited Effect Principle of a Relativistic System, the "moving ruler shorter" disaster discussed above does not occur in the real world. Those calculation results only occur in the calculation when the spacecraft is used as the reference body of the relative system, but will not occur in reality.

The Limited Effect Principle of a Relativistic System cannot be applied to relativistic systems that maintain absolute simultaneity

In a relative system that maintains absolute simultaneity, the movement of two reference bodies will affect each other, and this influence is real. For example, when a man walks in a carriage, his movement in the carriage changes his position. Even from the outside of the carriage, his changed position is real.

Einstein did not agree with the existence of a relative system that maintains absolute simultaneity, so we will not discuss this issue any further here.

The author's opinion on Einstein's formula and other mathematical models

To help him express his unique understanding of the universe, Einstein devoted himself to learn the mathematical formulas of Riemann's geometry. Then Einstein devised his formula that depicts the universe. In truth, we were not interested in studying how Einstein derived his formula, but we are sure the universe cannot be described by one mathematical formula, even with a century's worth of research behind it! There is so much about the universe that we still do not understand that focusing exclusively on Einstein's formula is ridiculous. And we include here dark energy and dark matter, along with the so-called uniformly distributed microwave background that cosmologists spend so much time analyzing.

What do we learn from numerical methods? How about using a computer to solve problems that cannot be solved by given formulas? In real life, the problems solved by computer methods involve greater complexity than the problems solved by the mathematical formula. Neural networks in popular artificial intelligence may use tens of thousands of partial differential equation groups to identify a simple graph, whereas depicting the universe requires only one equation? It's all too funny, right?

Because Hawking added clever, new (but doubtful) solutions to Einstein's equations, he has gained immense authority when considering the universe, including his work on black holes.

However, even the perfect interpretation of a mathematical formula confirmed by accurate observation comprises only a very small part of the world. Indeed, the world's complexity presents issues that equations cannot resolve. As for immediate real problems we are faced with, these can normally be solved by approximate solutions that computer numerical methods produce.

Yes, for very many equations, their practical use is limited, and often valid only in a certain area. In contrast, an equation describing the universe is ever more difficult to perfect, with every detail correct, and every relationship to physical phenomenon comprehensively revealed.

Modern cosmologists, playing with Einstein's cosmic equation, make a fuss about singularities that he himself did not explain. The universe is bent for a while, then closed for a while, and then opened for another while.

So, is the universe, including time and space, limited to Einstein's mathematical model? Do you agree with cosmologists who derive their theories and proofs from Einstein's model? This is a question that our experts should think about.

At this time, we wanted to relax our heavy hearts, and suddenly remembered that when 2018 came, I saw a very simple trifle arithmetic problem on WeChat, but some people were blinded. Of course, it did not have the same effect that the mysterious proof of Einstein's did, but it quickly made it clear that even when working through simple mathematical problems certain rules applied.

Verify: 2025 = 2024

Prove: 2025

$= 2020 + 5 - 9/2 + 9/2$

$= 2020 + \sqrt{(5-9/2)^2} + 9/2$

$= 2020 + \sqrt{(25-45+(9/2)^2)} + 9/2$

$= 2020 + \sqrt{((16+9)-(36+9)+(9/2)^2)} + 9/2$

$= 2020 + \sqrt{(16-36+(9/2)^2)} + 9/2$

$= 2020 + \sqrt{(4^2-2\times 4\times (9/2)+(9/2)^2)} + 9/2$

$= 2020 + \sqrt{(4-9/2)^2} + 9/2$

$= 2020 + 4 - 9/2 + 9/2$

$= 2024$

How about it? Of course, it is wrong. But where is the fault? If you can determine why it is wrong in a few seconds after scanning it, or as soon as you read the first few lines, you get the answer, then you can also easily see through Einstein's mistakes.

The grandeur of the universe makes people feel their own insignificance. When we tried our best to steal a few secrets from God we found that many were falsely rendered; pretty, even beautiful equations, for example, that proved no more and no less than the lengths we would go to believe in them.

We strive to explore, but only feel the insignificance of ourselves and the greatness of the Creator!

Proximity to the ultimate truth of the universe is not something that can be claimed casually. As down-to-Earth scientists, we well know that before we can truly see the authentic content that the universe has exposed to us, we must work hard to traverse the road built by basic scientific principles.

A story that traces the correct meaning of the "Definition of Simultaneity" in Einstein's paper

One Chinese guy copied the "Relativity of Simultaneity" from my paper into his own paper, and applied the scientific and technological achievements. However, this analysis of the theory of relativity from the perspective of "relativity of simultaneity" and "absoluteness of simultaneity" is a formulation without precedent in the world before me. It took me a long process of more than ten years to realize the importance of criticizing the special theory of relativity from this perspective. How difficult it was!

In 2017, at the invitation of "Regularity" journal, I published several papers of 25 pages in the "Wu Yuxiang Forum" in the fourth issue, discussing the problem of relativity, and initially touched on this topic. On the first page of the first issue of the journal of 2019, the author published "The Dilemma of Special and General Relativity from a Historical Perspective" also discussed this topic. The first paragraph of this paper is "1. The Special Theory of Relativity from the System of Maintaining the Absolute Simultaneity",which is the first paper in the world analyzing the errors of relativity theory from "there exists absolute relative systems that maintain simultaneity." (Although it did never discuss politics. "Regularity" journal was banned by the Beijing Municipal Civil Affairs Bureau on June 30, 2020.)

In my books such as "Questioning the Big Bang - Exploring the New Appearance of the Universe" published by the author in 2017, "Clarify Big Bang" published in 2018, and "Fading Modern Cosmology" published in 2020, the author is gradually deepening and improving the understanding of the universe from this perspective and criticizing the Relativity.

In brief, analyzing special relativity from the perspective of "simultaneity" incurs a great deal of thought over a long period of time.

Now when I showed the manuscript of my book, *Fading Modern Cosmology* to my son (then was a doctoral supervisor at Columbia University), he asked a question: "What is the exact meaning of Simultaneity?" He asked this question after reading Einstein's paper.

This question initiated this investigative story.

We noted earlier that the method Einstein used to write his thesis was strange. The text and formula are shown in Figure 2.6 and Figure 2.7. While the concepts and mathematics involved in §1 and §2 are very simple, the entire section reads obscurely as if trying to catch some elusive something in the fog. We doubt whether Eddington, who is said to be the first to understand relativity, can answer why Einstein wrote in the obscure manner he did!

Please read §1 in Figure 2.6 carefully and try to answer this question.

The title of this section is "§1. Definition of Simultaneity." Though it has only about 1100 words, after reading it again and again, it is still impossible to clearly answer the question: "What is the exact definition of simultaneity?" It cannot be expressed concisely

We noticed that in "§. Definition of Simultaneity," there are numerous descriptions of "synchronous" and even a mathematical definition of the term. So, what is the relationship between "synchronous" and "simultaneity" in Einstein's world? If we can define "simultaneity" with concise mathematics, like Einstein defined "synchronization," then we can also discuss "relative simultaneity" and "absolute simultaneity" through mathematics!

Again, what is the relationship between "simultaneous" and "synchronous"? There is a sentence in Einstein's text that speaks to this issue. It speaks to

Figure 2.14: Einstein's monographs and related works

the stipulation that stationary clocks in different places are synchronized. Obviously, then, the definitions of "simultaneous" and "time" become clearer. However, how were the definitions of "simultaneous" and "time" obtained? Does "simultaneous" mean "synchronous"? It looks a bit like that. But why use two totally different words again and again? It's really confusing.

Some key points need to be confirmed against Einstein's original text. For example, with respect to the "principle of relativity" and "principle of constant speed of light," we need to determine (in the original paper written by Einstein in German) whether he proposed them as "definitions" or "postulates." From the "definitions" used in the original text of the German version, Einstein "defined" these two principles without explanation or proof. But descendant scientists regard them as scientific laws!

Looking at §1 in Einstein's relativity theory and concept in Figure 2.6 and Figure 2.7 above, there is neither advanced mathematics (only the formula for calculating the superposition of linear motion in elementary school arithmetic) nor deep and difficult concepts. Nonetheless, he wrote the paper in a style that "only a few people in the world can understand." Is this the writing style of a great master?

We can only seek answers from the literature on Einstein, which is not too much (Figure 2.14).

In Figure 2.14 the top two images on the left are the Chinese and German pages of Einstein's original paper "On Electrodynamics of Moving Bodies." On the right is a Chinese translation of a letter from Einstein to Solovine dated April 20, 1920. Below are related books: *Relativity: Special and General Theory*; *The Principles of Relativity*, *Letters to Solovine*, and the Chinese version of *Einstein Collected Works*...

As noted, some key points need to be checked against Einstein's original German text. For example, did Einstein propose the "principle of relativity" and the "principle of the constant speed of light" as "definitions" or as "axioms." From the "*definitions*" used in the original text of the German paper, it is known that Einstein "defined" these two principles without explanation or proof.

The translation of the critical sentence in various languages is shown in Figure 2.15 below.

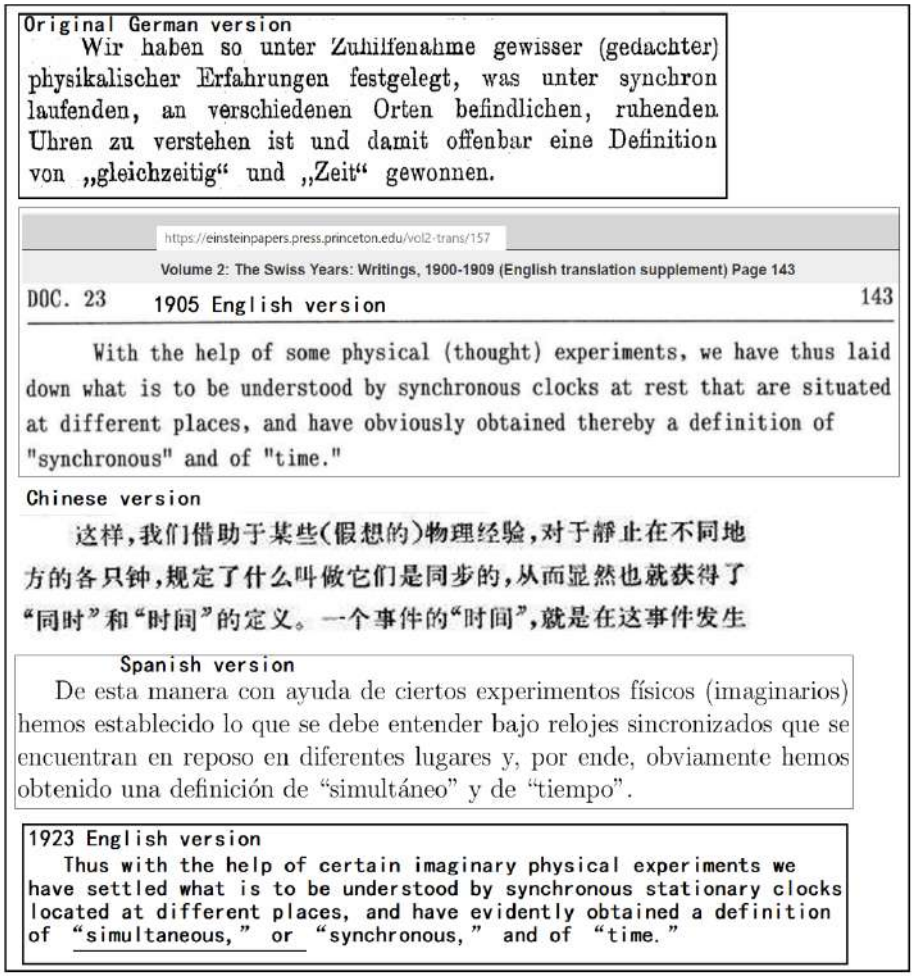


Figure 2.15: Translated texts in different languages

The translation documents in various languages in Figure 2.15 also reflect the confusion about Einstein's paper. The last sentence of the German text is the definition of "simultaneity" and "time".

In the last sentence of Figure 2.15, please note the two words that Einstein quietly added in the English version 18 years later, which are crucial to understanding relativity. In the last sentence of the English translation in the figure, two words (or "synchronous,") were added. It shows that in Einstein's paper, "simultaneous" is equivalent to "synchronous", that is, "simultaneous" = "synchronous".

This is a very dishonest practice. When Einstein included his paper in the book <Principle of Relativity>, he quietly added these two keywords to clarify that "simultaneity" and "synchronization" are exactly the same. But he did not tell everyone about his key modification. This led to great confusion. It can also be seen from Figure 2.15.

Figure 2.15 is an important, but ambiguous, key phrase in German, Chinese, and English in Einstein's thesis "On the Electrodynamics of Moving Objects." Einstein corrected his vague text expression by adding the two words underlined in last line in the 1923 English version.

The German original in the picture above is ("simultaneously", or), while the English document in the Princeton collection below is ("synchronous", or). The documents from other countries that are currently searched

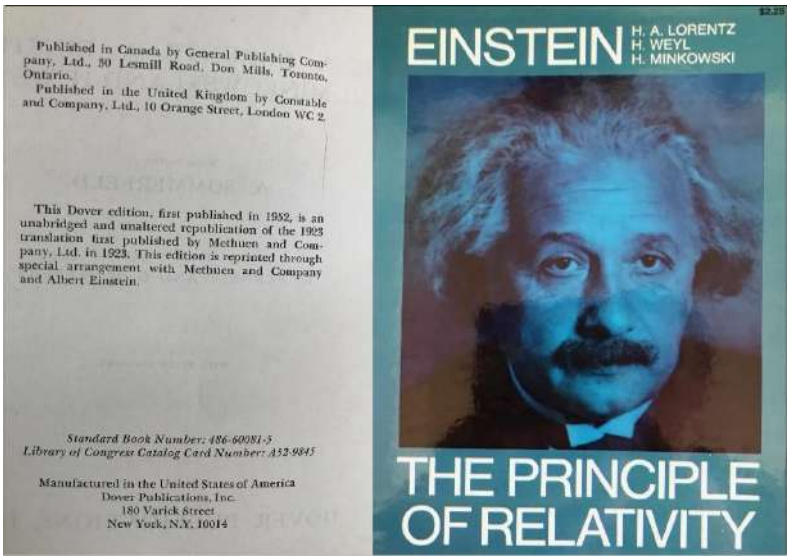


Figure 2.16: W. Perrett and G. B. Jeffery's translation of <The Principle of Relativity>

online are all in use, and they did not put the two keywords quietly inserted by Einstein into their own translated documents!

The Figure 2.16 below is Einstein's "Principles of Relativity", and the article "On the Electrodynamics of Moving Bodies" in the book is on pages 35-65. The last sentence in the middle of the left page in the picture is: "This version is specially arranged by Methuen and Einstein to be reproduced."

Based on the English translation of 1923, the correct Chinese translation of this sentence, is that the definition of simultaneity is synchronization. Its complete correct Chinese translation should be:

*Thus with the help of certain imaginary physical experiments we have settled what is to be understood by synchronous stationary clocks located at different places, and have evidently obtained a definition of "simultaneous," **or "synchronous,"** and of "time."*

The most popular and most used English translation text was translated by W. Perrett and G.B. Jeffery in 1923. This is a very outstanding translation, with. no other, newer version found. The translation in this version answers the question I' m struggling with!

Figure 2.16 shows the book <The Principle of Relativity>published by Einstein. The article "On the Electrodynamics of Moving Bodies" is on pages 35-65 of the book. The last sentence in the middle of the left page in the picture is: "This edition is reprinted by special arrangement between Methuen and Albert Einstein."

This is a very outstanding translation work, and no newer version has been found. A unique sentence in this translation text answered the question I had been looking for!

The last sentence in the middle paragraph of Figure 2.16 specifically points out that **this version was reprinted under the special arrangement of Mr. Einstein himself.**

In the middle paragraph of the left side of Figure 2.16, it is explained that the version of "On the Electrodynamics of Moving Bodies" collected in this book is **an English translation without addition and deletion**,

published in 1923. The last sentence of this paragraph said that this 1952 reprinted book was published through special arrangement with Albert Einstein.

This to say, the meaning of "simultaneity" and mathematical expressions of it can be correctly understood by reading "On the Electrodynamics of Moving Bodies" in this English translation. For those who read the original German, or Chinese translations, or other translations, it is difficult to correctly understand the meaning of "simultaneity," and it is more difficult to express it mathematically. This is not about the level of knowledge, scholar, or translation, but a problem made by Einstein's misuse of "synchronous" and "simultaneity".

In terms of content, contextual coherence, and references to Einstein's other works, W. Perrett and GB Jeffery's translation is very good, a lot better than other versions.

Now we know how to correctly and accurately understand Einstein's concept of "simultaneity," as expressed in his paper "On the Electrodynamics of Moving Bodies." That is, in Einstein's dissertation, "synchronous" and "simultaneous" are equivalent, which can be described by the formula that defines "synchronization," as seen in Figure 2.16.

Figure 2.16 also tells us that Einstein found out why his thesis was only understood by a few people in the world, so amendments to it were made. But he didn't discuss this publicly, instead he **quietly** corrected his fuzzy expression about "simultaneity" and "synchronous" in his English version. Then, for example, all German or Chinese readers who only read their local-language versions still do not clearly understand special relativity, because the only Chinese translation is based on the original German version, and in the German version the error is not corrected but sustained.

Interestingly, in the Chinese translation there is a footnote noting that the translators referred to W. Perrett and G.B. Jeffery's English version as they worked. However, the most critical words (**or, "synchronize"**) were not translated into the Chinese version or used in the German version. Because of this difference, readers of the Chinese or German versions can't understand the exact meaning of simultaneity. Without understanding its precise definition, it is impossible to understand Einstein's special theory of relativity. That is to say, readers cannot fully understand the theory of relativity with reading the original paper!

So, in this way, if you do not read the English version after 1923, but only read the German or Chinese version of "On the Electrodynamics of Moving Bodies," it is impossible to fully correctly understand the special theory of relativity. Although it is said that there were many such masters of relativity in the world.

As far as we are concerned, we would not read the English version if we did not want to delve into the issue of simultaneity. The translation of the Chinese version is very good, and it is in line with Einstein's original German thesis. It is a pity that neither the original German text nor its Chinese translation show that the two words "simultaneous" and "synchronous" have the same meaning. As a result, special relativity has been transformed into a heavenly idea that few people in the world really understand. Why did Einstein quietly add the words "simultaneous, or" to the translation of the English version published under his special arrangement in 1923, 18 years after the publication of "On the Electrodynamics

of Moving Bodies"? Was it because he could clarify the concept of simultaneous, which was obscure in his original thesis? It certainly seems so.

And though Einstein quietly corrected his original phrasing, readers from all countries who have not been able to read the approved English version, where the correction sits, including German readers who only read the original German text and Chinese readers who only read the Chinese translation, remain at a disadvantage. They are unclear as to the meaning of "relativity" and, thus, the theory of relativity.

The master is a master. The mathematics used in the first section of Einstein's thesis are only elementary school mathematics, but they can be presented in such a way that people cannot understand them. This is not nonsense talk. It really shocks us!

But before we continue discussing, there is one more interesting thing. In the 1920 English translation of "On the Electrodynamics of Moving Bodies" by Meghnad Saha, he replaced the word "simultaneous" with "synchronous." The title of this translation for §1 is "Definition of Synchronization." That is, Meghnad believed that in Einstein's dissertation, "simultaneous" and "synchronous" mean the same thing and there is no need to use two different English words to represent the same concept and cause unnecessary confusion.

This translation solves the last doubt about the precise definition of simultaneity and enables people to understand the paper. This also shows that our current understanding is correct from another angle, that is, the formula in Figure 2.6 ($t_B - t_A = t'_A - t_B$), not only precisely defines "synchronize" with mathematics, but also precisely defines "simultaneity".

On the other hand, while Meghnad's translation replaced all use of the word "simultaneous" with "synchronous," it did not, at the same time, provide a definition of "simultaneous." Nonetheless, Einstein used "simultaneous" in his other works. So Meghnad's translation can cause problems. Perhaps this is the reason why Meghnad's version was not approved by Einstein.

The discussion of this issue can also lead to our further doubts: When Einstein was writing and publishing his paper, did he really think that synchronous = simultaneous? Or did he originally want to express other meanings, but in the end, due to the situation, he had no choice but to make the final revisions to the thesis written more than ten years ago according to other people's question and understanding?

How is the emperor's new clothes cut out?

To prove the theory of relativity, Eddington observed and measured the angles of light rays from stars deflected by the Sun during an eclipse. The quality of the observations was poor. Because his observations in Soral, Brazil, appeared to be closer to Newton's than to the relativistic model, the data were revised. And he used these revised data and his exalted position in academia to tailor the emperor's new mythic clothes for this century of relativity.

From the above, we can see that the research paper "On Electrodynamics of Moving Bodies" originally proposed for the theory of relativity presents a crude, non-rigorous and self-contradictory thesis.

But why is it that, starting from such a thesis, based on the notion of space time in this thesis, Einstein's thinking has structured how we view the universe for more than a hundred years, and more so now.

This is a question that every scientist needs to ponder.

Einstein's special theory of relativity is essentially mythic in nature. Nor is Eddington absolved by this recognition. Didn't Eddington modify his observation data in order to best conform to the theory? And when it was finally accepted as fact, no other scientist in the world was or is willing to criticize it by pointing out its opacity or the confusion it can create when seeking to understand it thoroughly. Even when experts identify mistakes in the theory, they believe it stems more from their own weakness in comprehension than not.

Just as we are writing about these criticisms, our hearts are shyly thinking: is it our own understanding that is wrong? If our understanding is wrong, please experts in the world who understand the theory of relativity provide the kind of criticism we can learn from.

2.5.1 Chapter Summary

We have studied relativity for more than ten years. Finally, we found the truth. We should be happy, but we feel very sad: **how can human scientific and technological thought be structured by a theory that is so obviously wrong over a century's length of time?**

What is the actual cause?

Thinking of the various experiments people have done for the theory of relativity, I can't help but feel that they are extremely absurd and that the funds wasted are a pity. For example, in the experiment analyzed above, which uses the clocks on airplanes or spacecraft to be relative to the clocks on the ground, can't the experts and professors who designed and conducted the experiment use their brains to think about what would happen if they used the clocks on other airplanes, trains, ships, cars, and even bicycles to be relative to the clocks on the ground and airplanes at the same experimental time?

If any moving clock has an impact on the clock on the ground, then can any clock on the Earth still tell the time accurately? Relativity does not stipulate the quality of the reference body, so even the most accurate quartz clocks or electronic clocks, which are used as the atomic clocks for the benchmark, will they not tell the time incorrectly under the influence of relativity? Can humans still have accurate time? When I think about this problem while driving at a steady speed on a straight highway, and let my watch be relative to the clock that serves as the benchmark for human time, will the time of that clock be affected by my watch? Is there any way to prevent my watch from being relative to that benchmark clock?

Does it seem absurd?

Isn't this the result that the theory of relativity caused?

It took Einstein 15 years to prove and confirm that no system maintains absolute simultaneity in his relativistic world, which led to the denial of the existence of a system that maintains absolute simultaneity in the entire physical theory.

But it is easy to prove that there are a large number of systems in the world that maintain absolute simultaneity. In addition, we can also clarify in greater detail how to distinguish a system that maintains relative simultaneity from a system that maintains absolute simultaneity in a relative

system defined by Einstein; that is, whether or not the two reference bodies in the relative system are independent. A relative system consisting of two reference bodies that depend on each other or are independent of each other, depicts a system that maintains absolute simultaneity or relative simultaneity.

Although Einstein repeatedly emphasized the non-existence of such a system, which has allowed modern physical kinematics to follow suit (denying it as well), we have proved the opposite with numerous examples. The relative system that maintains independence between two reference bodies is a relative system that conforms to Einstein's theory of relativity and also one that maintains relative simultaneity between reference bodies. It is a system that Einstein only acknowledges the existence of. However, the two reference bodies that remain independent of each other, because they are independent of each other, cannot affect each other. In this way, time dilation, the shortened moving ruler, and so on are not valid. The characteristics of the relative system obtained from the mutual influence of each other's motion are completely non-existent properties and are derived from the basis of what is, finally, mythic fantasy.

Readers are advised to go back and read Einstein's "On the Electrodynamics of Moving Bodies" at this time, and try to grasp and understand the theoretical basis of special relativity. When you do so, you will find that the §1 and §2 of the thesis use a ray and a rod plus various dazzling definitions and simple mathematics to define this base of great special theory of relativity that dominates our thinking to this day, and thus confirming the miracle of "moving clock slower" and "moving ruler shorter," Starting from §3 in the paper, there are a large number of mathematical derivations that are based on this illusion: of a ray and a rod with relatively independent motion. As a result, the entire special theory of relativity finds no root base and floats in the illusion provided.

However, the four major required conditions and twelve problems about the relative system that we pointed out in the second chapter, and the Limited Effect Principle of a Relativistic System that is derived from them, have proved from Einstein's works, theoretically and experimentally, that the theory of relativity is an applied theory that cannot be applied to reality and is of a fantasy nature. How can we get reasonable results by using this theory to guide or conduct physical experiments? For many years, people have conducted experiments on the theory of relativity from all aspects, but have not seen any convincing results.

Do human beings have to review why they have been ruled by such mathematical magic for a hundred years, even though they are struggling and unable to extricate themselves? So many scholars who opposed the theory of relativity have not seen through such simple mathematical magic?

This is why I have included parts of the first chapter ("Is Mathematics Old?") from my book <Who Should Talk about Cosmos>(2005), and the second section ("Math Is Old") from my book <Debate of Light and Dark> (2016) into this book.

In 2005, I began to question how mathematics played with physics, just as Hawking did. I was disgusted by the academic community (including myself) for maximizing the use of mathematics. But after ten years I came to a conclusion, however preliminary it was that "math is old."

Even so, it was not until 20 years later that I was able to clear away the fog of mathematics and see the magical and fantastic nature of the dazzling mathematical magic created by a beam of light and a rod.

When you think about it, it is no less than the myth of the universe, our universe, bursting out from an atom that explodes!

What Is Space? Discussing General Relativity from the Viewpoint of Space

3

Ah, the world, is the hotel where all things are on their journey; and the time is the coming and going of the guests of hundred generations.

——Bai Li, Spring Night Banquet with Brother in Peach Flower Garden

The universe, like duckweed, wanders in the long river of time. Flow pushes galaxies form. Stars shine like shells, planets evolve... The brief existence of mankind is but an instant in this recurring flow. The one-hundred-year existence of a man but an instant of the universe's passing by; the billions of life years of the stars, are also only a finger flip instant of the universe of sea and earth exchange.

Time and space are the eternal, if mysterious, topic, that ever eludes our understanding. Two-thousand five hundred years ago, in the *Tao De Jing,* Lao Zi, its author, recognized this as he began writing. His response is still pertinent for us: "The way that can be told of is not an unvarying way; The names that can be named are not unvarying names. It was from the Nameless that Heaven and Earth sprang; The named is but the mother that rears the ten thousand creatures, each after its kind."

There are various ways to define and explain space, time, and its properties. However, this explanation needs to be justified and persuasive, it must not contradict the empirical experience of human beings since ancient times, and it must not be mixed with nothingness or even modern mythology born from the imagination.

Here we must use the word "science" with caution, because in modern history we see that the Masters of Science—the masters of physics, mathematics, astronomy, and cosmology—used "science" to mix up the concepts that have been clearly understood into a paste, and then used this paste to silence the mouths of other philosophers and thinkers in the name of science!

But what kind of concepts of space have our modern masters given us? Curved space, space mixed with time, time and space can be interchanged, parallel space, multi-dimensional space and so on .....

There is a famous saying in physics:" Matter tells space how to curve, and curved space tells matter how to move." Place a mass down anywhere in the universe, and the space around it will curve in response.

We will fully prove that space is inflexible. We will continue to prove that time and space cannot be converted one into the other. But the mythic tales abound. For instance, in parallel space, another "I" exists. In multi-dimensional space many "I"s exist. These and similar conjectures,

as vulgar as they are, and however woven from abstruse mathematics they were, are little more than scientific myths.

Thought is a journey on a post road. Go and walk, pick the scenery. Sometimes the willows darken the bright flowers, sometimes the mountains are at the end of the river, and there are also ecstatic, and there is also spring-like renewal

This chapter is a supplement to the discussion of space and time that I have in my books *Debate of Light and Dark - A 100-Year Bet with NASA* and *Clarifying Big Bang*. It is like checking the suitcase: take out the old and add the new.

The latest insights have been published in GREATE BRITAIN JOURNALS PRESS, where a deeper understanding and expression of time are presented. From the idea that things only exist in the "present" moment, to the concepts of "the existence time of Unit Object" and "the existence time of Unit Object Flow," we have pushed our understanding of the nature of time to a more profound level.

3.0.1 Introduction to space

Frankly speaking, first, the space is empty, meaning there is nothing in the space!

Please think carefully about it first. Isn't this simple statement correct?

Space is empty. However, everything exists in space. Without space, there is nothing, and when there is nothing in space, space is still there.

In the 2024 April physics meeting of American Physics Society, while I was presenting my poster "Theology and Science in Astronomical Cosmology," I asked a young man: what is in the space? Is the space empty? He just kept saying that "time is in the space." This is kind of ridiculous. It also shown how Einstein's method of research misleading people. What is time? What is space? In scientific research, these two questions should be answered first, then talking about put them together to study. We'll discuss this topic in detail later. Let's go back "space" first.

If you agree that space is empty and nothing is in it, then **a very simple question ruins Einstein's general theory of relativity**: how can a space with nothing be bent? What is there to bend? Can we bend "nothing"?

To those who support Einstein's theory of spacetime curvature, please conduct an experiment right here in front of us, even if it only bends spacetime a little bit. If you can demonstrate this, I will be convinced.

If a space bends **only** when there is **matter in it**, then **it is not the space is bent, but the matter in it that is bent. After this matter leaves the space, the space remains the same: empty.** There is nothing changed in the space. Please consider all of this carefully.

The Sun rises from the east, and the sky where the Sun located - in the east of the Sun - has high temperature, strong light, gravity, geodesics, etc.; when the Sun sets in the west, all these high temperatures and so on are transferred to the space in the west with the Sun, and in the original space to the east, the things brought by the Sun are gone. The important thing is that this space is still the same as when the Sun did not pass by.

Space is like a bookshelf, and the bookshelf itself is a kind of boundary of the space, and the space within the boundary can hold books; if a magnet is placed in the space, there will be a gravitational field of the magnet; if a lamp is placed, there will be light; if without stuff, that shelf space is empty.

So, we see how important it is to figure out the right concept of space!

Definition of Space?

When searching for meaning of the space, we can see a variety of definitions. All of them have their reasons, but none of them touch upon the essence of space.

We use "**cosmic subtraction**" to define space. Subtract the universe in front of us, take away all celestial bodies such as the sun, the earth, the Milky Way, and the nebula from the universe one by one; take away light, wind, animals and plants, even thoughts, everything from the universe, and the remaining universe where nothing exists is **space**.

This "space" is a place where all the things stored in it can be taken out one by one, and these things taken out can be put back one by one.

So, in the most basic sense, **space is an empty place with nothing in it**. Anything can be placed in it according to certain rules.

We believe that space consists of the following three parts:

- **Ultimate Space**,
- **Subspace** or **Space,**
- **Subspace-Isolation** or **Isolation**.

We can imagine it this way: according to the "cosmic subtraction method", take away all the celestial bodies, air, gas, energy, matter, information, thoughts, imagination... everything in the universe, and the remaining empty place with nothing in it is called "ultimate space".

The **ultimate space** is "the place that is left after taking away everything one by one, and can accommodate anything."

The ultimate space is so huge that we don't know where it starts and ends;

Although the ultimate space is right in front of us, we cannot touch it;

The ultimate space has no specific form, and we cannot change its state.

For example, bending, splitting, decomposing, folding, etc. are all impossible. This is because the huge ultimate space is a whole, and changing any part of it requires changing the whole. And because the ultimate space is so huge, it is impossible to obtain such huge energy to change its state.

A smaller space isolated from ultimate space according to a certain division we have named **Subspace**. Generally, it refers to the place where something occupies a part of the space. In ultimate space, a smaller space occupied by something is called the "**subspace**" that contains that thing. Generally, we call subspace also a **space**.

Subspace has the property of ultimate space that its spatial state cannot be changed.

We call the boundary dividing the subspace from ultimate space "**subspace isolation**," or "**isolation**" for short.

Merging all subspaces together is the **ultimate space**.

If the ultimate space is likened to a huge cabinet for storing treasures, the subspace is any of the various grids, and the edge of the grid is the subspace isolation.

Depending on the purpose of our study, the division of subspace can also be changed.

For example, if there is a magnet in the space, then there can be multiple divisions for the subspace related to this magnet: one is to divide the subspace that accommodates its volume according to the volume of the magnet, and the other is to divide the subspace according to the magnetic field of the magnet. The range delineates its magnetic field space. The two subspaces are of course different. If the magnet is moved to another location, the subspace where it was in is still at the same location, but it is no longer the subspace that accommodated the magnet, and there is no magnet field anymore; and the new subspace that is accommodating the magnet and also magnet field, are already at the new location where the magnet is now inside.

The same goes for replacing this magnet with a celestial body. If there is something like a geodesic line due to the existence of this celestial body, then after the celestial body moves to another place, this geodesic line will also go with it. The original space is now empty, and nothing has changed there, certainly no bent of the space, and no geodesic line so that no light will transfer along this no existing geodesic line.

Therefore, if a subspace changes, it's because the matter existing within that subspace has undergone some kind of change, and it has absolutely nothing to do with space itself. Don't treat space as something that can be manipulated at will, attributing all sorts of chaotic changes in matter to space. Space itself is "empty"; if you remove the matter that exists in that space, all the geodesics, curvatures, and so on will disappear along with that matter, leaving behind pure, unadulterated space.

Generally speaking, we are talking about subspaces rather than ultimate space. For example, the space between the Earth and the Moon. The ultimate space is the whole of the space, and the subspace is a part of the ultimate space.

Ultimate space contains everything we know and what we don't know, but it's not crammed full. It can accommodate anything. But having this kind of capacity does not mean that you can put anything into the space at any time — it is conditional. For example, in the space occupied by the Earth, another planet cannot occupy the same space.

Let's begin by imagining what the ultimate space looks like. The ultimate spaces is right before our eyes; all the spaces we see belongs to the ultimate space. The simplest way to convince someone that space can be bent is to bend a small piece of the space right in front of us and show it to us! Even just a tiny bit.

How big is the ultimate space?

Because the ultimate space is the space after removing all entities, imagination, and thoughts, **its scale is unknowable for humans**.

If there were a Big Bang in the universe, of course this Big Bang also happened in a certain corner of the ultimate space. Just like a nuclear test exploding in the desert, although it is powerful, it is only confined to a certain corner of the Earth. The Big Bang that occurred in the ultimate space, even if there is such an explosion, the space created by this Big Bang is the Big Bang universe that people can see, it just happened in a

small corner in the ultimate space. Explosions in space, however large they are, are no different from ordinary explosions that happen on Earth, except the explosion range.

According to the un-scientific Big Bang theory, it is believed that the boundary of the Big Bang is 13.7 billion light-years, which is the farthest distance the NASA telescope can see. In farther places, humans currently have no ability to see and perceive. But humans should not limit their thinking with such limited abilities.

Since scientists identified the space of the Big Bang several decades ago, the aforesaid 13.7 billion light-years big, with the help of dark energy and dark matter, celestial bodies, such as galaxies and nebulae, are also said to be expanding at a rate that, beyond the boundary of the visible universe, exceeds the speed of light. Thus, we can't see these bodies. However, these invisible celestial bodies that have escaped our observations have not vanished. They exist beyond our capacity to see them; in brief, they exist in the ultimate space.

Therefore, even according to the pseudo-god Big Bang theory favored by modern cosmology, in which the universe was produced by an atom exploding, the ultimate space is boundless. Are the celestial bodies that are more distant than our capacity to see them, having escaped the space created by the Big Bang, still moving at a speed faster than light? Does dark energy still permeate the space there? (Thinking of this, would it make people more suspicious of the Big Bang theory? And is it more suspicious of the so-called cosmic matter calculated by the great scientists?) The question multiplied.

Of course, as we don't know the starting point and ending point of the ultimate space, we cannot determine its starting time and ending time.

We humans, as tiny as we were when compared to celestial objects or cosmic space itself, should never refuse to imagine what we cannot see. Yet, by its given theories, including the Big Bang, the mainstream scientific community tells us that our capacity to understand the ultimate space is limited by the observable radius defined by the telescope, that is, within the scope of the Big Bang. And compared to the real space of the universe, the ultimate space, this observable radius is extremely small.

It is not terrible to be bound by a telescope to a certain range of perception. The terrible thing is to exaggerate this constraint then use it to constrain our thinking about, and understanding of, the universe, whether consciously or unconsciously. If what we know about the universe is constrained to the smoke and dust left by the pseudo-god Big Bang, then what we know and can know is tied to that constraint. The struggling creatures in this small space did not dare and did not want to even think about the wider world outside of the smoke and dust. What the universe may be, the ultimate space we have referred to, remains a mystery.

It is a logical necessity of an infinite background!

The boundary dividing the subspace from the ultimate space is called "**subspace-isolation**," or "**isolation**" for short.

"Isolation" can be a certain substance, some physical thing, or an intangible product of thought or imagination, or a combination of the above.

"Isolation" has its own form, too, defined by the thing within it.

When we talk about space, however, be careful not to attach the "isolated" property of the space isolation to the space itself.

Houses are common subspaces separated by the substance of building materials. "Thousands of miles together share the light of moon lady" is an imaginary subspace isolated by moonlight. "Parallel space" uses imagination as "isolation." It has not been confirmed whether it really exists.

Space can hold anything. But if something exists in the subspace, many possible situations can arise. For example, if another thing enters that subspace and they do not conflict with each other in terms of position, then they can coexist. And this holds for any number of things.

If, however, the two things mentioned above cannot coexist in the same subspace, then what can exist there depends on which is more suitable for this subspace. For example, if a fluid encounters a solid entering the subspace occupied by the fluid, the solid will partially displace the fluid, which will overflow the subspace.

On the other hand, if the fluid meets a solid, the fluid will move around the solid according to the movement of the fluid.

For example, when starlight from one star encounters another star, where the starlight intersects with the star, the part of the starlight that intersects the star will be blocked and absorbed by the star, and the other part will flow around the star in a curved manner. Behind the reefs and beacons in the river, the flowing water can be seen moving around stones or buoys. This is the instinct of fluid motion and does not require any gravitational field or bending space to guide the change.

Subspaces can overlap. This can be a physical overlap, such as a small chamber in a big house or a Russian doll set within another set; it can be an imagined as well, such as the temple in an overarching palace; and it can also be physical and imagined, such as "white hair is three thousand feet."

All **subspaces are connected**. There is no material that can separate one subspace from another. The **entirety of subspaces constitutes ultimate space.**

So, when we talk about space in abstract terms, it is ultimate space, or general space. When we don't specifically state otherwise, we use "ultimate space" and "space" interchangeably.

1. The subspaces are part of ultimate space; the entirety of subspaces constitutes ultimate space.

2. Subspaces can be subspaces of other subspaces, and there can be multiple layers of subspaces.

3. Part of the space that does not contain anything can also be defined as subspace, according to our needs. There is nothing in this space, which is divided by human thought with the help of things that exist around this empty space. For example, there is an empty subspace ES inside the solar system. There is no celestial body in this space ES, and it still belongs to the solar system.

4. The subspace is the same as ultimate space and has no properties. The properties exhibited by the subspace are those possessed by the objects in which it exists.

5. Subspace is a space inside the ultimate space that is divided into various shapes and sizes by human beings according to their own needs and conditions. To meet human needs,

> either naturally or artificially, subspaces have various forms, just like we separate the space inside a building into various subspaces as large as an auditorium, as small as a box, and even as small as the interior of an atom.

Generally speaking, a subspace is divided according to what it contains. The content and geometry of the thing determine the size and shape of the subspace.

The **Big Bang subspace** was generated based on the Big Bang theory. Whether it exists or not needs further study. In the description of space, temporarily think it is there. If it does not exist, it does not affect our spatial model.

The **Cosmic subspace** is the largest subspace that we can perceive, and it accommodates everything within the greatest possible perceptual range we possess: known and unknown celestial bodies, matter, objects, and their movements, etc. Cosmic subspace encompasses all other subfamilies within its space range. All celestial bodies that we can perceive, every development of everything related to human, are all in universe space.

According to the current meaning, cosmic subspace is the subspace of the Big Bang space, and the Big Bang subspace is the subspace of ultimate space. Because it will not cause misunderstanding, we will refer to cosmic subspace as cosmic space or universe space and the Big Bang subspace as Big Bang space.

If we follow the Big Bang theory, we can only conclude that Big Bang space is larger than cosmic space. This is because the space created by the Big Bang has been expanding beyond the observable limits particular to humans. Many years ago, we defined where the edge of the universe is, and noted its expansion rate as equal to the speed of light. Beyond the edge of the universe, where our ability to observe vanishes, the scope enlarges; it is beyond universe space, but we cannot observe it anymore. However, it still belongs to the Big Bang space. It's like a nuclear explosion in the desert. Assuming that the maximum distance that we can observe the dust of a nuclear explosion is ten kilometers, when the range expands beyond this, such as at 12 kilometers, the explosion space between 10 kilometers and 12 kilometers is outside observable space but still within explosion space.

The **Cosmic Subspace** is determined by the celestial bodies that humans can observe (or perceive). If the universe is defined according to other definitions, the 13.7-billion-light-year space range will change. For example, if we define the cosmic universe as being within the maximum range that known celestial light can possibly reach, then according to the new definition, the range of the new universe will be greatly expanded.

Below Figure 3.1 presents a pertinent example.

According to the data provided by NASA, the supergiant galaxy IC1101 is the largest celestial object that we have discovered so far. We can calculate its light has a relative propagation radius of 477 billion light-years, which means that IC1101's light may spread to 477 billion light-years away. We use this as the maximum distance that can be inferred. Although we can't observe such distance, we have reason to infer it. Based on that inference, we use 477 billion light-years as the scope of the universe. This range is much bigger than our current range of perception: 13.7 billion light-years. It is many times the scope of the universe NASA defined that human can perceive.

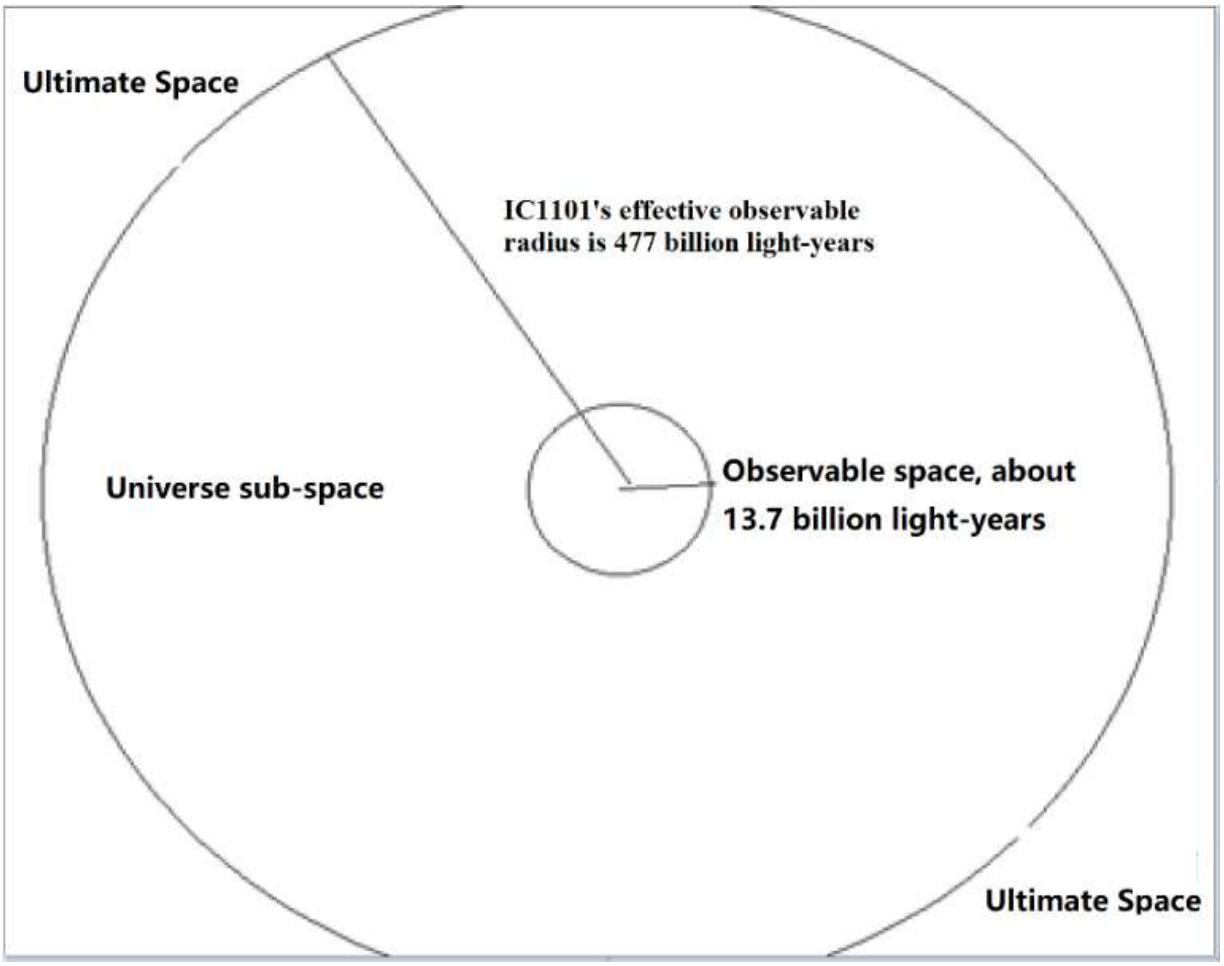


Figure 3.1: Imagined picture of the IC1101 light-propagation radius in the macroscopic universe.

But according to the above definition of universe space, Big Bang space has become a subspace of the newly defined universe space.

Cosmic space is all connected subspaces. The movements of objects within a local subspace cannot be freely extended beyond it. This is not a limitation of this space, but the limitation of the object itself. All movements and the promotions of movement need to consume energy.

Any feature other than the "emptiness" exhibited by the space belongs to the things it contains, and the space has no other feature except being "empty." People often mistake the events or material properties contained in the space as the space itself. Attributes such as the aforementioned length, width, and height are measurement attributes that describe the substances that exist in space, and they have nothing to do with space itself. Space has no shape, and space does not require measurement.

The **space has no shape and cannot be changed**. It's like a box with no cover, no bottom, no borders. Anything explodes inside, the thing that explodes has nothing to do with the box. What changes are the isolation boundary conditions of the subspace's morphology, volume, composition, etc., not the space itself.

Space is eternal; it does **not increase or decrease**. The volume of a subspace has changed not because the space itself has changed, but because the "isolation" that defines the subspace has expanded or contracted.

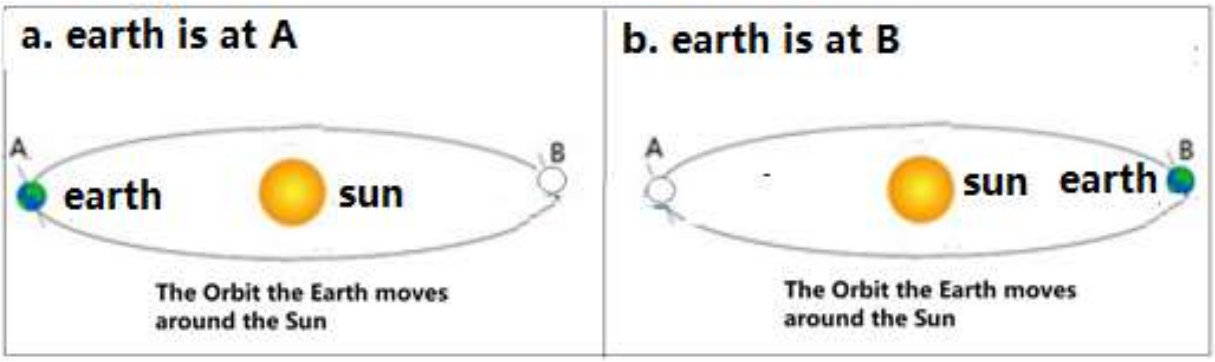


Figure 3.2: Earth's orbital space around the sun. By definition, the Earth passes through points in orbital space in turn. Left: When the Earth is located at Point A of the Earth's orbital space. Right: When the Earth is located at Point B of the Earth's orbital space.

Of course, after the isolation of the subspace changes, the shape of the subspace changes accordingly.

Space cannot be curved, and no way to bend!

Can space be curved?

There is nothing in the no boundless ultimate space. If it can be bent, how can it be bent? How much can it bend? In what direction? Is it one bend or multiple bends? How then can celestial bodies enter a curved space?

If there is no way to answer these questions, how can it be determined that the ultimate space can be bent?

Therefore, the ultimate space cannot be bent.

Then, all subspaces are part of the ultimate space, and of course they also can't be bent.

Imagine a subspace containing only starlight. How would it bend? Starlight comes and travels from and to all directions, so does this subspace bend in all directions?

As shown in the left image of Figure 3.2, whether the Earth is in the space shown at point A or B, or at any other location, the space of the Earth's orbit around the Sun is always there; points A and B and all others are always there. The space will not move, it will not disappear, it will not def.

As shown in Figure 3.2, suppose we define the orbit of the Earth as the "orbit space" of the Earth's movement. This orbital space is roughly an elliptical cylinder surrounding the sun. This is actually only drawn by our imagination based on the trajectory of the Earth after it passes. In reality, the rest of the trajectory is indistinguishable from the surrounding space except the space where the Earth is. Now let's take two locations in the orbital space that are far apart from each other, indicated by points A and B in Figure 3.2.

What we want to examine here is the different states of the spaces when the Earth is located at two points as far apart as possible in this orbital space and then the changed state of spaces indicated by the two points when the Earth moves from one point to the other.

As shown in the left picture of Figure 3.2, whether the Earth is in the space shown at point A or B, or at any other location, the space of the Earth's orbit around the Sun is always there; points A and B and all others are always there. The space will not move, it will not disappear or deform.

When the Earth is at position A, the space shown at position B is an empty space, and the Earth has not yet reached position B. At this time, the space shown at position A contains the Earth, the gravitational force of the Earth, the gravitational field generated by the Earth, which holds people on the Earth, accommodates the geodesics generated by the Earth, and so on. And the space shown at position B, because the Earth is not in it, is empty, so there is no Earth gravity, and people here will not be affected by gravity and are in a state of weightlessness

Now the Earth moves to the space position B, as shown in the right image of the Figure 3.2. When the Earth is at position B, the state of space represented by points A and B is completely reversed. Position B has the original state of position A, where people will be limited by gravity on the Earth, and position A has nothing, and people will be in a weightless state there.

This clearly demonstrates that the gravitational effects, geodesics, etc., exhibited by space are attributes of the Earth contained within that space, and not attributes of the space itself.

For all celestial bodies, at any position where the celestial body is located, such as the M point, the space near the point will generate the properties of the celestial body due to its presence, but after the celestial body leaves the M point and moves to other positions, this M position has no celestial body in it. This results in the loss of the gravitational field of the celestial body. **Gravity and other properties follow the celestial body, not space** it stays inside. The gravitation of bending still belongs to the celestial body, not to the space where it stays.

When the Sun moves to a certain space location, the matter in that space location burns and melts, and no other place in its orbital space emits heat waves. One cannot say that the space where the Sun is housed generates heat waves, because the heat waves move with the sun, but space does not move with the sun, and solar heat waves do not follow space. When the Sun moves to another location, it emits heat waves in that space location, but it no longer emits heat waves in its old space location. This fully shows that heat waves are emitted by the Sun, not by the space where the Sun is. Heat waves have nothing to do with space. Here, the same conclusion can be reached by replacing the heat wave with the gravitational wave generated by the sun!

This shows that the space is empty, and any measurable property, such as gravity, is brought by the objects contained in the space. After an object enters a subspace, the subspace exhibits the properties of the object; when the object leaves this subspace, the subspace no longer exhibits such properties.

It cannot be said that lightning emanating from dark clouds was sent by the space hosting the cloud; it cannot be said that singing in the air was caused by the space. If an object in space is affected by gravity, it means that the thing existing in the space is affected by gravity, which has nothing to do with the space in which the object exists.

Examine a certain space above the track of a high-speed railway. When a train passes through this space, it will bring up a strong wind and form some kind of air flow. One cannot say that this space is flowing because the space remains there after the train has passed.

When a car hits a person, it can't be said that the space that houses the car hits a person. After the car leaves, that space will lose the ability to impact the person.

The reasoning can be reversed: if the gravitational force that exists in space can be regarded as the attribute of space, then the light that exists in space can be regarded in the same manner as can the color of space and magical dark energy and dark matter … one can draw the attributes into space in the same way; according to this logic, the attributes of everything in the space can become the attributes of space.

If so, the attributes of this space become meaningless: having all attributes is equivalent to having no attributes. If you can change one attribute freely, you can change all attributes; if you can add one attribute at will, you can add countless attributes. Therefore, the space will have a variety of countless attributes belonging to different subspaces, and the attributes of each subspace will be different. There is no way to describe different substances in space and their interactions. Such a definition of so-called spatial attributes is meaningless.

Therefore, it is wrong to give to space any property possessed by the things it contains. This is basic common sense.

Some people will argue that the space in which the Sun is located curves; when the Sun leaves that space, that space is restored. If so, what does the curved space rely on to recover after the Sun leaves? Where does the energy it consumes come from? Can a small piece of space separate from the Ultimate Space? What theory supports this argument?

By the way, here are some other questions: What does distort space look like? What does the space look like without distortion? ?A small patch of space is warped; how will the space adjacent to it be deformed? Could someone create even a tiny warped space to show us what it looks like?

Everyone has space in front of him. Could a capable expert perform a small experiment right in front of us, or anywhere else, and bend a small, even infinitesimally small, piece of space? If such a simple experiment cannot be performed, then let's stop talking about Einstein's warped space.

The imposition of attributes that belong to celestial bodies in space, which become the attributes of space, highlights the inadequacies of Einstein's curved space; that is, the basic reason why general relativity cannot be established.

Some experts, however, may pose arguments against our position by using Einstein's field equation. May we ask, has anyone proved that Einstein's equation correctly describes the universe? Can the universe be described by only one equation?

Why did the soft fluttering balloon bend the sunlight?

It is true that the starlight bends as it passes near the Sun. But it is wrong to say that the bending was caused by the mass or gravity of the Sun.

Let's explore the real reason why starlight bends as it passes near the Sun by investigating sunlight blocked by a balloon in Figure 3.3.

This problem can be rephrased: if the Sun is replaced with a cardboard ball of the same size cardboard-Sun, will the starlight be blocked by this opaque and almost weightless cardboard-Sun when the starlight passes near the cardboard-Sun? Or will the starlight be bent?

On a sunny day, there is a big balloon overhead that covers the Sun. After the Sun shines on the balloon, the bending of the sunlight is, of course, not caused by the gravity of the balloon, because the gravity or mass of the balloon can be ignored in this case. Actually, this balloon blocks the

Figure 3.3: A balloon with negligible gravity or mass. How does the balloon block and deflect sunlight passing nearby it, leaving irregular shadows?

sunlight, so that the curved sunlight leaves a shadow on the ground, and it can only be said that this has nothing to do with the gravity or mass of the balloon!

If we gradually increase the balloon size in Figure 3.3, it will eventually be larger than the moon. In this process, the balloon will always block and bend the sunlight and form a conical dark space behind itself. If we slowly fill the expanded balloon with material, its weight will slowly increase and eventually exceed the weight of the moon. At this point, the balloon, which has both gravity and mass, will still block and deflect sunlight just as it would without mass and weight.

Simple Mathematical Proof that Space Cannot be curved

Simply put, mathematically, if we define the **empty set SU = { }** as the **Ultimate Space set**, SU can accommodate all things and subspaces, all beings, and everything that does not conflict with something else.

An arbitrary **subspace S of SU** is a bounded set $S = \{x_i \mid x_k \text{ and } x_j \text{ do not conflict with each other}\}$. The position of S in space is fixed. It contains a certain or limited number of things, concepts, subspaces, etc. that can coexist without conflict.

The boundary of S is defined by the members it contains.

S itself has no attributes. The attributes represented by S are attributes of the members contained in S. When a member contained in S is transferred or detached from S, the attributes brought into the subspace by the member are transferred or disappear from the subspace because, if any attribute of member x in S is said to be an attribute of S, then, since S can accommodate everything in the universe, S will have all attributes. This does not correspond to any subspace we are familiar with.

For example, if m1 = TV, m2 = plough, m3 = cow…, they all belong to the space set S1 = farm-household, that is, S1 = {m1, m2, m3, ...}. When all these members are working, we can't say that the S1 collection itself will show TV shows, will plow the fields, and will produce milk… Otherwise, if space S1 = delivery room, can we say that S1 will produce children?

Of course, people have the freedom to treat the attributes of the members contained in the space as attributes of the space and use them to define the space and its attributes. But what is the practical significance of such a definition besides confusing people's understanding of space? What we need is a theorem that can reasonably portray natural facts, not just mathematically beautiful things.

The imposition of attributes that belong to celestial bodies in space, which become the attributes of space, highlights the inadequacies of Mr. Einstein's curved space, that is one of the basic reasons why general relativity cannot be established.

Some people will point to Mr. Einstein's equation of the universe, the field equation. May I ask, has anyone proved that does Mr. Einstein's equation of the universe correctly describe the universe? Can the universe be described by only one equation?

3.0.2 Explain from Multiple Angles Why Light Does Bend Without Gravity as It Passes Near a Star

Sometimes we really don't understand the profound ideas of great scientists.

For example, there is the gravitational cone.

What kind of opaque object does not produce a cone-shaped shadow when it blocks the sunlight? But between celestial bodies, why does a normal shadow have to rely on the gravitation of the celestial body to form?

On a side note, **what role does gravity play in the experiment of dropping small balls from the Leaning Tower of Pisa?** Is the effect of gravity really as significant as Einstein imagined? Those interested are encouraged to investigate further.

There are several methods that can be used to explain why the light from a celestial body bends after passing near an opaque other celestial body. And each explanation is more reasonable and scientific than the Space-Time curvature that Einstein worked hard to figure out. Here are two of them.

First, let's compare it with the pictures of light diffraction in any middle school physics text book (Figure 3.4).

The light rays irradiated in parallel will gradually diffuse into the shadow space of the backlight of the obstacle after encountering the obstacle.

Here, the reason why light waves bend after encountering obstacles has nothing to do with gravity. It is a basic common sense in classical physics theory.

When we wrote this, we wondered: This diffraction theorem has appeared in junior high school level textbooks. It is used to explain how opaque objects block light waves emitted by the Sun or other light sources. As the light waves cannot pass through the opaque object, behind the object

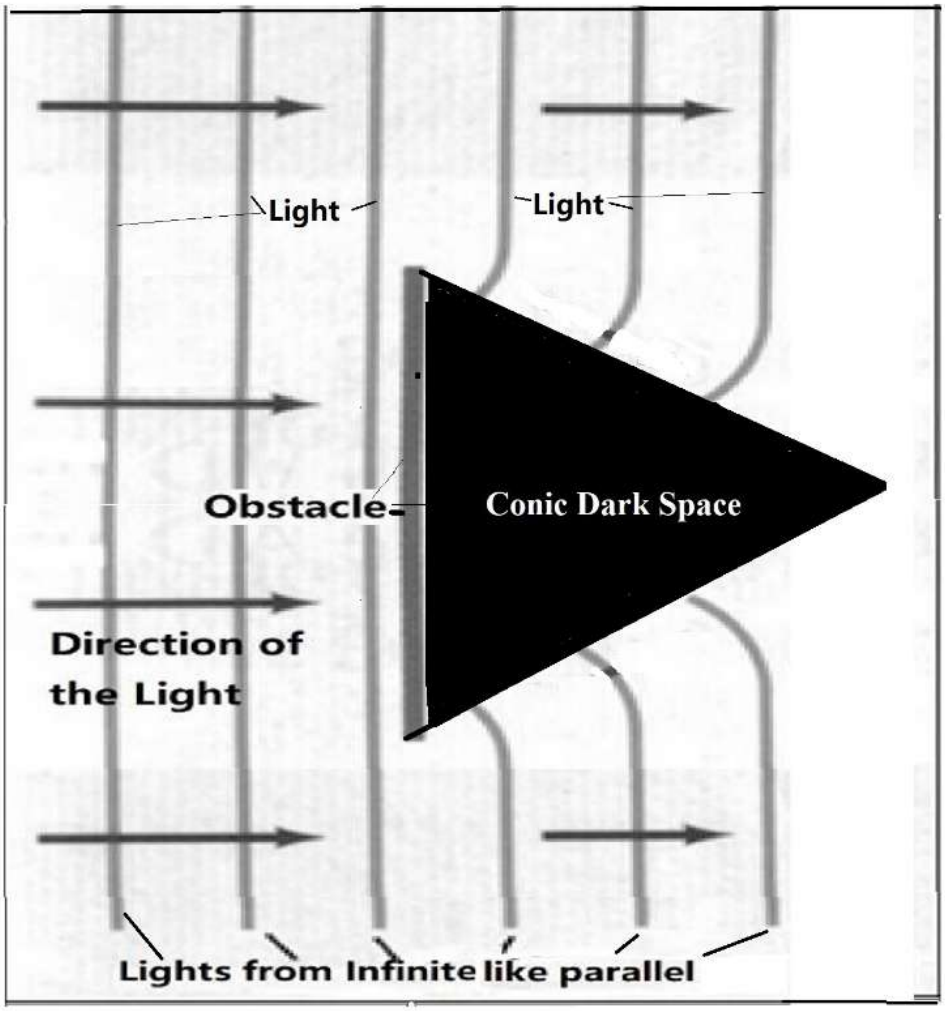


Figure 3.4: A diagram of the diffraction of light in a physics textbook. The arrow on the upper right indicates the process of light being deflected by diffraction. The light waves from stars that come infinitely far away can be considered to be basically straight. They originally travel along a straight line. When encountering an opaque obstacle, the light waves that originally traveled in a straight line at the edge of the obstacle gradually extend to the lightless space behind the obstacle, forming a cone-shaped dark space. It has nothing to do with the gravitational field.

a dark region without light waves will form. The light waves passing around the edge of the obstacle, however, will gradually spread into this dark area. Therefore, behind any obstacle, a **Conic Dark Space** will be formed because the obstacle itself blocks the light wave. However, due to the diffractive nature of light, this cone-shaped dark space will gradually be eroded by the surrounding light waves that are not blocked by the obstacle, making this conical dark space gradually diminish and eventually disappear.

Gravitational lensing involves gravity and light, or anything else, but these are things that happen in space; space itself does not participate in the formation of gravitational lenses. Space encompasses everything, static or dynamic, but it merely provides the space and does not participate in the process. Gravitational lensing also moves with the movement of celestial bodies. After a celestial body leaves this space, this space itself does not change at all. The "dark space" in the "conical dark space" is merely a small portion of space isolated from ultimate space due to changes in surrounding light; its boundaries are formed by light. Those "lens data" are irrelevant to the space we are discussing; they are simply passersby in this unchanging and unmoving subspace.

This is basic common sense. Why are both Einstein and contemporary physicists turning a blind eye to it? In the space between the light source and the observer, whether it is a large-mass celestial body, or a cardboard ball without weight, or any opaque object, if they are big enough, there will be dark shadow space where light waves gradually shrink inward. This dark cone-shaped space is obviously not caused by gravity.

Yes, Einstein turned a blind eye to this common phenomenon. When discussing this shaded space, he first said that it was bending light solely because of gravity, and later attributed it to the curvature of space-time near a large-mass star. The obvious fact is not considered at all; that is, the diffractive deflection of light between a celestial body and an observer, without considering its mass and gravity, but as a non-gravitational effect produced by a pure obstacle.

If the obstacle was bigger and heavier, then would it not block the light and change its course?

The light wave of any star is too large for the Sun, so large that the ratio of the stellar light wave to the Sun is smaller than the ratio of a man to a haze-particle. Can a particle smaller than the haze affect the light waves?

Taking the light wave emitted by the nearest star Centaur Proximal to the Sun as an example, let us examine it from far to near, from whole to partial, from the whole picture to the details. (Figure 3.5)

Figure 3.5 is a macro view of the light wave sphere sent by the neighboring star of Centaurus towards the Sun.The Sun is 4.2 light years from Centaurus. The diameter of the Sun is about 1.39 million kilometers. Therefore, for the Sun, the radius of the sphere of light emitted by Centaurus to the Sun is 4.2 light-years.

As shown by the small circle in Figure 3.5, Let's zoom in on this small circle, as shown in Figure 3.6 below.

The diameter of the Sun, relative to the radius of the light ball from the Centaur emitted to the Sun, is 1: 6.83 million.

How big is this ratio? Assuming the height of a person is 1.7 meters, haze particles are 2.5 microns = 0.0000025 meters, so haze particles and

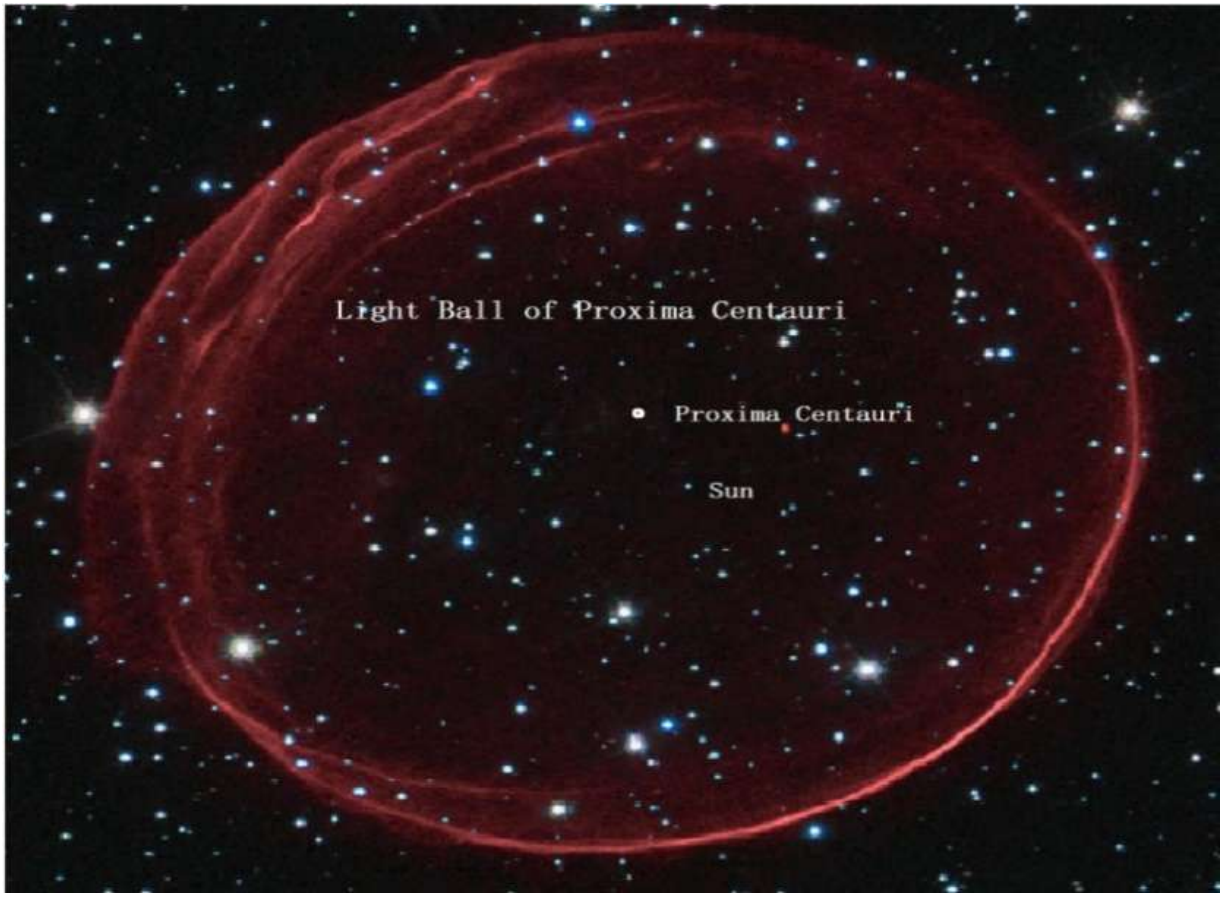


Figure 3.5: A schematic view of the light wave ball emitted from the Centaurus star. Relatively, the Sun is only a tiny dust in this ball. The figure is a completely out-of-proportion drawing. In fact, it cannot be described because relatively the Sun is so small that to be completely invisible.

the height of a person ratio is 1: 0.68 million. Please carefully compare the above two figures. That is, if we increase the diameter of the Sun by a factor of 10, the ratio of the diameter of the Sun to the radius of the light ball from Centaur, corresponds to the ratio of an adult to a haze particle!

Then enlarge the Sun and the surrounding light from Centaur is like shown in Figure 3.7. We can imagine the Sun in the picture as a dust, what ability does it have to bend space? Although the figure is actually far from depicting the Sun's tiny real scale.

So, from a ratio perspective, the Sun is equivalent to a small haze, how does it affect the equivalent of ten adults of the giant?

One floating dust ups and downs, can affect the world that surrounds it? We can imagine that an ant trying to bend the mountain winds of the Himalayas, would it be possible to succeed?

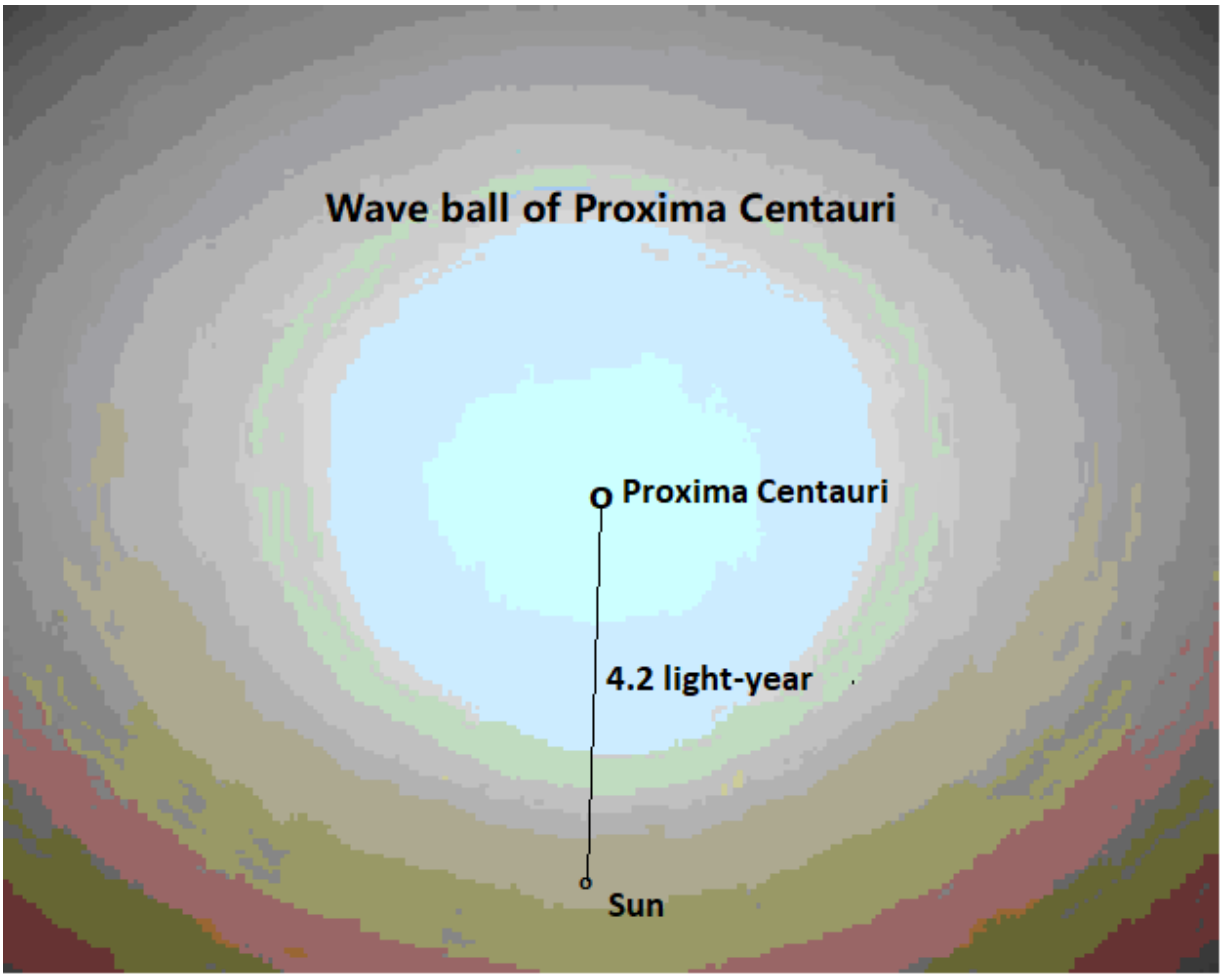


Figure 3.6: The figure, enlarged from the small circle, relative to the Sun, the light wave of the Centaurus is full of space.

Figure 3.7: In contrast to the above zoomed image of the Sun, which is relatively smaller than a haze. The light waves of the Centaur almost become a plane over the Sun. The Sun cannot have any effect on the light ball.

The size of the Sun is relatively small compared to the light waves from the nearest galaxy. How much can such relatively small particles bend such a huge light wave? From the perspective of energy consumption, such a small proportion of particles does not have enough energy to bend such a huge light wave.

Figure 3.8: Thin legs have no effect on giant waves.

Confetti can only be messy in the wind, and cannot change the trajectory of the wind; people can only be swept away in the tide of the Qiantang River, and cannot change the pace of the tide.

When star rays were transmitted to be received by the telescope, how many celestial bodies' gravitational fields were passed by them?

3.0.3 Einstein's Cosmic Field Equation that Needs to Be Re-evaluated and Justified

It is sad to rely solely on mathematical models to describe space without considering the reality of the universe. But this is the foundation and core of the modern universe "science" view.

When Mr. Einstein wrote the field equations of the universe that he could not solve using Riemann geometry he just learned, the very complicated and scary thing named the "cosmic" equation ruled the theory of the universe because of his reputation. Because of Einstein's fame, no one has heard anyone question this cosmic equation. No one asked to explain why this equation could be an equation describing the universe!

Mr. Einstein specialized in Riemann geometry, and then wrote the following field equations and called them "universe equations" (if you don't like mathematics, you can skip the formula portion, and can continue reading without affecting understanding. To be honest, I don't understand it very well, I don't even want to look at it carefully. But even Mr. Einstein himself didn't understand it very well and didn't find a solution to this partial differential equation. So, it doesn't matter that we don't understand it well, right?)

Mr. Einstein's field equation is the most important equation in Mr. Einstein's general theory of relativity. It is also the most important foundation of Mr. Einstein's theoretical system. Mr. Einstein's gravitational field equation is a slightly modified very complex second-order partial differential equation modified from Riemann geometry. A specific form of it is as follows:

$$G_{\mu\nu}+\Lambda g_{\mu\nu}=\frac{8\pi G}{c^4}T_{\mu\nu}$$

This second-order partial differential equation is very complicated, and Mr. Einstein himself did not know how to solve it. Since Mr. Einstein proposed this weird and complicated field equation in 1915, the development of general relativity has concentrated on solving this equation. The physical interpretation of the solution and the search for possible experiments and observations also account a big part for it. But because the field equation is a nonlinear partial differential equation, it is difficult to get a solution, so before the computer began to be applied to science, only a few results were solved. However, the earliest of these solutions is one year after the equation was invented. The most famous of these are three solutions: Schwarzschild's solution, Ressler-Nordstrum solution and Kerr solution. No Einstein solution.

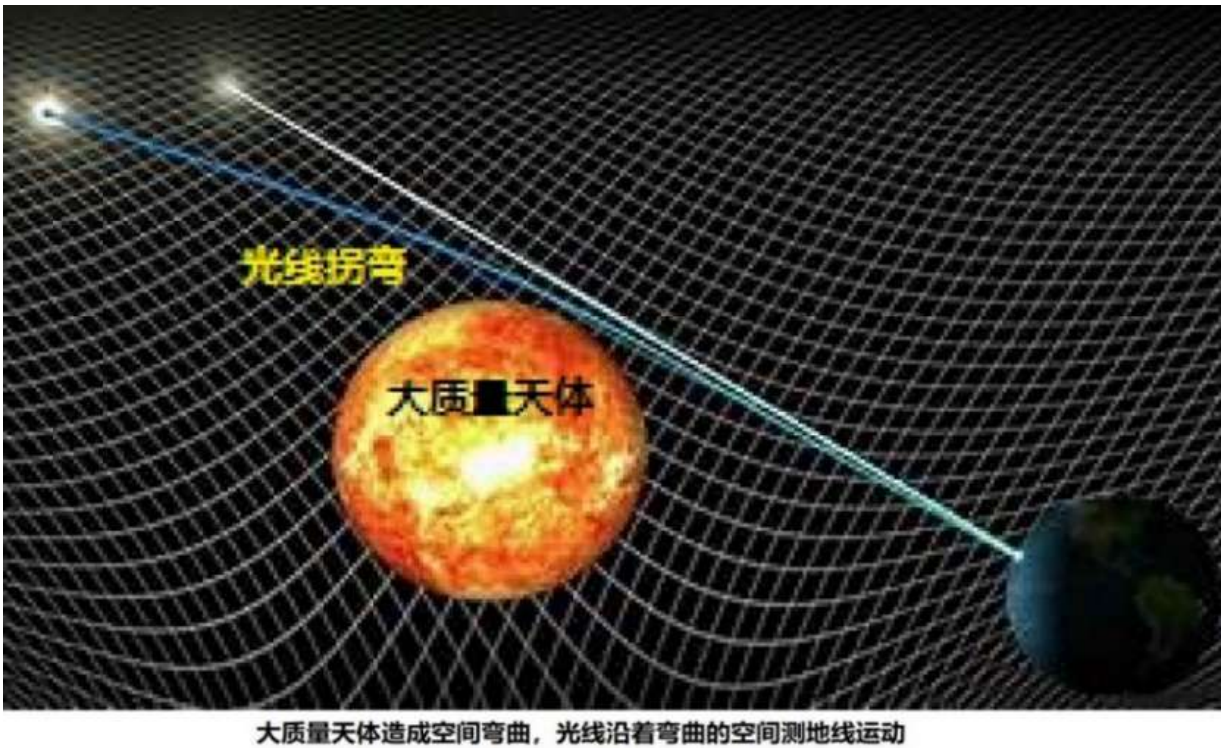


Figure 3.9: Einstein's point of view: The space near a massive celestial body is curved, and light will move along the curved space geodesic when it passes nearby the curved space.

In Mr. Einstein's equations, when the gravitational constant G is zero, the field equation basically fails. However, after the light passing by this zero G flat and no space-time bending cardboard ball or obstacle, the shadow cone behind the obstacle will still appear, although the deflect angle θ was calculated as zero. But such shadows and similar things were once attributed to be caused by the gravitational field.

So when the light of the star in Figure 3.9 passes near the sun, it is not bent by the sun's gravity, but by the mass of the sun that distorts the space and time near it, and causes the star light to travel along the curved space.

After Mr. Einstein's interpretation of the curved space came out, various similar explanations and images came out. For example, the following image below in Figure 3.10 is just one of thousands of similar pictures:

The biggest problem caused by such numerous and similar images is that people completely forget the original problem, and their thoughts completely enter the category of Mr. Einstein's thought, considering the macro images of the universe, celestial bodies, and space. the relationship between light and space, how light moves in such a mass and curved space, etc....

But why did Mr. Einstein propose this curved spacetime? What problem was he trying to solve?

Please cover up your reading and review the question.

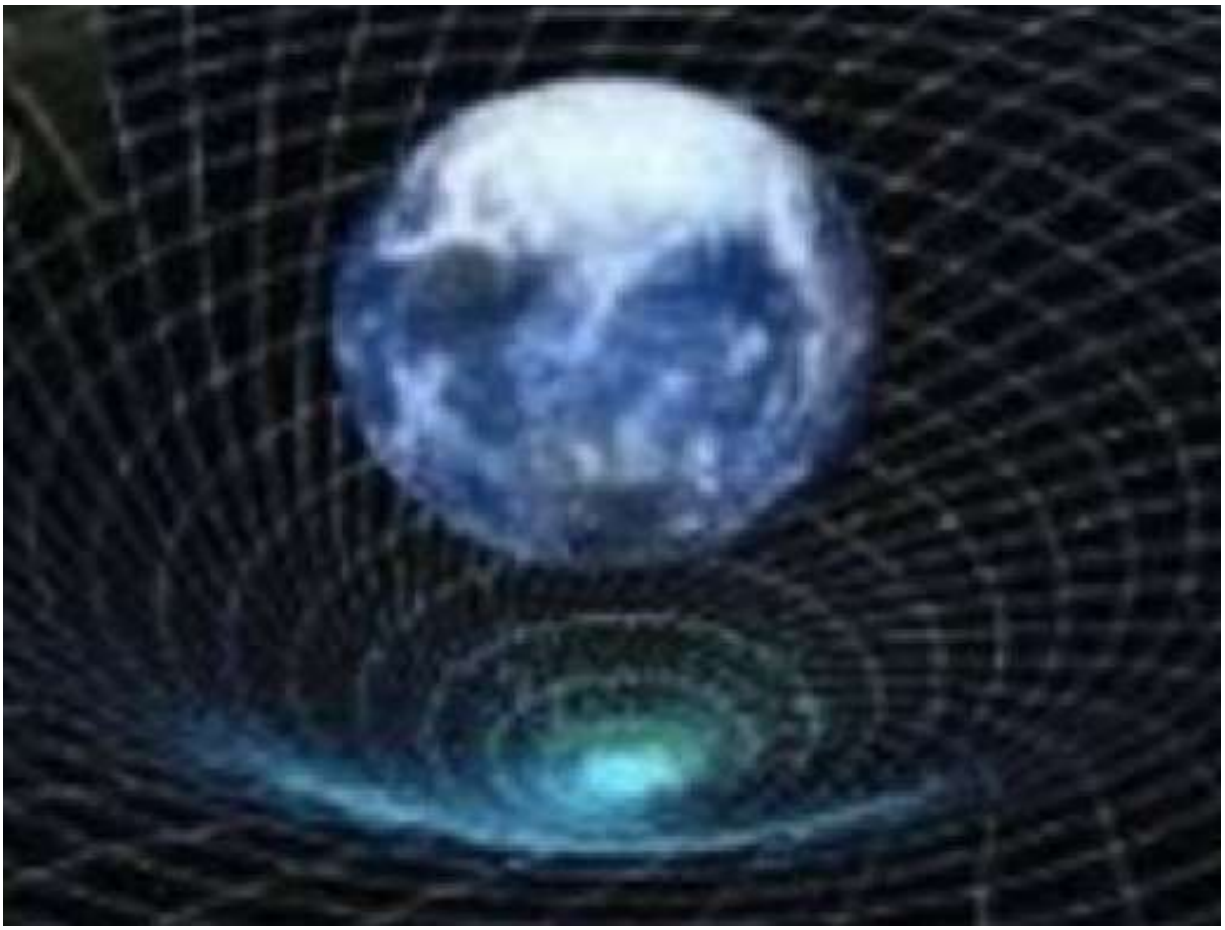


Figure 3.10: Typical image of Einstein's curved space.

3.0.4 Mr. Einstein's Twisted Curved Spacetime

The above briefly reviewed the development process of Mr. Einstein's space-time field. In simple terms:

- Mr. Einstein described the phenomenon of celestial bodies blocking stars (like the moon blocking sunlight) as "only gravitation of a celestial body bends the starlight." So, delve into how the gravitational field or gravity of a celestial body makes starlight move along a curve.
- Mr. Einstein first predicted that when the starlight passes by a massive celestial body, it will be bent by the celestial body;
- Through his observations of the solar eclipse on Earth, Eddington found that at that time, many stars, their positions were behind the sun and blocked by the sun, but in the eclipse, these stars that could not be seen on the earth now could be seen, so he announced to the world: because light has weight, so the light of the stars passed near the Sun was bent, and was attracted by the gravitational pull of the Sun. The starlight, which was originally blocked by the Sun and was not visible, was observed by him. He believed that this showed that Mr. Einstein's prediction was correct.
- But Mr. Einstein later discovered that his theory that the light was bent by the celestial gravitational field conflicted with his own special relativity theory. He needs to find a way to resolve this conflict theoretically. So thought out another round way: the theory

of curved time and space was born!

Think of a big basketball that gradually increases weight and volume! Hold it up to face a light source and see what happens.

Link to Figure 3.11 below, we can see some more important things.

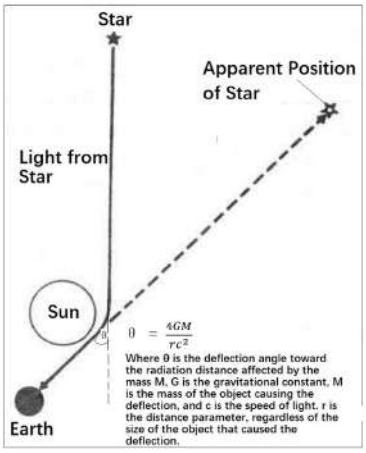


Figure 3.11: Calculation of the angle θ shifted by light ray in gravitational field.

Looking at the equation used to calculate the angle θ, we can find that θ is fully dependent on the gravitational G and mass M of the Sun. But this is doubtful. Imaging we gradually take out the mass from inside the Sun, until it is like a balloon ball sun, without or with very little of mass and gravity. The light will still be bent by this balloon ball sun, like that in Figure 3.3.

It can also be considered that the farther away from the surface of the celestial body, the smaller the gravitational force, and the smaller the gravitational force can only attract less light, which is exactly the opposite of the shape of the gravitational cone defined by Mr. Einstein. As shown in Figure 3.12, if gravity moves the surrounding light to a dark area, the closer it is to the celestial body, the greater its gravitational force. The gravitational force on the surface of the celestial body is the largest, and the amount of light attracted by gravity should be the most. If the gravitational cone is caused by gravity, then the earth's surface should have the strongest light, as shown in the picture below on the left. The actual Moon's shadow appears to an observer on Earth as shown below on the right.

We can also use light pressure to explain the phenomenon of light deflection when encountering obstacles.

When a shadow appears on the back side of the moon the light pressure in the shadow space will be lighter than outside the shadow. As a result, the light gradually erodes from the place where the light has higher pressure and enters the space where the light-pressure is lower, molding the shadow on the back into a cone-shaped space.

Similar physical phenomena are often seen in the currents of daily life. Behind the midstream stone in the rapids, a small dry space often forms. Sometimes this phenomenon can be seen even behind the buoys in the rapids on the river.

It can also be explained from other angles, which I explore in my other books. But we find it boring to continue talking about it here. It is an obvious thing. Nonetheless, Einstein came up with all kinds of tricks to solve the contradictions inherent in his theory of relativity, which scientists the world over have studied to repletion.

When Mr. Einstein invented the equation of the universe around 1917, the Big Bang theory that came out in 1927 had nothing to do with this equation. However, mathematical physicists were able to use the cosmological equations written by this great genius of science to include the Big Bang model. Mr. Hawking can use this cosmic equation to explain this way and that way, and then change his mind and play with this ancient cosmic equation. And cosmic science is being played with in this way and that by the academic community at will! Is this science? Can science still survive in the universe?

However, can an equation that Mr. Einstein imagined out of thin air and applied after just learning a little about Riemannian geometry, an equation that he has no idea how to solve, can describe the universe? Can we use it to explain the universe in one way or another, describing the universe as flat for a while and rolled into a curved surface for a while,

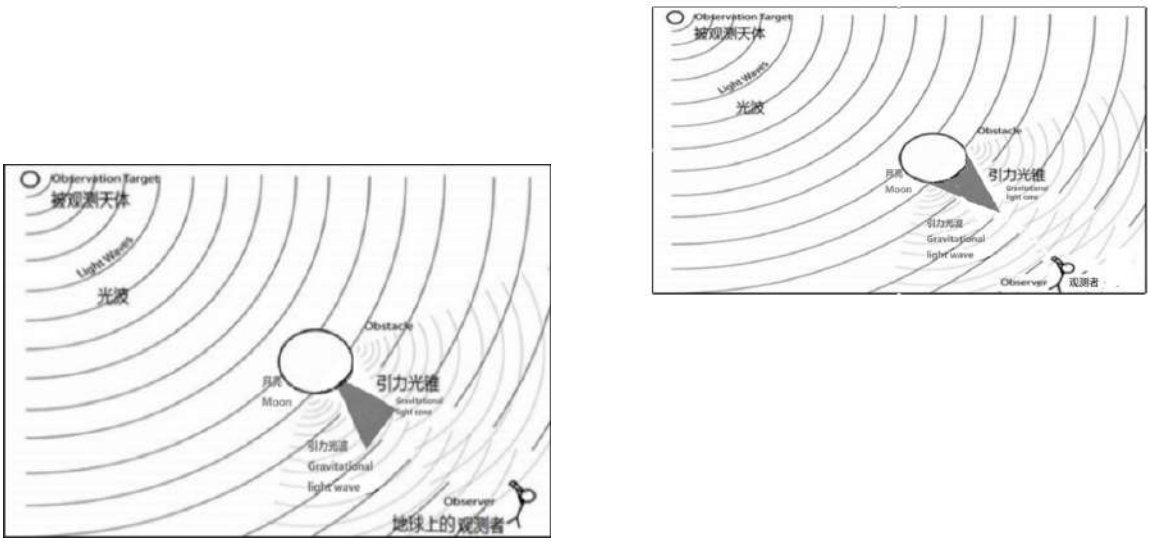


Figure 3.12: If gravity is the main reason for light deflection, the inverted shadow cone (left) would be the result of gravity decaying with distance. The actual Moon's shadow (right) contradicts this.

and let Mr. Hawking and other mathematicians make up stories with complicated formulas? Did you know that using neurons to identify a hot dog in artificial intelligence requires hundreds or thousands of systems of partial differential equations? A man who has never even flown on an airplane dares to make up an equation describing the universe? And hundreds of mathematicians and physicists have continued to flourish? Is this how taxpayers' money is being squandered by big scientists?

What's wrong with humans?

We have proven that space cannot be curved, and empty space cannot be curved. Nothing can curve it. What is the significance of the complex equations written by Mr. Einstein using Riemannian geometry that describes curved surfaces?

Only after the correct theory of space, and also of time, has a correct, truly scientific concept that is in line with human cognitive experience, which is the starting point for mankind to correctly understand the universe. In this sense, modern cosmic science has not yet started on the path of correctly understanding the universe, and it is not even as good as the ancient simple philosophical ideas of understanding the universe!

3.0.5 Math is Not Reality

The connotations derived from mathematics and real physics are not the same. Roughly speaking, we can regard the dimension of mathematical space as containing the number of variables in mathematical formulas. The strange thing is that people are hardly willing to face up, and rarely discuss the differences involved. Moreover, scientists these days – and

of course mathematicians — will commonly take mathematics as more real than reality. The most obvious example is the mythical mathematical game in which Einstein used a ray, a rigid rod, and a lot of dazzling definitions, concepts and formulas to build up his special relativity!

This is the evil result of the aging of mathematics made by human beings for hundreds of years!

In 1908, the German mathematician Minkowski published the paper "Space and Time (see Figure 1.2)," which combined the space described by three-dimensional (X, Y, Z) vectors with the time described by one-dimensional (T) to form a four-dimensional (X, Y, Z, T) mathematical description of time and space. Later, Einstein introduced four-dimensional space-time into his theory of relativity in his works, such as "Cosmological Considerations about Relativity," published in 1917.

However, from the beginning, they did not distinguish the concept of the "space, time" of mathematics from that of the physical world. To this day, there has not been any in-depth discussion on the issues of "space and time of matter" and "space and time of mathematics." Searching all their related works, we found that before they discussed the space and time of mathematics, they did not have a definite or comprehensive and correct understanding of real-world physical or living space and time. In other words, the space and time of Einstein and Makowski are pure mathematical models or universes constructed mathematically, and completely different from physical or living space and time. Because this situation continues, we will discuss the difference between the living space and time of matter and the space and time of mathematics to gain a deeper understanding of general relativity.

From the first two sentences, we can see that MINKOWSKI did not consider material space and time at all, but directly used mathematics to construct his four-dimensional space-time model.

These two sentences follow:

"Space and Time

The views of space and time which I wish to lay before you have sprung from the soil of experimental physics, and therein lies their strength. They are radical. Henceforth space by itself, and time by itself. are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent reality."

In fact, because the space and time of mathematics are not equal to those in physical reality, it is not appropriate to use pure mathematics to explain and reflect the living space and time in physical reality. The concept of mathematical space and time is clearly defined, while the concept of living space and time in the philosophy of reality includes a variety of simple, obscure and inaccurate understandings. On this basis, directly and crudely applying the purely mathematically defined space-time concepts to the vague and narrowly defined living space-time concepts of matter, of course, various conflicts and contradictions will arise.

In order to avoid using "physical space" – in some situations an unclear and easily misunderstood phrase — "living space" is used here. This is easier to understand. And the only space that can live is three-dimensional space.

Mathematical space concept

The concept of space in mathematics is very complex and all-encompassing.

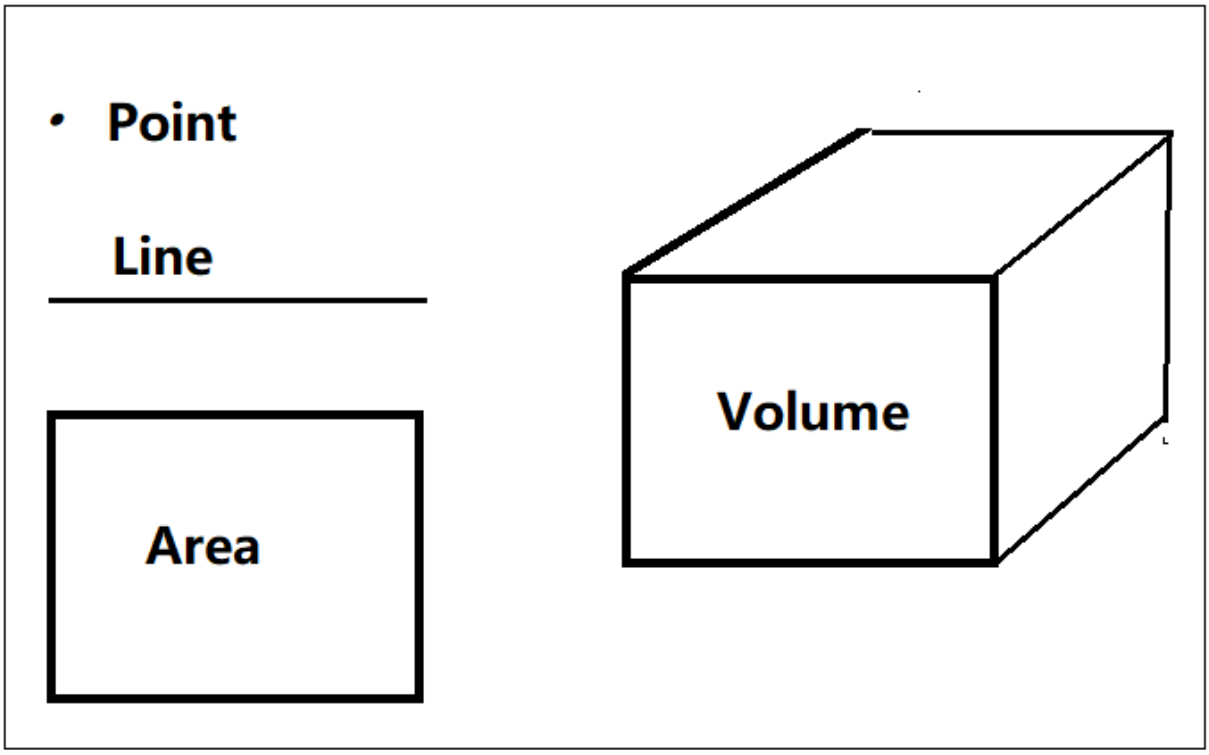


Figure 3.13: Basic elements of Euclid geometry. Humans have no way to draw 4 or higher dimensional figures.

Complicated mathematical space can be abstracted to the extreme. For example, various math functions can form the function space; algebra, geometry, trigonometry, etc. can form the mathematical discipline space; industry, agriculture, economics, etc. can form the different categories……

A simple mathematical space may be regarded as a linear space. In this space, a variable is one dimension, and if there are n variables, the space is called a n-dimensional space.

In general, mathematical space consists of selected mathematical objects that are regarded as points and selected relationships among these points. A point can be any simple or abstract object, ranging from a ”point” without shape in geometry to as large as galaxies, countries, disciplines, math functions, and so on. The relationship between points is the main object of mathematical space research.

Living space concept in physical reality

Human living space, which is consistent with physical reality, is limited by the material world and the ability of human beings to understand and transform the world.

Usually, people can only intuitively feel the three-dimensional living space where they are. When people want to visually study images in four or more-dimensional space, until now at least, there is no way to do it.

Because of the ubiquitous influence of mathematics on modern people, people often confuse mathematical space with the living space.

For example, people often use the concepts in Figure 3.13 below:

This is the most used concept learned in elementary school mathematics. It is drawn according to the Cartesian coordinate system.

But even with such a simple thing, when thinking about it carefully confusions can arise.

Of course, the volume represents a three-dimensional space, which can be represented by three coordinates (x, y, z). The surface is a two-dimensional space and the line is one-dimensional. Then the confusion comes:

What is the dimension of a point?

Countless lines in one dimension are stacked to form a two-dimensional surface, and countless surfaces in two dimensions are stacked to form a volume. Then, if countless points of zero dimension are piled up into a line, will the line be born out of zero or nothing? In addition, a point in the body often needs three numbers together in the coordinate system to represent it. At this time, how many dimensions is this point?

People often use rectangular coordinate systems to represent geometric images in mathematics, so they always think that the two-dimensional plane is like the one in Figure 3.13 but forget that it is only a special case of mathematical representation. For example, the surface of the human body is also a surface. It is more troublesome to use mathematics to describe this aspect.

How many dimensions is the curve that is composed of points? How many dimensions is the surface? ...

It seems that things are getting more and more complicated.

Therefore, it is better not to involve mathematical space when we are talking about physical living space.

Living space is relatively simple, but it also annoys mathematicians when studying complicated situations.

Simply put, the living space should be a space that people can recognize, can intuitively see and feel. It has only three dimensions at most. Complexity means that even objects in three-dimensional space, if we want to describe them in mathematics, are sometimes so complicated that it is very difficult to describe them with a combination of formulas. For example, the mathematical description of the human body surface mentioned above.

We often notice people talking about four-dimensional space, or six-dimensional images. Doing so, they are confusing a pure mathematical concept with the real-world living space in which they are.

The spatial images that people can visually see and visually express are at most **only three-dimensional**.

In the next chapter, we will begin by discussing time, including traditional concepts of time as well as some unconventional types of time you may never have heard of. After gaining a basic understanding of the nature of time, we will combine the concept of time with the concept of space to explore spacetime.

3.0.6 Chapter Summary

An ordinary ray cannot affect the length of a rigid rod and the flow rate of time on the rod.

Space cannot be bent, neither produced nor destroyed. It is the things arising and dying, contained in the space that are bent, not the space itself.

All of the above are intuitive common sense, but they are things that contemporary physics is inexplicably confused about.

The root cause of this confusion goes back to the great master Einstein.

Disregarding the rationality of the physical model, Einstein bluntly laid the foundation of the special theory of relativity with simple elementary school arithmetic but related to the wrong physical model: "a ray affects a rod." Then on this foundation he constructed the special theory of relativity.

Unfortunately, in contemporary astrophysics a great fuss can be made about an irrational, unreasonable, or inaccurate physical model without first carefully studying whether the physical model is reasonable or not. It is also the root cause of Einstein's continuous use of the wrong physical models in the theory of relativity.

Neither did Einstein understand the two concepts of simultaneity and synchronization, despite the fact that he used them to write his famous paper. Nor did he understand the respective properties of space and time, as he conceived them in general relativity.

Einstein did this in both his Special Theory of Relativity and General Relativity!

When doing scientific research, the methodology is clear: first, subdivide the research objects, study each of them carefully, and then conduct a reasonable comprehensive study of multiple objects according to your needs.

If someone combines several concepts together without careful study, then this approach is basically not scientific, and its results are often questionable.

This also speaks to combining the concepts of "space" and "time" – into "space-time" or "time-space" – or even to saying that time and space are interchangeable.

Question: Have you figured out the concept of "time"?

The truth is: time and space have not much to do with each other. Time is only about what is contained in space!

Let us explain this amazing fact below.

The Concept of Conventional Time and Its Real Meaning Attached to It

4

4.0.1 What is the time?

Someone might dream of stepping into the old footprints he left on the road, to meet his first love hidden in some corner of life's memory. Somebody else might want to look into the future, to know the road the world will be traveling, or he can take advantage of what will happen.

Time is like the rings of an old big tree, circles retaining the lonely, silently flowing time to stay. If there were no time rings from small to large, it would be like time itself that is not clear in its meaning and what it is describing.

From ancient times to the present, so many pioneer philosophers, religious leaders, and scientists from different countries and cultures have commented on time that the differences in the perspectives they bring to time, whether large or small, can be confusing. Be that as it may, a commonality presides: none do more than define time based on concrete life, the passage of the Sun, the Moon, the stars, the seasons, and so on. The passage of time is elusive, and it is gone without any trace.

In ancient times, before mentioning their names emperors were hailed by "long live," but none lived for a hundred years! In modern times, it is much the same, especially for those who invented "scientific" time and tales of space travel that intrigue and entertain. Notwithstanding when they were born, we do hope they can travel through time, so that we can meet them again in the future. We also want to time travel, with countless numbers of "I" in parallel worlds, so that we can attain immortality. How much beauty could we experience, as much in the past as in the future? Look at thousands of time-travel storybooks to know what a deadly and wonderful dream elixir of going back to the past is!

Unfortunately, this is all the stuff of dreams and fantasy.

Those bones in the cemetery tell us what time really means.

Modern science, however, disagrees, replacing **empirical experiments** with imaginary experiments, violates the spirit of science, and branded the time travel with the label of science.

For example, in the prestigious journal *Physical Review*, an article entitled "*Time Travel Using Degenerate Metrics*" was published in June of 2018. In the article, the authors used all-powerful mathematics to discuss how to travel through time.

The abstract of this paper follows:

The possibility of time travel is explored within the framework of first order gravity theory in vacuum. We present explicit solutions (to the field equations), whose geodesics allow the proper clock to run backwards. These four-geometries contain degenerate as well as nondegenerate tetrad fields that are sewn together continuously over different regions of the spacetime. Being devoid of matter and also of torsion by construction, these solutions have no exotic field content.

Look closely at this passage; does it have any scientific basis? It's like someone waving around mathematical jargon and spouting nonsense about four and five dimensions. Space is right before our eyes; please find or create a miraculous geodesic that makes clocks run backward in time, and please present your relevant theories; space is right before our eyes, please show us what these different regions of spacetime are like? These kinds of shoddy, sub-par science fiction ideas are published as "scientific" papers in Physics Review, the world's top-ranked physics journal!

It can be seen that the thesis is based on Einstein's field equation, and theoretically explores **how to realize time travel**, and travel back to the past.

In other words, modern physicists, led by Einstein, have concluded that the idea of time travel to the past is correct. The question is, how can we achieve time travel to the past?

People have taken Einstein's playful remarks and Hawking's oversight, and quietly corrected and embellished these "scientific" theories, formally presenting them in the hallowed halls of mainstream journals.

Those dead bones we mentioned above are about to jump out of their graves, and cry out: How could we become dead bones if we could have lived forever? Let's travel back!

On what basis was science born and grown? Who can do a repeatable experiment to show how to make people go back in time?

Should mainstream science waste itself on taking folktales or fantasy as subjects for research published in prestigious journals?

Space is right before our eyes, and time is all around us. Please perform a simple experiment to prove: How does space generate "geodesics"? How do geodesics cause clocks to run backward in time? Please demonstrate how clocks run backward in time. This is incredibly important! Applying this could lead to eternal life!

How ridiculous!

Shouldn't this absurd mythological "science" be thoroughly debunked?

Below we discuss some basic concepts about time, and then turn to Hawking's influential A *Brief History of Time* on the description and application of Space-Time light cone. Thereafter we discuss how Einstein and Hawking cooperated in creating "scientific" time travel, introducing mystery and fantasy into modern physical science in the name of science. Einstein was the initiator, and Hawking the communicator.

An overview of Einstein's concept of "time"

From preliminary research, it appears that Einstein only directly defined time in a single sentence. He wrote this in a letter to the family of a friend after the friend's death: "People like us, who believe in physics, know that the distinction between past, present, and future is only a stubbornly

persistent illusion." These words sound more like a eulogy than a scientific definition.

Einstein discussed time in his theory of relativity, but did not provide a precise definition. Einstein's discussions on time essentially focused on the following points:

Time dilation: In special relativity, time passes more slowly for moving objects than for stationary observers; this phenomenon is called time dilation.

Gravitational time dilation: General relativity introduced the concept that gravity also affects time, causing clocks in strong gravitational fields to run slower than clocks in weaker gravitational fields.

Four-dimensional spacetime: Einstein's theory redefined time as part of a four-dimensional spacetime continuum, where time and space are interconnected.

These principles have led to a different understanding of the nature of time in physics and other fields. We will briefly describe our perspective here. A more detailed analysis will be provided later.

Regarding time dilation, we already explained it in Section 2.5 of Chapter 2, "Time dilation is purely a relativistic illusion." Here, I' ve come up with a clever method for extending lifespan based on Einstein's time dilation, and I can't keep it to myself, so I' ll tell you now:

Make a one-meter-long cylindrical portable laser emitter, and let a laser beam continuously travel back and forth inside the cylinder. Carry this laser cylinder with you at all times, and you can live much longer than others.

The principle of this method is based on Einstein's theory. First, imagine yourself and the laser cylinder forming a relative system (is there any other way besides imagination?). Then, according to Einstein's quote in Figure 2.4, imagine yourself moving at the speed of light relative to the stationary laser beam inside the cylinder. Thus, strictly following Einstein's instructions, we obtain a satisfactory result through two acts of imagination: we experience time dilation by moving at the speed of light relative to the stationary laser, and thus relativity greatly extends our lifespan. So, you should hold onto the laser cylinder 24 hours a day! Therefore, biological aging is an absolute metabolic process, entirely independent of any relative observational frame.

If you follow this and don't live to be a hundred, then blame Einstein. Why did he talk such nonsense? Didn't he know that people treat every word he says as gospel?

Therefore, the title of the last chapter of my book "Who Should Talk About Cosmos," published in 2005, was "Relativistic Literature," but now it seems that "Relativistic Fantasy" would be more appropriate.

We haven't studied gravitational time dilation extensively. Here, we'll only raise one question:

In the experiment of dropping small balls from the Leaning Tower of Pisa, what role does gravity play? Is the effect of gravity really as significant as Einstein imagined? Is the interaction between gravity and mass proportional to the product of the masses? If gravity doesn't have a significant effect when massive objects (millions of times heavier than photons) are dropped from the Leaning Tower of Pisa, how can it have such a huge effect on photons, which are so light that their mass is negligible? Are

geodesics spontaneously generated by space itself? Can you show us a geodesic that is generated by space itself, rather than by a celestial body? If it's not generated by space, why are you forcibly dragging space into the discussion?

Regarding four-dimensional spacetime: This is the main topic we will study later. We will start by discussing the most basic concepts.

The Concept of "Time" that the Author Agrees With

As usual, we should first introduce various wonderful theories about time by our predecessors, but we will not waste space to introduce them here. In the information age, readers can access them by just searching. My books *Fading Modern Cosmology*, *Clarify Big Bang*, and others have detailed narratives and reference lists readers can refer to. The following presents the author's own understanding of time. Let's start with the most basic analysis.

Think about it, what is time? There is a sense of elusiveness that cannot be accurately described. Why do we feel this way? It's because the word "time" depicts different concepts. Let's subdivide them.

We believe there are **two faces of time: scale time, and the trajectory time of the existence of things**, simply referred to as **existence time**.

Our concept of time derives, first and foremost, from the natural phenomenon of our planet's rotation; in brief, standard Earth time is based on the length of time it takes the Earth to rotate once.

Application time is tied to the application of scale time. It is measured with a specified time scale. How is it measured? Of course, it is not space, which by definition is empty. What does it mean to measure space with the time scale? Is it measuring "nothing?"

Therefore, it is to **measure things that exist in space with the scale time!** Is there a problem with this passage?

Think carefully. If you agree with the above statement, then there is no reason to tie time and space together, because space and time have no direct relationship.

One could say that ultimate space has eternal time, but since we can neither know the beginning nor the end of this time, what is the point of defining or binding this eternal time and space together?

Each subspace, however, is a part of the ultimate space. Subspaces always allow us to track their origins in various ways, and thus we can measure them using a time scale and represent their beginning, process, and "Now" existence with numerical values of time.

An area of subspace and time are related through things that exist in this space.

The time concept we defined consists of the following two parts:

- "Scale time (time)"
- "Existence time (time)"

To clarify "time," we first need to clearly state what "existence time" and "scale time" are. "Existence Time" is the time used in philosophy or daily work to describe the passage of process, the transformation and evolution of events, and the lifespan of everything. "Scale Time" is used for practical purposes in science, in the physical world, and so on as a tool for measuring existence time, just as a meter ruler measures length.

It is very important to clearly distinguish between "Existence Time" and "Scale Time.", If we cannot clearly distinguish between them, and do not understand their differences, we will never really know what time is.

This distinction is not only a morphological division, but also an essential division.

Scale Time

"**Scale time**" is a measurement tool defined by Earthlings based on the movements of the Earth and the Sun, used to measure the "duration of existence" of an object, describing the sequential process of its occurrence and development.

In terms of application, "scale time" is strictly a tool for unit time measurement, a standard measuring meter. It is only used to measure existence time and does not belong to "existence time" itself. The "scale time" we commonly use now is just an immutable scale, as we have defined it, which measures the progress of things in strict accordance with the sequence of development, evolution, and advance of things.

The traditional definition of "scale time" is that it strictly follows the provisions of the measurement unit, in accord with the development of objects, from their origin to "Now"; a strictly irreversible sequence. This is the definition of time that ordinary people generally accept. Indeed, almost all of humanity uses this kind of "time" to communicate with.

When scale time is used to measure objects, several important concepts preside: "moment" and "time interval." "Moment" refers to a certain point in time, such as now, noon, and so on. A time interval can be determined by comparing two different moments, the length of which is the value determined by these two moments, such as 8:00 to 12:00.

Our **unit of scale time**, of course, is based on the relative movements of the Earth and the Sun, which provides the year, month, day, hour, and other time units.

If we encounter an alien who has just arrived from a distant planet, he will not know our concepts about time scales, such as year, month, day, and so on. Because it is the Earthling who defines them according to the relative movement of the Earth and the Sun, they are native products. A complete cycle of the Earth around the Sun is a year, the Earth self-rotating one round is a day, and then the year is divided into months, and so on. Aliens are not familiar with the Earth. At the beginning of their arrival, they don't know these relationships. Say "one year" to an alien, or "a light-year," and he will not know what you are saying.

But we do when speaking with each other. When talking about the measurement unit of "scale time," we Earthlings understand what the other side is saying.

Question: What time is it now?

Answer: Twelve o' clock.

This concise answer contains a part of the definition of the "time" concept, such as a day is divided into 24 units called hours, but it also implies the content of the day, week, month and year. If the answer is "Sunday, February 28, 2021," it is even more wonderful, as this brief answer also implicitly contains the long historical background of mankind.

The meaning of the definition of the concept of "time" of the Earth is closely related to "scale time." Terms such as years, months, days, etc. not

only represent the concept of time, but also act as a recognized scale to measure and use. The more mankind evolves, the more precisely the time scale is defined. On the contrary, if thousands of years ago, somebody said "0.001 seconds," no one would know what he was saying. At that time, there was no demand for using such a short time.

To review: we people on Earth have a common understanding of the definition of "time", and this definition has its own strict and irreversible connotations. From an origin point, time evenly, sequentially measures the order of an object's progress — the most fundamental basis for our ability to communicate with each other.

If someone wants to change the definition of time and turn it into a more mysterious, dazzling object, then he can do so, but before this definition is universally accepted and used for communication, he can only keep playing it with himself.

For instance, if someone want to define a concept of time that includes 100 dimensions, no problem! He is free to do so. He is also free to write an article on this fascinating concept of time, and have it published. But publication on its own, whether in a scientific journal or popular magazine, does not mean that this concept of time is reasonable. If by chance, the public adopts it and uses it to communicate, and the world operates in accordance with it, then his definition gains the reason it needs. The opposite, of course, is that very few readers pay attention to it and even fewer make use of it.

So, if someone wants adds to scale time with a variety of arrows or make it higher-dimensional, print it in a book, and publish it, he can only say that he is giving his own time definition. It does not mean that his definition will be accepted by the public, it does not mean that the public will accept his definition, adopting this concept of time, and therefore, he has no way to prove that he can put the existence of objects into numerous historical events so that they really exist there, for example, using a time machine to pop in and out of historical events.

One only needs the definition of time to see that time travel is a farce of thought. We have already refuted such nonscientific time travel in the chapter "Relativistic Literature" in the book <Who Should Talk about the Cosmos>, published as early as 2005.

So, what kind of "time" can scale time be used to measure? Of course, it cannot be used to measure time in a place where nothing exists, as we discussed earlier. We can only use scale time to measure the duration of existence of objects that exist in space!

How do we measure the time of things that exist in space? When something—let's call it thing A—doesn't exist, we obviously can't measure it. Once thing A comes into existence, we can mark it with its existence time and begin to measure it using scaled time.

From the above reasoning, it can be seen that "scale time" is a measurement tool defined by humans, used to measure the "existence time" of the sequential process of things happening and developing.

From an application perspective, strictly speaking, "scale time" is merely a unit of time measurement, a standard scale. It is only used to measure existence time and does not itself constitute "existence time." **The "scaled time" currently commonly used by humans is simply a scale of existence time defined by people on Earth. It strictly measures the process of things according to the sequence of their occurrence,**

development, evolution, and termination, and is an unchangeable scale of existence time.

When applying scale time to measure things, the most important concepts are "moment" and "time interval." These are often both referred to simply as "time." For more precise expression, we use "moment" and "time interval." A "moment" refers to a specific point in time, such as now, or 12 o' clock, etc. A time interval is determined by two different moments; the length of this time interval is the value determined between these two moments, for example, from 8 o' clock to 12 o' clock.

It should be noted that the most fundamental calculation of scale time is based on the relative motion of the Earth and the Sun. If someone claims that a change in a clock's reading signifies a change in time in a universal sense, then one must ask whether this change in the clock's reading affects the relative motion of the Earth and the Sun. If it does not, then the change is only related to the environment in which the clock is located, and the change in the time indicated by this clock is only local, having no effect on the progress of time in a universal sense.

Scale time is defined by humans based on the relative motion of the Earth and the Sun. To change scale time, the relative motion of the Earth and the Sun must be changed. Any human activity on Earth, including synchronization experiments such as Hafele-Keating and GPS, does not have the energy to change the relative motion of the Earth and the Sun, and therefore cannot change the scale time itself.

We use "existence time" to describe "things," and we use "scale time" to measure "existence time."

Existence Time

"**Existence time**" is "time" itself in our usual sense, and refers to the existing time of a thing and its historical trajectory, which is abbreviated as "existence time."

The formal name for "**existence time**" is "**the process of a thing's existence from its beginning to the "present" and its historical trajectory**," abbreviated as "existence time."

Why is this the case?

Based on the understanding of space described earlier, ultimate space is too vast for humans to comprehend; humans cannot find the origin time and the end time of ultimate space. All subspaces are part of ultimate space, and therefore, one cannot determine the beginning and end of ultimate space from them.

A subspace is a part of the ultimate space; it is not separated from the ultimate space, but rather delineated by the things that exist within that space. Therefore, the subspace itself is a part of the ultimate space and, like the ultimate space, is not measurable by time.

Why divide the space into subspaces? Because we need to describe something within that subspace. Subspaces are delineated from the ultimate space based on certain conditions, thus allowing us to trace the occurrence, change, or end of the subspace's delineation. The time of a subspace is contingent upon the existence of events and things within that subspace. Therefore, we naturally understand that:

The existence of time is only connected to things within space, and has no direct relationship with space itself. Every event or thing in the universe

has different periods of occurrence and development. To describe something, we need to clearly understand the **specific temporal trajectory of these different periods relative to the "present" moment**.

Therefore, space does not have a temporal attribute, nor is it directly related to time. **Time acts on the things within the subspace, not on the subspace itself**.

From a philosophical point of view, existence time is an "absolute background" of the existence of objects and is an indispensable element in describing objects, from their origin to their end. Everything in the universe is performing in this context. It is in all objects that exist in the universe, but it never deliberately shows itself. It is unique, omnipresent. When you need it, it appears; when you do not need it, it is hidden. It can be said that it is such a special background material that it is ubiquitous and everywhere.

Existence time must be linked to the things within the subspace. Scale time, on the other hand, is the only standard measure used by humans to describe the sequential progression of the existence time of the things contained within that subspace.

The duration of existence is only related to things that exist in space, and has no direct relationship with space itself. Every event or object in the universe has different stages of occurrence and development. If we want to describe something, we need to understand the specific temporal trajectory of these different stages relative to the "present" moment. When the process of something accelerates, it is because the rate of its existence in time has changed, not because "time" itself has changed (which would imply a uniform change in the time rate of all things).

Every specific thing has its unique existence time and unique rate of progression. Because there is a unified standard scale of time to measure the rates of all different existence times, we can understand the rate of change of each thing's process.

A person's pulse is usually 74 beats per minute; after running, his pulse becomes 110 beats per minute. Note that this change in number is due to a change in the individual's time rate. Only under a constant time scale can we understand the change in this person's existence time, that is, the change in the universally accepted speed of the time trajectory. If the scale of time itself or its measurement results change with different events, can we still accurately measure the time of anything?

Therefore, **space itself does not possess the attribute of time and is not directly related to time. Time acts on objects within the subspace, not on the subspace itself.**

The subspace constantly adjusts its position as the objects within it move. When an object moves to a new position, the delineated subspace also moves to a new delineated position. What moves is the object itself, while space itself remains part of the eternal and unchanging ultimate space, never moving.

From a philosophical perspective, scale time is the "absolute background" of the existence of things, and an indispensable element in describing the process of things. Everything in the universe happens against this background. Scale time accompanies everything, existing in all activities in the universe, but it never deliberately reveals itself. It is unique and ubiquitous. When we need it, it appears; when we don't need it, it hides

itself. It can be said that it is a special background substance, or it can be said that it is a ubiquitous concept that can be used at any time.

Existence time must be associated with things in the subspace. Scale time is a measuring tool for the sequential progression of the existence time of things contained within the subspace.

Consider this question: If multiple pairs of twins travel on the same spaceship, will their aging rate be exactly the same? What if one of the twins gets sick? What if he is dying? If the answer is no, then it becomes clear that even if the aging rate of the twins in the spaceship changes, it's not the flow of time within the spaceship that has changed, but rather that high-speed flight has different physiological effects on the people aboard the spacecraft; nor can these different effects on each individual be described as a change in time itself.

All of the above are matters of common sense. In the next chapter, we will explore some concepts we have never encountered before. They will help us understand the concept of time in a completely new way.

4.0.2 Chapter Summary

Scale time is an invariant measure developed and gradually refined by humans based on the laws of the Sun-Earth motion. All activities related to humanity are measured and expressed by this scale.

Existential time is essentially a historical description of the past states of things; it can be said to be a measure of the "time that things have existed."

The true existence of things is in the present moment.

The future time of things is merely an expectation or prediction of future developments that have not yet occurred; it does not truly exist in the real world.

These are all explanations of common-sense concepts inherent in our knowledge. Below, we will delve into some concepts and facts that have never been explored by previous generations.

Biological aging is an absolute metabolic process, completely independent of any relative framework of observation. May the bones in the grave rest in peace.

New Concepts of Space and Time

5

The main categories of objects present in the space and their associated timeframes

Space contains various substances, from massive celestial bodies to tiny photons. How can we understand them more clearly? We roughly divide the things contained in space into two categories: Unit Objects (UO) and Unit Object Flows (UOF); and we call the time associated with them Unit Object Time (UOT) and Unit Object Flow Time (UFT). A detailed analysis follows.

5.0.1 Classification of things existing in space – Unit Objects (UO) and Unit Object Flows (UOF) and their associated time – Unit Object Time (UOT) and Unit Object Flow Time (UFT)

Based on our limited understanding and the needs of our application, we divide the things contained in space into two main categories: Unit Objects (UO) and Unit Object Flows (UOF). It should be possible to derive more categories of things based on our classification of these two types. For now, we will mainly discuss these two categories, Unit Objects and Unit Object Flows, and not delve into a broader scope.

A Unit Object is something that can be identified as an independent entity, not dependent on other objects. Every person, animal, tree, water molecule, photon, etc., can be called a Unit Object.

A Unit Object Flow is different. It is a collection of a large number of similar unit objects, such as starlight. After starlight is emitted from a celestial body, it continuously propagates into space. Although more new photons emitted from that celestial body are added, it always propagates as a whole in space, moving away from the celestial body.

A unit object is not just a single thing; it is more often a unit object composed of a collection of multiple unit objects. A typical example is that a human is composed of countless molecules and atoms. A large unit object can be broken down into smaller unit objects, or many unit objects can be aggregated into a single unit object. A unit object has various levels of complexity, and can be inclusive or combined. A typical example is when we view the Earth as a unit object, the countless unit objects on Earth, such as humans, animals, and so on, are all contained within this unit object - the Earth.

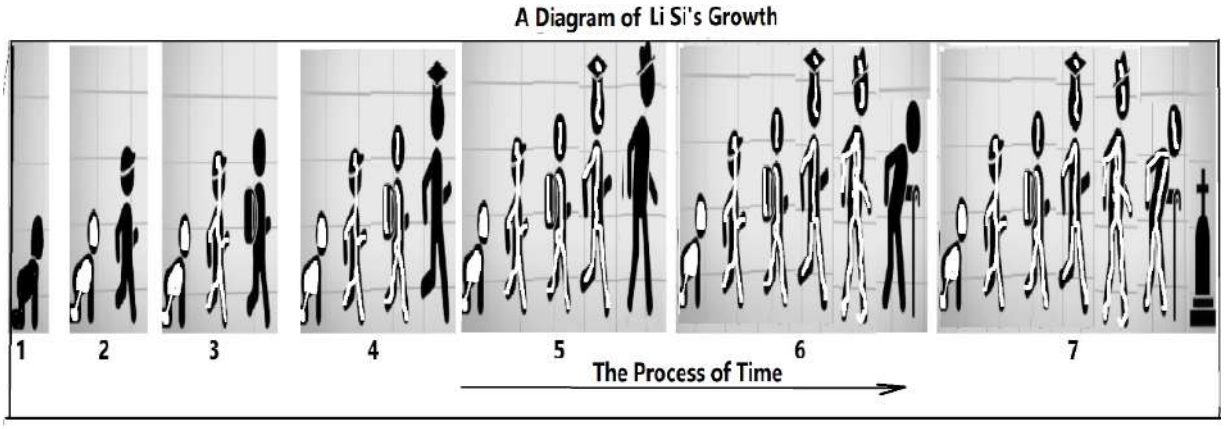


Figure 5.1: Li Si's growth chart: A diagram of Li Si's life growth process spanning 7 frames.

Various celestial bodies, including the Earth, are composed of countless different units. On the one hand, these celestial bodies themselves can also be considered individual units.

The world is a collection of units, composed of countless different units.

Units make up the world. The laws governing these units are the fundamental laws of the universe.

Unit object and unit object flow are two complementary concepts that we have defined.

Previous research on unit object flow has largely been incomplete. A unit object flow refers to a group composed of many same type unit objects. Previous studies viewed unit object flows from a holistic perspective, treating them the same as individual unit object, such as the propagation of starlight, leading to some controversial arguments.

When we discuss the relationship between space and time, it is necessary to study the relevant time aspects of unit objects and unit object flows separately, because they are vastly different. It can be said that without understanding the difference between the time of a unit object and the time of a unit object flow, it is impossible to understand the true nature of time.

5.0.2 Unit Object (UO) and Unit Object Time (UOT)

We define a **Unit Object** as something that can exist independently. A man, a car, a planet, etc. are all Unit Objects. The "Li Si" we'll discuss below is also such a unit object.

The existence time of a unit object is actually a historical description of the unit object's past states of existence. The true existence of a unit object is at the "Now" moment. The future time of a unit object is merely an expectation or prediction of the unit object's development that has not yet occurred; it does not truly exist in the real world.

Exploring the relationship between the existence and time of Unit Object from the perspective of personal development

Assume that the 7 small pictures in Fig. 5.1 are a diagram of Li Si's life growth process.

In Frame 1 of Fig. 5.1, Li Si enters this world, and thus, his existence time begins to exist for Li Si.

In Frame 2, Li Si grows into a child. The front figure of frame 2 represents Li Si as a child in the present moment, while the back figure represents Li Si as a baby at the last moment before the present moment (also the previous present moment in Frame 1). Because this baby no longer exists, but merely a historical memory of Li Si, he is depicted as a hollow image.

In frame 3, Li Si's "Now" has progressed a step further and he has become an elementary school student. The baby and child Li Si have become historical memories and no longer exist. In frame 3, two virtual images are used to represent his historical existence.

Similarly, from Frame 1 to Frame 7, the "Now" moment in each successive frame represents Li Si's actual past existence; as time passes, the "Now" in each frame rolls into the past, and the "Now" in the next frame becomes Li Si's true existence. This rolling replacement of the "Now" moment into the future continues endlessly, gradually accumulating traces of Li Si's historical existence into an increasingly rich history, as clearly seen in the gradual accumulation of virtual images from Frame 1 to Frame 7.

After Li Si's death, his time continues to move forward, frame by frame, through the "Now" moment, accumulating ever more historical traces and memories.

Summarizing the evolution of Li Si's life, we can begin to appreciate the traces of time and the mystery of the existence of objects:

1. Only after Li Si appeared and existed in the world, did times related to Li Si come into being;
2. Li Si exists only in the present moment, the "Now" moment;
3. Li Si's past is the historical trajectory of Li Si's past and his no longer existing history. This trajectory becomes longer as Li Si's existence increases;
4. Li Si's future doesn't yet exist; it's merely the next moment that Li Si's "Now" can reach. We expect Li Si's "Now" to smoothly and normally progress to his next future "Now," but it's entirely possible that Li Si's existence at this "Now" moment undergoes a dramatic change, such as the transition from frame 6 to frame 7 in Fig. 1. During this change, Li Si's life disappears, but his information and various other states persist. All the information about Li Si's life from frames 1 to 7 becomes a historical record. Li Si himself continues to exist in a different state in the rolling river of time.
5. From this perspective, the entire trajectory of a unit object's existence, from its appearance in the world, is a gradual progression towards the "Now" moment and this "Now" moment is constantly moving forward into the future. This is a dynamic and never-ending process. While the form of existence of a thing may undergo various changes, its historical trajectory, from the moment of its appearance, continuously moves forward with the passage of "Now" to the next "Now" moment in the future, accumulating an ever-longer historical record.

Let's have a more in-depth discussion from a more general perspective.

Using the conclusions drawn from Li Si's above discussion to describe unit objects, we know that the time and existence related to unit objects are: unit objects exist at the "Now" moment; the past of unit objects is its historical trajectory, but it no longer exists in reality; the future of unit objects is the expectation of the rolling evolution of objects from the

"Now" to the next moment, and it also does not exist at the "Now" moment. This irreversibility of the "Now" directly mirrors the irreversibility of entropy in thermodynamics.

A unit object is not just a single thing; it is more often a unit object composed of a collection of multiple unit objects. A typical example is that a human is composed of countless molecules and atoms. A large unit object can be broken down into smaller unit objects, or many unit objects can be aggregated into a single unit object. A unit object has various levels of complexity, and can be inclusive or combined. A typical example is when we view the Earth as a unit object, the countless unit objects on Earth, such as humans, animals, and so on, are all contained within this unit object - the Earth.

Various celestial bodies, including the Earth, are composed of countless different units. On the one hand, these celestial bodies themselves can also be considered individual units.

The world is a collection of units, composed of countless different units.

Units make up the world. The laws governing these units are the fundamental laws of the universe.

When we discuss the nature of units, their duration should also conform to the laws governing their existence: that is, they exist only in the present moment.

The world exists only in the "Now" moment.

Definition of the Law of Unit Object Existence

Law of Unit Object Existence: In the process of evolution from birth, through the past, to the present, and into the future, a **Unit Object exists only in the moment of "Now."**

We call this existence time as UOT.

Specifically:

A unit object begins its own time memory from the moment of its birth, the "Now" moment.

The past of a unit object is the time memory of the events of its evolution, which has passed and no longer exists.

The future of a unit object is a prediction of the state that does not yet exist, an expectation of a possible future state.

The "Now" moment of a unit object is the moment of its true existence. This "Now" moment continuously rolls forward into the future, leaves a no longer existing trajectory behind.

When we discuss the correct representation of four-dimensional space in Chapter 6, we will further depict the motion trajectory of a unit object in four-dimensional space using a simple, practical, real, and concise four-dimensional spacetime graph.

The Temporal Progression of a Unit Object

Consider dividing the growth process of a unit object into intervals, such as "a year" or "a day." We call the day this unit object exists "today," the day that just passed "yesterday," the upcoming day "tomorrow," and the day after "tomorrow" "the day after tomorrow." Similarly, we call the countless days after tomorrow "the future," and the time from "yesterday" to the day this unit object was born "the past." Therefore, all past time is

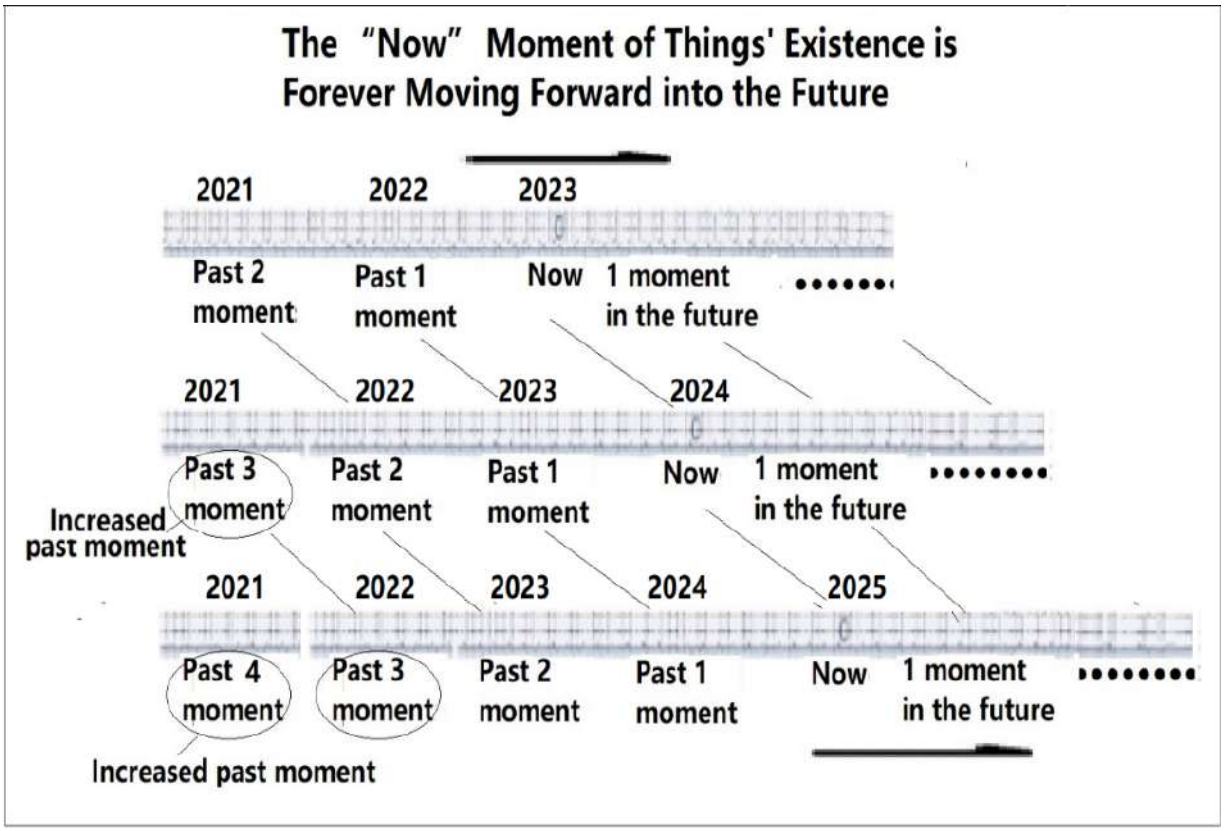


Figure 5.2: The "Now" moment of existence of a unit object is progressing as things progress in "year" moments.

the historical trajectory of the unit object's past existence, a time when it once existed but no longer exists. The future is not the time when this unit object existed, but rather an unrealized expectation of its future existence. The only time that unit object truly exist is the "Now" moment!

> Fig. 5.2 illustrates a unit object, born in 2021, progressing year by year from the "Now" moment of 2023 to 2024, one moment in the future. The unit object's overall time advances one moment into the future. The history of this unit object also adds the "past 3 moment" in the left edge of middle row in the diagram. The bottom row of the diagram shows the unit object progressing from 2024 to 2025. With each step, the "Now" moment advances one moment into the future, and the final history of this unit object adds a record of a past moment. Thus, the unit object evolves moment by moment, accumulating history. The result of this evolution is that the unit object always exists in the "Now" moment, its future is always just one possible development, never exists, and its past leaves an increasingly long historical trajectory from the "Now" moment to its birth. This is the law of evolution of unit objects.

The growth rhythm of unit objects

Linking the time of unit objects with the rate of their evolution would easily blur the distinction between time and the rate of their development. Time is a standard measure used by all humans, but the time associated with individuals varies from one object to another.

To this end, we propose the new concept of the tempo of development of unit objects to distinguish it from concepts such as time dilation. For example, if an astronaut returns younger than his twin brother who stayed on Earth after a spacecraft travel, we cannot say that time has slowed down for him (Because time is only a constant measure). Rather, we should say that his aging tempo has been slowed down by the impact of the flight.

Our system of measuring time gradually developed based on the Earth's movement relative to the Sun. Our precise measurement of each year remains the basis for how people on Earth determine days, months, and years. This is the foundation of the timekeeping system used by people on Earth. Can a spaceship flying through space change the movement of the Earth or the Sun? Of course, it cannot change the timekeeping system we use!

Conversely, if there is no unchanging time scale, how can we know how fast objects change? Only by measuring with an unchanging time scale can we measure the different rhythms of objects happening and developing.

The scale of time is constant, but the paces of growth of unit objects change with changes in their environmental conditions. These changes shouldn't be interpreted as changes in the velocities of time for those unit objects. For example, if Li Si's heart rate is 200 beats per minute while running, compared to 60 beats per minute at other times, we shouldn't say that the velocity of time has changed while Li Si is running. Instead, we should understand that it's the unchanging scale of time that measures the change in Li Si's heart rate as the intensity of his exercise changes.

Wouldn't it be more reasonable to say that each of unit objects has its own growth rhythms, and unit objects are not exactly the same. Just as my heart rate is 60 beats per minute, while the average person's is 74 beats per minute, there are always some equal and some different rhythms. When certain conditions change (such as running), the rhythms of these people's hearts change. This cannot be attributed to a change in time itself affecting each unit object, but rather to the influence of something else (in this case, running). It's not that time itself has changed, but rather that the relative rhythm of the unit object has changed. When people use time to describe this change, they are measuring it on an unchanging time scale, thus knowing the relative rhythm of each unit object. If time changes with the changes in the rhythms of different unit objects, then people have no accurate scale to measure the rhythms of unit objects, and therefore cannot measure the differences in the rhythms of different unit objects, or under different conditions.

How long is the "Now" moment?

"How long is the "Now" moment?

This is a profound question worthy of more in-depth study.

The "Now" moment refers to the actual duration of a unit object's existence, and it's not easily determined. For example, if Li Si's arm is broken in a car accident at a certain minute, should the "Now" describing Li Si's accident be defined as "minute"?

We haven't figured out the relationship between the "Now" moment and the rhythm of things.

We also haven't yet figured out how to determine the actual duration of the "Now" moment for a unit object. There are profound implications here, and interested readers are encouraged to join us in this study.

5.0.3 Unit Object Flow (UOF) and Unit Object Flow Time (UFT)

The concept of a Unit Object Flow primarily arose from the vast difference in the behavior of individual photons and starlight. The failure of previous researchers to specifically differentiate and study these two phenomena has led to many conceptual and expressive problems, hindering a deeper understanding of the universe.

Furthermore, unit flow time and unit time are fundamentally different. Without studying these two concepts separately, it is impossible to gain a profound understanding of the concept of time.

Once we clearly define unit object flow time and unit object time, we realize that many of people's past concepts, especially expressions like four-dimensional spacetime, are fundamentally flawed.

In other words, Einstein discussed time and space together without truly understanding what time is, so how could he possibly arrive at correct conclusions? For example, we will demonstrate that Einstein and his supporters couldn't even draw the most basic four-dimensional spacetime diagram correctly.

A unit object flow is a flowing group composed of a large number of same type unit objects.* Rivers and starlight are examples of unit object flows. A river is composed of a large number of flowing individual water molecules, while starlight is composed of a large number of moving individual photons. Unit objects and unit object flows are two complementary concepts that we have defined.

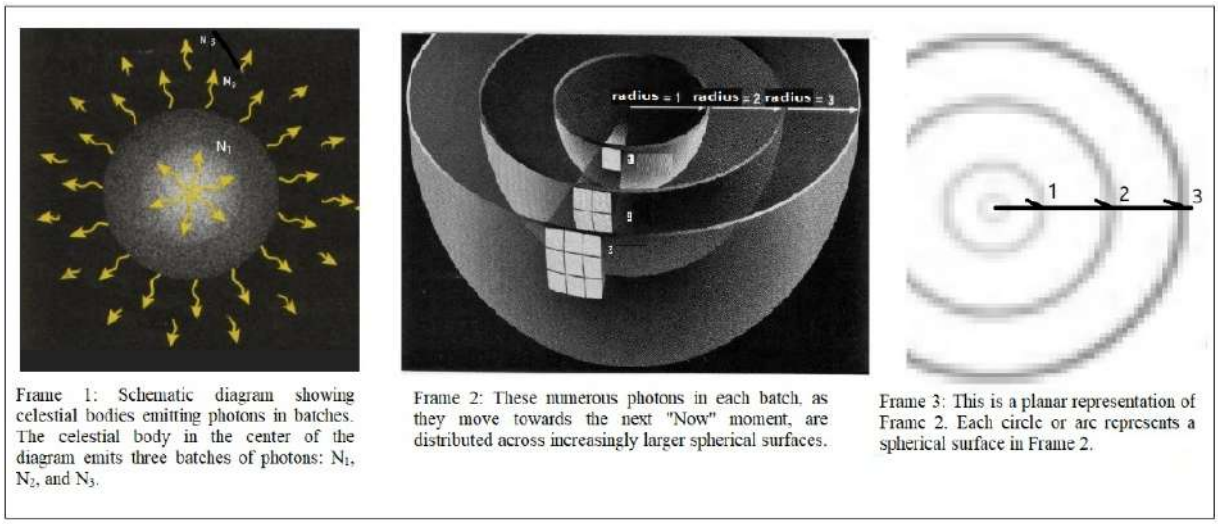
Definition of the Law of Unit Object Flow Existence

Law of Unit Object Existence: A unit object stream consists of a large number of same type unit objects emitted from the same fluid source. Throughout its evolution from its origin to the present, **the unit objects always exist at every moment within the unit object flow**. At the "Now" moment, the fluid source emits a batch of unit objects belonging to that moment. When this batch of unit objects evolves to the next "Now" moment, a new batch of unit objects is generated by the fluid source and occupies that "Now" moment. The fluid source continuously generates new batches of unit objects in this way, while all the batches of unit objects emitted in the past continuously move forward to the next "Now" moment, forming an uninterrupted stream of unit objects. At every moment, there is a corresponding batch of unit objects belonging to that "Now" moment.

Because the historical trajectory of a unit object flow is filled with a large number of unit objects, the individual unit object within the flow does not have its own separate historical trajectories.

For example, the stream of light emitted by the Sun is composed of countless photons emitted from the fluid source the Sun. We illustrate

* The "Unit Object Flow" represents the statistical distribution of independent discrete worldlines, which aligns with the probability density function in quantum mechanics (such as in the Double Slit experiment), rather than a continuous wave.



Frame 1: Schematic diagram showing celestial bodies emitting photons in batches. The celestial body in the center of the diagram emits three batches of photons: N_1, N_2, and N_3.

Frame 2: These numerous photons in each batch, as they move towards the next "Now" moment, are distributed across increasingly larger spherical surfaces.

Frame 3: This is a planar representation of Frame 2. Each circle or arc represents a spherical surface in Frame 2.

Figure 5.3: Schematic diagram illustrating the graphical representation of unit flow.

this with a fragment image showing three batches of photons emitted by the Sun in Figure 5.3 below.

In Figure 5.3, Frame 1, assume that the fluid source object at the center of the diagram, the Sun, has just emitted a batch of photons, N_1, at the "Now" moment (at this time, batches of photons N_2 and N_3 do not yet exist). Only these N_1 photons are uniformly distributed on the sphere with radius = 1 shown in Frame 2, and are represented by the circle labeled 1 in Frame 3. Please carefully compare Figure 5.3 with the above description to understand this.

When time advances to the next "Now" moment, the batch of photons N_1 from Frame 1 has moved to the next moment in the future (where N_3 is not yet present in the diagram), and is renamed N_2, uniformly distributed on the sphere with radius = 2 in Frame 2, and represented by the circle labeled 2 in Frame 3; while the new batch of photons that replaces the former N_1 occupies the newly generated batch of photons at the "Now" moment and is called N_1. (This naming convention greatly facilitates subsequent applications.)

When time advances to the next "Now" moment, the batch of photons N_2 from Frame 1 has moved to the position shown as N_3 and is renamed N_3; the batch of photons N_1 has moved to the position shown as N_2 and is renamed N_2; and the newly generated batch of photons at the "Now" moment is called N_1.

We assume that the number of photons produced by the Sun in each batch is essentially constant. The continuous stream of photons emitted by the Sun is divided into successive batches at small time intervals. These are represented in Frame 2 by radii of 1, 2, 3, etc.; there are significant gaps between them in the diagram, which are included for clarity. In reality, these gaps do not exist; each batch of photons is tightly continuous, and the separation between batches is artificially introduced for the purpose of discussion.

In the subsequent diagrams, we mainly use the circles or arcs in Frame 3 to represent the different spherical surfaces. Therefore, understanding the above explanation is crucial for a comprehensive understanding of the related concepts and diagrams. For example, the gaps between the circles do not actually exist; they are only drawn for clarity.

Understanding the relevant timing of unit object flows

We use Figure 5.4 to illustrate the understanding and representation of relevant time in the unit object flow.

In Figure 5.4, each circle or arc represents a sphere with a uniform distribution of photons emitted in batches. The figure shows the Sun emitting a batch of photons every minute for 10 minutes, starting 10 minutes ago. We break down this entire process into six parts from top to bottom for detailed explanation.

The top horizontal line, Part 0, in Figure 5.4 shows the overall picture after the Sun has emitted a batch of photons every minute for 10 minutes. The Earth is located 8 light-minutes away from the Sun.

Part 1, the next horizontal line in Figure 5.4, shows that in the first minute, the Sun emits the j-th batch of photons, uniformly distributed on the sphere represented by the first circle;

Part 2, the next horizontal line in Figure 5.4, shows that in the second minute, the Sun emits the i-th batch of photons, uniformly distributed on the sphere represented by the first circle; at the same time, the j-th batch of photons has moved from sphere 1 to sphere 2;

Part 3, the next horizontal line in Figure 5.4, shows that in the third minute, the Sun emits the h-th batch of photons, uniformly distributed on the sphere represented by the first circle; at the same time, the i-th batch of photons has moved from sphere 1 to sphere 2; and the j-th batch of photons has moved from sphere 2 to sphere 3;

……

In part 7 of Figure 5.4, we can see that the j-th batch of photons has moved from position 6 to 7, and the i-th batch of photons has moved from position 5 to 6, ..., and the d-th batch of photons emitted by the Sun "now" are uniformly distributed on the spherical surface represented by the first circle;

……

In **part 10** of Figure 5.4, we can see that the j-th batch of photons has moved from position 9 to 10, while the i-th batch of photons has moved from 8 to 9, and so on. The a-th batch of photons emitted by the Sun "now" is uniformly distributed on the spherical surface represented by the first circle.

In this way, we see the entire process of the Sun emitting 10 batches of photons in 10 minutes. In the figure, we use a, b, c, ..., i, j to represent the photons for ease of description, clearly distinguishing between batches of photons and their distance from the Sun. Through the progression of these batches of photons at each moment, we understand that:

Throughout the entire process of photon flow, at the same time that the source emits each batch of photons at the "Now" moment, all the previously emitted batches of photons advance by one time step.

At each node in the entire process of photon flow, there is a corresponding batch of photons. Each batch of photons exists at its corresponding time node, which is the "Now" moment of existence for that batch of photons. For example, in Figure 5.4, when batch j of photons is just created, its moment of existence is "Now," corresponding to the spherical surface labeled 1; in the next moment, the "Now" moment of existence for batch j

corresponds to the spherical surface labeled 2; ..., while spherical surface 1 is occupied by batch i of photons.

In short, every node along the path of light propagation corresponds to the "Now" moment of existence for the corresponding batch of photons at that particular time.

The "Now" moment of the Unit Object Flow

From the previous section, we know that in Figure 5.4, each node from 1, 2, ..., 10 corresponds to the "Now" moment of the batch of photons at that node. So, which one is most commonly used as the "Now" in our applications?

There are two candidates.

The first is the point labeled 1 in Figure 5.4, which is where each batch of photons in the entire photon stream is actually generated. Calling it the "Now" moment of the photon stream is an unquestionable designation.

However, for people on Earth, they consciously or unconsciously consider the location of the Earth as the "Now" of the entire photon stream. Therefore, point 8 in Figure 5.4 is what people on Earth consider to be the present.

The "past" and "future" of unit object Flow

As the "present" moment is chosen differently in different places, the corresponding "past" and "future" in those different places also change dramatically.

In Figure 5.4, we selected two points: point 1, located one light-minute from the Sun, and point 8, located eight light-minutes from the Sun. The Earth (the observer) is located at a distance of eight light-minutes from the Sun. For convenience, this part is copied into Figure 5.5. Now let's look at the relevant times observed by the observer at these two locations.

Let's first look at the situation at various points in time, using a distance of "1 light-minute" as the "Now" moment, as shown in Figure 5.5.

For the Sun, point 1 represents the true "Now" moment for all the photons it emits in batches. Each new batch of photons emitted by the Sun is distributed on this small spherical surface at point 1.

However, for a person on Earth acting as an "observer," the situation is more complex. Earthlings at their "Now" moment cannot see the Sun's photon emission show. The photons that the Sun emits at the "Now" moment onto the light sphere at point 1 will only be seen by Earthlings 8 minutes later.

That is to say, all the photons emitted by the Sun from the "Now" moment to the 7th minute are considered "future" events for the observer on Earth, who has to wait minute by minute for each batch of photons to arrive. The observer on Earth will see the photons emitted by the Sun at the 7th minute in the next minute, then the photons emitted at the 6th minute two minutes later, and then the photons emitted at the 5th minute, 4th minute... and 1st minute.

As shown in Fig. 5.6, the observer on Earth sees the photons emitted by the Sun at the moment that is "Now" for Earth, which are distributed on a spherical surface with a radius of 8 light-minutes.

All the light emitted by the Sun at earlier times—the light from the 9th minute, the 10th minute, and even billions of years ago—is, for an observer

on Earth, "**past**" light that has already passed by the Earth and is now far away and no longer visible forever.

Now let's consider the situation where a distance of 8 light-minutes, the **location of the Earth**, is taken as the "Now" moment, as shown in Fig. 5.7.

As can be seen in the image above, on the time axis T, with the Earth as the origin, past moments relative to Earth are represented by negative numbers less than 0, and future moments relative to Earth are represented by positive numbers greater than 0. However, in the image below, the moments corresponding to "future" are all negative numbers, while the moments corresponding to "past" are all positive numbers. Isn't this a bit perplexing?

Let's compare this with the famous light cone.

Please compare the description in Figure 5.7 with the famous light cone in Figure 5.8 below.

Frame 1 in the image shows a currently popular light cone diagram. The observer is positioned at the vertex of the light cone. So, what can be seen through this light cone? First, it cannot be the light cone of the Earth, because the Earth does not emit light. Therefore, the closest luminous star to the observer is the Sun. Assuming the light cone describes the situation of the Sun's light emission, let's compare the light emitted by the Sun in the last 10 minutes with the use of the light cone.

Frame 2 is the image obtained by rotating Figure 5.7 counterclockwise by 90 degrees. We see that at times above point 0 where the observer is located, these are photons that the Sun emitted long ago and have already passed the observer's location on Earth, which is now moving further away from the observer; at times below point 0 and up to the Sun's location, these are photons that the Sun has already emitted but have not yet reached the Earth to be observed. Therefore, the part called the "past light cone" in Frame 1, belongs to the "future" in Frame 2, and consists of photons yet to be observed by the observer. It absolutely cannot be called the "past light cone."

Frame 3 is the light cone image corresponding to Frame 2. It is drawn strictly according to Hawking's instructions. Here, we can clearly see that the luminous celestial body, the Sun, is at the vertex of the light cone. After one light-minute, the light it emits is spread out at the point where the time axis is 1, i.e., distributed on the plane of the light cone with a radius of 1 light-minute. In reality, this light is uniformly distributed on a spherical surface centered at point 1 with a radius of 1. At two minutes, the photons from one light-minute have advanced to two light-minutes, and a new batch of photons emitted by the Sun is generated at point 1, replacing the position of the original photons... This progression is described in great detail in Figure 5.4 and will not be repeated here.

A Complete Picture of the Propagation of Unit Object Flow in Space and Time.

The graphical representation of a unit object flow is completely different from the graphical representation of a unit object (Figure 5.9).

The photons that are emitted by StarA at the "Now" moment are uniformly distributed on the light sphere closest to it, labeled as 1. When the next batch of photons it emits are distributed on the light sphere labeled as 1, the previous batch of photons it emitted has already advanced from sphere 1 to sphere 2. These photons have not only moved from sphere

1 to sphere 2, but their distribution has also spread from a sphere with radius 1 to a sphere with radius 2. As the 3rd, 4th, ..., and Yth batches of photons are continuously emitted, StarA forms its complete propagating light sphere. The starting point of this light sphere is StarA, and each batch of photons is emitted from here and propagates into space at a certain pace (this pace is generally 1 light-year), until the star's lifespan of Y years. At this point, the length of StarA's light sphere is Y light-years. However, the star never stops emitting the next batch of photons before its destruction; therefore, as the star's lifespan increases, the light sphere propagating into space also increases. The length of the star's light sphere always remains a sphere with a radius of Y light-years, where Y is the star's age, and Y always increases with the passage of time.

When Earthlings observe a star at a distance of D light-years from Earth, the following situations arise:

1. All moments after the "present" moment of StarA, i.e., all moments after point 1 in the diagram, are considered "past" history relative to StarA. However, these historical trajectories do not disappear like individual objects; instead, they are replaced by different batches of photons at different times. Therefore, the flow trajectory of the stream of individual objects always exists.

2. For observers on Earth, all batches of photons from StarA to Earth have not yet been observed; they must wait until these photons reach Earth before they can be observed. Therefore, the distance D from StarA to Earth is a "future" region that requires waiting for observation from Earth's perspective. D is determined by the distance between Earth and the luminous star.

3. What Earth observers see now are only the photons emitted by StarA D years ago, which are considered the "present" moment from Earth's perspective.

4. All times in the direction of the future time arrow from Earth are considered "past" photons by Earthlings, meaning these photons have already passed Earth. They will gradually move further and further away from Earth, and Earthlings will no longer be able to observe them. This is a long process, related to the lifespan of the star.

From Figure 5.4 to Figure 5.9, it can be seen how incredibly wrong and utterly useless the light cone, so strongly advocated by Minkowski, Einstein, and Hawking, as shown in Frame 1 of Figure 5.8, actually is. We will discuss this in detail in the Chapter 6.

It can also be seen how important it is to divide the matter existing in space into unit objects and unit object flow. Only by studying their respective corresponding times can we truly understand that they have different existence times. Clearly distinguishing between the time of unit objects and the time of unit object flow is essential for obtaining a correct understanding of time.

Without a proper understanding of unit objects, unit object fkow, and their related times, hastily combining space and time together—can that possibly yield good results?

Einstein and others only provided a flawed light cone diagram as shown in Frame 1 of Figure 5.8 for four-dimensional space-time. However, they discussed not only light, but also non-luminous objects. How did they

depict the four-dimensional space-time image when discussing such non-luminous objects? Has anyone ever drawn such a diagram? These are all important questions.

One more point: these descriptions are all related to the "light" emitted by celestial bodies, not the celestial bodies themselves. Celestial bodies cannot move at the speed of light. Therefore, if we only focus on "light" without discussing the celestial bodies that emit this "light," we cannot accurately describe the relationship between space and time. What is the significance of the light cone?

Three-dimensional light images, such as light cones, cannot represent anything in the universe that is not "light." All light comes from a light source. Does studying light mean we can study all light sources? What if Li Si doesn't emit light? Can you use a light cone to describe any celestial body itself, rather than the light it emits?

Compare the above description with the Earth's orbit around the Sun in Figure 5.10 below. In its orbit around the Sun, the Earth always exists at only one point on its trajectory. But the countless photons emitted by the Sun constantly fill the entire surrounding space.

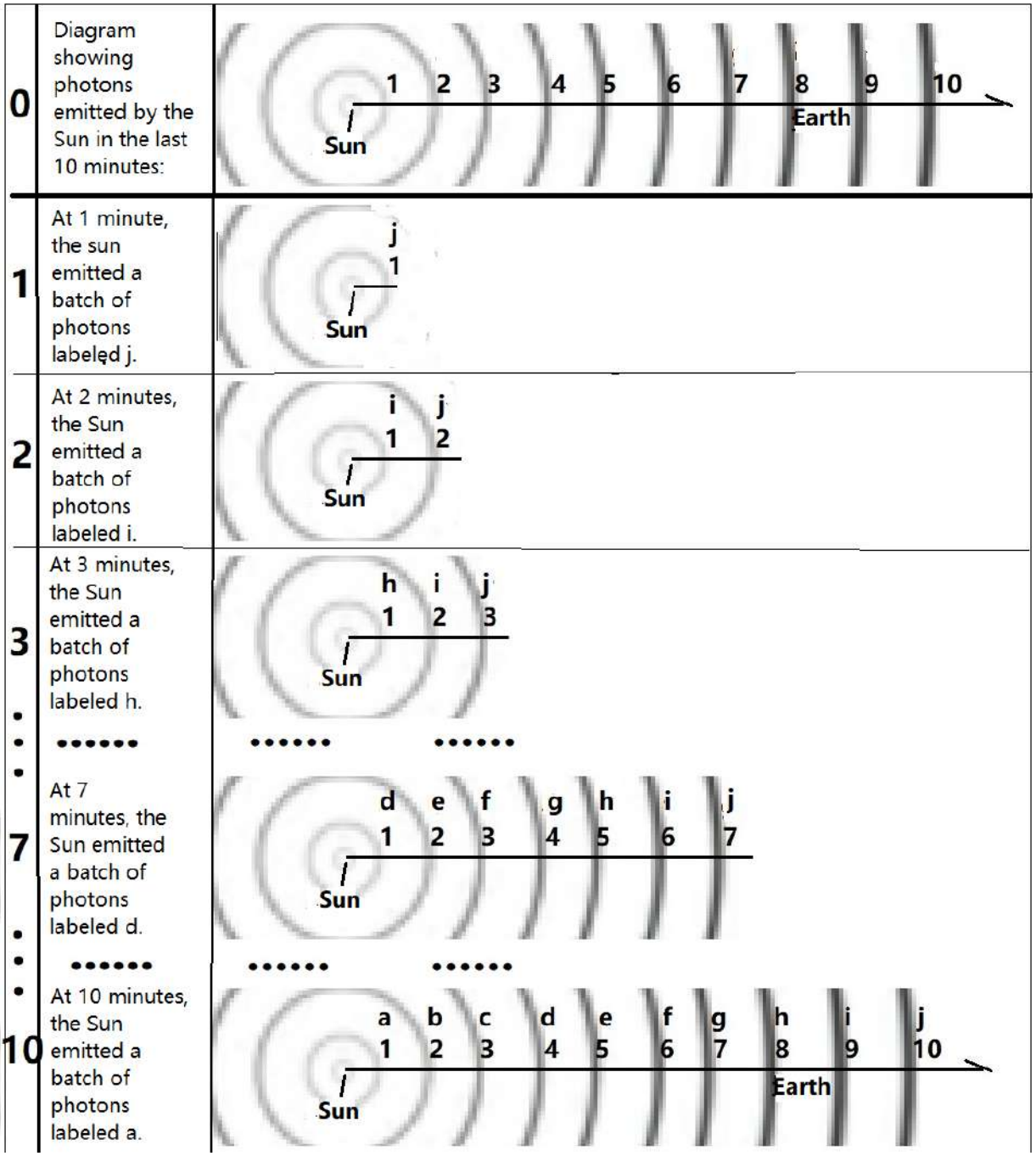


Figure 5.4: Light flux emitted by the fluid source (the Sun) over a ten-minute period, with bursts of photons being emitted at intervals of once per minute. The Earth is located 8 light-minutes away from the Sun.

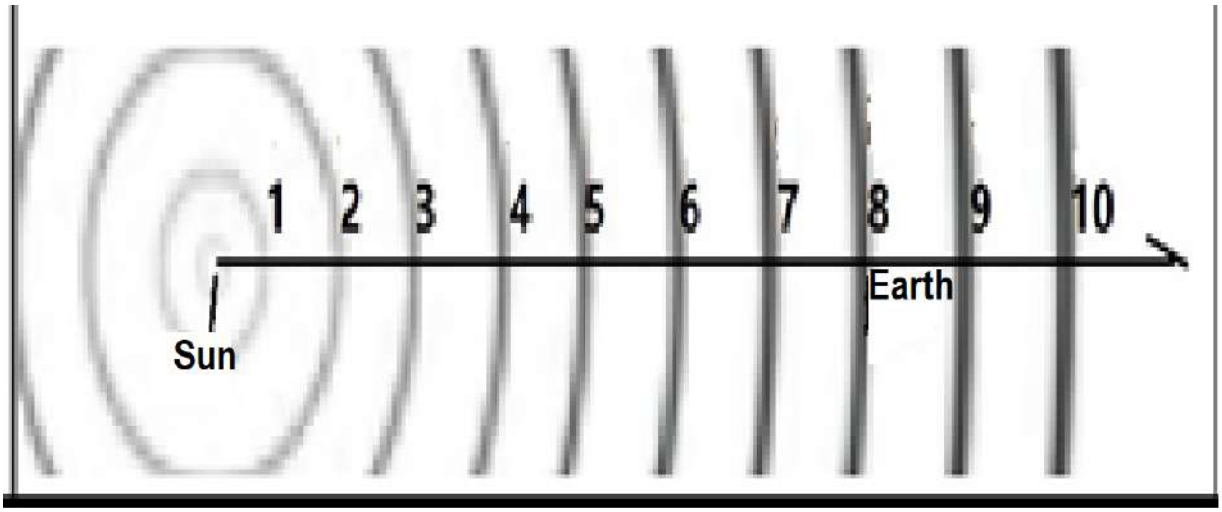


Figure 5.5: Understanding the time related to the unit object flow 1: The Sun emits a batch of photons every minute; this diagram shows a period of 10 minutes.

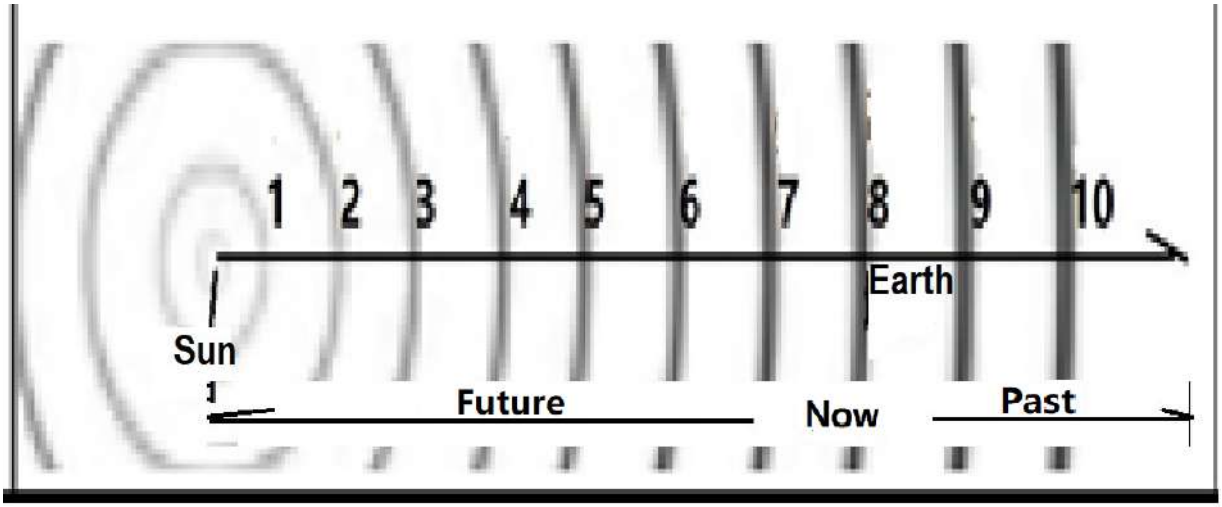


Figure 5.6: Understanding the time related to the unit object flow 2: The observable "past," "Now," and "future" of all batches of photons emitted by the Sun within 10 minutes, relative to the observer's position on Earth, with the Sun as the origin.

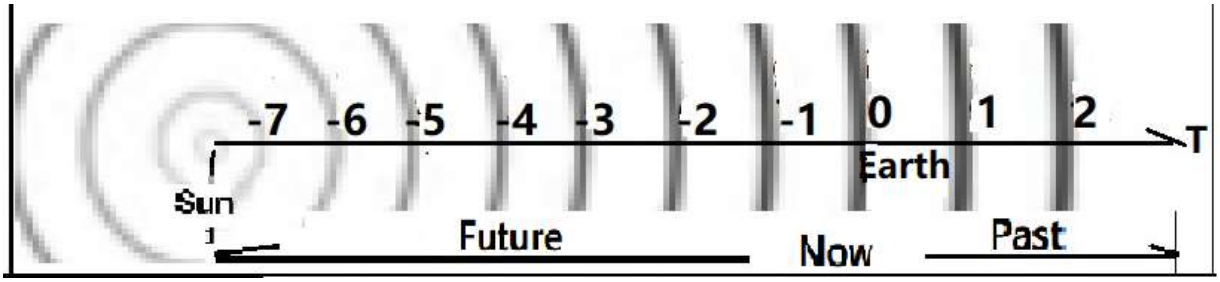
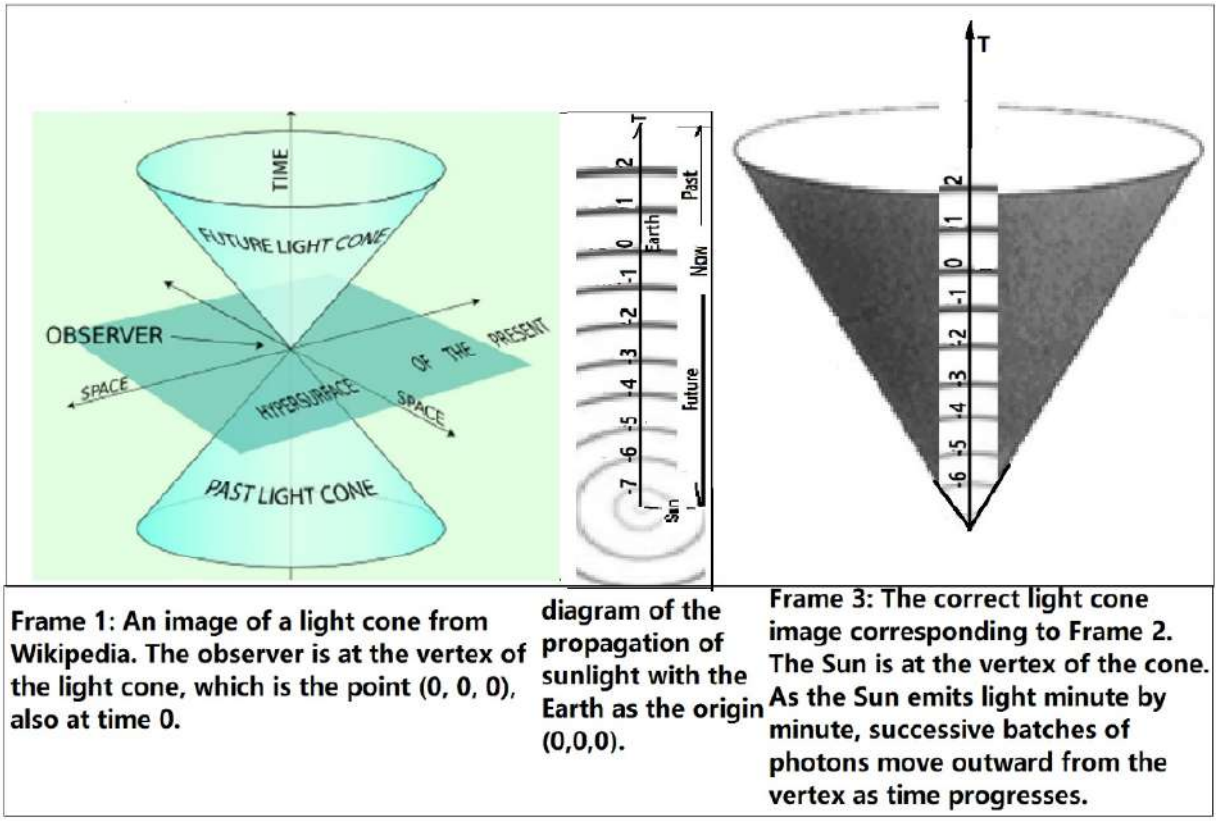


Figure 5.7: Understanding the time related to the flow of unit objects 3: The observable "past," "Now," and "future" of all batches of photons emitted by the Sun within 10 minutes, relative to the observer's position on Earth, with Earth as the origin.



Frame 1: An image of a light cone from Wikipedia. The observer is at the vertex of the light cone, which is the point (0, 0, 0), also at time 0.

diagram of the propagation of sunlight with the Earth as the origin (0,0,0).

Frame 3: The correct light cone image corresponding to Frame 2. The Sun is at the vertex of the cone. As the Sun emits light minute by minute, successive batches of photons move outward from the vertex as time progresses.

Figure 5.8: Understanding the time related to unit object flow 4: Comparing the results of observing sunlight using a popular light cone with the results of actually observing sunlight.

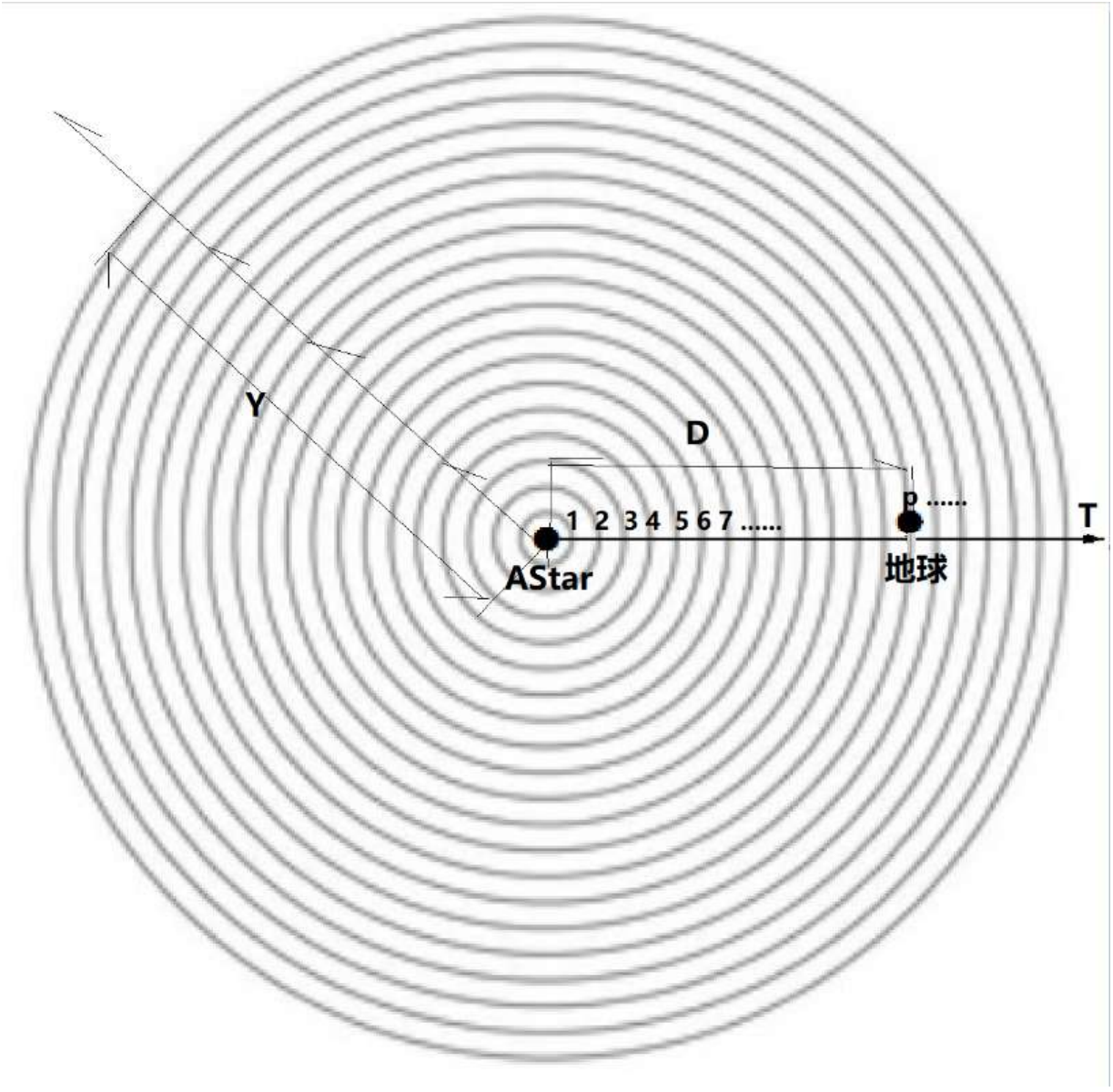


Figure 5.9: The photons continuously emitted by star AStar are grouped into successive, discrete bursts of light. Star AStar has a lifespan of Y years and is located at a distance of D light-years from Earth.

This is the fundamental difference between a unit object and a unit object flow: a unit object has only one true moment of existence, namely "Now," while a unit object flow consists of a large number of unit objects that exist at every moment, are emitted at different times, and persist for a long time.

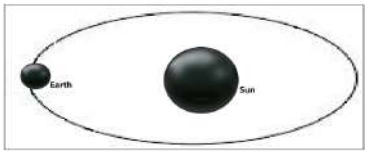


Figure 5.10: At any given moment on Earth's orbit around the Sun, there is only one Earth and one Sun.

Incidentally, speaking of space and time again, space is a vast, empty place that contains everything. How can an empty space have time? The ultimate space is so vast that no one can know its beginning or end time. Therefore, adding time to this empty space, or even dividing time into scales, is meaningless. It is the objects located within space that possess time, not space itself.

5.0.4 The Existence Time of Unit Object and Unit Object Flow—a Complete Picture of Time

The existence of a unit object is a series of constantly evolving, fragmented moments of existence. From the perspective of the unit object's existence, it is an accumulation of a continuously developing, fragmented historical trajectory in the "Now" moment

How do we calculate the existence of a static unit object? Is its fragmented existence based on its developmental laws, aging rate, or other factors?

The evolution speed of a unit object's existence is somewhat similar to the concept of differential equations; we need to refine this idea. Even if a unit object is stationary, it only exists in the "Now" moment; the past is history, and the future has not yet arrived.

We call the existence time of a unit object UOT. UOT is the actual "Now" time segment during which the unit object exists. The historical trajectory of the unit object's existence time is called UOTH. It does not include UOT as the "Now" moment.

The time segment of a unit object (UOT) is not constant. First, different unit objects have their own UOTs. Second, even for the same unit object, its duration changes with various conditions.

We call the existence time of a unit object flow UFT. The existence time of a unit object flow, UFT, is completely different from UOT. UFT is a continuous whole formed by a large number of unit objects over a long period of time. Because it calculates the time of a large number of unit objects, UFT is also a collection of a large number of UOTs. At the same time, it is also a description of the continuous evolutionary historical trajectory of the entire UOT collection.

At this point, we have seen a complete picture of time, which can be summarized as follows:

1) Scale time is the only ruler created by humans to measure time. Based on the movement of the Sun and the Earth, and the relative changes of other matter we understand, humans have defined different time intervals, such as years, months, days, and hours, to measure past and future time. If you want to change scale time, you need to change the movement of the Sun and the Earth. Those who constantly say that the flow rate of time has changed, please remember this: the universal time for all things, like scale time, is determined by the relative movement of the Sun and the Earth. To change it, you must change the movement of the Sun and the Earth.

This scale time spans across various eras and describes everything related to the state of time. It uses the year 0 AD as its starting point and depicts the existence of all things, past and present, on this scale.

The time scale is merely a tool for measuring time. Of course, this scale was gradually created by humans, and therefore its existence can be traced through different stages. However, these descriptions of its existence describe the evolutionary state of the time scale itself during its formation process, and have no special relationship with any object it measures.

The clocks that people use are simply tools to express scaled time. If, in a particular region of the Earth, some clocks deviate from their normal operation for some reason, this only means that events affecting the normal functioning of these clocks have occurred in that local area; it does not mean that time itself has universally changed. No local anomaly has enough energy to alter the relative motion of the Earth and the Sun, and thus truly change the time used by humanity.

5.0.5 The review connects the concepts of time and space to explore spacetime

In scientific research, we attempt to separate various related factors, study them clearly individually, and then combine these individually studied factors for further research. Space and time should be studied in the same way.

However, in recent years, the physics community has been discussing space and time together, as advocated by Einstein. Einstein's idea stemmed from Minkowski's 1908 paper, "Space and Time."

Figure 1.2 at the beginning of this book shows the first page of Minkowski's 1908 paper "Space and Time." Minkowski said: "Henceforth space by itself, and time by itself, are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent reality."

However, first of all, Minkowski and Einstein did not understand the true meaning of "space" and "time," because the concepts of UOT and UFT did not exist before, so how could they understand the true meaning of time? Of course, they couldn't truly understand the true meaning of "spacetime"!

I don't understand how time appears in empty space. Please tell me the meaning of time appearing in empty space. I also don't understand how time can combine with empty space. Does it make sense to combine time with the "nothingness" of empty space? If we insist on combining time with ultimate space, what is the meaning of this combination? This combination neither knows the beginning or end of ultimate space nor can it describe the tiny spaces that have not yet been defined by subspace isolation, so it has no practical value.

Time only has meaning when combined with things that exist in space. In other words, time is connected to space through things that exist in space. For example:

People say, "How long does it take to walk a certain distance?" Here, space is connected to time through the distance;

People say, "How long does it take to travel along this geodesic?" Here, space is connected to time through the geodesic;

People say, "This clock has traveled through space for how long," where space is connected to time through the movement of the clock;

...

Space can never, and will never, be directly connected to time.

In short, a direct combination of time and space is meaningless. Combining the "nothingness" of space with time is equivalent to combining time with nothingness. Can such a combination succeed? Does such a combination have any meaning?

Space—Time Weapon is a Fantasy Story

From above, we can see that "time-space weapons" are a fantasy without understanding the nature of space and time. There is no scientific content and no practical value.

"Space" cannot be manipulated because "emptiness" cannot be manipulated. "Time" is essentially a rate of the trajectory of the course of events related to something existing in space, and this rate only can be changed by the change of the thing itself.

Obviously, no one can manipulate the empty space. The scale time is a ruler can't be changed. The existence time is attached to something existing in the space. Each thing has its own existence time with specific development rate for this thing. It's kind of a description of the thing, not the life or essence of the thing. How can one change it with the space?

A unit object exists only at "Now" moment. People don't even have the ideal of this existence moment, how can they manipulate the time?

On the other hand, if there really is such a space-time weapon, why build new fighters and research new weapons? Just manipulate this space-time weapon to kill all the guys you don't like! What's the point of negotiating? Just order them to surrender.

Space relates to the existence and time of things within it. That is, space cannot directly relate to the existence time of anything; the relationship between them is completely independent.

Therefore, space cannot influence time. Time, in turn, cannot influence empty space.

Space is devoid of everything and cannot influence anything. Do not confuse the interactions between things existing within space, or the interactions arising during the evolution of things themselves, and impose them on the "empty" space itself.

Time, on the other hand, exists because of the existence of things. Without things, there is no existence time for those things; things must exist in some subspace. Only after things exist can their existence time be measured in terms of scale time. If the rate of evolution of this existence time changes, it is due to changes in the things themselves, and is obtained by measuring in terms of scale time and comparing it with the existence rates of other units of things.

Existence time is essentially descriptive, describing different evolutionary states of things. It cannot, in turn, influence the evolution of things.

When we examine existence time from the perspective of unit things and the flow of unit things, we arrive at entirely different conclusions. Unit things that can only exist in the "now" moment cannot be manipulated. How long is the "now" moment exactly? We don't know yet; further

research is needed. But we do know for certain that the existence time of unit things is only this "now" moment; the past is history, and the future has not yet arrived. There is no previous research on the existence of such things. In other words, the concept of time has never been clearly understood by humankind.

Given this, what ability do humans have to manipulate time, which they themselves don't even fully understand?

Humans can never manipulate time and space.

Criticism of Time Travel

Modern astrophysics is riddled with superstitious and confusing ideas related to time travel. These ideas, fueled by scientific giants like Einstein and Hawking, and propagated by modern physicists who dislike independent thinking, have taken hold of people's minds under the guise of "science."

Let me first tell you a true story about a research project that involved retrieving a letter from a deceased Las Vegas casino owner.

Some years back, Associate Professor Zhiyong Wang, who was the head of the delegation of the first Chunhui program of the Ministry of Education, as well as an associate professor in the United States at the University of Nevada, told us this.

A famous casino owner died, and though his heir suspected that the dead boss's mistress killed him, no evidence was found.

This heir, who absolutely believed in science, remembered that Einstein promoted the idea of time travel. If Einstein knew that time travel could happen, there would be no problem in sending and receiving letters from those who died a short time ago.

He approached professors at the University of Nevada and offered them $3 million to study how to communicate with the dead. The purpose was to send a letter to the dead casino owner and receive a response from him proving that he was murdered by his lover.

Several professors at the University of Nevada were so enthusiastic that they wrote a research project plan at rapid speed, in which there were meant 1, 2, 3, 4…, research steps A, B, C, D…etc. It seemed the solution to the case was just around the corner. Their results would make killers all over the world much easier to catch.

The main theoretical basis that these professors used was the past light cone described by Hawking, according to Einstein's space-time theory. They thought it would enable them to transmit information – the aforesaid letter — into the past.

Although when Professor Wang told this tale to me, he did it as a joke – and it does seem quite funny – the research went ahead without results. Money and time were spent on a useless research project.

The question posed by the research was clear enough: how can one send information from the present to the past for a particular person who died recently: the casino owner?

Those doing the research, which failed so miserably, did so as modern cosmologists; facilitated by the light cone theory of past events.

Could this project be successfully completed with the help of past events?

What exactly is the light cone of past events, and can it spread information to the past? Let's study this a bit more carefully, even though it reiterates discussion in the previous chapter.

Einstein directly applied Minkowski's space-time mathematical model without any proof or explanation, combined with a simplified version of the three-dimensional space-time light cone obtained from this model. The combination enabled him to theoretically consider how current events could propagate into past space-time. This kind of behavior, which has no experiential or factual basis, and only exists according to mathematical models, is a typical example of the kind of research pursued today, and as discussed in the book, *Lost in Mathematics*.

If this is the basis of a new theory with such far-reaching consequences – altering the course of human history, destiny, and cognition — then must be thoroughly and scientifically proved. It must be theoretically true and practically verified.

However, Einstein and his followers, represented by Mr. Hawking, used a careless attitude, and "similarly" accidentally spread the doubtful "time travel theory."

As can be seen from Mr. Hawking's writings, he later found himself doing the absurdity of propagating time travel through math in <*A Brief History of Time*>, so 13 years later he published <*The Universe in a Nutshell*> to quietly correct this mistake. However, the bad influence had already spread over a large area, and this quiet and hidden correction attracted few people's attention. To this day, **time travel** defined by the past light cone has become an orthodox theory of relativity.

For example, we mentioned in Phys. Rev. D 97, 124038 published on June 15, 2018, the article entitled "Time travel using degenerate metrics", which discusses how to travel through time and space in a well-known mainstream academic journal.

People promoted Einstein's joke and Hawking's negligence and quietly corrected the "science" theory, which was officially presented in the elegant hall of mainstream magazines.

Despite being ridiculous, it remains!

Isn't this ridiculous "science" that needs a thorough clarification?

5.0.6 Chapter Summary

In this chapter, we introduced our new understanding of space and time, the classification of the main entities existing within space, and their associated time. We roughly divided the entities contained within space into two main categories: Unit Object (UO) and Unit Object Flow (UOF); and we referred to the time associated with them as Unit Object Time (UOT) and Unit Object Flow Time (UFT).

This classification is absolutely necessary.

Examining the four-dimensional spacetime model established by previous scholars, we can see that unit objects are often confused with unit object flows, leading to various avoidable errors in many related studies. These errors are particularly evident in the four-dimensional spacetime model strongly advocated by Einstein.

Due to the lack of understanding of the distinction between unit objects and unit object flows, this spacetime model is fundamentally flawed, as can be clearly seen from our analysis of the spacetime light cone and its representation.

Only with an understanding of unit objects, unit object flows, and their temporal attributes can we accurately describe the various changes in the occurrence and development of things in the universe.

From the process of the generation and development of unit objects, we clearly reveal a fact that everyone actually agrees upon but has not yet explicitly stated: the law of existence of things, that is, things only exist in the "Now" moment.

The law of existence of things is very important for our correct understanding of the nature of time. Only by recognizing that things exist only in the "Now" moment can we make a correct judgment about the process and development of things.

Under the guidance of the content of this chapter, let's solve a simple problem: drawing a four-dimensional space-time image, that is, drawing a four-dimensional image of three-dimensional space and one-dimensional time.

Minkowski and Einstein's solution was to compress one dimension of space into a three-dimensional image of two-dimensional space and one-dimensional time. We have already pointed out the countless errors brought about by this method. So, what is the correct method?

You can think about this here: how to draw a four-dimensional image that can be intuitively expressed and understood?

Let us do this in Chapter 6.

The correct graphical expression of four-dimensional spacetime in general relativity

6

In the achievements of contemporary cosmology and astronomy, we only see models that compress four-dimensional spacetime into a three-dimensional spacetime light cone. However, this so-called four-dimensional spacetime representation method, highly praised and continuously applied by previous generations of scientists, contains numerous errors.

This chapter first analyzes Hawking's popular description of the space-time light cone and reviews the erroneous handling methods based on the approaches of Einstein, Minkowski, and Hawking. Then, based on their incorrect light cones, a correct three-dimensional light cone of one-dimensional time plus a two-dimensional plane is drawn; however, this is still not the correct solution. The correct four-dimensional spacetime representation method can only be achieved under the concepts of unit objects and unit object flows.

6.0.1 Spacetime Light Cone—Erroneous Analysis on Image of Unit Object Flow

6.0.2 1. Introduction of Space-Time Light Cone

The original work on light cones is the mathematical paper "Space and Time" by Minkowski, collected in <*The Principle of Relativity*>, while its popular description of the space-time light cone comes from Mr. Hawking's <*A Brief History of Time* >and <*The Universe in a Nutshell*>.

Minkowski's **mathematics** can, of course, easily, and perfectly combine space and time, making people feel the beauty and power of mathematics. But when Hawking told us how mathematicians **applied** such pure, beautiful mathematics into the real world, we finally came to understand that those same mathematicians had ignored the real world, so fascinated were they by their mathematical abstractions. And while this made the space-time cone appear beautiful, it also masked the errors involved both in its application and as a lesson for further mathematical thought about space-time, which we have discussed.

We won't talk about abstract mathematics because it is always right. In the world of abstract mathematics, there is no right or wrong, and the mysteries do not need us to understand.

What we care most about here is this: when mathematics becomes a model applied to the real world and which application affects our lives, we must investigate whether or not the math, however beautiful it seems, is properly applied, or just made up a new myth with it?

First, we determine the rationality and applicability of the mathematical model and then discuss its application. Whether or not a mathematical model can be applied to reality, and whether or not it helps us to understand, explain, or solve real-life problems or causes confusion.

The space-time light cone is a typical example of using beautiful mathematics and ending up with chaos, errors, and ugliness. Simply put, it is as if a person born in 1950 became one year old in 1949, five years old in 1945, and attained the ripe old age of 70 in 1880, and was living in the Qing Dynasty.

Let's take another look, then, at Hawking's narrative of the space-time light cone in *A Brief History of Time*, published in 1988, and see how he popularized the ridiculous idea of time travel for readers who have faith in modern science.

Minkowski's four-dimensional space-time mathematical model is tailored for relativistic effect, and the light cone is a three-dimensional view after replacing the one-dimensional space with the time dimension. Mr. Hawking explained a lot of space-time light cones in popular language. Because our book is also trying to use popular language to explain the universe, Mr. Hawking's narrative is heavily borrowed in this book.

In his book, Hawking explained the event light cone as follows:

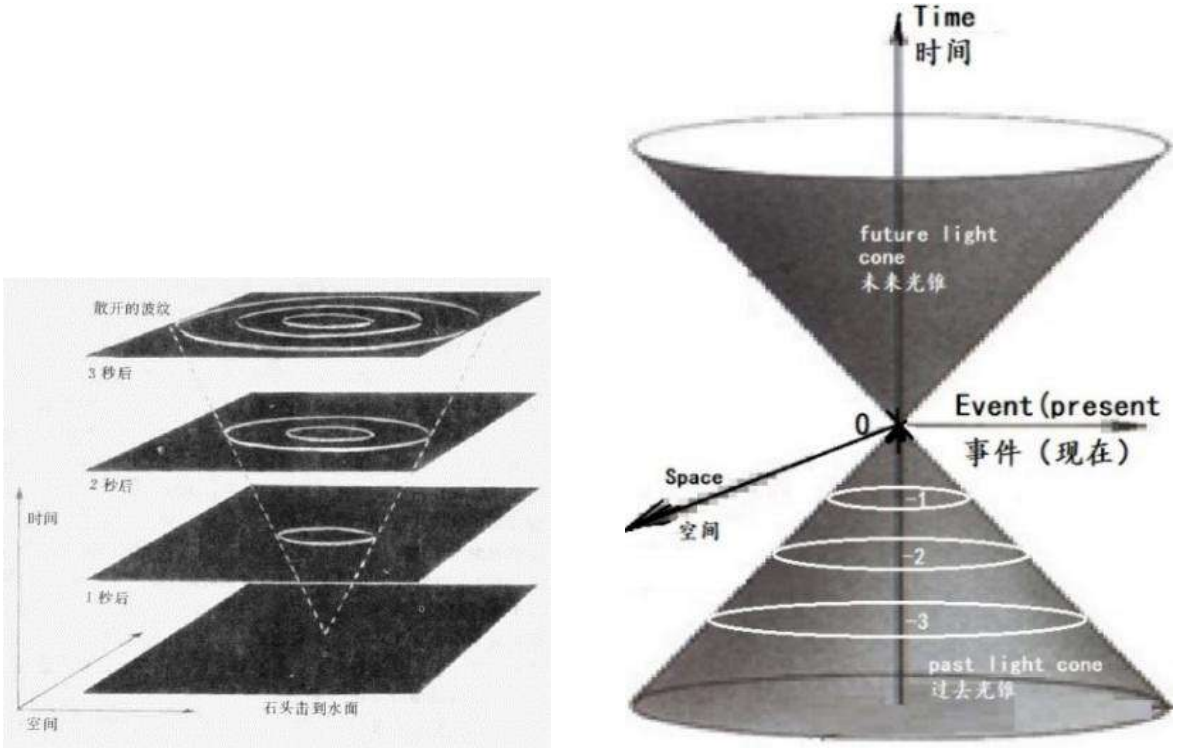
"It follows from that if a pulse of light is emitted at a particular time at a particular point in space, then as time goes on it will spread out as a sphere of light whose size and position are independent of the speed of the source. After one-millionth of a second the light will have spread out to form a sphere with a radius of 300 meters; after two-millionths of a second, the radius will be 600 meters; and so on. It will be like the ripples that spread out on the surface of a pond when a stone is thrown in. The ripples spread out as a circle that gets bigger as time goes on. If one thinks of a three-dimensional model consisting of the two-dimensional surface of the pond and the one dimension of time, the expanding circle of ripples will mark out a cone whose tip is at the place and time at which the stone hit the water.""

The above paragraph told us. starting from "now," how water waves propagating over time will form a cone at some point in the future. The future light cone is formed in a similar manner but in a two-dimensional space with the time interval, as it increases, represented as well. (See the left section of Figure 6.1 below).

In the next paragraph Hawking told us how the light cone, in fact, imitates the water wave to form at some point in the future; that is, the future light cone. Then, along a mathematically symmetrical trajectory, how did Hawking "similarly" let the light wave propagate in the past, referenced by the past light cone in the lower right part of Figure 6.1. Here we can see a typical example of a master **gone astray, led by the beauty of mathematical symmetry.**

Hawking said: ***"Similarly**, the light spreading out from an event forms a (three-dimensional) cone in (the four-dimensional) space-time. This cone is called the future light cone of the event. **In the same way,** we can **draw** another* Hawking's last sentence says, "In the same way, we can draw another cone, called the past light cone, which is the **set of events from which a pulse of light is able to reach the given event.**"

Boldface marks the part of the sentence that is difficult to understand. Now let's try to understand the correct meaning of this sentence: the past light cone is a collection of past events. From this past light cone, what is



(a) Standing now and looking at the future.

(b) Event light cone used to explain relativity.

Figure 6.1: Left: From <A Brief History of Time Figure 2.3>. Right: From the same book Figure 2.4>.

a "light pulse"? How can it "reach the given event"? What is the given event? We guess that it should be the current event in Figure 6.1.

In this way, we have two questions left:

1. What does "the past light cone is a collection of past events" mean? How can we draw the past light cone based on this? What past events do we refer to?

2. What is "a light pulse"? Who or what emits light pulses? How does it move to "be able to reach a given event?"

Finally, if the "light pulse" originates in a laser or is similar to such light, it is impossible to spread out in the form of a photosphere.

Because readers couldn't understand the last sentence, and because Hawking said, "*Similarly, **in the same way**, we can draw another cone called the past light cone*," readers of the Chinese translation, including me, and readers from all over the world who don't understand the original English text, including Hollywood screenwriters, automatically filtered out the second half of Hawking's description – it is incomprehensible — and understood the past light cone in a way similar to Hawking. This is why readers thought that Hawking painted the light cone into the past.

We will only comment on Hawking's past light cone "in the same way."

6.0.3 2. Hawking's Light Cone of the Past — A Time Travel through the Scientific Source of Fantasy

Hawking apparently did not think carefully about this issue when he wrote *A Brief History of Time*. Like most theoretical physicists, their

interest in mathematical models far outweighs the reasonable applications they can be used for. Hawking summed up the whole process of drawing the past light cone with a simple sentence: "***In the same way,*** *we can* ***draw*** *another cone, called the* ***past light cone***."

The "in the same way" drawing method is shown in Figure 6.1, starting from the time of "now (that is, 0 on the time axis)" and propagating through three oval sections. In the first oval, the radius of light propagation is 1 light-second; that is, one light second in the past (with the coordinate -1). This continues sequentially until three light seconds in the past (with the coordinate -3). Continue in this fashion to draw an oval for the nth light second in the past, and we obtain the past light cone in the lower half of the space-time light cone on the right side of Figure 6.1.

The **craziest** thing here is: it is only when the light of the event spreads **from the present to the past** that this past light cone can be drawn! No other "same method" can draw this past light cone! The reader can have a try.

In this way, the past light cone in the space-time light cone in the right of Figure 6.1, in the name of science, theoretically initiated a "scientific" space-time journey through the past.

In other words, Hawking "similarly" invented time travel to the past.

Please recall the date when time travel became popular?

This is the "scientific" origin of time travel.

And to top it off all of this is completely mathematically correct. The beauty of mathematical symmetry is revealed once again.

But when applied to reality, it is completely wrong.

For example, we have started our car: now. In terms of time, we can only drive to the next minute after now, to an hour from now, to tomorrow, and to the future, all of which is covered by Hawking's future light cone. But this car cannot drive into the past, whether a minute or a day in the past.

By the way, can the car head to both the future and the past at the same time?

Mathematically, Hawking "similarly" drew the past light cone. How simple and crisp!

But in real life, the past light cone cannot be drawn "similarly" to the future light cone!

Events that happen "now" cannot spread to the past! This is the consensus of mankind. It is a truth that has not changed for ages. It is an important basic concept for us to distinguish the past, the present, and the future. It is a natural law that human beings must abide by.

If a drastic change is to be made to this natural law, doesn't it require complete verification?

But contemporary cosmic physicists, led (perhaps hypnotized) by the symmetrical beauty of mathematics, have casually and arbitrarily changed the truth that humans share in regard to time. Hawking himself casually used the method of depicting the light cone of the future to "similarly" draw the light cone of the past, completely ignoring the rules of nature and the basic principles that human beings abide by.

In Hawking's description of the past light cone, he also uses vague terms, such as "similar" and "same," in order to define the theoretical basis of time travel to the past. It is a model with two contrary values: correct mathematics but incorrect application. Due to the widespread dissemination of the book, the possibility of time travel seems to have been proved scientifically. But after thinking about it for some13 years, Hawking repudiated this possibility. In his book, *The Universe in a Nutshell*, he described the past light cone from six new angles. But each of them is still problematic.

Hossenfelder, the German theoretical physicist we referred to earlier, said in her book *Lost in Math*:

Theorists are convinced that their elegant equations and elegant formulas contain higher truths about nature. And these "too good to be untrue" theories have plunged the field into a dead end.

Doesn't the light cone here fully prove her words?

Writing here, we can't help but be sad for Giordano Bruno, the sixteenth century philosopher and scientist, who was burned at the stake by the Church for his "heretical views." To adhere to the truth of science when pitted against pseudo-theology can entail risks, as we know. Has that kind of situation returned? Perhaps it has and we haven't yet recognized it, especially in regard to the Big Bang theory (its own form of "scientific" pseudo-theology.)

Time travel, which caters to the psychology of people hunting for novelty, has also spurred an expansive set of particularly interesting themes for blockbuster Hollywood films. It has spread throughout the world at the speed of light. And the great success of Hawking's *A Brief History of Time* has facilitated and spread the ridiculous and unthought-out "time travel" to the extreme! The book was published in 1988. Since then, the story of the time traversal began to spread magnificently, and there is a tendency to gradually ascend to the halls of magnificence.

Probably, the "scientific" description in <*A Brief History of Time*> about the light spreading towards the past is highly problematic, the originator, Hawking himself should have received many different opinions and criticisms from real scientists. After spending a lot of time thinking, in the book <*The Universe in A Nutshell*>, published 13 years later, in 2001, he **re-explained the past light cone** using a lot of pages. This is a disguised approach to correcting his own mistakes, and it is exactly the same as Einstein's method of correcting his confusion between "simultaneous" and "synchronous."

Nonetheless, even with his correction, Hawking was not able to avoid problems. Indeed, the past light cone he re-drew and explained in *The Universe in a Nutshell,* although denied backward time travel, is again erroneous and difficult to understand, cannot help one to correctly understand the relationship between time and space and correct wrong ideas. As a result, time travel sustains its position in orthodox cosmological theory.

Let's take a look at all this now in detail. After thinking about it for more than ten years, Mr. Hawking re-described the past light cone from six new, if still problematic, angles in "The Universe of Nutshell", but each has its problems.

Through careful comparison of his description of the light cone in the two books published more than ten years apart, we can see that his thinking

completely changed. He gave up a favorite idea: time travel. Unfortunately, theoretical physicist that he was, he did not, at the same time, clarify the relationship between the mathematical model of space-time and the light-space cone. Not only is it in conflict with the narrative in *A Brief History of Time*, but it also quite distinctly differs from basic scientific principles that he should have followed from the get go.

Please go back and review Hawking's past light cone in Figure 6.1 (from *A Brief History of Time).* Then let's look at the new past light cone that Hawking redrew in *The Universe in a Nutshell.*

6.0.4 3. 13 Years Later, Hawking's Modified Past Light Cone, but Still Has Many Mistakes

We are not saying that Einstein's view of time and space was wrong, but that Hawking's view of time and space was wrong. The main reason is that Hawking has expressed his thoughts in two popular books, <*A Brief History of Time*> and <*The Universe in a Nutshell*>. *Although* his expressions were quite different from beginning to end, both of them were wrong about the past light cone!

From a mathematical point of view, this is such a simple thing that Hawking is confused about. Perhaps he confused himself.

In addition, Hawking also introduced concepts, such as black holes. It's important to discuss the issues here clearly. If something so mathematically simply goes wrong for Hawking, it is doubtful that he can get more complicated things right!

Of course, first, we must thank Hawking for revealing, in his several popular science books, his real thoughts and intentions in such a way that readers of all kinds could discuss the issues at hand from a common starting point, without having to refer to complex mathematical equations.

Earlier, we introduced in detail the past light cone in *A Brief History of Time,* and the errors involved in its creation. Although the cone represents a visual image of the theoretical basis of the story that Hawking presented, it exemplifies an example of correct mathematics and wrong application; and it is also a typical example of wrong mathematical application due to wrong physical model.

The description of the past light cone in <*A Brief History of Time*> was introduced in detail earlier. That section defines the theoretical basis of the story. It is a typical example of correct mathematical but wrong application.

Hawking then gave us a completely different past light cone, as represented in Figure 6.2 below. He did so after he gave us a completely different past light cone in (Figure 6.2). Here, he quietly abandoned the theory of time travel.

Figure 6.2 shows Hawking's new past light cone and its new interpretation. The text label on the left side of the figure is a description of the figure on the right, and the right part of the figure is a past light cone with some galaxies drawn. The left part of the figure is the 6 annotations for the 6 small portions of the picture in the right figure. The circled numbers in the figure (1), (2), (3).(4), (5), (6) are added by us to make it easier to explain clearly.

Figure 6.2 is full of divergences from the past light cone in *A Brief History of Time* yet includes various common-sense errors. In his new version, Hawking used six descriptive labels, each of which, in our estimation, contains errors. For convenience's sake, we refer to the numbers in the circles on the labels in the figure. picture to mark the six labels in order.

(1) Observer looking back through time

This is the vertex of the light cone where the observer is located. This label shows that Hawking has completely abandoned his time travel, the flawed idea of the light or matter propagating into the past.

In *A Brief History of Time*, the vertex of the light cone is "a four-dimensional space of light scattered by an event — a cone of vertices formed in time."

In *The Universe in A Nutshell*, the vertex of the light cone becomes the point where the observer **looks back through time**. The events no longer spread from here to the future or, "similarly," to the past. This apex no longer has anything to do with the occurrence and spread of the present event in *The Universe in A Nutshell*, but only the "now" moment, which is the time when the observer receives light from the past.

And his vertex is also wrong. Because any galaxy spreads its light sphere bigger and bigger from the past to the present and reaches the "now" moment, it cannot be a "point", but a light sphere. This is a common-sense error.

The above fully demonstrates that Mr. Hawking has completely **corrected the fuzziness of his theory of time travel.** It's a pity that he quietly made corrections like this and did not purify the people who had been "similarly" drawn through the cone of brainwashing! Almost two decades later, time travel is still sitting in the hall of science,and the possibility of time travel still has currency as a viable topic in theoretical physics! And there is a tendency to time travel more and more cheerfully.

Moreover, his representation of the vertex is also incorrect. Firstly, because the light sphere emitted by any galaxy propagates from the past, expanding continuously towards the present, it cannot be a "point" when it reaches the "present" moment, but rather a spherical wavefront. This is a common-sense error. Secondly, for the observer, what he sees is only the light sphere that reaches the Earth at the "Now" moment, and what he is looking back at are the light waves emitted by the celestial body in the past but which have not yet reached the Earth observer. Please refer to Figures 5.4–5.9 in Chapter 5 for a better understanding. Thirdly, after the light from the celestial body reaches the Earth observer, it passes him and never returns. For many celestial bodies, this represents the main portion of the vast amount of light waves they have emitted, but Hawking's diagram completely fails to show this main portion of the light waves.

(2) Galaxies as they appeared recently

(3) Galaxies as they appeared 5 billion years ago

We will discuss (2) and (3) together. Because it is necessary to compare their respective expressions to find problems easier.

The label is precise. But it also hides an error. This is another classic example of error without going through the brain, which tells us that sometimes even big mathematicians make extremely naive mistakes in applying their mathematics! The beauty of mathematics was rudely destroyed in this application. This reminds me, in its way, of a story. In

the period of the Cultural Revolution in China – approximately 1966 to 1976 – middle school students noticed and criticized that their electro engineering professors didn't know how to install an electric motor, and criticized him for it. But in fact, this is entirely possible, because such a professor is engaged in the theory of electricity and is not an electrician. It seems funny to us and perhaps seemed funny to the students, but there is nothing to make a joke about. The same holds true for mathematicians and their application models. Application is key, and a key factor in determining whether or not a beautiful mathematical application model is correct.

In Figure 6.2, this all becomes obvious after comparing label (2) pointed "Galaxies that have recently appeared" with label (3) "Galaxies as they appeared 5 billion years ago" pointed. Apparently, Hawking has concluded that, in the past light cone, galaxies closer to the observer were younger.

Did we misrepresent Mr. Hawking's intentions? Let's carefully compare the labels (2) and (3) with the corresponding images in Figure 6.2 and combine them with the distances from the observer in the figure, to identify the truth carefully.

What do you think? Think about it before you try to answer the question.

Why is it wrong? Take, for example, Abell754. Experts tell us that it is 800 million light-years away from the Earth and its age is 300 million years. The distance between the Sun and the Earth is 8 light-minutes, and the age of the Sun is 4.6 billion years. Why is the Sun so close to us but its age is so much older than Abell754, whose distance from us is billions of light-years?

Such mistakes should not can be made in a popular science book. We really don't know how to comment.

Will the most recent appeared galaxies be younger galaxies? Of course not. A galaxy's age is 10 billion and one years old, away from the observer 10 billion light-years, then, for the observer, these tens billions of years old galaxy has just appeared for one year.

Do recently-appearing galaxies get closer to the observer than later-appearing galaxies? The galaxy in the example above, which has just appeared 1 year, is ten billion of light-years away from the observer.

And the age of the Earth and its distance from the observer can be discussed from another angle.

In (3), Galaxies appeared 5 billion years ago. Mr. Hawking used his new past light cone to represent "galaxies as they appeared 5 billion years ago," with many galaxies in a cross section at 5 billion light-years, which is again totally wrong.

In the light cone drawn according to the mathematical model, the cross section at any moment indicates the maximum distance that the event light can reach at that moment. For a galaxy located at X years, the time required for its light to travel to the observer is X years (without considering other factors such as the expansion of the universe).

Therefore, the galaxy located on the "cross-section at 5 billion light years" may be 1 year old, 100 years old, 100 million years old, 5 billion years old, 10 billion years old ...; and the galaxies at "now" moment may be observed in this cross section must be 5 billion years old or older.

On the other hand, it has been said before, the "galaxies that appeared 5 billion years ago" may be located at any distance from the observer, not necessarily as shown in Mr. Hawking's picture, only on the cross section of the light cone 5 billion years away from the observer. It's like the Sun is 4.6 billion years old, but it's as near as 8 light-minutes from the Earth. According to a 2013 study by Bond et al, HD140283, about 13 billion years old, is 190 light-years away from the Sun.

(4). The background radiation

The background radiation at the bottom of the light cone on the right of Figure 6.2 indicates that the cosmic background radiation is located at the edge of the Big Bang universe. And if the background radiation is only at the edge of the universe (the bottom of the light cone), it is impossible to receive such a weak microwave near the Earth. It would be even more ridiculous if Mr. Hawking believed that the microwave background radiation "detected" by the space probe came from the edge of the universe! This has been analyzed before.

Moreover, according to NASA's orthodox theory, the microwave background is distributed almost uniformly throughout the universe. If Mr. Hawking believes that the bottom section of the light cone represents the entire universe, then he is very wrong.

(5). Observer

In general, unless otherwise specified, according to the most basic convention, the intersection of the three coordinate axes is the origin of the coordinate system. In Figure 6.2, the current time (i.e., time = 0) in the left picture is located at the bottom of the light cone, which represents the beginning of the Big Bang universe. The observer's time coordinate should be 13.7 billion years after the Big Bang. However, the vertex time of the light cone in the large picture on the right in Figure 6.2 should obviously be set at the vertex, which is the "now" of 0 time. It is not a serious scientific attitude that a scientist should have to obfuscate the origin of the timeline in the two sub-pictures on the same page with the same figure without explanation.

(6). Our past light cone

The last sentence of the description at the bottom left of the picture states: "When we look at distant galaxies…our rays reaching far at the apex come from a cone." The Chinese translation of this word is "conical surface," but the original English version is "cone." The difference is significant. We take the comments in the original English text.

Here Mr. Hawking spoke without going through his brain again…

Regardless of whether it refers to the light of a single galaxy, multiple galaxies, or even all galaxies, "now" will not be just a point.

The light of a galaxy travels in a sphere, not a light cone. A light cone is an image in which the light sphere in three-dimensional space is simplified and compressed into two dimensions, and then the largest possible propagation range is sequentially drawn in chronological order. But the spread of starlight is not in a cone of light, but in a light sphere.

To sum up the above 6 points:

1. The original meaning of the space-time light cone is to express the four-dimensional space-time relationship of light traveling with time in three-dimensional space. But because humans can only draw three-dimensional views, they compress a space dimension, and it becomes a

three-dimensional image of two-dimensional space plus one-dimensional time. When light travels in a sphere, there is no way to draw light to the past. Readers, please try it out. Therefore, in the past, light cones could not exist in true four-dimensional space. Only after changing to a three-dimensional plane-time image can we draw an image of light spreading with time.

2. Einstein, Hawking, and other astronomers of the physical universe for hundreds of years, on a three-dimensional light cone diagram with two-dimensional planes and one-dimensional time without further thought, have drawn a past light cone with mathematical symmetry. It is ridiculous for Hawking to make himself the originator and defender of non-scientific time travel. After discovering his mistake, he did not admit the error generously but modified the past light cone from a new perspective for sophistry.

3. However, since light cones did not exist in the past, it is impossible to defend past light cone seamlessly. This leaky new past light cone negates the time travel to the past, but it does not and can't explain why the light transmitted by the celestial body from a distant place in the past to the observer at present will shrink to a point. Of course, if we can barely explain the new past light cone from the perspective of information decaying with distance, etc., then is it still the light information describing the propagation of the event in space-time?

To understand this, you need to refer to Figures 5.4–5.9 regarding the unit object flow, as well as the four-dimensional spatiotemporal representation of the unit object flow that we will discuss below.

In Hawking's new past light cone, one thing is certain: **he once again denied his wrong description of the past light cone in <*A Brief History of Time*>**, which also completely deviated from the space-time mathematical model of Einstein and Minkowski.

The above are the errors Hawking made regarding spacetime light cones. Below, we will discuss the errors Einstein and Minkowski made regarding spacetime light cones.

6.0.5 4. Problems with Minkowski spacetime light cone diagrams

In relativity theory, the concept of time is treated on par with the concept of space, as one dimension of the spacetime model. Because it is impossible for humans to visualize true four-dimensional space, **people can neither see four-dimensional geometric space nor draw a four-dimensional spatial image.**

In light of this, prominent scientists such as Minkowski and Einstein had to replace one dimension of three-dimensional space with time, transforming it into a three-dimensional visual space composed of two spatial dimensions and one temporal dimension, allowing people to intuitively observe the relationship between space and time. However, this method has serious flaws and errors, and easily leads to conceptual and application errors.

In 1908, in his paper "Space and Time," Minkowski defined a four-dimensional spacetime model (X, Y, Z, T) used to represent world points and world lines. The spacetime light cone is an intuitive image drawn based on the world points and world lines defined by Minkowski.

Minkowski used three-dimensional visual diagrams to represent light cones, world lines, events, and inertial systems, providing intuitive illustrations of spatial and temporal properties. The purpose was to allow people to understand concepts such as time dilation and length contraction without relying on mathematical formulas. These diagrams are called Minkowski diagrams, or spacetime diagrams. Einstein directly adopted them in his theory of relativity, and subsequent researchers have continued to use them to this day.

However, studying the spacetime diagrams and light cone diagrams shown in Figure 6.3 reveals that these representations have significant limitations. Many things that should be represented cannot be intuitively expressed, some are too obscure and lead to misunderstandings, and some are completely incorrect, such as the spacetime light cone.

Even in a perfect mathematical world, the defects involved in using the light cone are clear, and noted in the following points:

1)The space-time light cone has limited expressive ability

> One light cone can only express one event. If we need to study two or more interacting events or world lines, the light cone cannot express them.

2)The relationship between two events cannot be expressed

> If we need to study two events or world-lines that affect each other, the light cone has no way to express them.

3)Most images of space-time light cones are wrong and useless

Of course, a future light cone possibly contained in the given space-time light cone has not happened yet, and does not yet exist. A future light cone is also just an estimate of the maximum range that light can propagate in this instance. It is the same for any future light cone formed by other events, and has little significance on its own. And, if an event concludes or stops at the "present" moment, a future light cone will not appear or exist in the future.

The past light cone in the space-time light cone, as Minkowski said, is "*the front cone of O, [which] consists, let us say, of all the world-points which send the light to O.*" "*The light emitted by any world-point will only diverge with the elapse of time, and will not converge to point O. The light emitted from a big portion of world-points cannot reach the O point.*"

4) The image of the space-time light cone is obscure and difficult to understand, let alone apply.

What we see in Minkowski's diagram is an image that cannot express the relationship between events for different objects. It is the speed v that obscures the meaning of space and time, so that these two completely different physical quantities can be converted into each other. We've covered this in detail earlier when discussing Einsteins original paper

The reason for the above defects is that Minkowski's Space-Time image lacks an intuitive means of expressing four-dimensional space with image, has to be based on three-dimensional images that consists of two-dimensional space and one-dimensional time. The time axis of this three-dimensional image is upward, and the space is represented by a horizontal two-dimensional space axis.

Since the expression space is only two-dimensions, the expression of events is greatly restricted. Because of such a method, there is no way to

truly express the three-dimensional spatial location of events, let alone the spatial law of the occurrence and development of things. These deficiencies also greatly weaken the role of Minkowski's Space-Time diagram as a tool for correct understanding of related concepts, and even cause unnecessary misunderstandings.

To solve the space problem, a three-dimensional light cone is defined. However, although this light cone, which people used extensively later, looks three-dimensional, it is actually two-dimensional, and it is more likely to cause people to misunderstand related concepts.

What's more serious is that the description of this three-dimensional light cone is completely wrong. It can't express the different world lines correctly. Below we illustrate this problem through a simple model to see how Minkowski's space-time model can't express different world lines correctly.

Example: below there are N curves that are **different** in space (X, Y, Z)

X = x,

Y = y,

$Z = K_i (x + y)$, Ki = 1, 2, 3, ..., N

When the Z-axis is replaced by the time axis T, these curves become as following:

X = x

Y = y

$T_i = t$, i = 1, 2, 3, ..., N

All these N curves **become exactly the same** in (X, Y, T) spacetime.

We can clearly see that the curve compressed in (X, Y, T) space-time cannot correctly describe the original world line in (X, Y, Z) space.

For any curve in three-dimensional (X, Y, Z) space, if there are different changes in the replaced Z space, it is impossible to correctly display that space in a three-dimensional (X, Y, T) space-time model.

For clarity, we further illustrate this problem with the following simple example.

The following two curves are completely different in (X, Y, Z) space:

Curve 1: X = x,

Y = y,

$Z_1 = (x + y)$

Curve 2: X = x,

Y = y,

$Z_2 = \mathbf{0.5}(x + y)$

Their images are two different lines in the (X, Y, Z) space as shown in Figure 6.4 left frame below, Curve1(x, y, (x + y)) and Curve2(x, y, 0.5 (x + y)) are two different curves. After removing the Z axis shown in the left frame of Figure 6.4, and replaced Z axis with T axis as shown in Figure 6.4 right frame, the two curves Curve1 (x, y, t) and Curve2 (x, y, t) are the same now, there is no different between them.

How can we correctly represent four-dimensional spacetime (X, Y, Z, T)? We can only do this correctly after we have studied unit object and unit object flow.

6.0.6 5. What should the correct light cone look like?

Among the existing three-dimensional light cones of time and space, only the "Now" point is correct. Because light cannot travel from the present to the past, a past light cone is a fabrication. In addition, when the light from a celestial body reaches an observer, it cannot be an unchanged point. As far as the light cone of the future is concerned, it is only an expectation that hasn't yet happened.

Among the existing three-dimensional light cones of time and space, only the "Now" point is correct. Because light cannot travel from the present to the past, a past light cone is a fabrication. In addition, when the light from a celestial body reaches an observer, it cannot be an unchanged point. As far as the light cone of the future is concerned, it is only an expectation that hasn't yet happened.

So, the only symmetry here, from Minkowski, Einstein and Hawking, is their use of a problematic light cone of space and time, and its adoption by numerous other scientists, with only the "Now" being correct, and everything else wrong.

What then should a more reasonable space-time light cone look like? See Figure 6.5 below.

Please compare this light cone with Hawking's light cone in Figure 6.1. In the new light cone, the past light cone no longer exists. When the light of the star reaches the observer's position, it is a spherical surface, not a point. The only place is the point when the stars have just been born and have just begun to emit light. Note that from the observer's point of view, his location is "now" at time 0; but for a star, the light emitted from its location is also emitted at the "now" time, and it has a radius of N when the light reaches the observer. The spatial axis is not drawn in the figure.

After the light is emitted from the star, it propagates to space in a continuously increasing spherical shape with the progress of time. In Figure 6.5, assume that the distance between the star and the observer is N light years, and the age of the star is M years.

Take the observer's location as the "now" moment, that is, the origin of the time axis at time 0. Any time unit can be used as its unit value on the time axis. In this figure, it is assumed that the unit of the time axis is "year". Three points are marked on the time axis: the -N point where the observed star is N light-years away from the observer, the "now" moment where the observer is at the zero origin, and the entire time from the birth of the star to the present luminescence; and (M - N) point, where M is the age of the star and N is the distance between the star and the observer.

Again, compare with the old light cone on the right in Figure 6.1. In the new light cone, the past light cone no longer exists, and when the light of the star reaches the observer's position, it is a sphere and cannot be a point. When the star has just been born and has just begun to emit light, it's just a point. Note that from the observer's point of view, the observer's location is "now" on the time axis: time 0; but for a star, the

light emitted from the star's location is also emitted at "now" time. The spatial axis is not drawn in the figure.

In the new light cone, the cross-section perpendicular to any point X on the time axis indicates that the propagation range of light at that point is a circle with X as the radius. It can be seen that at the position of the star -N years, the stellar light has just begun to emit, and its propagation range is zero. When the stellar light reaches the observer after N years of propagation, the range of the stellar light is a ball with a radius of N light-years.

The origin 0 where the observer is located is the watershed of the stellar light propagation. Before this point, the starlight has not reached the observer yet, they are propagating to the observer, so they are "Coming lights" for the observer; the star lights passed the origin, have passed the observer, and have left. The observer has seen them, but will never see them again, so they are "passed light".

Since the age of the star is M years, the entire propagation range of stellar light is a photosphere with a radius of M light-years, which is the coordinate of (M-N) years on the time axis.

In fact, Figure 6.3 depicts only the situation where M is greater than N. Think about it, if M is less than N, then what should Figure 6.3 look like?

In order to understand the above description more intuitively, we use the data of the Sun as a substitute for the star in Figure 6.6, as shown in Figure 6.6 (of course it is a schematic, the size is completely out of proportion):

When the age M of the star and the distance between the star and the observer is N light-years, when the relative values of the two data M and N are various, their new light cones vary. They are depicted by the three small images in Figure 6.7 below.

When M > N, like the Sun, the starlight already passed the "now" and the picture frame describe most of the star situation,

When M = N, the star light just arrived "now" or observer.

In the third case, when M < N, the light emitted by the star has not reached the observer, so the observer does not see the star, it is only the result of normal scientific reasoning.

6.0.7 Correct Representation of the Four-Dimensional Spacetime Worldlines of Unit Objects and Unit Object Flows

By considering unit objects and streams of unit objects, we can draw accurate, easy-to-understand four-dimensional spacetime diagrams that allow for the comparison of multiple unit objects or streams of unit objects within the same image.

6.0.8 A four-dimensional graphical representation of the spacetime worldline of a unit object.

To accurately represent the four-dimensional spacetime (X, Y, Z, T), we have defined a four-dimensional spacetime image model that depicts the worldlines of object events. In application examples, compared to Minkowski's three-dimensional spacetime light cone diagram, the four-dimensional spacetime diagram demonstrates clarity, simplicity, and powerful expressive capabilities in depicting the occurrence and development of object events. This makes it truly easier to understand the occurrence and development of individual object events within multi-event processes, and the dynamic relationships between these object events, focusing on the aspects that are of interest to the observer.

Minkowski said in "Space and Time":

"*Let x, y, z be rectangular co-ordinates for space, and let t denote time.*

But I still respect the dogma that ***space time have independent*** *significance.*

It is only in four dimensions that the relations here taken under consideration reveal their inner being in full simplicity, and that on a three-dimensional space forced upon us a priori they cast only a very complicated projection."

These statements have become our basic principles for designing worldline image representations in four-dimensional space time. Let's determine how we can correct them.

1)A Conventional 3D space image

Figure 6.8 presents a typical conventional trajectory diagram of a celestial body, ObjA, in a three-dimensional (X, Y, Z) space.

The trajectory shown in Figure 6.8 is called the worldline trajectory of ObjA in three-dimensional space. The hollow points on the line are the event points of ObjA. The solid point represents the event occurring at the current "present" time, and the dashed line after the "Now" represents the estimated future path of ObjA.

Due to the lack of corresponding time information, the information about worldlines conveyed in the diagram is unclear.

However, there is currently no way to add a time axis to Figure 6.8. Doing so would result in a four-dimensional space, and it's **unknown how to intuitively represent a four-dimensional image**.

Minkowski removed the Z-axis and replaced it with a time axis T. This allowed for a three-dimensional representation of two spatial dimensions and one time dimension, which is the commonly used spacetime light cone. However, this method is incorrect, and the various errors it introduces have been discussed extensively earlier.

So, how can we now add a time axis to Figure 6.8 in a way that avoids the problems discussed earlier and accurately and clearly represents the precise time of each event occurring on the trajectory of ObjA?

2) Our 4-Dimensional Space—Time Worldline

Our solution is to add a time axis corresponding to the ObjA trajectory below the three-dimensional ObjA space trajectory graph as shown in Figure 6.9.

Figure 6.9 now represents the four-dimensional space-time of the object event world line, called the four-dimensional space-time diagram of the object event world line, and further abbreviated as the object space-time diagram.

A spacetime diagram means that the spatial scale is on the top and the temporal scale is on the bottom. The temporal scale corresponds to the spatial processes that develop in the **sequence** of events.

In Figure 6.9, space is represented by the traditional X, Y, and Z coordinates.

Then, below the traditional spatial coordinates, a time axis is drawn parallel to the X-axis, extending from the past to the future. This time axis is marked with a point (or origin) representing "the present," and is labeled "Now"; the line segment extending from "Now" in the direction of the arrow represents "the future," and no actual objects exist on this segment, only things that are expected to appear in the future; the extension of the line to the left of the "Now" point corresponds to the sequence of events of ObjA, arranged strictly according to the order in which the events occurred, starting from the observation time. Time units and scales can be defined on this axis.

The worldline of an object's event is named after the object's event.

The **landmark point** (or **origin**) on the event axis is the "Now" moment in the worldline trajectory of the event. The occurrence time of each event focus is clearly marked on the timeline using the same focus name at its relative position.

In this way, the spatial trajectory of ObjA has a one-to-one correspondence with the corresponding time, and all the information we need can be clearly seen in Figure 6.9.

This method seems very simple, but it is not. It combines the time each event occurs with its spatial motion accurately; the activity of each world point in three-dimensional space combined with the spatial motion of each world point. It enables us to use the diagram intuitively to draw the entire world line clearly and accurately.

The hollow dots on the world line represent the spatial position of the object event at a certain time in the past, and it is also the position where the object event once existed, which is called the historical event of the object event, or the event for short; that is, points a, b, c, d of the world line ObjA in Figure 6.9.

The event object itself is represented by solid circles at the top of the solid history line. Time position "now" represents the spatial position of event objects at time "now," as shown in Figure 6.9, the "now" point at the intersection of the solid history line and the dashed future line.

The potential future path is represented by dotted line segments extending from the object event solid circle. Typically, this imaginary dotted line is very short because it is denoting a potential or expected development only, not a fact. The potential future event points noted by the dotted line and our potential or expected future positions are represented by two hollow triangles with an "e" identifier; noting this event will potentially take place, or is expected to take place, there and then.

The timeline below is no different from a typical one-dimensional axis. Note **that "now" must be at the endpoint** of the event in question. We will discuss this in more detail later.

With this method of combining three-dimensional space and one-dimensional time, we can correctly express the intuitive image of four-dimensional space and time.

Although this method seems simple, it can function is in significant ways. It can complete and express a great deal of information that the original three-dimensional space-time light cone could not express at all. And it can inspire us to a new understanding of the laws of motion, including the "law of existence of things" to be discussed later.

3)Simultaneously express and compare the world lines of multiple objects in the image

Things in the world are complex. It is often necessary to express and compare the motion states of multiple objects at the same time. This makes the space-time light cone completely useless while the new expression of the world line that we designed shows its powerful functionality.

Combining all we have learned from our discussion of the above two figures, let's see Figure 6.10.

We now consider a situation — where the world lines that intuitively express multiple objects intersect each other — from the perspective of practical application. For example, two air objects collide in motion, or two objects arrive at the same place in space one after another. Of course, depending on the specific situation, various applications can also be considered.

Figure 6.10 shows how the world lines of three objects can be represented and compared in one diagram at the same time.

In Figure 6.10, the upper part of the figure shows three world lines A, B, and C, which represent the spatial motion trajectories of objects A, B, and C. Below are timelines A, B, and C, corresponding to each world line.

The time axis in the diagram shows that multiple time axes can be drawn corresponding to different worldlines, clearly expressing the event points of interest on all worldlines and their corresponding times. This can be accurately represented even if the worldlines intersect or overlap in space.

Please note the points drawn on each worldline. The corresponding event-time combinations are strictly arranged in the order of the object's event progression, from past to present.

The "Now" of the object's event worldline is represented by "0," and the "Now" on the time axis is represented by "T_{NOW}" or "0." Figure 6.10 shows three worldlines corresponding to object events A, B, and C, respectively.

The worldline C in the diagram is drawn in more detail, showing the historical event points C (1, 2, 3, 4) that we are interested in on worldline C, as well as the corresponding times TC (1, 2, 3, 4, 0, 5), which are represented on the time axis of C in the diagram.

Figure 6.10 shows two interesting points on the world line of object A: two points where the spatial coordinates coincide at the same point in space, namely points 4 and 6 on the world line of A. However, these two points do not coincide in terms of the time at which the events occur, as can be seen from the corresponding time axis. Point 4 corresponds to time TA4, while point 6 corresponds to time TA6. Since these points coincide spatially but not temporally, we need to use two points names in sequence to represent their overlap. Therefore, we can use A (A4, A6)

to label and identify them. The A outside the parentheses represents the object name, and the A inside the parentheses represents the time axis name. Since the time axis has the same name as the event here, it can be simplified to A (4, 6).

Above, A represents the worldline curve and the time axis A with the same name in Figure 6.10, and 4 and 6 represent event names; they also represent the corresponding times on the time axis A below, i.e., times 4 and 6 represent the times when events 4 and 6 occur.

It can also be seen from the figure that the event point 7 of object A overlaps with the event point c of object B. This situation can be recorded as: AB (A7, Bc). Here, AB represents objects A and B, and the parentheses contain the times, where A7 is point 7 on the A time axis, and Bc is point c on the B time axis.

Thus, we have basically completed the design and drawing of the four-dimensional spacetime worldline diagram for a single object's events.

6.0.9 A four-dimensional graphical representation of the spacetime worldline of a unit object's trajectory.

The flawed three-dimensional spacetime cones discussed earlier represent attempts by previous researchers to express four-dimensional spacetime unit object flows—in this case, starlight flows—by compressing one-dimensional space. We have seen that these attempts have failed. This is partly due to the failure to strictly distinguish between the different characteristics of unit object and unit object flow, confusing their distinct treatments; and partly because a clear distinction should be made between the description of the light flow emitted by a luminous celestial body and the motion of the luminous celestial body itself (i.e., the source of the light flow). How can we correctly represent the four-dimensional spacetime (X, Y, Z, T)? This can only be done correctly after we have studied unit object and unit object flow.

So, how do we depict the image of a four-dimensional unit object flow?

After studying unit objects and unit object flows, we are now able to correctly depict the image of a four-dimensional unit object flow. Let's review Figures 5.4–5.9, and Figure 6.5. But first let's simplify some of the images to achieve our purpose.

Carefully examine Figures 5.4–5.9. Which part is the least important? Or, which part, even if absent from the drawing, would not affect the representation of the diagram?

We know that light propagates at a constant speed. The light from a celestial body radiates outwards into surrounding space at a constant speed, forming a spherical wavefront centered on the celestial body. This is true for any celestial body. Therefore, in Figure 5.9, removing half of the image, as shown in Figure 6.11 below, does not affect our understanding of what the image represents.

Then, in the right-hand image of Figure 6.11 above, we removed the repetitive circles representing light waves, resulting in Figure 6.12 below.

This diagram shows the relationship between celestial body AStar and Earth that we are interested in. We see that by using the time axis T, which passes through AStar, Earth, and point L, we can essentially reconstruct

the complete picture of the photosphere emitted by AStar shown in the left diagram of Figure 6.11. This is done by drawing a circle with AStar as the light ball center and a radius of 1 light-year, then increasing the radius by 1 light-year at each interval until the radius equals Y. This restores the right diagram of Figure 6.12 to the left diagram of Figure 6.11.

We call the straight line connecting the luminous celestial body AStar and Earth the **light wave observation line** from the luminous celestial body as observed by a human observer on Earth. This light wave observation line has three key points: the starting point A, the point E representing the location of the Earth, and the endpoint L. Point A represents the observed celestial body AStar, the line segment AE represents the distance D light-years between AStar and Earth, and the line segment AL represents the lifespan Y of AStar.

Looking at this light wave observation line from celestial body AStar, we understand that: the light we see on Earth is the light emitted by AStar D years ago; the light emitted by AStar at the "Now" moment will only reach Earth and be observed by humans D years from now; and the light emitted by AStar between D and Y years ago has already left Earth forever and cannot be observed by humans.

See, this simple light wave observation line of a luminous celestial body contains so much information about the interaction between the luminous celestial body and the Earth observer! And because of the simplicity and clarity of this line, we can draw a clear image of the spatial interaction of multiple celestial bodies in the same four-dimensional spacetime diagram.

Figure 6.13 below shows the relationship between the five stars we are studying and the Earth in space.

We will study S1. Connect S1 and Earth E, and extend the line to Y1 (representing the lifespan of S1). The line segment between E and S1 represents the distance between the Earth and the celestial body S1, as shown in Figure 6.14.

In Figure 6.14, the entire line segment S1—Y1 represents the time relative to celestial body S1; S1—Y1 represents the lifespan of S1 as Y1 years, and E—S1 represents the distance between celestial body S1 and Earth E as D1 light-years; the light at the "Now" moment at Earth E was emitted by S1 at D1 years ago. The light of S1 has already passed Earth E arrived Y1, and is now moving away from it.

The closer the light sphere is to S1, the brighter it is. That is, the more photons per unit area the light sphere contains.

Figure 6.15 displays the relationship among 5 stars and the Earth using **light wave observation lines.**

Clearly, it is impossible to represent the relationship between multiple celestial bodies and the observer as shown in Figure 6.15 using Einstein's spacetime light cone.

6.0.10 The Law of Existence of a Unit Object, deduced from the four-dimensional spacetime diagram of the unit object.

Referring back to Figure 5.1, we notice again that the actual existence of anything in the world occurs at the same point on the timeline, namely

the “Now” moment.

If we acknowledge that the world before us is composed of countless worldlines of individual objects, or that the world itself is represented by a single worldline, then we can deduce this astonishing fact once again from the “Now” moment of each worldline:

Any individual object exists only at the “Now” moment!

This is the simple law of existence for unit objects, and also the law of existence in time for unit objects that was deduced earlier in this book.

When we stand by the river, we can see the water flowing, and we might feel that the law of existence of unit object is ridiculous.

When we look up to the Sun and feel its touch, will might have the same feeling that the existence of unit object theorem is ridiculous.

When we are standing on solid ground, with yesterday’s smile still in mind, when today we are enjoying a better life than we did before, and tomorrow holds for us the same promise, why just it then we only exist in the current moment?

Isn’t that a ridiculous idea as well?

Earth is spinning, and it will nurture us for hundreds of millions of years.

The Sun shines, and it will shine on us for a billion years.

For their part, the cosmologists have given us a dream of traveling at the speed of light. They tell us that if we can travel faster than light, we may return to the moment that we have not yet been born to kill our father or mother. Of course, we will not do this; it is too cruel, too incompatible with the values we prize. We do some happy and fun things, such as going to chase Yang Yuhuan; or to find Zhao Feiyan; if Yang Yuhuan is a little bit fat. The girls can go to find Pan An or Song Yu. Or we can raft with Li Bai or take Xu Zhimo’s poems to discuss with Shakespeare.....

Yet we are one with heaven and Earth; we coexist with time.

How is it then that we exist only now can we only exist for only one moment?

But we still must whisper and stubbornly say: “We only exist in the ’ now,’ in this moment!”

Our past is only the evolution of objects that have left us some form of memory; we cannot return to the real past.

The reality of our future does not exist in the “present” moment.

Our subjective future is our expectation of the evolution of objects that will develop in the future.

We never have the opportunity to go back to change the past. Whether you can travel at the speed of light or faster, you just cannot change the reality in a movie. We have already discussed this cruel, no poetic fact. These ideas are entirely based on general science, and do not need to use the existence of object theorem.

Before we give proof of the **existence of object** theorem, we would like to ask you to think about a few questions:

If we examine every drop of the river that Confucius stands by, is it the same river now and then? Or does every moment the river only exist in a

different fixed point in space? Where was the river in the past? Where is it in the future?

What is the relationship between the Sun and sunlight? Is the sunlight shining on our cheeks the same every moment? Are the photons of sunlight all the same all the time?

If we use a time axis scaled to a hundred years, near its beginning we enjoy youth, but at the next point where are we? If we use one day as the scale, today will not be much different from yesterday, but where will our ephemeral today be tomorrow?

When considering such issues, perhaps few people would deny the existence of the object theorem.

In fact, the idea of the existence theorem of objects is similar to the view of the ancient Greek philosopher Parmenides, who said, "We can speak and think only of what exists. And what exists is uncreated and imperishable for it is whole and unchanging and complete. It was not nor shall it be different since it is now, all at once, one and continuous."

The ancient Greek philosopher Heraclitus said that people cannot enter the same river twice.

Law of Existence of a Unit Object

Definition of the Law of Existence for Unit Objects: A unit object, throughout its journey from birth, through the past, to the present, and into the anticipated future, exists only in the moment of "Now."

The past of a unit object is the memory of the event process left to us by the evolutionary process of things;

The "Now" moment of a unit object is the moment when the object truly exists;

The future of a unit object is merely a prediction or expectation of the object's evolutionary trajectory at certain points in time, and does not represent true existence.

When viewing a unit object from anywhere outside the system, the unit object itself exists only at the "Now" moment within its corresponding system. Everything else is a historical record of events that occurred before this moment, and the unit object after this moment does not exist and cannot be seen.

A Unit object can be decomposed and combined.

This is the Law of Existence for a unit object, also known as the Law of Existence.

Visual Evidence of the Law of Existence of a Unit Object

The law of existence of a Unit Object only explicitly introduces time coordinates into the definition of existence, for example, that Parmenides conceived.

For example, Fig. 6.17 draw a diagram illustrating a person's life journey.

It should be drawn with intervals of 10 years, meaning one diagram for every 10 years. It's okay if the drawing isn't perfectly accurate. Assuming this person lived for 100 years, according to the above rule, 10 diagrams would be needed to represent his entire life.

If we drew one diagram every year, we would need 100 diagrams.

What if we drew one every hour? Every minute? Every second? Every 0.001 seconds? Every 0.0000000001 seconds?

At infinitely small intervals, of course, there will be unlimited images. This also means that a person's life can be an infinite number of snapshots. At every given moment, there is an entity that exists at that moment. And in that moment before or after the moment, the corresponding snapshot of the person has changed.

To make it clearer, let's magnify the snapshot interval of a snippet of a man's life. (Figure 6.18)

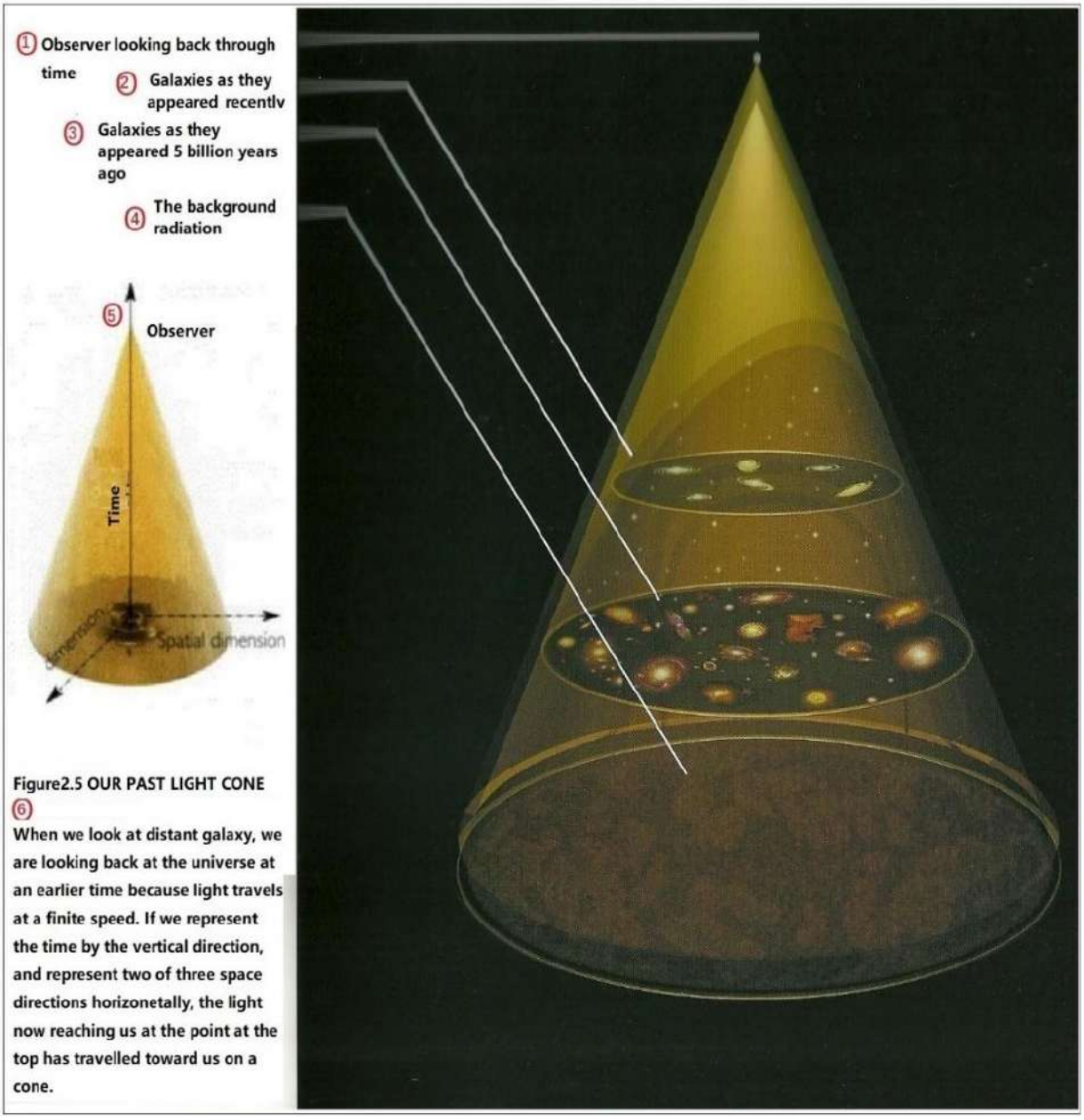


Figure 6.2: Hawking's past light cone and its interpretation from <The Universe in A Nutshell>.

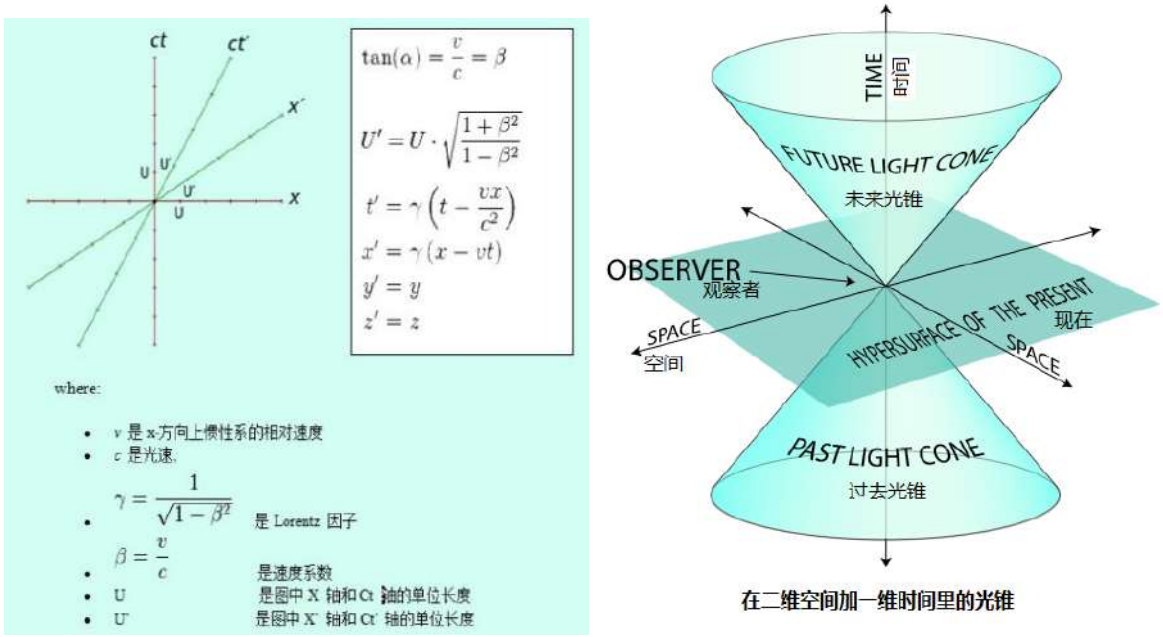
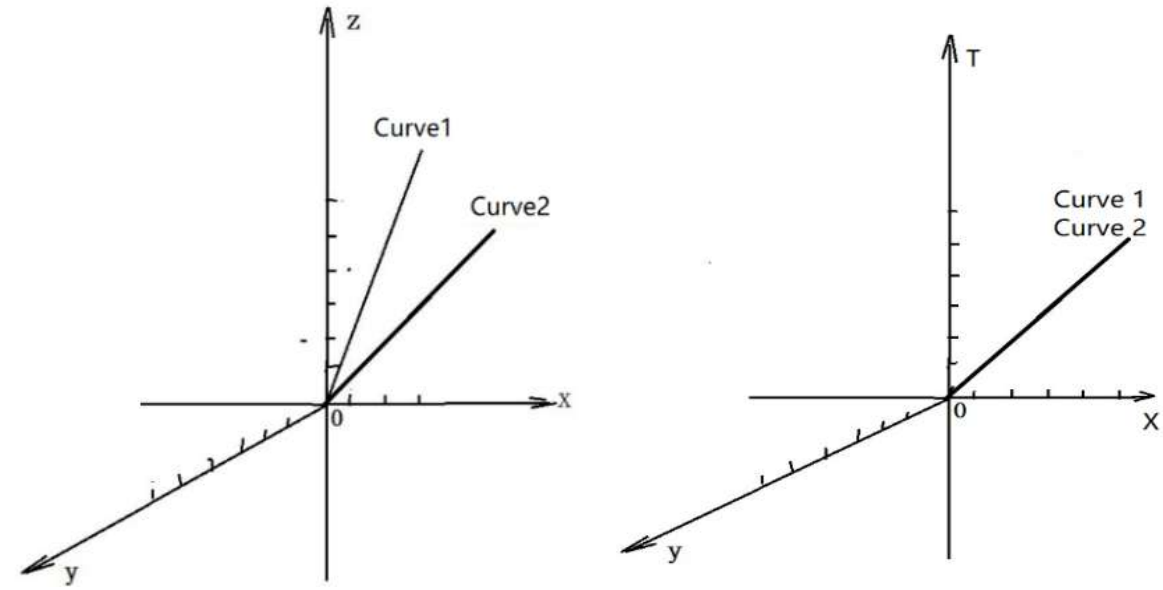


Figure 6.3: Minkowski's spacetime diagrams.



(a) In (X, Y, Z) space.

(b) Replacing Z with T.

Figure 6.4: In (X, Y, Z) space, Curve 1 and Curve 2 are different; in (X, Y, T) space, they become identical.

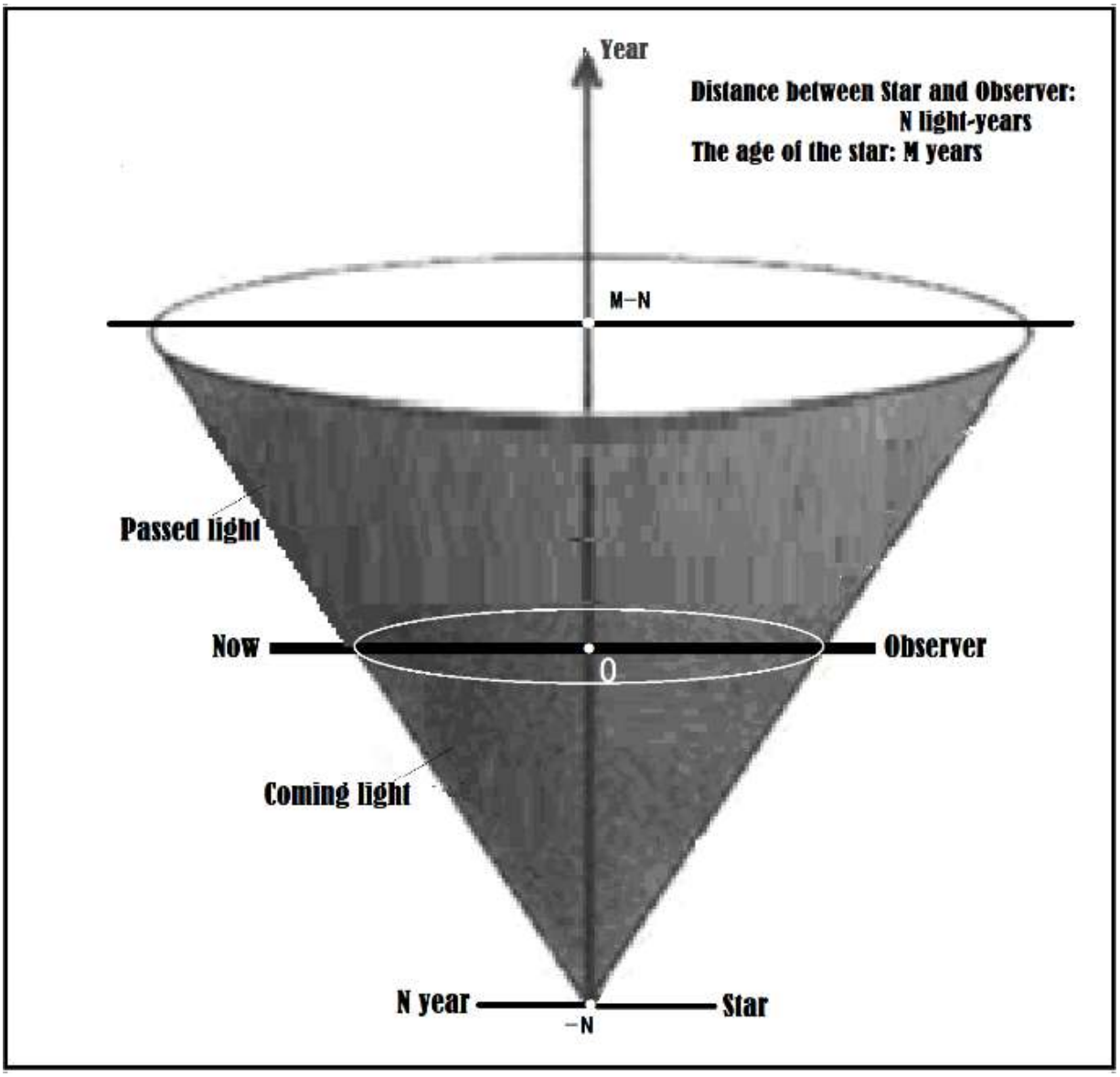


Figure 6.5: The correct new space-time light cone.

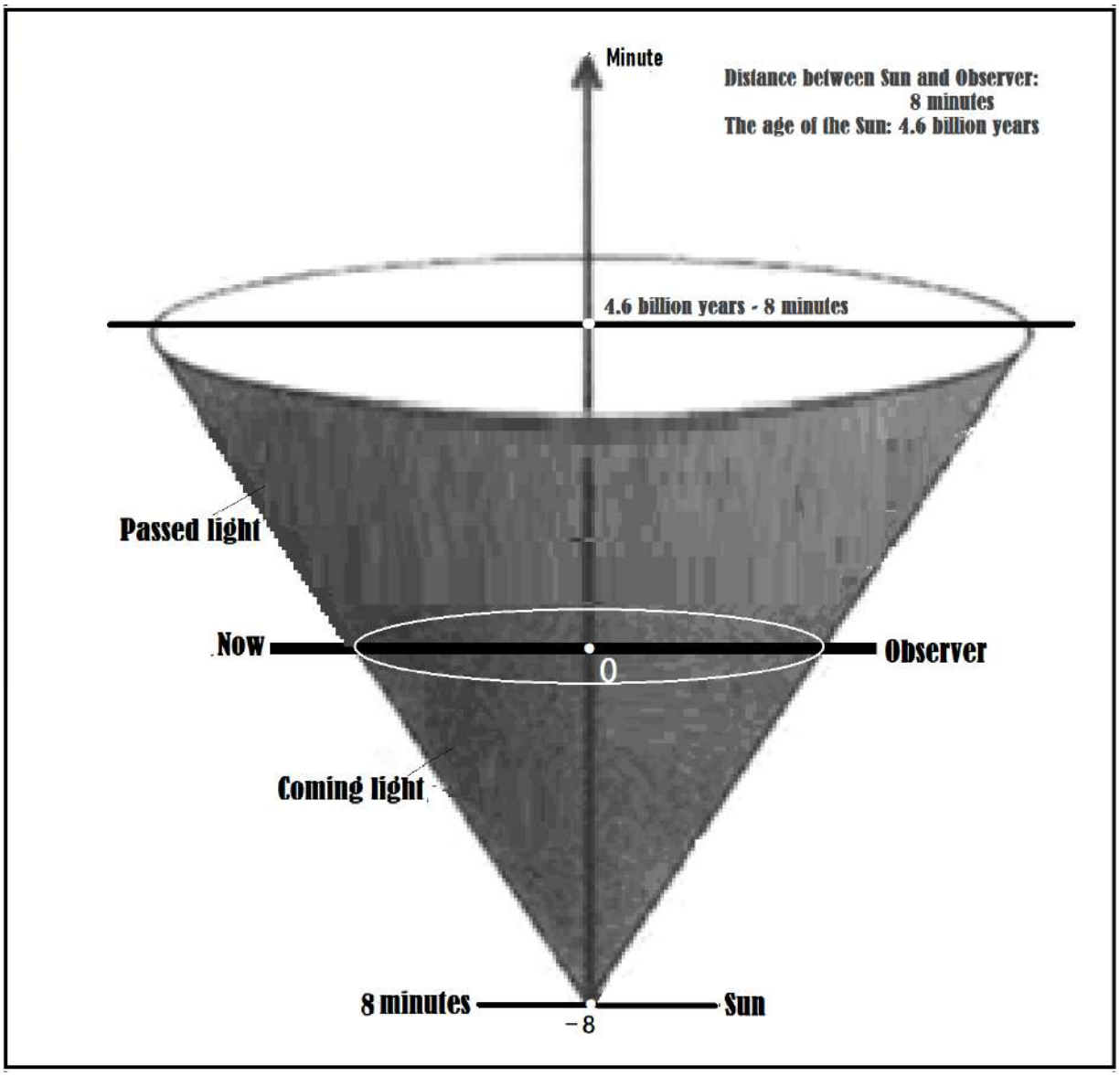


Figure 6.6: New light cone drawn with the Sun as an example.

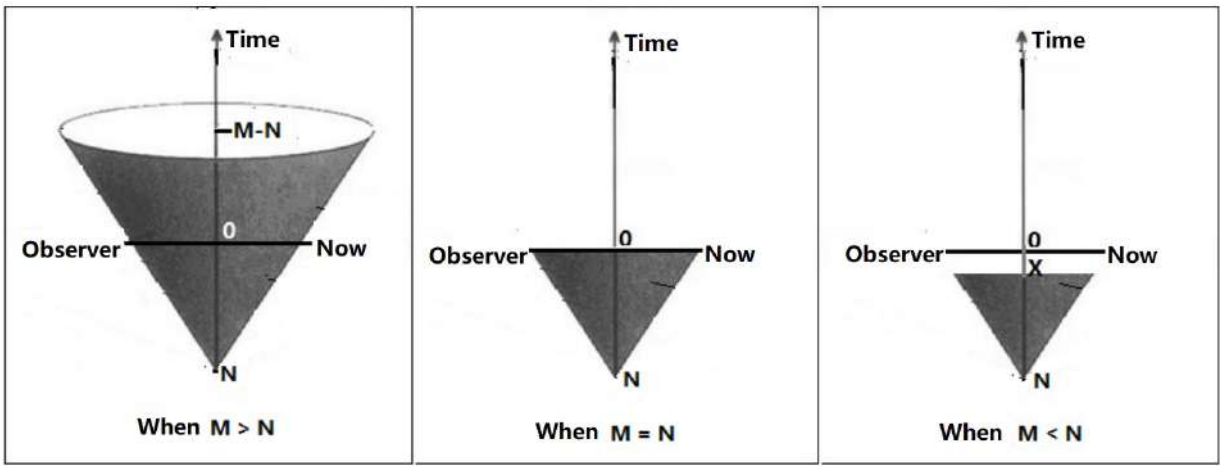


Figure 6.7: The three shapes of new light cones with the distances are N light years between the observer and the star, and the lifetime of the star is M years.

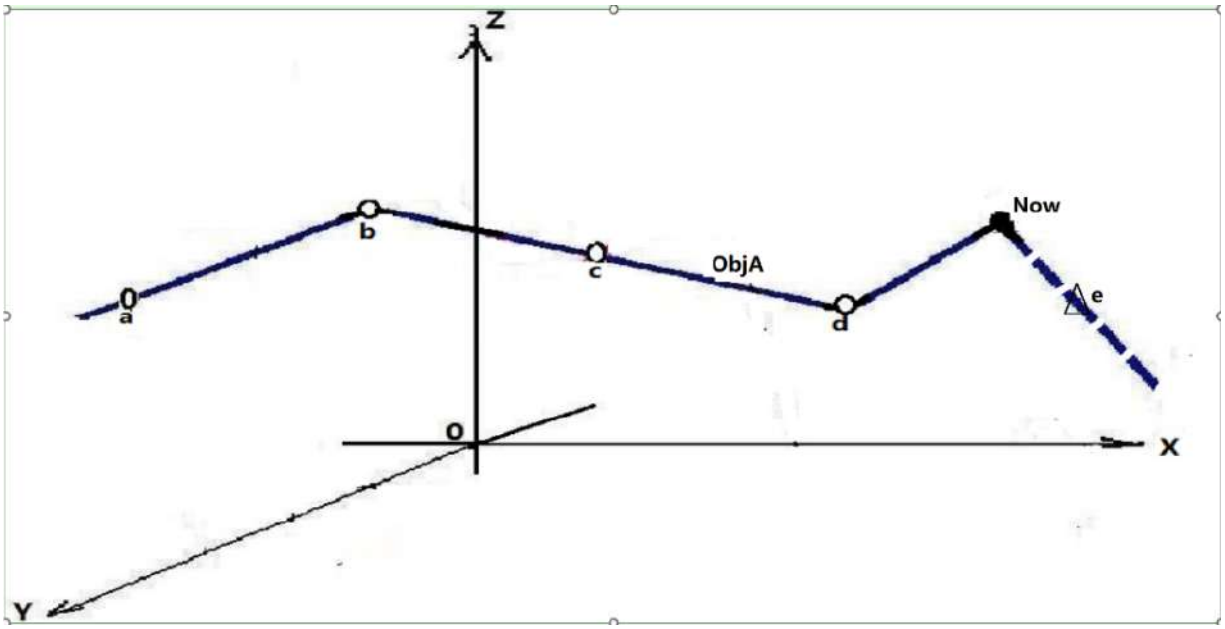


Figure 6.8: Typical conventional trajectory diagram of a celestial body ObjA in a 3-dimensional (X, Y, Z) space.

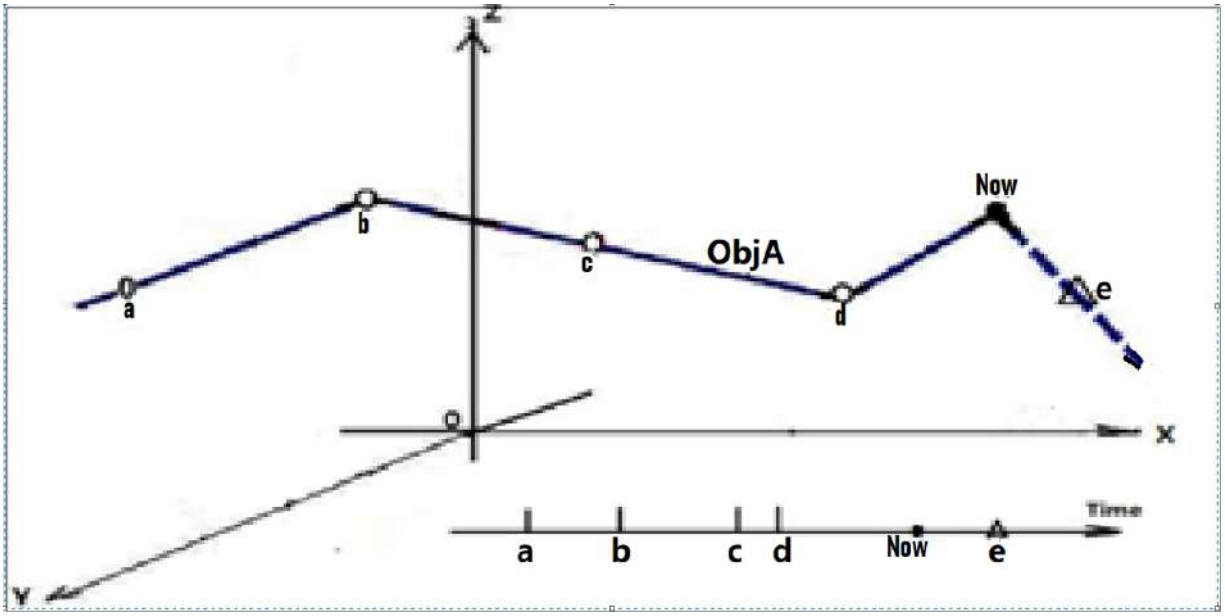


Figure 6.9: After adding the time plane to the three-dimensional (X, Y, Z) graph, the trajectory of ObjA is a spacetime diagram in four-dimensional (X, Y, Z, T) space.

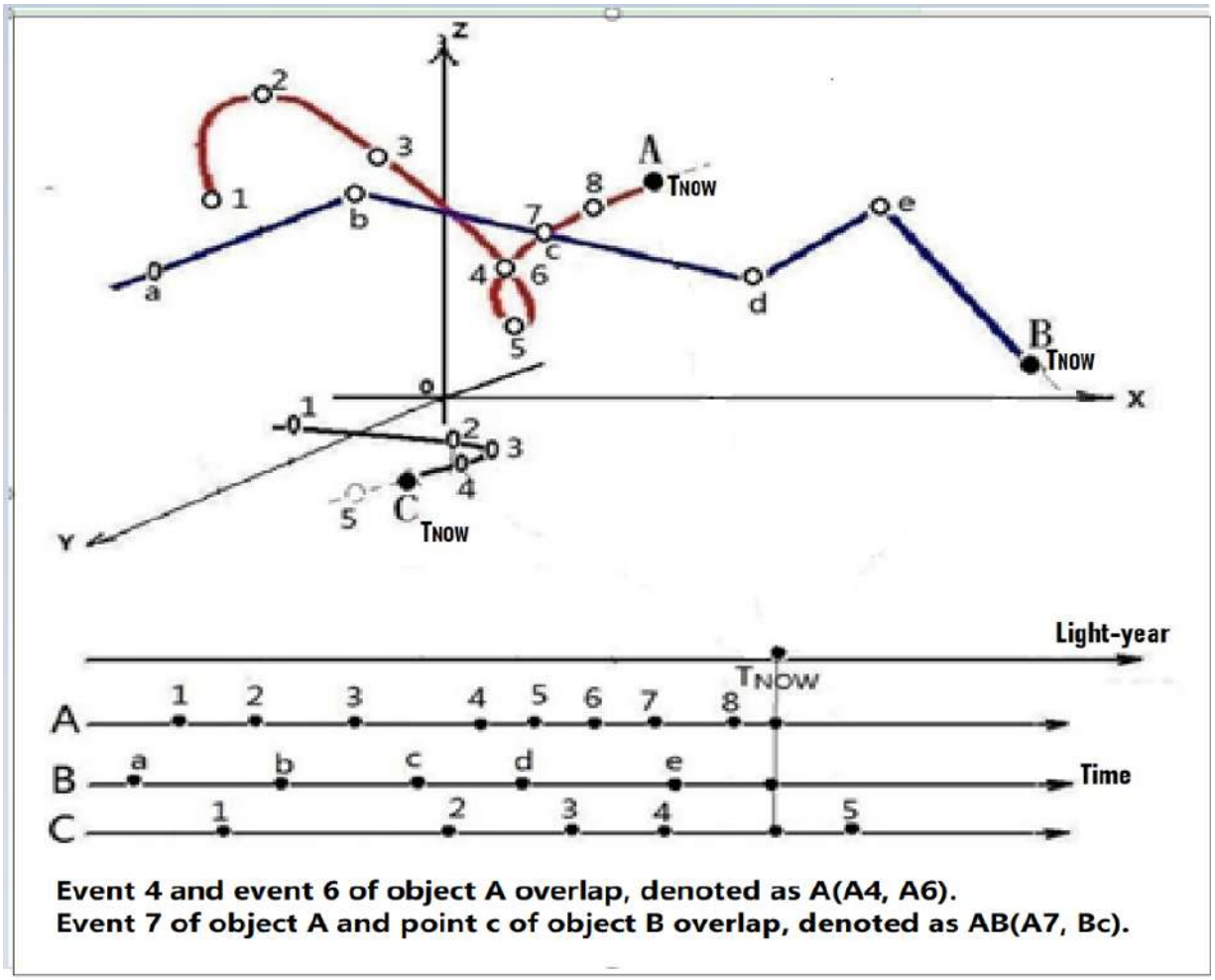


Figure 6.10: The relationships between object events are expressed using a four-dimensional spacetime diagram of the object events. The "Now" moment of all worldlines occurs at the same current time, t=0.

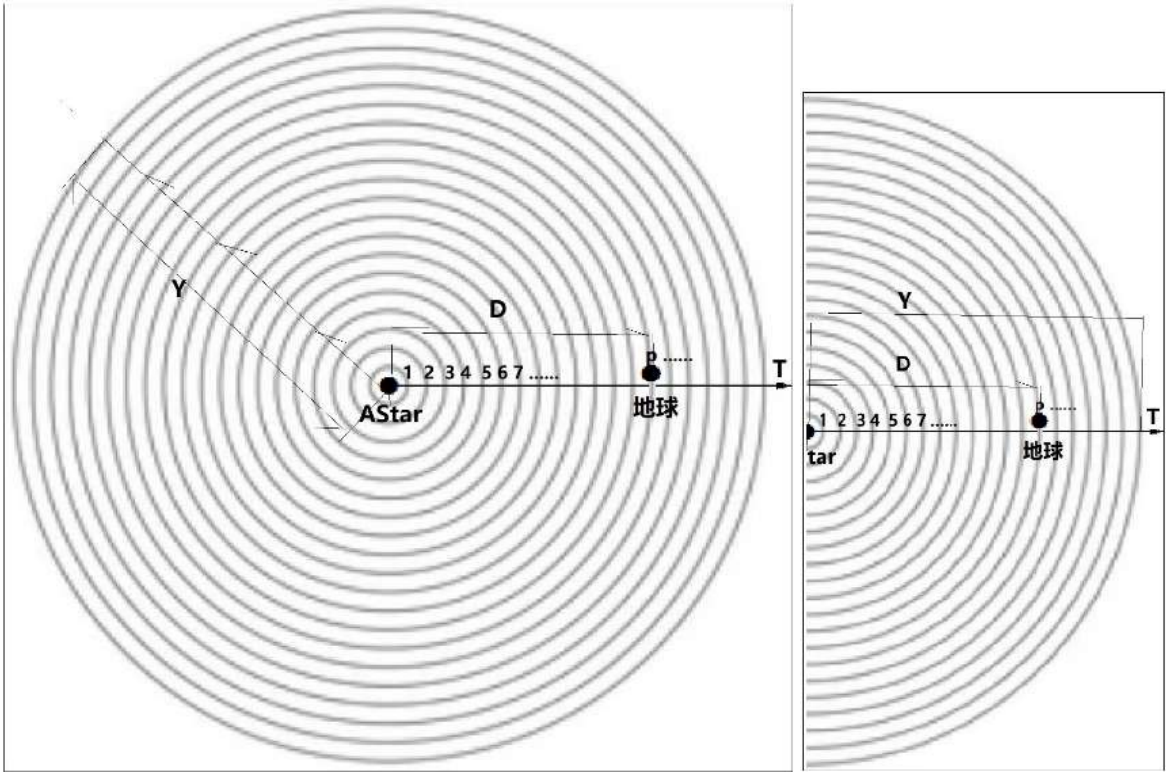


Figure 6.11: Left: A copy of Figure 5.9. Right: Obtained by removing one symmetrical half of the left image.

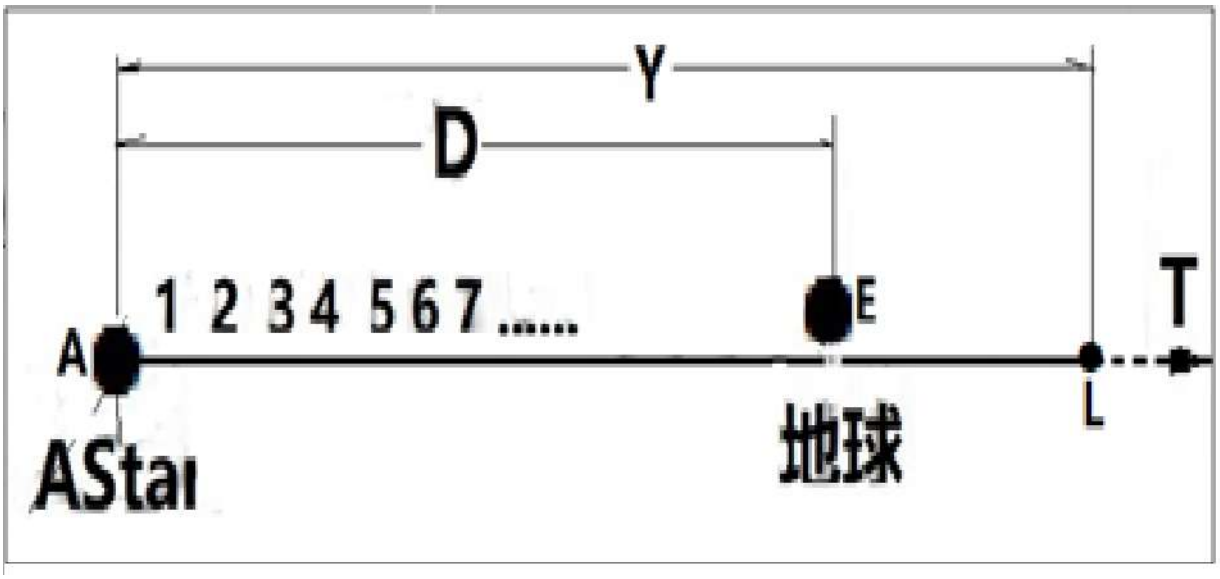


Figure 6.12: Left: Scaled-down version of Figure 5.9. Right: Schematic diagram showing the entire process of light wave transmission from celestial body AStar after removing the light wave circles.

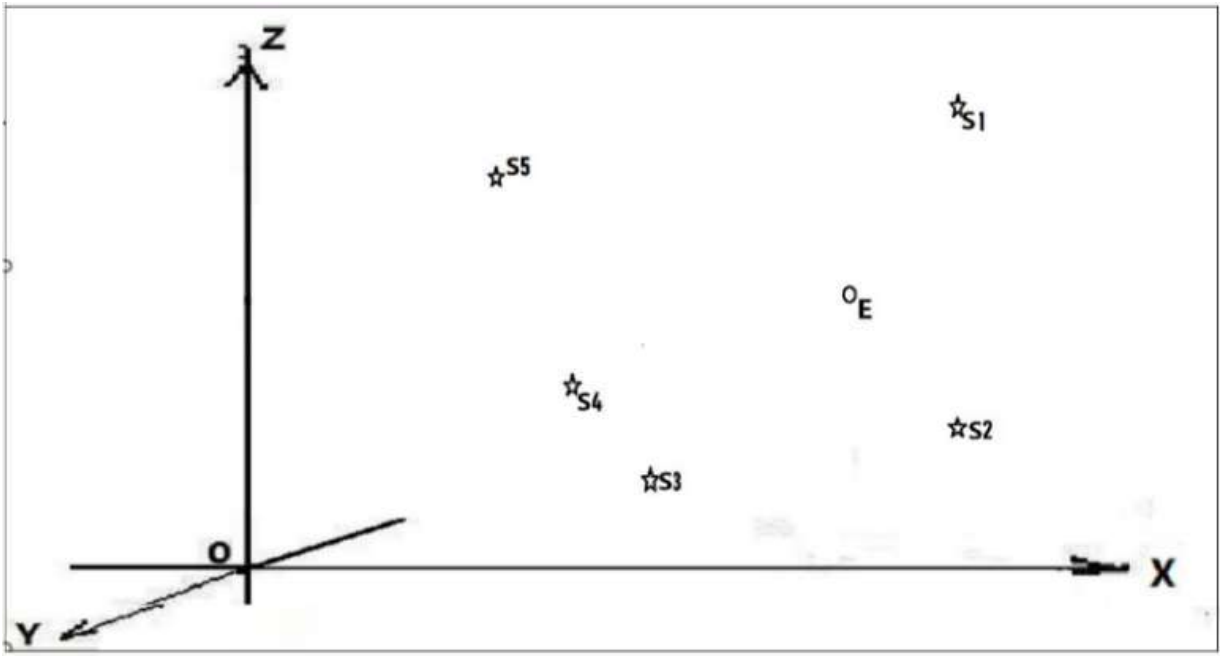


Figure 6.13: Relationships between five stars (S1–S5) and Earth (E) in space.

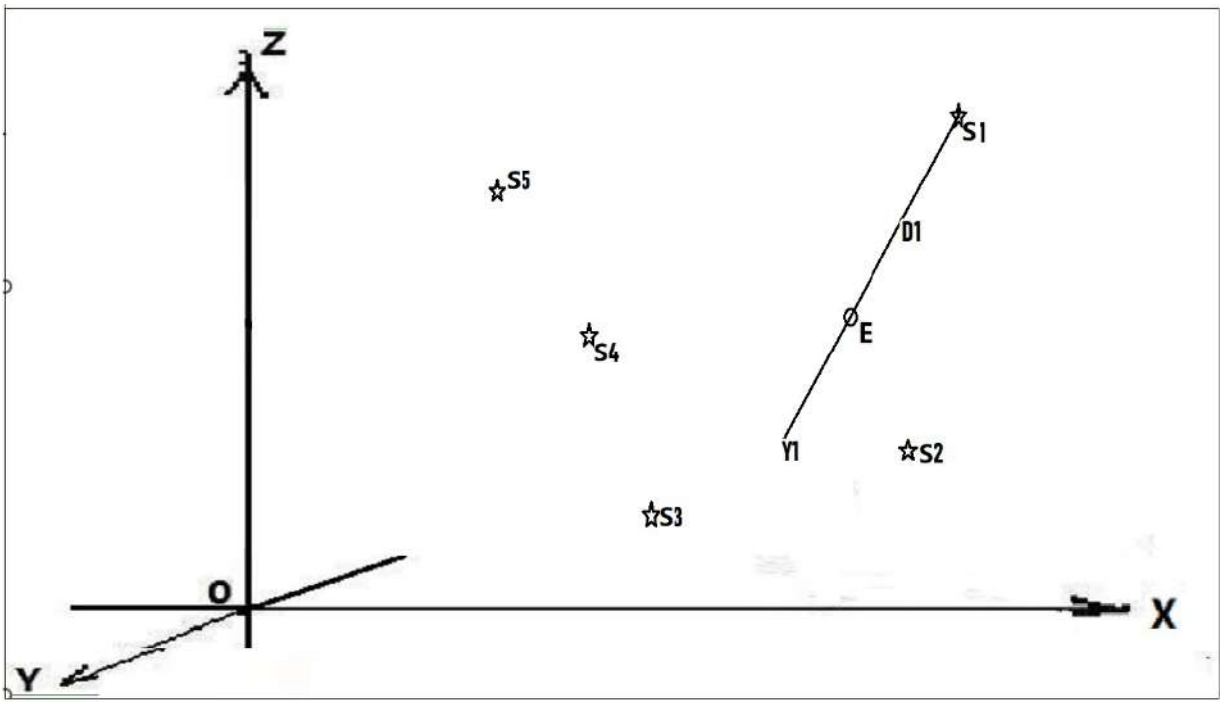


Figure 6.14: The spatial and temporal relationship between the Earth E and celestial body S1.

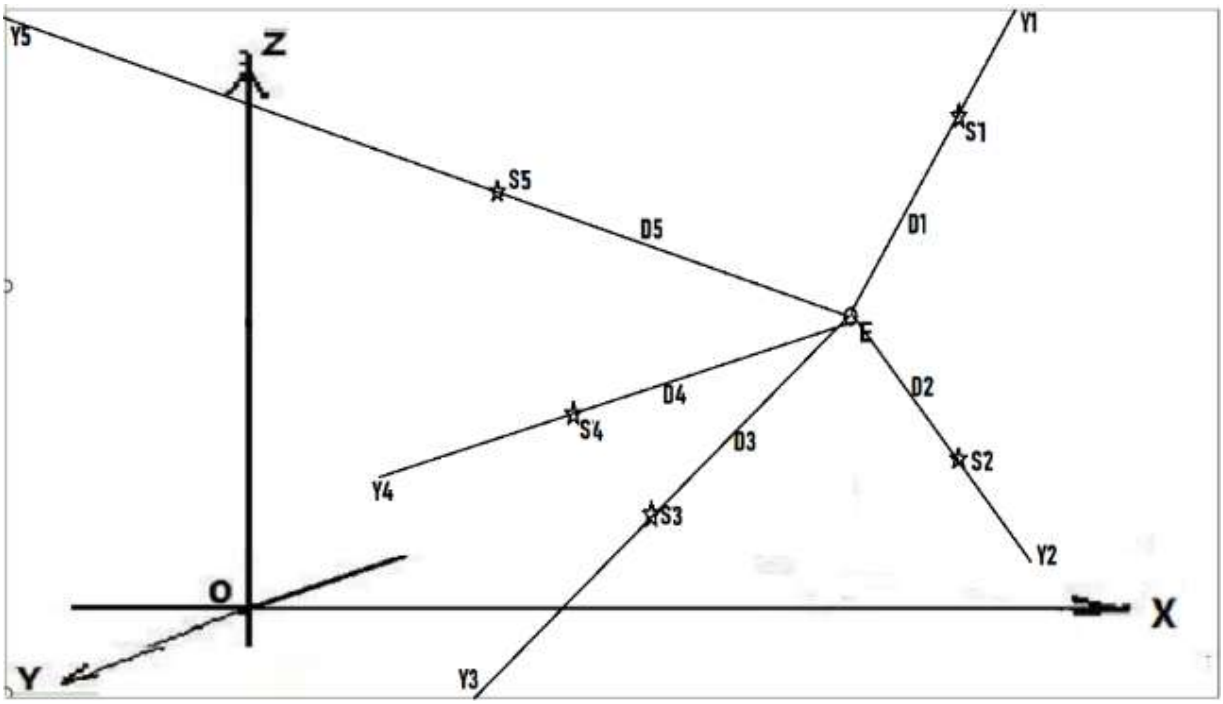


Figure 6.15: The spacetime relationship between the Earth E and stars S1, S2, S3, S4, and S5.

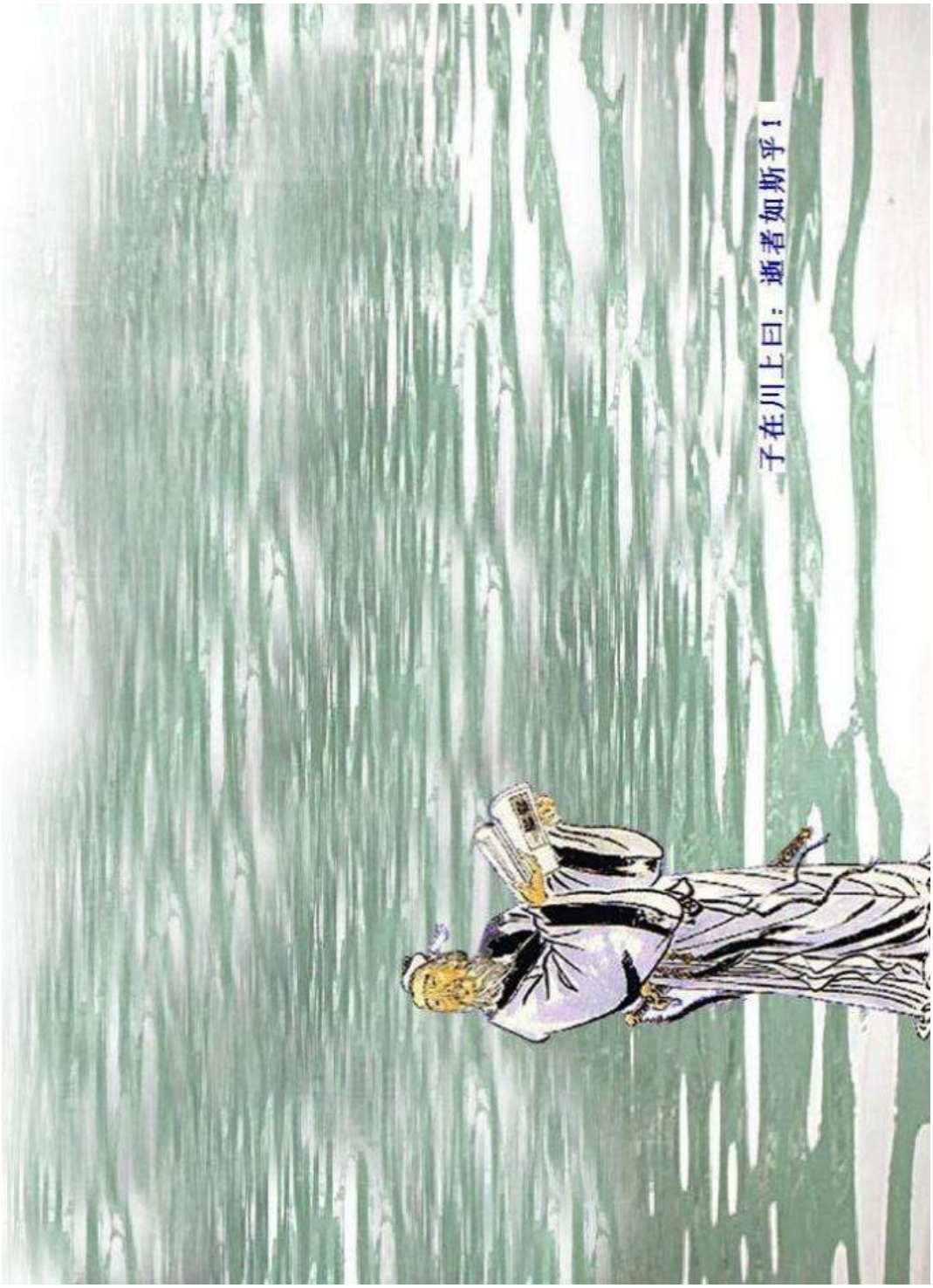


Figure 6.16: Confucius by the river: "Does everything pass away like this?" Time is like an eastward-flowing river. (Painting by Wu Yongjian)

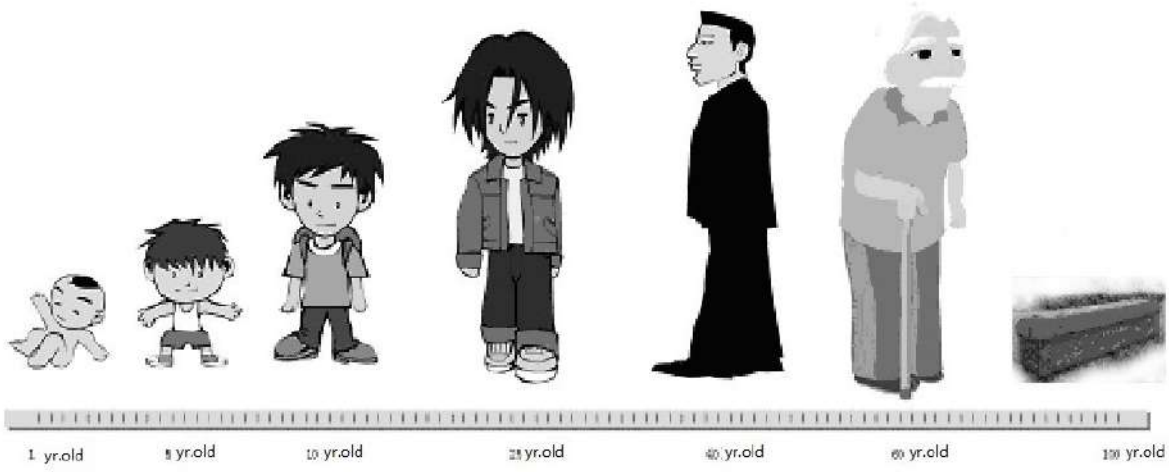


Figure 6.17: A person's life journey. (Painting by Wu Yongjian)

Mark any three moments (or any moment in the life of the person), such as 59, 60, and 61 (if you have studied algebra, then we use x, x -1, x + 1 three arbitrary moments, not necessarily with x = 60, nor necessarily in units of years). To put it more clearly, let's suppose this person had a car accident and lost an arm at 60 years old. In that case, his 60-year-old status should be the middle figure with no arm, his status at 59 is normal, and his status at 61 is that he has a prosthetic.

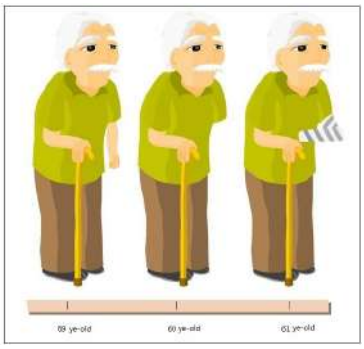


Figure 6.18: Schematic diagram of the time instances of "past, present, future" of a person suffering an accident. (Painting by Wu Yongjian)

What we should note is that according to the law of object existence, at the very moment when this person has lived to the snapshot of 60, the "he" indicated by the 59th snapshot has ceased to exist, and his good arms are just a memory; his history captured in some form of photograph. In the snapshot of him at 61, he has lost his arm. But this event at 61 has not happened at the snapshot moment at 60. That's just a possible future condition of this person relative to the moment of the snapshot marked 60. At the moment when this person has lived to the snapshot at 60, or at a later time, we may speculate based on a variety of information, such as current medical standards, that it is probable that the individual will be alive at the moment of the snapshot at 61. If this person lost his arm during the Han Emperor Wudi period, no new prosthetic limbs could be drawn on the snapshot; perhaps a stick would be attached.

This shows that a person's life consists of innumerable moments. But in every moment, people only exist at that moment!

The moment when the present moment exists, we call it "Now"

In Haikou of south China, we saw Past-Buddha, Present-Buddha, and Future-Buddha in the temple. We just couldn't help but feel a great deal that the ancient Buddhists saw the world more thoroughly than some modern cosmic experts. Ah!

An explanation of the laws of existence of a unit object based on the worldline

A boat glides slowly in a calm lake. The boat is the point where the object now exists. The wave behind the ship is the path the ship took and indicates where the boat once was. Where the boat will be in the future, we can probably calculate, according to its current position and trajectory, but reaching that future place has not happened yet. Perhaps the boat will sink or change its direction.

The same principle and the same proof can be extended to everything in the universe that we know through common sense, including, of course, the unit object flow.

For example, the Sun is constantly undergoing energy conversion reactions, constantly releasing energy, and each batch of photons it emits at every moment is different from the others.

Another example is a photon from the Sun. At one moment, it is on the surface of the Sun, and the next moment it is a few hundred thousand kilometers closer to us. And as it travels hundreds of thousands of kilometers, every place it passes through is its trajectory, denoting a moment of its existence. The sum of all the existing moments constitutes the trajectory of the photon; that is, its world line. But the photon is not the world line; the photon is only one point. It is the unique operation of the trajectory of the photon that constitutes its world line; the track of each point corresponding to a different moment, with this photon at the head of this world line

A river is made up of countless water droplets. At every moment, a large amount of river water flows into the sea, and water from the source is injected into the river. No river at one moment is exactly the same at another moment.

The world line concept we are using here has a clear definition: an independent unit object represented in a world line, with the beginning of the world line corresponding to the event's starting position and time. The moment "Now," which corresponds to the world line's forward vertex, also denotes the location of the object. All event points on the world line are strict, not chaotically arranged, from the beginning to the endpoint between the vertices, from the past to the present moment in an orderly sequence. Each point, in turn, is the expression of the state of the object event at that time, and from the moment they occur to now corresponds to each point on the timeline.

From the viewpoint of different objects, a planet, for example, can express its entire trajectory when moving through a part of that trajectory. The whole time, though, it only exists at the forward end of the trajectory; that is, where it is at that moment in its trajectory. Its past is the memory of the locations that it has moved through on its trajectory, and its future, based on expectations made from its past and present, still does not exist in reality.

A planet can be broken down into mountains, rivers, humans, animals, birds, insects, vegetation, sediment, and so on. A river can be broken down into countless water droplets. For every one of these, we can depict the object based on knowledge of its world line. At the forefront of the world line is the "Now" moment where the unit object exists, including the planet itself – composed by collecting all the individual unit object world lines that constitute a planet into that planet's world line "Now."

This differs from the representation of a unit object flow such as starlight; please refer to Figure 6.14.

A planet can be broken down into mountains, rivers, humans, animals, birds, insects, vegetation, sediment, and so on. A river can be broken down into countless water droplets. For every one of these, we can depict the object based on knowledge of its world line. At the forefront of the world line is the "now" moment when the object exists, including the planet itself – composed by collecting all the individual object world lines that constitute a planet into that planet's world line "now."

We can gradually and finely decompose, and also gradually polymerize, from large to small, or small to large, but there is only one set of world lines, and their apexes represent the existence of the real objects!

When we call for spring in the winter of 2025, we expect the flowers of 2026. Spring is there year after year, but no one would say that flowers in 2026 spring are those that bloom in 2025.

Space, time, is forever a mysterious theme.

6.1 Postscript

6.1.1 What are the problems with the theory of relativity?

Since the publication of the Chinese edition of "Who Should Talk About Cosmos" in 2005, we have embarked on a process of continuous deeper thinking and constant revision of our previous works. Although we have made small improvements each time, we have never been completely satisfied. This is also why we rarely promote our books and views online. Only now, 20 years later, have we finally arrived at a result regarding our understanding of relativity that satisfies us. And this should be the final version of our book.

The biggest problem with relativity is that, as an applied model, it hasn't been treated as a physical model that needs to be used in practice everywhere. The focus has mainly been on the elegant mathematical model. From an perspective of application, Einstein's theory of relativity—both special and general relativity—is nothing but impractical speculation and empty talk.

Special relativity mainly focuses on the computational effects produced by the relative motion of two reference frames. It seems reasonable, but from the perspective of an applied engineer, it is completely useless.

For example, special relativity provides no explanation or constraints on how two reference frames form a relative system, leading to numerous errors in the process of constructing such a system. We have already discussed many simple examples, such as people arbitrarily assuming that clock A on an airplane is relative to ground clock B. How can you guarantee that clock A is necessarily relative to clock B? How can you prevent thousands of other clocks on airplanes, trains, and cars from being simultaneously or separately relative to clock A, or clock B, or both A and B? Which data should be used from the calculations obtained from these countless relative systems? This can be understood more clearly from the principle of finite effects in the theory of relativity.

Once a person's thinking falls into a misconception, it is truly difficult to extricate oneself.

Another example is in general relativity. Is it the correct attitude for scientific research to arbitrarily combine time and space before understanding their true nature?

A unit object and a unit object flow of single objects are two concepts that must be clearly distinguished in astronomical observation and analysis. For example, the Sun, as a single object, has its own mode of existence and laws governing its existence in time. The concept that a single object only exists in the "Now" moment is applicable to the Sun; however, the existence time of sunlight, as a unit object flow, is completely different. Outdated concepts such as the incorrect spacetime light cone are completely inapplicable to it. These are all things that Einstein's general theory of relativity failed to recognize. After analyzing Einstein's various erroneous concepts and theories, can our understanding of time and space be closer to the truth? Especially in terms of spacetime transformation and time dilation.

Einstein's view of spacetime inextricably links time and space, directly propagating confusion. It also lacks the data that could verify it. Ultimately, it will lead to the inability to accurately measure the time of any object.

Because nothing in the universe is absolutely stationary, for every object and event, there are countless objects, near and far, visible or invisible, moving relative to it. Every object or system is in relative motion with countless other objects or systems, including subsystems and systems within subsystems and systems at different levels.

However, according to Einstein's theory of relativity, each individual relative pairing affects the time and motion of objects or events, which is, of course, incorrect. Why? Because the Earth is in motion relative to the Sun, the moon, the Milky Way, nebulae, and the edge of the universe... In the universe, everything is in motion relative to other objects. Whether we want to admit it or not, the Earth is in motion, so everything is relative to the Earth, or is either moving or stationary relative to the Earth (the existence of what Einstein called a stationary system in the universe is questionable). So, according to Einstein's theory of relativity, what kind of result will these various interactions ultimately produce? So far, nobody knows.

No one can isolate any two objects from the countless objects in the real world. Relative thinking is foolish enough; applying it to the real world is even more untenable.

Regarding the existence of time, we need to pay attention here. The existence of time involves all objects in space, therefore local time variations cannot become a universal law. Or, we can say that time calculations within one subspace usually cannot interact with time in another subspace.

Einstein used a considerable amount of mathematics to expound his theories. However, because these mathematical models were based on flawed physical models, they only amplified the destructive power of the theory. This is truly regrettable.

Although Einstein's theory is intriguing, thought-provoking, and even mythical, it is completely inconsistent with reality. The relativity between independent systems can only be considered conceptually; describing the motion of a system no longer requires considering the effects of relativity between systems, because for a system with two independent relative reference frames, they can only be relative to each other conceptually; there cannot be any substantial physical or chemical interaction between them.

It can only be said that what Einstein presented is interesting enough, but not enough to convince us.

This application of mathematical models that clearly violates the rules of the real world has dominated the human physical world for a century, which inevitably leads one to ask: why did this happen?

6.1.2 Solemn classical science and frivolous modern science

We do not know when it began, but science is becoming increasingly non-serious, floating noise.

There are many man-made factors involved, such as telling right and wrong not by truth but by academic faction, and judging good or bad as the authorities deem. And this ugly phenomenon is derived from the complexity of modern science itself, and the difficulty of using black and white to determine yes or no without ambiguity. Our arrogance doesn't

help either. We do not possess the kind of insight we believe we possess. There is even the arrogance of human beings who think they have insight into everything, and they don't admit that we, as a species, have come to a turning point. Sometimes the manpower is indeed exhausted with our effort.

Where are we headed?

The first is to treat the attitude of the speed of light.

Einstein asserted that the speed of light is constant. Michelson–Morley and many similar experiments "proved" this assertion. However, if the light is so fine that their quality is only one millionth of elementary particles or ten millionth, by what means can we humans distinguish between details of the light? If the light is transmitted in units of distance, say, of ten thousand light-years of distance and then starts to weaken as it approaches us, do we get "tired", can humans have any means to simulate the same with the same expanse of time and distance? Light travel in a unit of ten thousand light-years? In the Michelson–Morley experiment and other similar experiments, the experimental time duration of the light traveled was maybe even less than a year; that is, less than one light-year distance, right? It is not possible to simulate a hundred light-years or more in a lab.

Previously, we discussed in detail earlier, human-observed starlight is the statistical result of multiple photons, which must be "tired" and observable near the relative observable radius.

Another example is "dark energy" theory. What, in fact, is it? We just don't know. Does it even exist other than in theory? We bet it doesn't. Is this thing in itself a very strange thing with a very unnatural theory? I have a bet with NASA because I basically do not think that dark energy exists. We' ll see what kind of magical means cosmologists use to find or create a little dark energy. If it has to account for 96% of the matter in the universe, as they surmise, it can never be dark energy. The reason for this, we have fully discussed earlier in the book.

In truth, advances in modern technology have well exceeded advances in theoretical innovation, and the power of capital driven talents tends to accumulate money. So, willingness to engage in some research fields with little research funds are essentially rare. In this case, an amateur's illusory research of the universe is simply surprising!

A friend of mine did an experiment. He sends the first draft of my book, *Debate of Light and Dark*, to an editor. His comment was: if this man can write such boring stuff for a decade, he is definitely an eccentric

I listened to the remark and could only respond with a wry smile. I feel very strange to myself, ah! I spent a decade of my spare time on this and did not earn a penny—sick, ah? What kind of worldview is that? What kind of universal view? Can you be more stuck in reality?

My glorious image is ruined by this book, ah!

In Horgan's book, *The End of Science*, the first example he used was cosmological science! Why was cosmological science the primary basis of his argument? Should we not consider this carefully? Who impeded its progress?

We believe we have told you in this book in your hands.

We think that discerning what is right and what is wrong when considering the universe — what we understand about it and how we understand

it — is more meaningful to human progress. If our work can give the field of rigid untouchability little impact, people will realize that since a hundred years the human predicament has been that no new trees were cultivated. So, by discussing the end of science topics that can impact authority, people can realize the plight, to have excited desires that want to jump down from the old trees to plant a new tree, and even build a new forest. It will be a wonderful thing!

Then, too, there is this hope, which we have stressed, even if implicitly throughout this book: our hopes in the younger generation, in the next generation of scientists and mathematicians to come. May they accustom themselves not to standard rules and thinking but to independent, critical thinking. May we guide them to create new theories that are practical and verifiable, and which then become the great standard-bearers.

We do not need a science and technology God to imprison scientific progress!

We call for God who does creation that advances science!

6.1.3 To Astronomical and Cosmic Scientists

We know you are the best in the world and are working hard.

However, we would like to ask: What is the ultimate purpose of your work? Isn't it to allow humans to understand the universe clearly? Have you achieved it?

When we saw those much-publicized incorrect reports like that you discovered "an infancy 30-year-old black hole at 50 million light-years away," our first reaction was that experts must have gone crazy to make such a simple mistake! You have been describing a completely wrong universe to us!

What we don't understand is: How could such simple and intuitive errors persist for decades? Shouldn't you reflect? Shouldn't you listen to the opinions of us ordinary people? The various points of view we point out in the book are trying to answer this question for you.

Please don't think of yourself as the god of science, or the messenger of god. The myth that the universe was created by the Big Bang of an atom that you have supported with scientific methods for many years not only insults science, but also tarnishes God.

The contemporary astronomy and cosmology circles should really reflect on: whether to continue to adhere to the theory of the pseudo god of the Big Bang; or to truly respect science and admit that you yourselves are not the god of science, and recognize the road to the end of the universe is still far far away. Start from scratch, make good use of taxpayers' money, and truly scientifically analyze how much humans can know about the universe and how deep they can understand it, and what are humans impossible to know. Only in this way can humans clarify the correct research direction in the future, and will not lie lazily and uncreatively under the shadow of the senior masters, tinkering and making the papers!

As taxpayers, we want to ask if our money is being used correctly? Please either refute or apologize to the questions raised in the book.

6.1.4 My Ambitious Desire

This book has a deeper attempt: we hope this book can give alert to people to start to straighten out the distorted relationship between philosophy and technical science. This is what I have been working on for more than a decade.

Hawking said in his book <A Brief History of Time>: *"Up to now, most scientists have been too occupied with the development of new theories that describe what the universe is to ask the question why. On the other hand, the people whose business it is to ask why, the philosophers, have not been able to keep up with the advance of scientific theories. In the eighteenth century, philosophers considered the whole of human knowledge, including science, to be their field and discussed questions such as: Did the universe have a beginning? However, in the nineteenth and twentieth centuries, science became too technical and mathematical for the philosophers, or anyone else except a few specialists. Philosophers reduced the scope of their inquiries so much that Wittgenstein, the most famous philosopher of this century, said, ' The sole remaining task for philosophy is the analysis of language.' What a comedown from the great tradition of philosophy from Aristotle to Kant!"*

Below is what I pointed out in "*Who Should Talk about Cosmos*" in 2005:

Here, we see that, thanks to the brilliant achievements of science and technology over the centuries, and the wealth that science and technology has brought to human society, the scientific and technological method has become an instinct of people's minds: where any technical science works, the philosophical thought of the humanities will wither or even die out, and it will automatically and willingly cut itself off from this field that is involved in science and technology.

The above passage has been written for more than ten years since then, but the situation is getting worse. Philosophy really retreated from fundamental questions about the universe. However, this is completely wrong. For more than a decade, we have constantly been pointing out that the current science and technology of the universe cannot help humans correctly understand the universe, but contemporary scientists have not recognized or are unwilling to acknowledge or even dare to discuss and criticize.

To put it simply, at the speed of the current manned spacecraft, the improvement of human beings is not only subject to various limitations in technology and humanities, but also subject to Einstein's relative theory of "moving ruler shorter". Any distant celestial body humans observed with telescopes cannot be determined whether it is a real celestial body or just the remnant light left by the celestial body that has been destroyed. Humans can neither travel to explore the universe outside the solar system with the help of science and technology, nor can they see the real universe with telescopes. So, why does the philosophy of finding the truth of everything succumb to the physicists who are only followers of Hawking and of Einstein's mathematical formulas??

Because Mr. Einstein's principle of relativity cannot be applied between systems that maintain absolute simultaneity and systems that maintain relative simultaneity, physical theories cannot defeat philosophical models. Relativity and absoluteness are the two sides of everything, even in relativity or physics.

In today's AI age, what new and fundamental breakthroughs have been made in mathematics, philosophy, and basic theory? We have seen a

series of great achievements in applied science, but we have hardly seen any great progress in the fundamental nature of thought, philosophy, mathematics, and especially, in the field of astronomical sciences of the universe.

In the post-industrial era, we must break through the century-old traditional thinking that keeps us in thrall, and reconstruct the current academic model of mathematical supremacy. Only then will we be able to properly explore and understand the true face of the universe.

We hope that some latecomers will open up a road to the sky on this difficult wild trail!

Wishing people all over the world good health, peace, and prosperity!

February 1, 2026, at my home of Green Garden in San Francisco Bay Area.

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