On the Apriority and Self-renewal of Cognitive Ability

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Human cognition ability comes from sensory experience or gift concept. This is the difference between empiricism and rationalism in the two major factions of Western European philosophy in the 16th and 18th centuries. The weakness of empiricism is that it is impossible to obtain knowledge with universal necessity from complicated experience, and the inability to obtain new knowledge is the weakness of theory. How to reconcile the contradiction between the two has become a new theme. This paper will cut into the three aspects of philosophy, geometry, and modern business economy, and explore the innate nature of cognitive ability and the characteristics of human self-renewal that are manifested in the process of self-development of cognitive ability. Its significance is not only to explore the essence of human beings, but also to give hope to the multiple possibilities of human beings.

Keywords: cognition ability, Kant, apriority, Euclidean geometry, Steve Jobs

Introduction

What we can know and how we know it is a question that philosophy has been exploring for a long time. Kant put forward the congenital comprehensive judgment and affirmed the congenital of cognitive ability. This innate cognitive ability is like a closed channel, which makes experience appear as experience guided by congenital perceptual ability and pure rationality, while the object itself is always unknown. However, from this point of view, this characteristic of cognition is of great significance to human beings. On the one hand, it makes it possible to develop mathematical theories based on self-evident axioms; on the other hand, he makes it possible for human beings to change their thinking paths on the basis of fully understanding the principle of their own cognitive ability, so as to make innovation possible.

Kant’s Transcendental Philosophy

First of all, we look at the apriority of human cognitive ability from the perspective of Kant’s philosophy, and explore the possibility of self-improvement and self-renewal of human cognitive ability from three aspects of sensibility, intellectuality, and rationality.

Kant called his reversion of traditional epistemology as a Copernican Revolution in epistemology. He changed the previous dogmatic definition of truth that “the idea conforms to the object” into the critical philosophical definition of “the object conforms to knowledge”. The most important strategic adjustment is to separate the phenomenon from the thing in itself. What we know is only the phenomenon, but the thing in itself is unknown. This can be regarded as a breakthrough point of Kant’s philosophy. Epistemology breaks out of the cage of empiricism and rationalism, and opens up a new continent.
There is no doubt that all our knowledge begins with experience. Human cognitive ability is stimulated and acted. If it is not because the object excites our senses, on the one hand, it has its own appearance; on the other hand, it makes our intellectual action work. Comparing these images, connecting them or separating them, and thus making the original material of perceptual impression, what is the reason for the knowledge that materials are processed into objects called experience? Therefore, in time, we do not have any knowledge prior to experience, all knowledge starts from experience.

But even though all our knowledge begins with experience, it does not all come from experience. Because it is likely that even our empirical knowledge is a compound of what we accept through impressions and what we provide from ourselves by our own cognitive ability (induced only by perceptual impressions) (Kant, 1787).

Kant holds that all knowledge is composed of the innate and acquired elements in experience. It is the innate element in experience that endows our experiential knowledge with a universal and necessary nature, that is, the nature of the law that all rational persons or cognitive subjects must abide by when they recognize an object. This object of knowledge cannot be regarded as a thing in itself, but only a phenomenon in our mind. However, although they are only presented in our hearts, they are not transferred by our arbitrariness. We have to treat them in this way because of our fixed innate cognitive structure (space-time, category). Therefore, the object of cognition as a phenomenon shows some objectivity to us, and this objectivity in this sense is the objectivity established by subjectivity instead of the ready-made absolute objectivity of the thing in itself of the subject. Therefore, the process of cognition is not that the objects legislate for us, but that “humans legislate for nature”.

As long as we are satisfied with the knowledge of phenomena, we can overcome the skepticism of knowledge and establish their universal inevitability and objectivity in the phenomenal world. As for the thing in itself, Hume even doubted its existence, but Kant insisted that we must set it. The reason is: First, to ensure the reality of the object formed by the perceptual impression produced by our senses stimulated by it; second, to set up a boundary mark of “stop here” for our understanding, and on this basis, we can judge everything and make an “agnostic” conclusion directly against the assertions and descriptions of things in itself without sensibility, limiting knowledge to the scope of the sensory world, so as to ensure that our knowledge is true knowledge rather than pseudoscience; the third is to leave a space for things that are unknowable but should be believed, such as free will, immortality of soul, and existence of God. We have to suspend knowledge to make room for faith. Kant’s moral theory is about the law of free will. The law of will is practical reason. The same reason legislates for nature in theory or epistemology, and for man’s own will in practice. The form of will legislation is moral law, and its possible condition lies in the freedom of practice of all rational people. Therefore, the existence of moral law is based on its own unknowable freedom, which belongs to human noumenon, that is, the thing in itself. Real freedom is not a one-off free will, but will to adhere to its own consistency and universal inevitability. So, what is the basis of self-improvement and self-renewal of cognitive ability?

First, limit knowledge to the sensory world and coordinate the complex world.

The ability to acquire images by means of being stimulated by an object is called sensibility. Therefore, with the help of sensibility, objects are given to us, and only sensibility can provide us with intuition; but intuition is thought through knowledge and produces concepts from knowledge.

I make the appearance of everything in which nothing belongs to the feeling as pure (in the transcendental
sense). According to this, the pure form of general perceptual intuition will be found in the mind first, and all the miscellaneous images will be visualized in some relationships in this form. This pure form of sensibility is also called pure intuition (Kant, 1787).

The so-called sensibility, Kant refers to the acceptance of human knowledge that is a passive acceptance of cognitive ability or intuitive ability. This is our basic cognitive ability. But even if it is passive acceptance, Kant thinks that in addition to the need of receiving organs that is the sense organs, we should also take some kind of innate form of knowledge as the premise, otherwise it cannot be accepted. Therefore, the perceptual or intuitive in Kant’s view is formed by the combination of two components, that is, the congenital intuitive form used to accept, namely, the form of space and time, and the intuitive materials the acquired by stimulating the senses through the thing in itself, including perception, impression, feeling and other miscellaneous materials, such as color, fragrance, and taste. As far as the acquired empirical materials are concerned, they are purely accidental and belong to the scope of empirical psychology. Kant’s transcendental induction theory mainly discusses the nature of congenital intuitive forms and their relationship with acquired materials, so as to explain how pure mathematics is possible, that is, how pure mathematics constitutes an object in intuition. In order to show the innate nature of space and time, he made an ideological experiment. For example, we can imagine an empty space or a period of time when nothing happens, but it is impossible to imagine that something exists without space and time. Therefore, space and time are not the thing in itself or its form, but the innate intuitive form of cognitive subject. They are the congenital conditions for all intuitive objects, first of all, mathematical objects. For example, space is the congenital condition for geometry, and time is the congenital condition for mathematics. Therefore, these intuitive objects are not things in themselves, but the phenomena formed in our intuition by stimulating the senses. When our space-time form brings the miscellaneous images of the senses into its own order, a perceptual object is intuitively constituted. It empirically limits its own part of the territory in our innate space-time form. However, this part and any other part follow the space-time form itself and determine a certain inevitable relationship, such as the shortest straight line between two points and the congenital comprehensive judgment of mathematics shows its inherent necessity by this limitation.

Space is not an experiential sexuality that comes from external experience. External experience itself is only possible through the above representation.

Space is an essential innate representation as the basis of all external intuition. Space is considered as a condition of imaging possibility.

Space is not a concept of reasoning about the relationship between general things, or as people say, a universal concept, but a pure intuitive (Kant, 1787).

Only in time can we discover two contradictory provisions in one thing one after another (Kant, 1787).

According to Kant, space is the form of external sense organs, that is, the congenital intuitive condition of perceiving all external phenomena; time is the form of internal senses, that is, the congenital intuitive conditions of perceiving all internal phenomena, and all external phenomena must be finally brought into the interior for perception, so time is the congenital intuitive condition for perceiving all internal and external phenomena. In this sense, time takes precedence over space. It is precisely because time and space, on the one hand, are the innate intuitive forms of the subject itself; on the other hand, they are the conditions for the formation of perceptual intuitive objects, so they have complementary nature, which is the transcendental conceptual and empirical reality.

The combination of time and space is the pure form of all perceptual intuition, which makes the congenital
Finally, as for the transcendental theory of sensibility, it should not contain more elements than space and time, because all other concepts belonging to sensibility and even the concept of motion that combines the two are based on some empirical thing (Kant, 1787).

The concept of transcendental emphasizes that time and space are the innate subjective concepts of the subject, rather than the objective attribute of the thing in itself, so it is not the transcendental reality. The reality of experience emphasizes that the inborn form of time and space is bound to be widely applied to all experiential contents to form empirical objects. Therefore, the objective reality in phenomena can be established, rather than the experiential concept of subjective association and fantasy.

Second, it provides the necessary conditions for the objective object and its empirical knowledge by giving the category of knowledge.

Both intellectuality and rationality belong to higher cognitive ability, which together constitute a priori logic. The cognitive function of intellectuality is to integrate the intuitive objects provided by sensibility in thinking, so as to form objective and universal natural science knowledge. Therefore, intellectuality cannot be separated from the application of perceptual experience. The sensibility provides the object and the intellectuality thinks object.

Kant thinks that the intellectuality is different from the sensibility. Sensibility is only a passive receptive ability, while intellectuality is the ability to generate concepts and use them to think, so the characteristics of intellectuality are spontaneity and initiative. However, this spontaneity is not random, but embodied in a series of pure concepts of intellectuality, namely category. Kant first listed a table of logical judgment function of knowledge, that is, judgment of quantity, judgment of quality, judgment of relationship, and judgment of mode, and then listed the category table of quantity, quality, relationship and style. The items in the two tables are one-to-one.

Kant believes that formal logic only cares about the form of judgment and does not care about the content of judgment, so it is only a negative condition of the truth of judgment; transcendental logic can guide the content of judgment to the road to truth. The 12 categories listed are the conditions that scientific knowledge must strive to meet if it wants to obtain positive results, and each of them embodies a certain aspect of the dynamic comprehensive function of intellectuality, so the law is established by the cognitive subject for the nature. But both of these two kinds of logic come from the same understanding, so we can draw on the relationship between them from one to the other. What each category indicates is no longer an empty form, but a necessary condition for the formation of an objective object and its empirical knowledge, so they constitute an indispensable level within all empirical knowledge itself.

In addition, no matter what level of knowledge, such as the synthesis grasped in intuition, the synthesis regenerated in imagination, and the synthesis identified in concept, these knowledge can only be possible by directly and indirectly relying on the apperception and comprehensive function of self-consciousness. Otherwise, it is impossible to become knowledge. Therefore, all postnatal empirical materials cannot become knowledge without a priori category.

Kant pointed out that category and perceptual intuition come from different cognitive abilities, and human beings have no rational intuition, so in practical operation, if category can be applied to sensory objects, it needs an intermediary, which is judgment. The principle of judgment lies in the fact that we must find an intermediate link, which has both the innate nature and the perceptual intuitive nature, so that we can firmly
combine the transcendental category and the empirical intuition. Because time has such a dual nature, this intermediate link is a schema formed by various prior provisions of time. For example, the series of time is the schema of quantity, the content of time is the schema of quality, the order of time is the schema of relationship, and the inclusiveness of time is the schema of modality. The category of intellectuality cannot be separated from schema and have any transcendental application, but can only be applied to empirical objects through schema.

Thirdly, the rationality is regarded as a kind of ability to trace the infinite from the finite, which makes it possible for human beings to realize self-development.

In Kant’s view, reason is a higher cognitive ability than intellectuality. Intellectuality is generally the ability to generate concepts (categories) to make judgments, while rationality is the ability to use categories for reasoning. Judgment is always one-time, it cannot be separated from the experience object, which constitutes a single knowledge; reasoning does not deal with the empirical object directly, only deals with the knowledge formed by the intellectuality, so it can be continuously pushed up or down. As a rule of law, rationality is to obtain complete and holistic knowledge through ideas. However, since the premise of reasoning is always presupposed, it can always be traced back to infinity. Therefore, Kant regards rationality as a kind of conditional thing to trace the ability of the unconditional, that is, the infinite. The idea of reason is the kind of unconditional or infinite, which has its role in the natural science of experience, such as the ideal concept of pure water, pure gold or species and classes. Although no individual can fully meet them, it provides the goal and standard of measurement for natural science.

In other words, cognitive ability has a direction and a purpose, and this perfect goal seems to be unattainable, but it has become a driving force to attract the development of human cognitive ability.

**Proof of Scientific Development—Geometry as an Example**

Euclidean geometry originated in the third century BC. Euclid, the ancient Greek mathematician, takes some geometry knowledge recognized by people as definitions and axioms. On this basis, he studied the properties of graphs, derived a series of theorems, formed a deductive system, and wrote *Elements*, forming Euclidean geometry. According to the figure discussed, it is also called “plane geometry” and “solid geometry” respectively. The structure of Euclidean geometry is based on geometric axioms, and the whole geometric system is made by deductive method. This method is called axiomatic method. The system is based on a hypothesis that is confirmed by human experience, not proven but seems quite obvious. This self-evident hypothesis is called axiom. Euclid used five postulates and five axioms as the basis (axioms are suitable for all sciences, and postulates are unique to geometry; axioms themselves are self-evident and the postulates are not as self-evident as axioms, but they are also true without proof. Up to now, axioms and postulates are no longer distinguished, and they are all expressed by the word axiom) and with 23 definitions, 48 theorems, and 467 propositions are derived. The whole geometric system is established.

Axiom 5, also known as parallel postulate, is more complicated than other axioms. This postulate gives rise to the theorem that the sum of the interior angles of a triangle is equal to 180 degrees. From ancient Greek times to 1800 AD, many mathematicians tried to use other axioms in Euclidean geometry to prove Euclidean parallel axiom, but the results were all failed. In the 19th century, German mathematician Gauss, Russian mathematician Nikolai Ivanovich Lobachevsky and Hungarian mathematician János Bolyai realized independently that this proof was impossible. In other words, the parallel axiom is independent of other axioms.
and can be replaced by different “parallel axioms”. Gauss’s letters and notes on non-Euclidean geometry had not been published before his death, but were noticed only after his death in 1855. Lobachevsky and Bolyai published their theories on non-Euclidean geometry around 1830. In this geometry, Lobachevsky’s parallel axiom replaces Euclidean parallel axiom, that is, on a plane, there are at least two lines that do not intersect a known straight line. From this, we can deduce a series of conclusions without contradiction, and we can get that the sum of the inner angles of a triangle is less than two right angles. There are many theorems different from Euclidean geometry.

In 1854, the German mathematician Riemann proposed a new non-Euclidean geometry, which is neither Euclidean geometry nor Lobachevsky’s geometry. In this geometry, Euclidean parallel axiom is replaced by the following axiom: Any two straight lines on the same plane must intersect. At the same time, some other axioms of Euclidean geometry are modified. In this geometry, the sum of the interior angles of a triangle is greater than two right angles. This kind of geometry is called elliptic geometry.

Geometry is a science which synthetically but the first defines the spatial attributes. In order to make such a knowledge of space possible, what must the representation of space be? It must be intuitive in origin; for from a single concept no proposition beyond the concept can be obtained, but this happens in geometry. However, this kind of intuition must be found in our mind before all the perception of an object, so it is pure intuition rather than empirical intuition. Because the theorems of geometry are all indisputable, that is, they are combined with the consciousness of their inevitability, for example, space has only three dimensions; but such theorems cannot be empirical judgments, nor can they be inferred from them (Kant, 1787).

Euclid uses the non-original axioms and postulates to construct the whole edifice of Euclidean geometry. This method is the originality of cognitive ability. The key to solve the problem of the fifth axiom is that Euclidean geometry has an implicit assumption—flat space. Because our eyes are born in the three-dimensional world, our transcendental perception ability is presupposed that the world is flat, that is to say, living in the three-dimensional world created by the eyes. People do not know that the eyes twist the world into a straight space, which is called metaphysical confinement. Until Lobachevsky and Riemann realized that this was an anomaly. For the first time in history, they tried to get rid of the parallel axiom and moved down from the flat space to the non-flat space. The original Euclidean geometry was broken through.

**Business Case Proof—Apple Products as an Example**

Next, we will discuss how the above-mentioned cognitive abilities play a role in modern commercial society.

In the use of electronic products, users often form some fixed habits in the specific functions of the products, which constitute the premise of the system, and most people turn a blind eye to it. Identifying and breaking these natural assumptions about product usage is a form of innovation that Apple founder Steve Jobs was good at.

In January 2005, Apple launched the iPod shuffle, a revolutionary innovation. Jobs noticed the popularity of the random play feature on the iPod, which allows users to play songs in random order. This is because people like to be surprised and are too lazy to set and change the play list. Some users are even keen to see if the songs are really random, which is why the iPod shuffle came into being.

The Apple team is worried about how users find songs, and the premise of Jobs’ reconstruction is that they
do not need to look for songs at all, and the songs can be played randomly, completely jumping out of the original premise assumption. After all, all the songs are selected by users themselves. They just need to click “next” when they encounter a song they do not want to listen to.

There are many similar examples. Jobs advocated the concept of simple products. Of all the simplicity, the most thorough one was Jobs’ decision which surprised his colleagues: There should be no switch on the iPod. It has been implemented in most Apple products since then.

Before Jobs, the premise was that electronic products should have switching functions, but Jobs did the opposite. From an aesthetic point of view, the existence of switches is really unpleasant. If you do not operate for a period of time, Apple’s products will automatically go to sleep; when you touch any key, it will automatically wake up. In Jobs’ view, there is no need to set such a process: press down → wait for shutdown → goodbye.

Take another look at Apple mobile phone. Jobs is very proud of this and announced many times in public: “Apple reinvented the mobile phone”. You may as well recall the Nokia era of mobile phones, whether flip or straight, all phones have their own fixed keyboard, which is a typical implicit premise. And Jobs creatively reconstructed Apple’s premise that the touch screen could replace the phone’s keyboard. As a result of changing assumptions, Apple has greatly extended the boundaries of mobile phones, and the era of smart phones has begun.

For the vast majority of people, seeing comes before thinking. Just as they saw the Apple phone, they believed that the original phone could not have a fixed keyboard. And the reason why Jobs was noticed and missed by the world is that he walked in the forefront of the times, and the products he created were often because he thought about it, so he saw it. What we think of is the implicit premise of the original system, and what we see is a brand-new market and track, which is another possibility for human beings.

**Conclusion**

In summary, this article discusses the possibility of the innate and self-renewal of human cognitive ability, and lists examples of natural science and business economics, which has three meanings. First, from the structure of human cognition, it is proved that human beings are not completely dependent on external things and retain certain initiative for human beings. Second, from the limited structure of cognitive ability, we should explore the possibility of realizing infinite change and further affirm the innovative ability of human beings. Third, initiative and innovative ability give human beings the source of meaning and dignity.

**References**