DOES APRIORITY INVOLVE NECESSITY?

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Abstract

Much has been discussed concerning apriority and its relation to the concept of necessity. Many philosophers have conventionally supposed that a proposition is known a priori only if it is necessarily true. According to Kant, for instance, the first philosopher who systematically discussed apriority, "necessity" is one of the criteria of a priori knowledge. Kant (1958) maintains that all a priori knowledge is necessarily true. Thus, from this conventional thought, many philosophers claim that apriority involves necessity, and rejecting the concept of necessity unavoidably affects the status of apriority. That is, if all a priori propositions need to be necessarily true, and we can prove that there is no necessarily true proposition, we are forced to conclude that there are no a priori propositions. However, this paper aims to propose that apriority does not involve necessity since all a priori propositions need not be necessarily true. The paper has been separated into three parts. Firstly, I will discuss the problem of necessity and its effect on the status of apriority. Secondly, I will argue that apriority does not involve necessity by considering the two following questions: (A) is there a necessary a posteriori proposition? And (B) is there a contingent a priori proposition? Thirdly, I will scrutinize the possible objections and try to defend my argument which will involve some further considerations about a priori justification.

I

In this section, I would like to discuss the problem of necessity and its effect on the status of apriority. I will investigate the approach of philosophers for whom apriority involves necessity, which leads them to assert that refuting the concept of necessity is a good ground for refuting the possibility of apriority.

W. V. Quine's argument against the concept of necessity (1951) is widely taken to imply a refutation of the concept of apriority. For Quine, our beliefs are linked to one another in a vast network, which he called the "web of beliefs." In this web of beliefs, some beliefs are nearer to the edge and some are nearer to the center. Perceptual beliefs are nearer to the edge in that they are linked very much to experience and comparatively little to other beliefs. These beliefs are fairly easy to change if they are given new evidence. Other beliefs are nearer to the center in that they are linked very much to other beliefs and only very indirectly, through long chains of other beliefs, to perception. Logical truths, for example, are simply beliefs that lie at or close to the center. The beliefs at the edge of the web are more open to change than the beliefs in the center. An unexpected observation can prompt us to make a great variety of possible changes to the web. According to Quine, no statement is immune to revision. Since no statement is immune to revision, and a priori knowledge is by Kant's definition necessarily true, then it seems to follow that although Quine does not explicitly reject a priori knowledge, his arguments imply a repudiation of it. Hilary Putnam (1976) and Phillip Kitcher (1983) are the examples of philosophers who take Quine's argument as a challenge to the concept of apriority.

However, in the next section, I will maintain that refuting the concept of necessity is not a good ground for refuting a priori knowledge since apriority does not involve necessity.

II

In this section, I would like to argue that apriority does not involve necessity since there are contingent a priori propositions. My objective in this section is to debate two important questions: (A) is there a necessary a posteriori proposition? And (B) is there a contingent a priori proposition?

Are there Necessary a posteriori Propositions?

Recent interest concerning necessary a posteriori propositions is due mostly to the influence of Kripke whose argument claims that the concept of apriority and necessity are different and are not interchangeable. In this section, I will try to answer the question (A) and ultimately sum up that the examples of necessary a posteriori proposition can be surmised. In order to demonstrate this, I will first discuss Kripke's examples of necessary a posteriori propositions. Then, I will discuss the status of laws of nature, which are commonly believed in being examples of necessary a posteriori propositions. My aim in this section is to conclude that the typical examples of necessary a posteriori proposition can be surmised.

In explaining why apriority is not equivalent to necessity, Kripke (1980) introduces the example of Goldbach's conjecture as a case in which the equivalence between them may collapse. Presumably, since so far there has been no proof or disproof of the conjecture, there is no a priori knowledge of it. As a result, here we have a case of a proposition which is either necessarily true or false, but is not a priori in any meaningful sense.

The examples which Kripke uses to prove the existence of the necessary a posteriori propositions are the propositions which show empirical identity such as "Hesperus is Phosphorus," and the propositions about the essence of things such as "Gold is the element with atomic number 79". Kripke explicates that when "Hesperus" (which is the planet Venus

in the evening) and "Phosphorus" (which is the planet Venus in the morning) are used as names, they refer in all possible worlds to the planet Venus. As a consequence, names are rigid designators; expressions that designate the same things with respect to every world in which those things exist, and which designate nothing in all the other possible worlds in which those things do not exist. Then, regarding to the propositions about the essence of things, Kripke claims that "material origins" are the essence of things. According to his thought, it is impossible for anything to be made from any substance but the one of which it actually made. He declares that "How could a person originating from different parents, from an entirely different sperm and egg, be this very woman?" Thus, from his account of essentialism, he confirms that the propositions which demonstrate the essence of things are necessarily true propositions. Moreover, Kripke supposes that we require experience to know the essence of things. For example, "Gold is the element with the atomic number 79," we can know gold's essence from our experience and we also do not say "gold" of such a thing which has all appearances we initially use to identify gold but does not have the element with the atomic number 79. According to Kripke, the propositions regarding essence are necessary a posteriori propositions. Therefore, "apriority" and "necessity" are not the equivalent concepts which can be interchanged everywhere without changing their meanings.

However, I maintain that Kripke's examples of necessary a posteriori proposition are confronted with two important problems.

Firstly, if I do not only accept name as *referring to* expressions, but also accept name *as* descriptive expressions (for instance, "Phosphorus" does not only refer to the planet Venus, but also has a descriptive meaning such as "the planet which we can see in the morning," and "Hesperus" does not only refer to the planet Venus, but also has a descriptive meaning such as "the planet which we can see in the evening,") then how can we confirm that Phosphorus is Hesperus? That is, after considering two terms' descriptive meaning,

"Phosphorus" is different from "Hesperus." Therefore, it seems that, if we accept name in this way, besides name as referring to expressions, Kripke's example of necessary a posteriori proposition is suddenly problematic.

It may be objected that Kripke actually disagrees with the idea of names as being descriptive expressions since the descriptive meaning causes us not to think about the other possible situations of the name. That is, if we accept name as descriptive meaning, a proposition which contains name and its description is analytic, and its truth value is tautology which cannot be false. But Kripke maintains that such propositions are only contingently true, which therefore can be false. Therefore, according to Kripke, name is an expression which only purports to designate particular individuals. Nevertheless, I do not think that a proposition which contains name and its description is tautology. That is, we can give some descriptive meaning to a name. But later we find that the descriptive meaning is wrong and then change the description to the new one. A proposition which contains names and their descriptions is evidently not a tautology. Thus, I am not in agreement with Kripke in rejecting names as being descriptive expressions, and when we use names as descriptive expressions, we cannot accept the proposition which presents empirical identity as the examples of necessary a posteriori propositions.

Secondly, there are many philosophers who contest Kripke's proposition of essence. Michael Della Rocca (2002), for example, notices that Kripke's essentialism is self-defeating since his essentialism primarily assumes the necessity of identity. Contrarily, identity also assumes essentialism. So, Kripke's argument is circular and should be discarded. Likewise, in my opinion, Kripke's essentialism presupposes some a priori basic idea which precedes the judgment that we cannot clearly confirm that essential propositions are necessary a posteriori propositions. "The table is not made from ice", for instance, is a necessary a posteriori proposition if and only if we assume that "Any objects cannot be made from other materials

which are not its material origin" (The assumption is the core idea of origin essentialism).
Then, when we consider whether this assumption is an a priori or a posteriori proposition, we
can see that the proposition cannot be a posteriori since it speaks of all objects in general but
we cannot experience all objects in order to conclude the above assumption. However, in
reply, someone may suggest that the assumption is a posteriori and is true because of
inductive reasoning. Nevertheless, it can be asked again whether a justification of inductive
reasoning is a priori or a posteriori. But, the justification of inductive reasoning cannot be a
posteriori justification since the argument will be circular. That is, when we answer the
question "why the past can explain the future?" with the answer that "in the past, we could
explain the future using the inductive reasoning," such an answer is highly problematic since
it uses the conclusion within its premise. On the other hand, when the justification of
inductive reasoning is a priori, it seems to follow that the propositions concerning essence are
possible if and only if some a priori proposition is primarily assumed to be true. Therefore,
we cannot claim that the propositions concerning essence are necessary a posteriori
propositions.

Then, let us now consider the laws of nature, which seem to be necessary a posteriori
propositions. Many thinkers claim that the laws of nature are a posteriori propositions. *Law
necessitarianism*, for instance, claims that everything that happens is necessitated. That is,
what happens in the world is determined or necessitated by the essence of things or by
general laws, so necessity and possibility are the objective notions. The important point is we
justify most laws of nature by experience. Thus, most laws of nature seem to be necessary a
posteriori propositions. However, I will finally suggest that the laws of nature are not the
examples of necessary a posteriori propositions. They are just "scientific hypotheses" which
are fallible.

The laws of nature are usually defined as uniformities or regularities that hold throughout the universe, at all places and all times. Nathan Salmon (1992) maintains that the characteristics of the laws of nature are as follows:

- The laws of nature are universal statements which refer to all things in the domain of what the law says.

- The laws of nature are true statements.

- The laws of nature have to sustain counterfactual inferences.

The above three characterizations lead me to wonder about the justification of laws. The laws of nature can be the regularities that hold throughout the universe at all places and all times if and only if we can justify laws of nature. And most of the laws are justified by inductive reasoning. So, if we justify inductive reasoning, we can justify most of the laws of nature. However, as I have already pointed out, the justification of inductive reasoning is still problematic.

Then, the laws of nature as the regularities that hold throughout the universe at all places and all times cause one to question how they can really be possible. That is, what we examine from our experience is in limited time. We cannot observe anything in all places and all times. Furthermore, human beings, as living beings, which have their own limitations, cannot see both what is too small and what is too big for them. Thus, we can never be certain of the truth of any scientific laws and we cannot identify the regularities which human being observes as the "laws" of nature. However, what I argue does not imply that there is nothing which functions as an explainer of the phenomena. From my own perspective, all laws of nature are just "scientific hypotheses" which can be defeated when there are other hypotheses that can better explain the phenomenon. Therefore, I do not agree on insisting the laws of nature are examples of necessary a posteriori propositions.

In conclusion, I cannot prove that there is a necessary a posteriori proposition since the typical examples of the proposition are suspect. It denotes that I give a negative answer to question (A). However, I cannot conclude whether apriority involves necessity only from considering question (A) for there is question (B) which if I can positively answer, I can strongly prove that apriority does not involve necessity.

Are there Contingent a priori Propositions?

In order to verify that there is a contingent a priori proposition, I will scrutinize Kripke's examples of contingent a priori propositions and his contention that his examples prove the existence of the contingent a priori propositions. Moreover, in this section, I will discuss about the unique feature of the typical examples of a priori propositions, such as geometry, arithmetic and logic, which is one of the reasons that make many thinkers believe that apriority involves necessity. Eventually, I will argue that if the propositions in geometry, arithmetic and logic are the examples of a priori proposition, they are contingently true.

In maintaining that there are contingent a priori propositions, Kripke (1971) describes that propositions which contain the terms that fix the reference of the terms are the contingent a priori propositions. For instance, "Stick S is one meter long at t_0". In order to know that stick S is one meter long at t_0, we have to use "stick S" to fix or refer to one meter long. Kripke claims that we have a priori knowledge that stick S is one meter long. Nevertheless, "Stick S is one meter long" is not necessarily true, but contingently true, for "stick S" may not be one meter long as a result of heating or cooling. Kripke states that there is a difference between "one meter" and "stick S's length at t_0", that is "one meter" is a rigid designator which designates a certain length in all possible worlds but "stick S's length at t_0" is not a rigid designator since stick S's length can be changed because of heating or cooling. "Stick S

is one meter long at t_0," then, is not necessarily true. Therefore, Kripke maintains that there are contingent a priori propositions.

However, Keith Donnellan (1997) claims that Kripke's examples of contingent a priori proposition are just an uninteresting kind of meta-linguistic knowledge. According to Donnellan, supposing that Leverrier introduces the name "Neptune" to rigidly designate the cause of such-and-such perturbations, saying, "Neptune is the cause of such-and such perturbations." The sentence he utters expresses a truth. And perhaps Leverrier knows that the sentence he utters expresses a truth. But, for Donnellan, Leverrier does not know the truth that the sentence expresses. Donnellan provides an example of his thought by supposing that, today we rigidly baptize as 'Newman' the first person that will be born in the XXIInd century. Now we have no idea of who this person will be, although we assume that there will be one. But suppose that one hundred years from now we meet this person, who was in fact baptized 'John' by his parents. In this case, as Donnellan argues, it seems quite strange to tell him 'I knew one hundred years ago that you would be the first person born in the XXIInd century, and that your name would be "Newman"'. The reason why this is so strange is, according to Donnellan, that we have never had, before his birth, real knowledge (besides trivial meta-linguistic knowledge) corresponding to 'Newman is the first person born in the XXIInd century'. It is Donnellan's contention that someone who knows only the reference-fixing definition does not understand the term in the statement nor sentence containing it. According to Donnellan, to comprehend the name, one must know of some object that is the reference of the name, when such knowledge of an object requires a causal connection with it. Thus, Kripke's examples of contingent a priori proposition are just a trivial and uninteresting kind of meta-linguistic knowledge.

Donnellan's critique of Kripke's contingent a priori propositions has had a great impact on discussions about the contingent a priori propositions. Nevertheless, I do not agree

with Donnellan's analysis. It seems that Donnellan's example is an example which tries to persuade us to see that contingent a priori propositions were just a trivial and uninteresting kind of meta-linguistic knowledge. That is, it is a naming of what will happen in the future, and when the future comes, the discovery that the thing is not named as previously intended. But I maintain that there exist contingent a priori propositions which are not just a trivial and uninteresting kind of meta-linguistic knowledge. The example I wish to give is the case of tropical cyclone naming. Presently, most tropical cyclones are given a name using one of several lists of tropical cyclone names. Tropical Cyclones north of the Equator between the International Dateline and 100°E are named from the lists, once they reach Tropical Storm status. Each of the 14 nations or territories which are members of the ESCAP/WMO Typhoon Committee submit 10 names in their languages, which are used in alphabetical order. Each year, the names of particularly destructive storms (if there are any) are "retired" and new names are chosen to take their place. We can see that the proposition concerning the tropical cyclone naming is in the form of "*name* is *definite description*". A tropical cyclone is named with the new name after the last retired name. For example, *Jebi* is *a tropical cyclone after Cimeron*. The advantage of this naming process is to allow for easier communication. We can universally refer to a tropical cyclone without giving any definite description, such as "the tropical cyclone which heavily damaged the south of Vietnam in 2005".

It is significant that the propositions from tropical cyclone naming, such as *Jebi* is *a tropical cyclone after Cimeron*, are the contingent a priori propositions. They are contingently true since their truth comes from the naming process of ESCAP/WMO Typhoon Committee, and there can have been other possible worlds where the naming process could have been different. And they are a priori propositions since they are nonexperientially justified. We can see that tropical cyclone naming differs from Donnellan's *Newman* in two respects. First of all, tropical cyclone naming is naming what will happen in a future which is

"universally recognized". But Donnellan's *Newman* is a naming to refer to someone who satisfies a definite description, which is not universally recognized. Secondly, as a result of the first difference, when the tropical cyclone occurs, it will be named with the name that is previously planned. But, according to Donnellan's *Newman*, someone who is the first person born in the XXIInd century might not be named "Newman" which was previously intended, but might be baptized "John" by his parents. The important point of tropical cyclone naming reveals that the contingent a priori propositions exist. Furthermore, the contingent a priori propositions are not just trivial and uninteresting kinds of meta-linguistic knowledge as Donnellan claims. They are a useful kind of knowledge that allows us to communicate more conveniently.

After considering Kripke's examples of contingent a priori proposition, now I will turn my attention to a unique feature of the typical examples of a priori propositions (in geometry, arithmetic and logic) which causes many thinkers to suppose that apriority involves necessity. I will attempt to reply to the question "Are the propositions in mathematics, geometry and logic (as the propositions which are typically believed to be examples of a priori proposition) necessarily true?" and suggest that if the propositions in geometry, arithmetic and logic are a priori propositions, they are not necessarily true[1].

According to the history of philosophy, apriority and necessity are closely related. All the propositions in mathematics, geometry and logic, which are typically believed in being a priori proposition, seem to have a unique feature that a posteriori proposition does not have. That is, for example, 2 plus 2 is always equal 4, if P and Q is true then P is always true. On the other hand, a posteriori knowledge seems to be fallible. Thus, the feature of infallibility is one of the reasons many thinkers believe that apriority involves necessity. However, there are two reasons why I maintain that the propositions in mathematics, geometry and logic are not necessarily true:

(1) There exist mathematical propositions which are recognized to be true but cannot be proved to be true such as Goldbach's conjecture.

As Kripke argues in *Naming and Necessity* (1980), Goldbach's conjecture causes us to finalize that a priority and necessity truth cannot be interchanged everywhere without changing their truth value of the propositions.

(2) There are many mathematical, geometrical and logical propositions which can be both empirically and rationally defeasible.

For instance, the propositions in Euclidian geometry, which are believed to be necessarily true, can be questioned and contested by non-Euclidian geometries. In the same way, logic, which seems to be necessarily true, can be questioned as well. This logic assumes that that there are only two truth-values: either true or false. But there are logics which claim that there are more than two truth-values such as fuzzy logic. Fuzzy logic describes that there exist truth values which are between completely true and completely false since what happens in our world is not totally certain. Moreover, there are the paradoxes in mathematics, such as Russell's paradox in set theory[2]. These have suggested that all a priori propositions can be both empirically and rationally defeasible, so they are not necessarily true propositions.

It may be noted, however, that the propositions in mathematics, geometry and logic have a crucial feature which cannot be neglected. That is, their theorems are logical consequences of the rules, such as the definitions and the postulates, in the system. Since the theorems are the logical consequences of what are previously accepted, it seems that we can prove all the theorems in the system if we know the propositions which are previously accepted. However, I suggest that the above proposal can be totally disputed by Gödel's Incompleteness's theorems, which claim that a formal system cannot be both complete and

consistent at the same time. That is, in any consistent formalization of mathematics, one can construct a statement that can be neither proved nor disproved within that system. And also, no consistent system can be used to prove its own consistency. In a complete mathematical system, there is at least one proposition which cannot be proved within the system, or there is at least one proposition which is conceded without proving. When there is at least a proposition which cannot be proved in the system, it means that there is at least one proposition we cannot know whether it is a priori justified or not. Thus, we cannot declare that all of mathematics, geometry and logic are a priori justified. Nevertheless, it can be said that, most of the propositions in mathematics, geometry and logic seem to have some forms of necessity, which I call "conditional necessity". Conditionally necessary propositions are propositions whose necessity depends on some prior conditions. For example, the theorems in mathematics are necessarily true depending on the postulates, axioms and definitions which are formerly accepted. If the conditions are true, then their consequences are always logically true. However, the conditional necessity is not the same as "necessity" we discussed here. Thus, it cannot be a reason for concluding that apriority involves necessity.

To summarize, the propositions in mathematics, geometry, and logic (as the knowledge which are typically believed in being the example of a priori proposition) are not necessarily true. That is, they can be both empirically and rationally defeasible. Hence, if the propositions in mathematics geometry and logic are a priori propositions, they are not necessarily true.

So far we have seen that the typical examples of necessary a posteriori proposition are suspect, however, there are contingent a priori propositions. The existence of such propositions maintains that all a priori propositions need not be necessarily true. Therefore, apriority does not involve necessity.

III

In this section, I wish to consider two objections to my argument. The first objection is concerning the meaning of apriority and the meaning of necessity. It seems that my meaning regarding "a priori knowledge" and "necessary truth" in this article is different from what traditional philosophers such as Kant mean. Therefore, it can be doubted whether my argument can actually reject the traditional arguments. The second objection is regarding the typical idea of a priori knowledge. That is, we have become accustomed to the idea that a priori knowledge is knowledge whose justification does not depend on experience, but, if a priori propositions are propositions whose justification does not depend on experience, why is it that experience can defeat a priori propositions?

First of all, it may be charged that my definition regarding the concept of necessity in this article is different from what traditional philosophers mean, especially Kant, thus, it can be claimed that my argument cannot reject the tradition argument, and I cannot sum up that all a priori propositions need not be *necessarily* true. According to Kant, all a priori knowledge is necessarily true. Furthermore, his "reality" is not the same as the other thinkers' reality. For Kant, it is vital always to distinguish between the distinct realms of phenomena and noumena. Phenomena are the appearances, which constitute the world as we experience it; noumena are the (presumed) things-in-themselves, which constitute reality. Kant describes that noumena are unknowable, indescribable realities that, in some way, lie "behind" observed phenomena. Human beings cannot, according to Kant, know things-in-themselves; we can only know things as we experience them. Thus, it seems that my argument (which is based on Kripke's concept, which does not distinguish between noumena and phenomena, and defines necessity by the concept of possible worlds) apparently conflicts with Kant's

account. That is, what I mean by "necessity" is not the same as what traditional philosophers mean, so I cannot really deny Kant's argument.

Nevertheless, even as my argument is based upon a meaning that is different from Kant, it is still viable, for I claim that Kant's meaning of necessity is greatly problematic. According to Kant, human beings cannot know things-in-themselves; we can only know things as we experience them. Thus, Kant's meaning of necessity is not the necessity of things-in-themselves, but of things as appear to us. However, when Kant's necessity is the necessity of things as they appear to us, it can be possible that what appears to us is relative depending on different persons, different times and different places. For instance, if we compare Newton's worldview and Einstein's worldview, we can see that both worldviews are different and rely on different geometrical systems. The general acceptance of Newton's theory led Kant to accept Euclidian geometry as necessarily true. But it would then follow that the general acceptance of Einstein's theory that Riemann geometry is necessarily true. Nevertheless, the theorems in the two geometrical systems cannot be both necessarily true for they will conflict each other. At this point, Kant's concept of necessity is self-defeating. Although my definitions differ from Kant's, it can be said that this is a viable approach in trying to solve the problems which are raised after Kant's argument about a priori knowledge.

Then, one may also be tempted to question that if a priori proposition is a proposition whose justification does not depend on experience, how experience can defeat a priori proposition?[3]

According to this objection, I maintain that if the characterization of a priori justification is changed to be positive, the above question cannot be asked. That is, the general character of a priori justification is deficient in some respect, and the only remedy for the deficiency is to embrace the positive characterization of a priori justification which characterizes it in terms of the sources on which it does depend, and abandon the negative

characterization of a priori justification which characterizes a priori knowledge in terms of the sources on which it does not depend. The structure of negative and positive characterization is as follows:

Negative Characterization: S' belief that P is justified a priori if and only if S's justification for the belief that P *does not depend on* experience.

Positive Characterization: S's belief that P is justified a priori if and only if S's justification for the belief that P *depends on* some nonexperiential source. (Or S's belief that P is justified a priori if and only if S's belief that P is justified by X)

Then, as a result of the feature of a priori proposition which is both empirically and rationally defeasible, I suggest that, to cohere with what I said earlier about apriority and necessity, a priori justification has to be positively characterized, namely, S's belief that P is justified a priori if and only if S's justification for the belief that P depends on some nonexperiential source. This solution does not cause us to question why experience can defeat a priori proposition, whereas a priori proposition is a proposition whose justification does not depend on experience. That is, when we consider a posteriori proposition which generally means a proposition whose justification "depends on" experience, the proposition does not imply that it "cannot be both experientially and nonexperientially defeated". Then, in the same way, if a priori proposition means the proposition whose justification "depends on" some nonexperiential source, the proposition does not imply that it cannot be both experientially and nonexperientially defeated as well.

So far I have concluded that our customary ideas concerning a priori knowledge is not accurate. That is, a priori knowledge is not the knowledge whose justification does not depend on experience, but is the knowledge whose justification depends on some nonexperiential source. This positive characterization of a priori justification can competently

deal with the second objection which questions why a priori proposition can be experientially defeated, whereas a priori proposition is a proposition whose justification does not depend on experience.

IV

From what has been said so far it follows that there exists contingent a priori propositions. The existence of such propositions supports that apriority does not involve necessity. Moreover, as a priori propositions are both empirically and rationally defeasible, a priori justification has to be positively characterized in terms of the sources on which it does depend, namely, S's belief that P is justified a priori if and only if S's justification is that P *depends on* some nonexperiential source.

As I concluded in the last two sections, apriority does not involve necessity. Therefore, the crucial implication is that refuting the concept of necessity is not a good ground for refuting apriority. That is, whether or not we reject the concept of necessity, it does not have any effect on the status of apriority.

[1] The reason why I have to conclude in the form of "if … then" is mathematics, geometry and logic can be considered in two ways. Firstly, we can say of mathematics, geometry and logic as a system whose propositions correspond to the things in our actual world. Thus, the propositions in the system are experientially justified. Secondly, we can say of mathematics, geometry and logic as a system whose propositions do not relate to the things in our actual world. Without confirming that the propositions in the system can reflect the things in our actual world, such proposition depends on some non-experiential source. Since mathematics, geometry and logic can be considered in two ways, if I sum up that all propositions in geometry, arithmetic and logic are not necessary a priori propositions, it will be objected that we can say of mathematics, geometry and logic as a system whose propositions correspond to the things in our actual world. To avoid such an objection, therefore, I conclude my argument in the form of "if ... then" which do not actually confirm that all propositions in geometry, arithmetic and logic are contingent "a priori" propositions.

[2] Furthermore, the paradoxes which are not in mathematics can also cause us to question why all of a priori propositions are necessarily true, such as the sorites paradox.

[3] The objection may be a result of Kant's argument which claims that a priori knowledge is knowledge entirely independent of experience. When Kant states that a priori knowledge is knowledge "entirely independent of experience", it seems that experience cannot both justify and defeat any a priori knowledge.

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