

A Logical Critique of Kant's Theory of Knowledge

By *Christian B. N. Gade*
Aarhus University

1. Introduction

The aim of this article is to critically discuss whether Kant is correct in his claim that transcendental proposition *T* is true: 'The categories are transcendental conditions of experience and they necessarily form the basis for synthetic a priori knowledge in the form of the principles ruling their use'. Thus the article is a contribution to the ongoing debate on Kant's transcendental argumentation, which is often referred to as *the* standard example of transcendental argumentation. Despite this fact there appears to be little consensus about whether Kant succeeds in establishing the validity of his argumentation, and it continues to be an object of discussion exactly what skeptical challenge he is trying to counter.¹ In this article, I will not discuss the historical background behind Kant's thoughts, but merely focus on the validity of his argumentation.

As already stated, the aim of this article is to critically discuss whether transcendental proposition *T* is true, and therefore I find it appropriate to commence by discussing what transcendental propositions actually are and attempting to reveal how they can be logically formalized. Bearing the logical considerations in mind, I shall then turn my attention to *Kritik der reinen Vernunft* and logically formalize parts of Kant's transcendental argumentation. My underlying motive for such a formalization is that it illustrates that Kant is under an obligation to claim that the fact that man has synthetic a posteriori knowledge is necessarily sufficient to determine that man has synthetic a priori knowledge. For I do not find this to be true in the light of Kant's own understanding of the distinctions a posteriori versus a priori and synthetic versus analytic.²

But if I am right about this, it follows, as far as I can tell, that (A) T is false. It is however also possible that it cannot be determined whether the fact that man has synthetic a posteriori knowledge is necessarily sufficient to determine that man has synthetic a priori knowledge. But if that is the case, the consequence is not (A) but (B): T 's truth cannot be established. That either (A) or (B) is the case is my argument at the end of this article.

2. Transcendental propositions

Since I wish to critically discuss whether transcendental proposition T is true, the following question immediately arises. Just what are transcendental propositions? First of all, I will answer by defining transcendental propositions based on the fact that they all contain at least one transcendental condition and therefore have this basic form: ‘ Y is a transcendental condition of X ’.³ But by defining transcendental propositions in this way, I merely pave the way for another question: How should the relationship between X and Y be understood if Y is a transcendental condition of X ? To this I respond that Y is only a transcendental condition of X if: ‘ Y is a necessary condition of X in such a way that X *cannot* be true unless Y is also true’. Y should thus be understood as a condition of the possibility of X (Stern 2000: 6).

2.1. Formalization of transcendental propositions

In the light of section 2 I shall now attempt to logically formalize transcendental propositions. I have given considerable thought to such a formalization, and one of my first considerations was whether transcendental propositions could suitably be formalized as $X \supset Y$. When I considered what this formalism implies, I realized that it captures the aspect of transcendental propositions that X is not true unless Y is also true. But upon closer consideration, I became aware that the amount of propositions that fulfill $X \supset Y$ is much larger than the amount of transcendental propositions. Thus I realized this: that a proposition is transcendental is a sufficient, but not necessary, condition of it

being able to be formalized as $X \supset Y$. Hence, propositions exist that fulfill the formalization, but that are not transcendental:

Example:

If X (= ‘man has experience’)

then Y (= ‘there are beach fleas in Amtoft harbour’)

It was therefore clear to me that I had to specify my formalization so that it does not comprise propositions of the type represented above, but how?⁴ After considerable reflection it occurred to me that the problem with the formalization $X \supset Y$ is that it does not capture the modal status of transcendental propositions. It does not capture the necessity that lies in the fact that X *cannot* be true unless Y is also true because it limits itself to actual circumstances since it only says something about what is the case and not about what might be the case. Since realizing this I have been convinced that the formalization should be added the necessity operator ‘ L ’, which can be read as ‘it is necessarily the case that...’, in this way: $L(X \supset Y)$.⁵ After this addition the formalization comprises – in a way that is suitable for my discussion in this article – the relation of necessity between X and Y that transcendental propositions express, for if $L(X \supset Y)$ is true, and X is true, then Y is necessarily also true. Therefore, I will formalize transcendental propositions as $L(X \supset Y)$.⁶

2.2. *Necessity in transcendental propositions*

But what sort of necessity do transcendental propositions contain?⁷ First, it is a priori, and its justification is therefore entirely independent of experience (Kant 1998: B3). Like the proposition ‘all causes have an effect’, transcendental propositions have an a priori status, for the truth of this proposition must be established independently of experience, just like the truth of transcendental propositions. This is also clear from the circumstance that transcendental propositions, by virtue of their a priori status, are strictly universal (*ibid.*: B4).

Rather than being limited to actual conditions, their truth applies at any time and in any possible world.⁸ So, since man's experience is by contrast limited and does not 'cover' any time and possible world, it cannot establish the truth of transcendental propositions.

Furthermore, it is implicit in the above discussion that the necessity in transcendental propositions cannot be established by the empirical sciences. The source of any empirically based 'necessity' is a posteriori, and the 'necessity' builds on a finite number of observations, which is why strictly speaking, it is never universally valid (Kant 1998: B2). And without offering a more detailed account in this context, I shall merely mention that it is precisely this set of problems that is expressed in the problem of induction, which calls our attention to the circumstance that it is not possible to establish the truth of universally valid propositions on the basis of a finite number of singular observations (Honderich 1995: 405-406). So when a scientist claims, for example, that man must necessarily have a brain so as to be able to experience something, the judgment he passes is only true if 'necessarily' is understood as equivalent to 'highly probable'. For it cannot be precluded that one day the empirical sciences will be confronted with a human who has experience but does not have a brain.⁹

But is it possible to further specify what sort of necessity transcendental propositions contain? My answer to this is in the affirmative, and I shall illustrate my answer by again holding transcendental propositions up against the proposition 'all causes have an effect'. As indicated, transcendental propositions are in fact comparable to this proposition by virtue of their a priori status, but it is nevertheless also a fact that they distinguish themselves from the proposition in an essential way: they are not analytical but rather synthetic. A characteristic of transcendental propositions is that their truth cannot be established through analysis, since Y is not analytically inherent in X , and consequently it is not a contradiction to claim $X \wedge \sim Y$ (Stern 2000: 9). Thus to deny transcendental propositions is, by virtue of their synthetic character, not

logically self-contradictory. They belong to the special class of propositions that are strictly necessary and universally valid, but that are also logically possible to doubt.

3. *Transcendental logic and argument A1*

Having illustrated what transcendental propositions are, and how they can be logically formalized, I shall now turn toward the section entitled *Die transszendentale Logik*, where Kant argues for the truth of proposition T: ‘The categories are transcendental conditions of experience and they necessarily form the basis for synthetic a priori knowledge in the form of the principles ruling their use’.¹⁰ The argumentation is part of what I see as the main project of transcendental logic, namely, answering the following question:

“Wie ist reine Naturwissenschaft möglich?” (Kant 1998: B20).

Or, to be more precise: What is it that makes possible the synthetic a priori knowledge that we actually, according to Kant, possess within pure natural science? In brief, Kant answers this question by attempting to show that synthetic a priori knowledge within pure natural science is based on the categories since it consists in the synthetic a priori principles ruling their use (compare section 3.3).

Therefore, Kant must establish the validity of the categories. The argumentation falls in two main parts: metaphysical and transcendental deduction. Metaphysical deduction is a question of *quid facti* (*ibid.*: B116): which categories actually, as transcendental conditions, lie at the root of every use of understanding. But even though metaphysical deduction focuses on human understanding, on the basis of this deduction it is *indirectly* understood that the categories are transcendental conditions of experience.

This interpretation is grounded on the fact that Kant describes experience as an empirical synthesis between sensibility and understanding (compare sec-

tion 3.1). If experience is understood in this way, then *a use of understanding* is always inherent in experience. Therefore, in so far as metaphysical deduction establishes that the categories are transcendental conditions of *every use of understanding*, it also establishes that the categories are transcendental conditions of experience (compare section 3.2). Hence, it follows from metaphysical deduction that human experience of the world necessarily conforms to the categories.¹¹ It follows that the categories constitute the subjective human perspective on the world, and that they therefore have subjective validity.¹²

But Kant realizes that the metaphysical deduction does not guarantee the objective validity of the categories for the world. Therefore, the question of *quid juris* (*ibid.*: B116) – of whether our use of the categories is legitimate in respect to the objective nature of the world – remains unresolved. Kant believes, however, that he has answered this question in the transcendental deduction, where he argues that man’s subjective perspective on the world has objective validity. Kant’s conclusion is thus that the world, and not only our experience of it, is in agreement with the categories.

Based on this brief interpretation of what happens in the two deductions, it is evident that it is only the metaphysical deduction that is of direct interest for this article. As illustrated, in the light of this deduction it is *indirectly* seen that the categories are transcendental conditions of experiences, which is why the metaphysical deduction is the source of the first part of proposition *T*. In the section entitled *Die Analytik der Grundsätze*, Kant furthermore attempts to establish the second part of the proposition, namely, that the categories necessarily form the basis of synthetic a priori knowledge in the form of the principles ruling their use.

Metaphysical deduction and the analytic of principles now form the background for the second and third premise in transcendental argument A1, which I advance mainly on the basis of transcendental logic.¹³ But before clarifying the premises and conclusion of A1, I shall stress that the second and third premise in the argument are transcendental propositions, and that there-

fore the same relationship exists between P and Q in the second premise and Q and S in the third premise as generally exists between X and Y in transcendental propositions – compare sections 2, 2.1 and 2.2. I shall now turn to argument A1, which like arguments A2 and A3 (compare section 4) is based on this translation key:

P = Man has experience.

Q = Man's experience is ordered according to the categories.

R = Man has synthetic a posteriori knowledge.

S = Man has synthetic a priori knowledge.

Argument A1 goes as follows:

A1: $P, L(P \supset Q), L(Q \supset S) \vdash S$

3.1. First premise in A1

Proposition P proclaims that man has experience, which for Kant is an incontrovertible fact that does not require proof. And I would like to emphasize that experience stands in a special relationship to transcendental knowledge in pure natural science:

”Im transzendentalen Erkenntnis, so lange es bloß mit Begriffen des Verstandes zu tun hat, ist ... [die] Richtschnur die mögliche Erfahrung” (Kant 1998: B811).

But the question is what Kant means by ‘experience’. I read *Kritik der reinen Vernunft* as saying that experience is an empirical synthesis between sensibility and understanding, that is a synthesis between the ability to receptively receive sensory impressions and the ability to spontaneously make use of concepts (*ibid.*: B75). Experience is not merely a stream of sensory impressions, but a

stream of sensory impressions that are spontaneously conceptualized. This reading is directly warranted by claims like:

“Erfahrung ist ein empirisches Erkenntnis, d. i. ein Erkenntnis, das durch Wahrnehmungen ein Objekt bestimmt.2 (*ibid.*: B218).

And it is also warranted by Kant’s referring to experience as:

”eine Erkenntnisart” (*ibid.*: BXVII).

”Erkenntnis der Gegenstände“ (*ibid.*: B1).

„empirische Synthesis” (*ibid.*: B196).

”Erkenntnis durch verknüpfte Wahrnehmungen“ (*ibid.*: B161).¹⁴

First, when Kant refers to experience as knowledge, he indirectly claims that experience is a synthesis between sensibility and understanding. Sensibility and understanding namely together constitute all knowledge about the world (Kant 1998: B75). Second, when Kant refers to perceptions (*Wahrnehmungen*) as being part of experience, it is evident that experience is an *empirical* synthesis, viz. a synthesis between intuitions and empirical concepts. If perceptions are part of experience, then sensations (*Empfindungen*) are, namely, also part of experience, because Kant defines perceptions as:

”mit Empfindung begleitete Vorstellungen“ (*ibid.*: B147).

And since sensations are part of man’s experience, it is an *empirical* synthesis because sensations imply the actual presence of objects (*ibid.*: B74).

3.2. Second premise in A1

It is the metaphysical deduction that forms the background for the transcendental proposition $L(P \supset Q)$, which proclaims that man cannot have experience

unless experience is organized according to the categories. In the metaphysical deduction Kant attempts to show that the categories are transcendental conditions of *the human use of understanding*. And if this is true, and if experience is an empirical synthesis between sensibility and *understanding*, it logically follows that the categories are transcendental conditions of experience. So let us therefore consider Kant's account of the categories as transcendental conditions of our use of understanding. And let us first pose the following question: Precisely what is understanding? Kant writes that understanding is an absolute unit that should be understood as an ability to think, and he claims that:

”Denken ist das Erkenntnis durch Begriffe“ (*ibid.*: B94).

Hence, the activity of understanding is the use of concepts, which only becomes apparent in the passing of judgment because:

“Von diesen Begriffen kann nun der Verstand keinen andern Gebrauch machen, als daß er dadurch urteilt“ (*ibid.*: B93).

Every act of understanding should thus be understood as a passing of judgment, which is why understanding as such is an ability to pass judgments:

“Wir können aber alle Handlungen des Verstandes auf Urteile zurückführen, so daß der Verstand überhaupt als ein Vermögen zu urteilen vorgestellt werden kann“ (*ibid.*: B94).

Kant thinks that all passing of judgment falls within a number of basic kinds of propositions, without which it is not possible to pass judgments (*ibid.*: B95). And it is these kinds of propositions that designate the categories in such a way that to each logical kind of proposition corresponds precisely one category (*ibid.*: B105). For example, the hypothetical proposition ‘if X, then Y’ is

connected to the category of causation.¹⁵ It is thus of great importance to Kant that the laying bare of the categories is based on a common principle: the ability to pass judgments, which is why he systematically rather than rhapsodically sets about accounting for the validity of the categories (*ibid.*: B106). And what I specifically wish to accentuate is that the categories are presupposed every time understanding is put to use, that is in every judgment passed, and that they are therefore transcendental conditions of experience, in the sense of an empirical synthesis between sensibility and understanding.

3.3. Third premise in A1

The third premise in A1, that is $L(Q \supset S)$, is based on the section entitled *Die Analytik der Grundsätze*. The premise is a transcendental proposition that claims that man necessarily has synthetic a priori knowledge if man's experience is organized according to the categories, which, according to Kant's argument, it is. The knowledge that the categories necessarily form the basis of is now given by the principles ruling their use, such as, in the case of the concept of cause, the law of causation:

”Alle Veränderungen geschehen nach dem Gesetze der Verknüpfung der Ursache und Wirkung.“ (*ibid.*: B232).

But the question is how the categories can form the basis of such synthetic a priori laws? For viewed in isolation they do not form the basis of the laws since:

”aus bloßen Kategorien kein synthetischer Satz gemacht werden kann“ (*ibid.*: B289).

The categories should, qua pure concepts of understanding, be understood as forms of thought (*ibid.*: B288) that contain the conditions of a priori rules

(*ibid.*: B171); but qua forms of thought, the categories are not in themselves sufficient to determine the a priori rules expressed by their principles. It is not until the categories are schematized by means of the imagination (*ibid.*: B179) – that is placed in relationship to time as an a priori form of intuition – that they are sufficient to determine the principles and the knowledge that these laws express by being a priori rules for the phenomena. It is thus the transcendental determination of time that,

“als das Schema der Verstandesbegriffe“ (*ibid.*: B178),

mediates the subsumption of the phenomena under the categories, and the mediation is a necessary condition of the subsumption. For the categories of understanding are inhomogeneous (ungleichartige) with the phenomena in the sensibility, and consequently an immediate subsumption is not possible. Subsumption is always mediate since it is necessarily mediated by the schemata of the categories, and it is only possible because the schemata are homogenous with both the categories,

“als sie allgemein ist und auf einer Regel a priori beruht“ (*ibid.*: B178),

and the phenomena,

“als die Zeit in jeder empirischen Vorstellung des Mannigfaltigen enthalten ist“ (*ibid.*: B178).

3.4. Conclusion in A1

Proposition *S* proclaims that man has synthetic a priori knowledge, namely in the form of the principles ruling the use of the categories. In this connection I would like to emphasize two things: first, that *S* is a logical consequence of the premises in A1 such that *S* must be true if the premises are true, and second,

what S is knowledge about. It is extremely important to be aware that the knowledge that we find in S is knowledge about how we as humans must necessarily experience the world and not about the objective nature of the world. A1 is based on the metaphysical deduction that shows, as stated above, that the categories are transcendental conditions of man's experience, but not that the world is objectively in agreement with the categories.

Based on the metaphysical deduction, A1 therefore does not establish that the rules expressed by the principles of the categories have objective validity for the world. But A1 shows, if the premises are true, that the rules are transcendental conditions of the experience of man, and that they therefore have subjective validity. The conclusion in A1 is thus that any experience man might have is necessarily determined by the rules expressed by the principles of the categories, and that the world must therefore appear to man to be in agreement with these rules. Hence, man has, for instance, the synthetic a priori knowledge that every event must appear to have a cause.

4. Arguments A2 and A3

Having illustrated the premises and the conclusion in A1, I shall now advance argument A2 and later argument A3, which follows from A1 and A2 via transmission. But before advancing A2, it is important for me to emphasize that it is distinct from A1 in an essential way: A2 is not a transcendental argument because it does not contain transcendental propositions, unlike A1, which does, as noted above, in the form of the second and third premise, which I formalized as $L(X \supset Y)$. But I also think that it is possible to formalize the second premise in A2 through this formula, even though it is not a transcendental proposition, since it is not synthetically a priori, but analytically a priori.

The only logical requirement that lies in $L(X \supset Y)$ by virtue of 'L' is specifically that the relationship between X and Y is necessary and therefore a priori. Therefore, the following is regarded as a sufficient and necessary condition for

a proposition to fulfill the logical requirements of $L(X \supset Y)$: ‘the proposition is a priori, and X is a sufficient condition of Y ’. In this light it is realized that the amount of propositions that fulfill $L(X \supset Y)$ are identical to the union of 1) the amount of synthetic a priori propositions where X is a sufficient condition of Y , and 2) the amount of analytical a priori propositions where X is a sufficient condition of Y . Hence, both transcendental propositions qua elements in 1) and the second premise in A2 qua element in 2) can be formalized as $L(X \supset Y)$. So with this in mind, let us consider argument A2:

$$\text{A2: } R, L(R \supset P) \vdash P$$

The first premise in A2, that is R , proclaims that man has synthetic a posteriori knowledge, which for Kant is an incontrovertible fact. Kant himself exemplifies this kind of knowledge with the proposition:

”alle Körper sind schwer“ (*ibid.*: B11).¹⁶

First, it is, according to Kant, clear that the predicate ‘weight’ is not contained in the subject ‘body’, which is why the proposition is synthetic (*ibid.*: B10). Second, the proposition is a posteriori, for it is experience that makes possible the synthesis of the predicate and subject of the proposition (*ibid.*: B12).

I do not wish to question that Kant is right about R ’s truthfulness (compare note 2), so let us turn our attention to the second premise in A2, that is $L(R \supset P)$, which proclaims: ‘Man necessarily has experience if man has synthetic a posteriori knowledge’. The proposition is, as mentioned, analytical, for it is a contradiction to deny it by claiming $R \wedge \sim P$. If we claim that man has empirical knowledge we cannot, without contradicting ourselves, simultaneously claim that man does not have any experience. It therefore appears obvious to me that the second premise in A2 is true.

Finally, let us turn to the conclusion of the argument – proposition P – and state that it is a logical consequence of the premises. So if the premises are true, the conclusion is true. Here I will not, however, further account for Kant’s understanding of P , but refer to my explanation in section 3.1. So let us instead turn our attention to argument A3, which is a consequence of A1 and A2 via transmission:

$$\text{A3: } R, L(R \supset P), L(P \supset Q), L(Q \supset S) \vdash S$$

I have already explained all the propositions in A3, and since I consider my account to be adequate, I will not embark on further analysis. I will however emphasize that S is not the only proposition that can be inferred from the premises in A3. Proposition $L(R \supset S)$ can be as well, and this proposition can be expressed thus: ‘If man has synthetic a posteriori knowledge, then man necessarily also has synthetic a priori knowledge’. However, it seems to me that $L(R \supset S)$ is false, and I shall substantiate this in the following section. But if $L(R \supset S)$ is false, then as far as I can see, the consequence is that proposition T is also false, which I show in section 6. But if T is false, it has major consequences for Kant’s theory of knowledge.

5. Discussion of proposition $L(R \supset S)$

Before substantiating why I find the proposition $L(R \supset S)$ to be false, I shall illustrate its character. I shall emphasize that it is transcendental, and that therefore the relationship that exists between R and S is the same as that which generally exists between X and Y in transcendental propositions, as accounted for in sections 2, 2.1 and 2.2. First, we see that since the proposition is in part deduced from the third and fourth premise in A3, it is synthetic just like these propositions.¹⁷ The truth of the proposition cannot be established through analysis, for S is not analytically inherent in R , which is why it is not a logical

contradiction to claim $R \wedge \sim S$. Second, the proposition is a priori, so experience and the empirical sciences cannot establish its truth. So the question is which authority we can refer to in order to determine its truth value.

Proponents of the a priori often identify intuition as the authority that should determine the truth value of a priori propositions (Dancy & Sosa 1992: 1). So in order to be able to evaluate the truth value of $L(R \supset S)$, I accept this decision, even though it is debatable whether intuition is a strong authority.¹⁸ But if intuition can determine whether a priori propositions are true, the question is whether it is intuitive that $L(R \supset S)$ is true. Is it intuitive that the circumstance that man has synthetic a posteriori knowledge is necessarily sufficient to determine that man has synthetic a priori knowledge?¹⁹ My answer is in the negative, which I shall support by comparing the two kinds of knowledge that differ from each other by being a posteriori and a priori, respectively. And this difference is decisive, for since a posteriori knowledge stems from experience, it is not strictly necessary or universally valid, while a priori knowledge is precisely characterized by these qualities. In respect to man's a posteriori knowledge, Kant points out:

“Erfahrung lehrt uns zwar, daß etwas so oder so beschaffen sei, aber nicht, daß es nicht anders sein könne“ (Kant 1998: B3).

As regards man's a priori knowledge, he writes:

“Notwendigkeit und strenge Allgemeinheit sind also sichere Kennzeichen einer Erkenntnis a priori, und gehören auch unzertrennlich zu einander“ (*ibid.*: B4).

Therefore, I ask:

A) Is it intuitive that R (= ‘man has knowledge that is not *strictly* necessary or universally valid’) is necessarily sufficient to determine S (= ‘man has knowledge that is *strictly* necessary and universally valid’)?

My answer to question A) is in the negative, because it is not intuitive to me that the circumstance that man has knowledge that is not *strictly* necessary or universally valid can in any way be sufficient to determine that man has knowledge precisely characterized by these qualities. In order for it to be intuitively established that R is sufficient to determine S , R must at a minimum, in my view, be characterized in such a way that it is highly plausible that its truth is sufficient to determine the truth of S . There must be something about man’s synthetic a posteriori knowledge that makes it probable that man has *strictly* necessary and universally valid a priori knowledge. But due to the gap between the a posteriori and the a priori, I cannot perceive this something. Therefore, I find it intuitive that $L(R \supset S)$ is false.

It is thus the epistemic gap between a posteriori and a priori knowledge that determines my intuitive rejection of $L(R \supset S)$ ’s truth, and consequently I shall further illustrate the gap by posing question A) from a perspective of propositions. This is possible precisely because Kant, as mentioned in section 3.1, is of the opinion that sensibility and understanding together constitute all knowledge about the world, which is why knowledge about the world is always apparent in propositions. So with this in mind I claim that Kant is of the conviction that synthetic a posteriori knowledge never legitimately appears in *strict* universal propositions, while synthetic a priori knowledge only appears in such propositions. It should however be stressed that it is of course possible to pass universal a posteriori judgments within domains that are limited and therefore do not apply at any time and in any possible world. But in this context universal propositions are referred to in the absolute strictest sense and within unlimited domains.²⁰ It is clear from the following quotation that a

posteriori knowledge does not legitimately appear in *strict* universal propositions:

“Erfahrung gibt niemals ihren Urteilen wahre oder strenge, sondern nur angenommene und komparative Allgemeinheit (durch Induktion)“ (*ibid.*: B3).

In the light of this, Kant concludes:

“Wird also ein Urteil in strenger Allgemeinheit gedacht, d.i. so, daß gar keine Ausnahme als möglich verstattet wird, so ist es nicht von der Erfahrung abgeleitet, sondern schlechterdings a priori gültig“ (*ibid.*: B4).

Therefore, I pose this question:

B) Is it intuitive that R (= ‘man has knowledge that never legitimately appears in *strict* universal propositions’) is necessarily sufficient to determine S (= ‘man has knowledge that only appears in *strict* universal propositions’)?

I likewise answer question B) in the negative because it is not intuitive to me that the circumstance that man has knowledge that never legitimately appears in *strict* universal propositions can in any way be sufficient to determine that man has knowledge that only appears in such propositions. In my view, $L(R \supset S)$ can only be intuitively true if at a minimum there is something about man’s synthetic a posteriori knowledge that makes it plausible that this knowledge is sufficient to determine that man has knowledge that only appears in *strict* universal propositions. So, since I cannot see this something, I find it intuitive that $L(R \supset S)$ is false. For example, I would not hold either that my experience of being in the town of Amtoft is sufficient to intuitively determine

that I am in the town of Amtoft unless, at a minimum, there is something about the experience that makes it plausible that I am in Amtoft. Only, for instance, if it says ‘Amtoft’ on the town sign can it possibly be intuitively established that I am in Amtoft.²¹

But the question is whether my rejection of $L(R \supset S)$'s truth is based on an unjustifiably sharp distinction between the a posteriori and the a priori. Some readers will probably be of the opinion that I am misreading Kant, in that synthetic a posteriori knowledge has transcendentally inherent necessities with an a priori status – both the pure forms of intuition and the categories – and consequently this kind of knowledge is not without necessity and universal validity. But even though Kant believes this and may be right, man's synthetic a posteriori knowledge is not *strictly* necessary and universally valid because it is based on a stream of sensory impressions that cannot form the basis of *strictly* necessary and universally valid knowledge.

But if someone could establish that a necessity and universality are after all in synthetic a posteriori knowledge that are strict enough so that I cannot express A) as distinctly as I do, I still think that I can express B), which is sufficient to determine my critical intuition. For in my view, *Kritik der reinen Vernunft* clearly shows that a posteriori knowledge never legitimately appears in strict universal propositions, while a priori knowledge always appears in such propositions.²²

6. *If $L(R \supset S)$ is false, then T is false*

Let us now assume that my intuition that proposition $L(R \supset S)$ is false is justified, and that $L(R \supset S)$ is therefore false, since we still assume that intuition can determine the truth value of the proposition.

[If $L(R \supset S)$ »is false«, it logically follows that at least one of the premises in A3 »is false«, $L(R \supset S)$ being inferred from these premises. And in fact it is seen that $L(R \supset S)$ can be inferred solely from premises $L(R \supset P)$, $L(P \supset Q)$ and

$L(Q \supset S)$, which is why at least one of these premises »is false« if $L(R \supset S)$ »is false«. So let us remember that proposition $L(R \supset P)$ is analytically a priori while $L(P \supset Q)$ and $L(Q \supset S)$ are transcendental propositions, and so $L(R \supset P)$ has the strength that its truth value can be logically determined. For, as mentioned in section 4, it is a logical contradiction to deny $L(R \supset P)$, and consequently I find that this proposition has been established as true. But if $L(R \supset P)$ is true, and $L(R \supset S)$ »is false«, then it follows that $L(P \supset Q)$ or $L(Q \supset S)$ »is false«. But if $L(P \supset Q)$ or $L(Q \supset S)$ »is false«, then it follows that transcendental proposition T »is false« as it is produced by the conjunction of these two propositions (compare note 10)]²³

So if $L(R \supset S)$ »is false«/»cannot be established as true«, there are three possible logical scenarios: 1) ‘It »is false«/»cannot be established as true« that the categories are transcendental conditions of experience, but they necessarily form the basis for synthetic a priori knowledge’, 2) ‘The categories are transcendental conditions of experience, but it »is false«/»cannot be established as true« that they necessarily form the basis for synthetic a priori knowledge’ and 3) ‘it »is false«/»cannot be established as true« that the categories are transcendental conditions of experience and it »is false«/»cannot be established as true« that they necessarily form the basis for synthetic a priori knowledge’. It is evident that 3) is indeed a logical possible scenario if $L(R \supset S)$ »is false«/»cannot be established as true«; however, I am only logically justified in claiming 1) or 2) since I can only legitimately claim that one premise »is false«/»cannot be established as true« if $L(R \supset S)$ »is false«/»cannot be established as true«.

But even though I cannot justifiably claim 3), I will emphasize that scenarios 1) and 2) also have quite important consequences for Kant’s theory of knowledge. In both scenarios it is either false, or cannot be established as true, that the principles of the categories are transcendental conditions of the experience of man. So if scenario 1) or 2) is true, it is not certain that man will

always experience the world in agreement with the rules expressed by the principles of the categories. The immediate consequence is then that the principles of the categories do not necessarily express man's subjective perspective on the world. Hence, it is not, for instance, precluded that one day a human will experience that an event just occurs without it having a cause.²⁴

7. Conclusion

On the basis of a logical formalization of parts of the argumentation in *Kritik der reinen Vernunft*, I believe to have shown that Kant is obligated to be able to establish that proposition $L(R \supset S)$ is true. But the truth of $L(R \supset S)$ cannot be established by logic, experience or the empirical sciences. Many nevertheless believe that intuition can determine the truth value of a priori propositions like, for instance, $L(R \supset S)$. But, as I have stressed, it appears intuitive to me that $L(R \supset S)$ is false. If I am correct about this, and if intuition can determine the truth value of $L(R \supset S)$, the consequence, as far as I can tell, is that (A): Proposition T is false. Should someone be able to establish that neither intuition nor any other authority can determine the truth value of $L(R \supset S)$, the consequence is not (A), but rather (B): T 's truth cannot be established.

In any case, if my considerations in this article are correct, it has major consequences for Kant's theory of knowledge unless the following is true: (C) Intuition can determine the truth value of $L(R \supset S)$, and $L(R \supset S)$ is intuitively true, or (D) intuition cannot determine the truth value of $L(R \supset S)$, but another authority can establish that $L(R \supset S)$ is true. This is because (C) and (D) both preclude that (A) or (B) can be claimed based on the considerations in this article.²⁵

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¹ Kant's skeptical opponent has both been identified as the Cartesian sceptic and the Humean sceptic, see e.g. Brueckner (1984): 'Transcendental Arguments II', *Noûs* Vol. 18, 197-225; Vahid (2002): 'The Nature and Significance of Transcendental Arguments', *Kant-Studien* Vol. 93, 273-290; and Callanan (2006): 'Kant's Transcendental Strategy', *The Philosophical Quarterly* Vol. 56, 360-381. Excellent general discussions on transcendental argumentation can be found in Stern (1999): *Transcendental Arguments*, New York: Oxford University Press; and Stern (2000): *Transcendental Arguments and Scepticism*, New York: Oxford University Press.

² My critical discussion is based on criteria *internal* to *Kritik der reinen Vernunft*, namely: (1) Kant's understanding of the distinctions a posteriori versus a priori and synthetic versus analytical, and (2) that man has synthetic a posteriori knowledge. In the article I therefore do not take into account the possibility that external sources might be able to establish that Kant misunderstands the distinctions, or that man does not have synthetic a posteriori knowledge.

³ Please note that, in this article, I use *X* and *Y* as propositions. An example: It follows from Kant's theory of knowledge that the truth of the proposition 'Man's experience is ordered according to the

categories' is a transcendental condition of the truth of the proposition 'Man has experience' (compare section 3.2).

⁴ If I did not carry out a specification of my formalization but formalized transcendental propositions as $X \supset Y$, my later critical discussion of proposition T would be open to counter-examples.

⁵ This formalization is defining for the strict implication: $[Def \rightarrow] (X \rightarrow Y) =_{df} L(X \supset Y)$ (Hughes & Cresswell 1996: 195).

⁶ In section 4 I discuss the relationship between the amount of transcendental propositions and the amount of propositions that fulfill $L(X \supset Y)$.

⁷ In what follows I analyze necessity in transcendental propositions on the basis of Kant's understanding of the distinctions a posteriori versus a priori and synthetic versus analytical.

⁸ I hold that it is possible to use the designation 'possible worlds' from modal logic in respect to transcendental propositions. One should merely take care in emphasizing that it does not express an ontological assertion about the existence of parallel worlds or the like. Stern claims, for instance, that the relationship between X and Y in transcendental propositions applies in every possible world (Stern 1999: 3).

⁹ Unless having a brain is a defining characteristic of being human.

¹⁰ The proposition is given through the conjunction of the second and third premise in argument A1, which I advance at the end of this section, and it can therefore be formalized as $L(P \supset Q) \wedge L(Q \supset S)$.

¹¹ By 'world' I always refer to 'the world to us', that is the world that we have the possibility of experiencing. We cannot know anything about how the world is in itself entirely independent of any experience. Furthermore, we only know something a priori about the world to us because we as subjects possess certain inherent a priori conditions of knowledge (*ibid.* BXVII). In knowledge it is therefore not only the subject that is determined by the object, by receiving sensory impressions, but the object of knowledge is also determined by the subject by virtue of the pure forms of intuition and the categories that are fundamental to knowledge (*ibid.* BXVI).

¹² Some readers might prefer another interpretation of Kant's theory of knowledge implying that it is the transcendental and not the metaphysical deduction that establishes the categories as transcendental conditions of experience. I do not claim that such an interpretation is impossible, but as I show in section 3.2, my interpretation also finds strong support in Kant's writings. Furthermore, I ask the reader to bear in mind that as far as this article is concerned the important thing is *that* Kant concludes that the categories are transcendental conditions of experience and *that* he furthermore concludes that the categories necessarily form the basis of synthetic a priori knowledge. My later critical discussion of proposition T is, namely, not directed towards the specific details of *how* Kant reaches these conclusions, but towards the logical consequences of the mere fact *that* he reaches the conclusions.

¹³ I am of the opinion that an argument can only be described as 'transcendental' if it comprises at least one transcendental proposition, either as a premise or as a conclusion (Stern 2000: 7).

¹⁴ See also *Prolegomena*, where experience is referred to as 'eine kontinuierliche Zusammenfügung (Synthesis) der Wahrnehmungen' (Kant 1920: 26) and as 'der synthetischen Verknüpfung der Erscheinungen (Wahrnehmungen) in einem Bewußtsein, sofern deiselbe notwendig ist' (*ibid.*: p. 63).

¹⁵ Kant's more explicit account of his schematized table of categories is not of crucial importance in this article, since in this context it is not essential that there are precisely twelve categories and so on. Furthermore, out of consideration for the length of the article I have chosen only to refer to one category: that of causation.

¹⁶ When Kant claims that all bodies have weight, the assertion is based on induction (*ibid.*: B3). Strictly speaking, he can only legitimately say: 'soviel wir bisher wahrgenommen haben, findet sich von dieser oder jener Regel keine Ausnahme.' (*ibid.*: B4).

¹⁷ While it is possible to 'go from' R to P through analysis, it is not possible from P to Q , or from Q to S . Therefore, nor is it possible to 'go from' R to S through analysis.

¹⁸ For example, I do not find it to be immediately guaranteed that intuition cannot be relative to time, place and person.

¹⁹ ‘Determine’ should here not be understood as ‘cause’, since transcendental propositions do not express cause and effect relationships. The necessity in transcendental propositions should not be understood as a causal necessity (Stern 2000: 8).

²⁰ Even though it may be legitimate within, for instance, the limited domain of ‘Danish citizens in 2007’ to pass the empirical proposition $(\forall x)Hx$, where $Hx =$ ‘ x has a brain’, with reference to section 2.2 it is not legitimate to pass this proposition within the unlimited domain of ‘humans at any time’.

²¹ With this example I do not make the claim that the relationship between R and S is parallel to the relationship between my experience and the fact that I am in Amtoft. The latter relationship is not transcendental (nor is it a cause and effect relationship). I only use the example to illustrate that generally there must be something about X that makes it plausible that X is sufficient to determine Y if it should be intuitively established that X is a sufficient condition of Y .

²² The extent to which Kant is also right about this is not of crucial importance for the article, for my critical discussion is based on *internal* criteria in Kant’s thinking: E.g. his understanding of the distinctions a posteriori versus a priori and synthetic versus analytic (compare note 2).

²³ Some readers might think that intuition cannot establish the truth value of $L(R\supset S)$, and so I cannot establish that $L(R\supset S)$ is false by means of intuition. But if this is so, nor can it be established that $L(R\supset S)$ is true by means of intuition, and so $L(R\supset S)$ ’s truth cannot be established unless an authority unbeknownst to me can establish it. But if $L(R\supset S)$ ’s truth cannot be established, the consequence is that it cannot be established that T is true, which is not a desirable scenario for Kant. This is realized by reading »cannot be established as true« instead of »is false« within the brackets [...].

²⁴ Out of consideration for the length of this article, I shall not discuss other possible consequences for Kant’s thinking if T is false or cannot be established as true. Nor will I discuss whether intuition can determine the truth value of $L(R\supset S)$, or whether scenario 1) or 2) is most plausible.

²⁵ My best thanks to professor Steen Wackerhausen – Aarhus University, Institute of Philosophy and History of Ideas, Department of Philosophy – for inspirational discussion and guidance throughout the whole writing process. I also thank associate professor Søren Harnow Klausen – University of Southern Denmark, Institute of Philosophy, Education and Study of Religions – and associate professor Lars Bo Gundersen – Aarhus University, Institute of Philosophy and History of Ideas, Department of Philosophy – for their much appreciated comments to this article. Further thanks to my friend Jesper Hansen for valuable help during the writing process.