Universality and Necessity in Kant’s Transcendental Logic

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Abstract. Kant considers both universality and necessity as criteria of a priori knowledge, and as such equivalent. The equivalence of universality and necessity is assumed throughout the Critique of Pure Reason. The purpose of this paper is to show that this “equivalence thesis,” although never properly proved by Kant, is instrumental in ensuring essential steps of the Transcendental Logic (in the Transcendental Analytic, to be specific). Two central examples are examined: the univocality of apriority despite the difference between mathematics and the pure science of nature, and the univocality of the unity of apperception despite the variability of its scope (a given object of experience or the whole of nature). It is argued that the equivalence thesis has to be recognized as a genuine hidden principle of transcendental philosophy, whose sole justification is provided by its role in the Transcendental Logic.

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1. Universality, necessity and apriority

Several recent papers have focused on Kant’s criteria of apriority. James Kreines has discussed the connection between apriority and universality. Nicholas Stang has questioned the connection between apriority and necessity. Finally, John Divers has examined the connection of both universality and necessity with apriority.1 The aim of this paper is to study the missing link, namely the connection between universality and necessity themselves, and to show that that connection is a primitive component of Kant’s analysis of a priori knowledge. Let us first briefly review the three above-mentioned papers.

In his 2002 paper, James Kreines argued that Kant is to be attributed a “necessitation account” of laws, according to which any law of nature does not describe a mere regularity, but states that some regularity is necessitated by the nature of the kind on whose nature

1See [8], [12] and [1], respectively.
that regularity depends. As a consequence, the possibility of an empirical knowledge of laws of nature is denied. This is so because empirical inquiry is as such unable to ground the necessary connection that underlies any law. In Kreines’ view, the strict absolute universality of any genuine law includes all the actual cases as well as all the unactualized possibilities, and goes hand in hand with its necessity, even if this means that empirical inquiry will never reach knowledge of particular laws. As a consequence, Kreines repeatedly validates the equivalence of necessity and universality, and quotes Kant to that effect:

Ground is that upon which something else follows in a whole necessary way; or ground is that upon which something follows according to universal rules; basically it amounts to the same thing.2

Still, while examining particular laws, Kreines underlines that they are not really universal, which is why they cannot be derived from the principles of the understanding. Indeed, a particular law establishes a relation between specifically distinct natural kinds. Kreines goes on:

But no concept of such a kind specifically distinct from others could ever apply to everything that shows up in outer sense, or could correspond to a priori intuition of the forms of our sensibility in this way [. . .].3

Thus particular laws are universal insofar as they involve a counterfactual content, but are not genuinely universal, since they cannot in general apply to all phenomena indiscriminately and remain irreducibly restricted to specific kinds. One should not conclude that the equivalence of universality and necessity is questioned after all. On the contrary, the necessitation account, that Kreines defends as being Kant’s, equates the apriority of a law of nature to its necessity, and as a consequence identifies universality with the kind of counterfactual generality (within the limits of some specific kind) that necessity involves.

Contrary to Kreines, Nicholas Stang challenged4 the coextensiveness of necessity and apriority that is often ascribed to Kant. Actually, Stang isolates three kinds of modality in Kant: formal possibility (as compatibility with our forms of experience), empirical possibility (as compatibility with actual laws and actual passed events in nature) and noumenal possibility (as compatibility with the causal powers of things in themselves). He underlines that, according to Kant, we can neither know whether noumenal necessity entails apriority nor, conversely, whether apriority entails noumenal necessity: contrary to the received interpretation, and contrary to Kripke’s criticism of Kant’s alleged conflation, Kant distinguished between metaphysical necessity and epistemological apriority within the domain of what is knowable by us, thus for reasons different from Kripke’s. Stang considers that most commentators have claimed that Kant extensionally identifies necessity and apriority only because they identified Kantian necessity with formal necessity. But Kant himself, when considering the equivalence between universality and necessity,

2Lectures on Metaphysics 314, Ak. 28, 548. See also [6], p. 223, A91/B124: “For this concept [the concept of cause] always requires that something A be of such a kind that something else B follows from it necessarily and in accordance with an absolutely universal rule.”

3[8], p. 23.

4See [12].
deals essentially with formal modality. Stang does not challenge this equivalence: he simply points out that it only involves universality, formal necessity, and apriority. Forms of experience are “determinable structures of which any particular experience is a determinate filling-out.” To that extent, formal necessity corresponds to the universal invariant of all particular experiences, and thus to the *a priori* forms of experience. Necessity has to be traced back to universality understood as invariance. So, if Kreines is ready to reduce universality to necessity, Stang is willing to reduce necessity to universality.

As opposed to Kreines and Stang, John Divers examined both universality and necessity. According to Divers, Kant’s characterization of *a priori* knowledge by necessity and strict universality confronts us with three distinct theses:

(N) Necessity is a criterion of *a priori* knowledge;
(U) Strict universality is a criterion of *a priori* knowledge;
(UN) Strict universality and necessity are inseparable as criteria of *a priori* knowledge.

Divers’ paper is in particular an attempt to vindicate one half of (U), namely the thesis (U1) that unrestricted universality is a sufficient condition of apriority, in the following guise:

(U1c) Necessarily, for any proposition \( p \), if \( p \) is an unrestricted universal generalization, then any canonical warrant for \( p \) has an *a priori* element, where “a warrant \( w \) is canonical for a truth \( p \) just in case there is no better way than \( w \) of humans coming to know a truth such as \( p \).”

For example, the fact that all surfaces are not doubly-and-uniformly-colored is a better warrant for “My desktop is not (simultaneously) red all over and green all over” than direct inspection.

Now, (U1), rephrased as (U1c), may seem vulnerable to counterexamples. According to Divers, these potential counterexamples “boil down to one kind of case, namely, the possibility that among the warrants that are canonical for some unrestricted universal generalization, some have no *a priori* element.”

That could be the case, for example, of “All ravens are black” (1). Basically, Divers’ line of argument is that no warrant for (1) can consist in exhaustive observation, if (1) is taken as unrestricted. So the question is whether, from particular warranted observations one can infer a corresponding unrestricted generalization. Divers remarks:

The view which Kant consistently expresses is that inference from such a posteriori premises alone to a strictly universal claim cannot be warranting (A24/B39; A92/B124; A196/B241; A647/B675) since such (inductive) inferences (typically) are not deductively valid.

Thus, as Divers himself recognizes, his reinterpretation of (U) comes to acknowledging that Kant presupposes that deductive inference is the standard of any warranted inference. This amounts, in fact, to acknowledging that one side of the equivalence thesis (UN) is built into Kant’s presentation of universality: any universally satisfied condition can be established as such only insofar as it is deducible, and thus established as necessary.

5[1], p. 25.
6[1], p. 28.
7[1], p. 31.
Divers also endeavors to defend the thesis that every canonical warrant for every necessary proposition contains an *a priori* element, so that strict universality and necessity are both claimed to be sufficient conditions of apriority in the end. But Divers does not tackle the question as to whether strict universality and necessity are necessary conditions for apriority. And if strict universality and necessity are only sufficient conditions for there to be *a priori* knowledge, it does not at all ensure that they are sufficient conditions of each other, and so the equivalence thesis (UN) seems all the more problematic. The purpose of this paper is precisely to discuss (UN).

2. The equivalence thesis

*A priori* knowledge is clearly defined by Kant, after his rationalist predecessors, as the knowledge whose grounds are independent of experience. That definition has been accepted by many authors since then. Yet, even if this core has been taken to be unproblematic, apriority has been regularly provided with criteria. Kant’s case is no exception: in Kant, universality and necessity are both considered as criteria of *a priori* knowledge, and as such *inseparable*. What is at stake here is less the nature of *a priori* knowledge itself than the systematic equivalence of these two criteria of *a priori* knowledge as criteria of the same feature. Kant’s conception of apriority has been of course the focus of much literature, but as far as is known the Kantian thesis that universality and necessity imply each other, which is here expressed on the sidelines of the problem of synthetic *a priori* judgments, has not yet been examined for itself.

Generally stated, the thesis that universality and necessity are equivalent (hereafter the *equivalence thesis*) is the thesis according to which what holds necessarily, holds universally, and what holds universally, holds necessarily. Admittedly, Kant’s equivalence thesis has already been noted, in particular by Philip Kitcher. In order to make sense of Kant’s thesis, Kitcher distinguishes “explicit” *a priori* knowledge (i.e., knowledge justified by some non-empirical warrant, in compliance with “Kant’s official epistemological notion”) and “tacit” *a priori* knowledge (i.e., knowledge that is called up in all one’s empirical knowledge). Kitcher convincingly explains how Kant veers between both approaches to apriority and tries to make them equivalent. But in fact it is not clear how the equivalence of universality and necessity relates to the equivalence of explicit and tacit *a priori* knowledge, and it is likely that no easy connection is to be made, since neither universality nor necessity coincides with either explicit or tacit apriority. According to Kitcher, the link between the equivalence of universality and necessity, on the one hand, and the equivalence of explicit and tacit *a priori* knowledge, on the other, is that the former is more likely to be defended on the assumption of the latter. Still, the equivalence of explicit and tacit *a priori* knowledge does not obviously ensure the equivalence of universality and necessity. Quite the contrary, Kitcher simply accepts that the principles tacitly known are inseparably necessary and universal. It is all the more important to focus on Kant’s equivalence thesis, as opposed to any other thesis defended by Kant.

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8 See [7], pp. 37-38.
9 [7], p. 43.
The coextensionality of universality and necessity, let alone the synonymy of both concepts, is far from being self-evident, in Kant’s own view. Indeed, universality refers, in the *Critique of Pure Reason*, to some extension of concepts —as underlined by the comparison, though negative, with empirical universality—, and this at least precludes universality from being plainly confused with necessity. On the other hand, necessity is associated with intensional notions such as those of ground, condition of possibility, rule, or law. So it seems at least legitimate to examine the reasons why the equivalence could be upheld, as independently as possible of the issue of *a priori* knowledge in itself. The concepts of universality and necessity take on a relatively intuitive meaning in Kant: a judgment is universal when it asserts a condition to be true of all individuals of a certain kind, and necessary when its truth is not simply a matter of fact. There is a difficulty of principle in pinpointing any further the respective contents of both concepts in Kant, however, due to the fact that the equivalence thesis does not connect universality and necessity as if each concept were defined independently beforehand: the equivalence thesis itself is part of the conception of each concept by Kant. It is actually stated, in the Introduction, not as an outcome, but as a component of the elucidation of both criteria. This is all the more reason for a critical assessment of it. This paper is precisely devoted to a closer examination of Kant’s treatment of the equivalence in the *Critique*. Its aim is to show the justification of this equivalence to be elusive: to that extent, a substantial hidden thesis accompanies Kant’s analysis of *a priori* knowledge throughout the *Critique*.

Kant indubitably claims that universality and necessity are two extensionally equivalent criteria of apriority:

> Necessity and strict universality are [...] secure indications of an *a priori* cognition, and also belong together inseparably.\(^1\)

Thus, every necessary proposition would be as such universally true and, conversely, every universally true proposition would be as such necessary. This is as clear a case of the equivalence thesis as one could hope for. Still, the equivalence thesis that Kant puts forth dwindles a few lines after its formulation to an equivalence by definition:

> If [...] a judgment is thought in strict universality, i.e., in such a way that no exception at all is allowed to be possible, then it is not derived from experience, but is rather valid absolutely *a priori*.\(^2\)

Is this not, indeed, the very definition of necessity? What is a truth to which no exception is “allowed as possible,” but necessary? Of course, Kant’s main purpose here is to sharply distinguish genuine “strict” universality from empirical or inductive generality, and so to dismiss the Humean way to debunk the validity of laws. But the modal term that he surreptitiously uses to do it finally causes the concept of strict universality to

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\(^1\)[6], pp. 137-138, B4. This is in the line of previous works of Kant. In particular, Kant’s *Logic* (see §84, Note 2) associates generality with induction, (true) universality with syllogisms, before adding: “Every syllogism must yield necessity.”

\(^2\)[6], p. 137, B4.
analytically contain that of necessity, so that the equivalence thesis seems to amount only to a matter of definition.\textsuperscript{12}

At the same time, Kant acknowledges that, at least from a methodological point of view, both concepts differ in meaning:

Necessity and strict universality are [...] secure indications of an \textit{a priori} cognition, and also belong together inseparably. But since in their use it is sometimes easier to show the empirical limitation in judgments than the contingency in them, or is often more plausible to show the unrestricted universality that we ascribe to a judgment than its necessity, it is advisable to employ separately these two criteria, each of which is in itself infallible.\textsuperscript{13}

The quotation sufficiently proves that both concepts are not viewed by Kant as strictly synonymous. They take on different meanings and are used as distinct tools to establish or to refute the apriority of a given judgment. As a result, Kant’s presentation of the link between universality and necessity appears quite puzzling. Universality and necessity are not identical criteria of \textit{a priori} truth, yet the explicit justification of the equivalence of both notions is given nowhere, whether it be in the Introduction or further on in the book.

Before getting down to a more specific study, a caveat is in order. Kant takes universality and necessity to be features of judgments, conceived both as cognitions and as truths. That flexibility has to be put down to the way Kant never separates semantic and epistemic matters, since the notion of objective representation condenses both ideas, namely both a propositional content and a justifying process. As a result, universality and necessity have the same bearers (namely, judgments), so that the issue of their equivalence (as possible features of the same kind of things) can at least be raised.\textsuperscript{14}

\section{3. The twofoldness of \textit{a priori} knowledge}

There are two central places in the \textit{Critique} where Kant resorts to the equivalence thesis. The first pertains to the connection between the validity of mathematics and the validity of pure natural science. Necessity and universality arguably do not relate to these two areas in the same way. The former characterizes first and foremost mathematical truths, to the extent that they are based on proofs. Indeed, the representation of a mathematical object is its construction in pure intuition, which shows at the same time that it cannot

\begin{itemize}
  \item \textsuperscript{12}Robert Hanna ([4], chap. 5, especially pp. 250-255) argues that strict universality (what he dubs “\textit{K}-necessity”), consisting for a proposition in having no admissible possible counterexample, does not boil down to the more restrictive metaphysical or analytical necessity (which Hanna dubs “\textit{M}-necessity”). Still, Hanna in his study does not intend to challenge the equivalence of strict universality and necessity, but rather to distinguish two kinds of necessity (rephrased as absolute necessity and restricted necessity), and, accordingly, two kinds of universality (“absolute” universality and “restricted” strict universality, respectively) —which proves that the equivalence itself is completely left unchallenged.
  \item \textsuperscript{13}[6], pp. 137-138, B4.
  \item \textsuperscript{14}Think, in contrast, to the way in which we today define a \textit{formula} \( F(x) \) as universally true if it is true whatever value is assigned to \( x \) (in the domain under consideration), and a \textit{sentence} as necessarily true if it is true in whatever domain we evaluate it. Formulae and sentences are entities of two different kinds: universality and necessity are not on a par anymore.
\end{itemize}
be thought without such and such property. This is particularly clear for geometry as Kant understands it (but also for arithmetic, which relies equally on constructions in pure intuition). 15

On the other hand, universality seems to describe more adequately the principles of pure understanding, which are responsible for the wholeness or “thoroughgoing connection” of nature. Indeed, nature is defined primarily as “the existence of things, so far as it is determined according to universal laws,” 16 and this is because any empirical reality takes place in conformity with the law of the connection of cause and effect (among other laws), so that it comes to be meaningful to speak of “all empirical realities” as belonging to one single world. Experience makes up a consistent “universal” totality—in the etymological sense of being “all in one piece”—only because any experience occurs, and relates to any other experience, in compliance with the principles of pure understanding. Thus, necessity seems to be another word for mathematical validity, as is universality for the scope of the transcendental principles of nature. The link of mathematical judgments (judgments of quantity in pure intuition) to objects of experience, and thus to natural science, is secured by the fact that empirical intuitions are cognized through the same (schematized) forms of judgment as pure intuitions. But that is beside the point, which is: how to ensure that mathematical knowledge, as characterized by necessity, and pure natural sciences, as characterized by universality, have the same kind of validity? The equivalence thesis is exactly the answer.

Let us think of the two famous examples of synthetic a priori judgments put forward by Kant in the Introduction, namely “7 + 5 = 12” and “All bodies are heavy.” The first one is necessary but apparently not of universal form, and the second one is universal but apparently contingent, since it relies on empirical concepts. How could it be that Kant defends the equivalence thesis, and yet gives himself examples that could actually count as counterexamples? It seems unlikely that Kant would have been unaware of those counterexamples so interpreted. So a minimally charitable interpretation should be arrived at: even if it means presupposing the equivalence thesis, one has to consider that mathematical necessity goes hand in hand with some kind of universality, and that the universality of transcendental laws of nature goes hand in hand with some kind of necessity.

In the case of mathematics, the universal content of any proposition comes from the fact that mathematical concepts go along with schemata that constitute universal rules for the construction of any instance of them: 17 in pure intuition, “that which follows from the general conditions of the construction must also hold generally of the object of the constructed concept.” 18 This point is detailed by Lisa Shabel, who remarks that necessity of mathematical propositions is sufficient evidence for their apriority, but that mathematical reasoning depends on singular concrete representations, which seems to preclude its universality. Shabel shows that the concept constructions that support mathematical propositions, “despite producing singular and concrete intuitions, are themselves fully general

15[6], §3, p. 176, B40-1.
16[5], §14, p. 294. See also §36, where Kant, summarizing his conclusions, insists upon the universality of the laws of nature.
17[2], pp. 125-126 and pp. 189-190.
18[6], p. 631, A716/B744.
and universal processes resulting in fully general and universal representations.”¹⁹ Universality comes from necessity: full generality is bestowed on mathematical constructions only because of an underlying rule prescribed by a pure concept of understanding within pure intuition. To that extent, mathematical truths (especially truths in geometry) hold not only necessarily, but also universally.

Conversely, in the case of natural sciences, the universal principles of understanding, which provide for the connectedness of experience as a causal totality, constitute the laws of the possibility of objective experience itself, and as such hold necessarily. However, the necessity peculiar to the principles of pure understanding cannot be established in itself, “but rather always only indirectly through the relation of these concepts to something entirely contingent, namely, possible experience;”²⁰ For that reason, the necessity of the principles of understanding could seem to be something else than true necessity. The Prolegomena gives a typical illustration of the way the equivalence is taken advantage of so as to solve this difficulty:

We […] actually possess a pure science of nature in which are propounded, a priori and with all the necessity requisite to apodeictical propositions, laws to which nature is subject. […] But there are several things in it, which are not quite pure and independent of empirical sources: such as the concept of motion, that of impenetrability (upon which the empirical concept of matter rests), that of inertia, and many others, which prevent its being called a perfectly pure science of nature. […] But among the principles of this universal physics there are a few which actually have the required universality; for instance, the propositions that “substance is permanent,” and that “every event is determined by a cause according to constant laws,” etc. These are actually universal laws of nature, which subsist completely a priori. There is then in fact a pure science of nature […]²¹

Schematically, Kant’s argument can be broken down as follows. First, Kant announces his conclusion: there exists a genuine a priori science of nature. Yet it apparently contains truths that are partly contingent (because they involve empirical concepts). But since it contains, in fact, unrestricted truths, it is, as far at least as it is restricted to those truths, strictly universal. Consequently, it is also endowed “with all the necessity requisite to apodeictical propositions,” and thus proved indeed to be completely a priori. The equivalence thesis is clearly used here as a leverage to get from universality to necessity, so that the apriority of natural science matches that of mathematics: mathematical truths are primarily necessary and transcendental principles of nature are primarily universal, but, since universality and necessity are equivalent, in the end mathematics and pure physics produce truths that are on an equal footing. On this score, the equivalence thesis can be compared to a completeness result in modern logic (albeit in the guise of an assumption, not of a theorem), where derivability becomes mathematical necessity and validity becomes physical universality as truth in all circumstances.

¹⁹[13], p. 108.
²⁰[6], p. 642, A737/B765.
²¹[5], §15, pp. 294-295.
Admittedly, the *Prolegomena* could be labelled as a dubious authority in comparison to the arguments of the *Critique*. However, the same remarks that can be found in the former can also be found in the latter, about the distinction between the “mathematical” and the “dynamical” use of the pure concepts of understanding: 

[...] the principles of the mathematical use will be unconditionally necessary, i.e., apodictic, while the principles of the dynamical use, to be sure, also carry with them the character of an *a priori* necessity, but only under the condition of empirical thinking in experience, thus only mediately and indirectly; consequently these do not contain the immediate evidence that is characteristic of the former (though their universal certainty in relation to experience is not thereby injured).

The argument is the same: the principles of the dynamic use, despite not being unconditionally necessary, are universally certain, and thus can be said to be completely *a priori* after all.

The conclusion is that there is finally a single kind of pure scientific validity. Such a conclusion is instrumental in Kant’s perspective, which considers pure synthetic judgments as a whole. Indeed, the possibility of synthetic *a priori* judgments constitutes “the general problem of pure reason.” Were synthetic *a priori* knowledge scattered into several *sui generis* kinds of knowledge or disciplines, such a general problem could not be raised. Assuredly, this does not detract from the differences existing between mathematical and pure natural sciences. Still, mathematics and pure natural science are on a par with respect to apriority. The distinction between pure and empirical sciences is intended as clear-cut and absolute, so the first sphere has to be of a piece. As far as they are metaphysically grounded, all pure sciences share “the same complete certainty.”

The equivalence thesis thus allows Kant to assign a fundamental unity to all synthetic *a priori* truths in spite of their diversity. This is also directly connected with the very use of criteria in the philosophical analysis of apriority. As mentioned at the beginning, apriority has been regularly provided with criteria which, as such, are treated as extensionally equivalent. But since most philosophers agree (despite their often sharp disagreements in explaining where apriority comes from) in defining *a priori* knowledge as the knowledge whose grounds are independent of experience, why would the philosophical concept of apriority need criteria to go along with?

One of the reasons for the need of criteria, in the case of Kant, is that mathematics and physics, at the time Kant was writing, had begun to make up a whole independent body of knowledge, both well-developed and organized, so that Kant had to take this corpus into account as it *de facto* existed, while characterizing in an abstract way *a priori* knowledge as opposed to any other kind of knowledge. The criteria work as links between the philosophical definition and the existing sciences. For example, if mathematical truths, as proved, are characterized as necessary, and if necessity is taken as a criterion of apriority, then mathematics is ensured to be a case of *a priori* knowledge. It still remains a philosophical issue to recover, within the boundaries of *a priori* knowledge as it is philosophically defined, all the truths which are considered, within the history of science, as

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22[6], p. 284, A160-1/B199-200.
paradigmatic *a priori* truths (if any), namely the truths of logic, mathematics and theoretical physics. For that task, Kant chose universality and necessity as main criteria of apriority: they are claimed to be equivalent, but, at the same time, bring out distinct ways of looking at apriority, which allow Kant, as we have seen, to account for the different cases of apriority in science in a flexible way.

Kant is certainly an illustration of something general. Other criteria have been devised since then: invariance and analyticity, among others, have been put forward instead of universality or necessity. All those different criteria are certainly linked to the state of science at the time under consideration: Newtonian physics in the case of Kant, Kleinian geometry in the case of invariance, Hilbertian axiomatic method in the case of analyticity, and so forth. All the different criteria that the philosophical concept of *a priori* knowledge has been provided with, all refer to sciences, because they discharge the task of connecting an abstract philosophical analysis with contemporary achievements in pure sciences. In effect, this connection is part of the plausibility of any philosophical account of apriority. At any rate, Kant’s use of the equivalence thesis is a very clear and important illustration of that philosophical agenda.

So the equivalence thesis helps Kant to meet many aspects of *a priori* knowledge in sciences and to specify it in a dynamic way: characterized at first from the perspective of transcendental philosophy, the concept of apriority, through the components of universality and necessity, is loaded with the dimensions of its instanciations in sciences. These components, in turn, are then philosophically analyzed and accounted for. In that way, the general philosophical concept of apriority and the scientific instances of *a priori* knowledge are gradually adjusted to each other.

To summarize, the unity of mathematics and pure natural sciences from the point of view of apriority is a fundamental thread in the transcendental system. Claiming that the existence of the synthetic *a priori* is a sufficient principle of the unity of all *a priori* sciences would just beg the question. Some minimal justification has to be adduced in support of this unity. The equivalence thesis turns out to be instrumental in giving this justification.

4. The twofoldness of transcendental apperception

A second very important example can be given of the way the equivalence of universality and necessity is called upon, in response to a difficulty encountered by Kant in the *Critique*. This difficulty pertains to the the twofoldness of the unity of apperception, insofar as it applies either to a given object or to nature.

More specifically, it turns on the relationship that the Transcendental Deduction of Categories tends to establish, in the first edition, between the necessary synthesis of a manifold under the concept of an object, on the one hand, and the universal synthesis of the manifold of all objects of experience, on the other hand. If Kant subordinates the latter to the former, the way he describes the synthesis of reproduction tends to amalgamate both syntheses. The following quotation sets out the overall philosophical move (the labels ‘U1’, ‘U2’, ‘N1’ and ‘N2’ will be explained presently):
Every necessity has a transcendental condition as its ground. A transcendental ground must therefore be found for the unity of the consciousness in the synthesis of the manifold of all our intuitions [synthesis of a given object, U1], hence also of the concepts of objects in general, consequently also of all objects of experience [synthesis of all objects], without which it would be impossible to think of any object for our intuitions; for the latter is nothing more than the something for which the concept expresses such a necessity of synthesis [necessity attached to the application of a given concept, N1]. […]

Now no cognitions can occur in us, no connection and unity among them, without that unity of consciousness that precedes all data of the intuitions, and in relation to which all representation of objects is alone possible. This pure, original, unchanging consciousness I will now name *transcendental apperception*. […]

Just this transcendental unity of apperception, however, makes out of all possible appearances that can ever come together in one experience a connection of all of these representations in accordance with laws [necessity or lawfulness on the scale of Nature, N2] […] Thus the original and necessary consciousness of the identity of oneself is at the same time a consciousness of an equally necessary unity of the synthesis of all appearances in accordance with concepts [universality of Nature as the thoroughgoing whole of all appearances, U2] […]

As emphasized by Paul Guyer, the reference to the unity of apperception, in the first-edition version of the Deduction, is somewhat puzzling, since it seems to pass over the “clue to the discovery of all pure concepts of the understanding:”

This exposition [of the cognition of objects, in the second section] reaches the conclusion that all cognition of objects involves concepts, but instead of then invoking the premise from the clue that concepts must be used in judgments and therefore their forms must complement the functions of judgment, Kant claims that concepts involve a kind of necessity that can only be grounded in the transcendental unity of apperception. 24

What follows aims to explain this riddle. Actually, the answer lies in the quote above, which assigns to the unity of apperception two different values. Indeed, the transcendental unity of apperception turns out to be at the same time the necessary unity of the synthetic reproduction of the manifold of some given phenomenon, and the necessary unity of the synthesis of all phenomena in accordance with concepts. One shifts then from the universal necessity of any concept as a rule to the necessary universality of the laws of nature. In general, all along the Analytic of Principles, and particularly in the first-edition Transcendental Deduction, two different levels can be distinguished for universality as well as for necessity. As to the universal, the universality (U1) of the unity of apperception as applying to the manifold of each object, and the affinity (U2) of all the manifold of appearances, are associated yet distinct. On the other hand, as to the necessary, the

24[3], pp. 129-130.
necessity (N1) of the synthesis as ruled according to a given concept, and the necessary validity (N2) of laws of nature, run parallel to each other.

Schematically, U1 is universality taken locally, U2 is universality taken globally, N1 is necessity taken locally, and N2 is necessity taken globally. The four terms can be combined two by two. For example, the very same unity of apperception which gives a rule to the synthesis of a particular manifold of representations (= U1) coincides with “the transcendental ground of the necessary lawfulness of all appearances in an experience”\(^{25}\) (= N2). Or again, as Béatrice Longuenesse points out,\(^{26}\) the idea of necessary connection expressed by the very concept of cause (= N1), and the universality of the principle of causality (= U2) are grounded in each other in Kant’s reformulation of “Hume’s problem.”

The goal of the Transcendental Deduction is to prove the objective validity of the categories, namely that they apply to all of our experience. So Kant’s target in the Deduction is U2, as shown by the conclusion of the Deduction in the first edition:

The pure understanding is thus in the categories the law of the synthetic unity of all appearances, and thereby first and originally makes experience possible as far as its form is concerned. But we did not have to accomplish more in the transcendental deduction of the categories […]\(^{27}\)

This conclusion remains the goal of the second-edition Transcendental Deduction.\(^{28}\) A close look at the quotation above of A106-8 with its labels shows that the endorsement of the equivalence allows precisely Kant to warrant an overall equivalence between U1, U2, N1 and N2, and especially, the crucial equivalence between U1 and U2. The principle of Kant’s argument is the following. By virtue of the equivalence thesis, U1 is claimed to be equivalent to N1, and U2 to N2. But since N1 and N2 are supposed identical as the one necessity of the synthesis according to concepts carried out by the apperception, it follows that U1 and U2 merge as well. This is exactly the import of Kant’s explanation: “for this object is no more than that something, the concept of which expresses such a necessity of synthesis.” The equivalence thesis is then used, so that the equivalence of N1 and N2 is transferred into an equivalence between U1 and U2, which allows Kant to get to U2 and thus establish the “objective validity” of the categories. This explains why Kant puts so much stress on the unity of apperception instead of exploiting the “clue” to the discovery of the categories: by doing so, Kant puts the stress on necessity as a bridge toward U2, namely on the fact that “the original and necessary consciousness of the identity of oneself is at the same time a consciousness of an equally necessary unity of the synthesis of all appearances in accordance with concepts.”\(^{29}\)

The conclusion U2 could not be reached without the crucial assumption of the equivalence. More specifically, the essential component of the equivalence here is the entailment of universality by necessity: it allows Kant to endow the formal unity of apperception

\(^{25}[6],\ p.\ 242,\ A127.\)
\(^{26}\) See [10], chap. v1, particularly pp. 151-157.
\(^{27}[6],\ p.\ 243,\ A128.\)
\(^{28}[6],\ p.\ 243,\ A128.\)
\(^{29}[6],\ p.\ 233,\ A108.\) On this point, see [3], pp. 130-1.
(U1), as the necessary unity of the transcendental synthesis of imagination, with a universal scope properly speaking, that is, with a scope embracing “one and the same universal experience.” Indeed, the necessity of the synthesis carried out by the unity of apperception (were it N1 or N2) is an intrinsic property of that synthesis, a qualitative feature due to the way the unity of apperception works and carries out the synthesis of objects, whatever it is applied to. In contrast, the range of things to which the synthesis applies is obviously not something intrinsic: it depends each time on the particular group of appearances that happens to be given. Nothing prescribes that the synthesis of the manifold of a given phenomenon (U1) and the synthesis of the variety of all phenomena (U2) proceed along the same lines. So there is absolutely no direct way to secure the transition from U1 to U2—which remains, however, a key ingredient of the Transcendental Deduction (“There must, therefore, be a transcendental ground of the unity of consciousness in the synthesis of the manifold of all our intuitions [. . . ] and so of all objects of experience”). Only the recourse to the equivalence thesis allows one to use the kinship of N1 and N2 so as to support the connection to be established between U1 and U2.

This result is the whole point of the Transcendental Deduction in the first edition: the unity through which I gather a manifold of appearances into an object that I can grasp can be identified with the unity through which all objects make up the whole objective world. The necessary synthetic unity that is imposed on particular appearances, as necessary, constitutes the universal form of nature and guarantees that all appearances belong to one single universal experience. This can be explained only by resorting to the equivalence thesis. Herbert J. Paton insists on the link that exists in Kant between the universality and uniformity of nature and the necessity of the unity of apperception, but also finds it difficult to explain.

It is difficult to explain simply because the equivalence thesis is required, although implicitly. The duality of U1 and U2 that has just been brought out should be distinguished from the opposition that Kant himself sets between the “distributive” use of the understanding and the “collective” unity of possible experience as a complete totality. The general synthetic unity of all phenomena according to concepts (U2), according to which all phenomena “belong to one and the same general experience,” is not the dialectical representation of the whole of reality (omnittudo realitatis) that Kant points out in the

\[6\], p. 234, A110.

\[9\], p. 47) also stresses the difference to be made between the case of a particular intuition (viewed as a manifold of representations) and the generic identity traversing a manifold of intuitions. That difference explains why Kant’s explanation does not lapse into the tautology according to which the unity of synthesis provided by a concept is the condition of the unity of this concept. The same holds about the rule underlying the unity of apperception (see [9], pp. 48-49). However, the fact that a concept viewed as a local rule (for the synthesis of the manifold of a particular intuition) conditions and explains the use of this same concept viewed as a global rule (as subsuming a manifold of objects), is not trivial at all, and remains a sheer assertion from Kant.

\[11\], pp. 449 and 439-440, respectively.

“That we subsequently hypostatize this idea of the sum of all reality, however, comes about because we dialectically transform the distributive unity of the use of the understanding in experience, into the collective unity of a whole of experience; and from this whole of appearance we think up an individual thing containing in itself all empirical reality [. . . ].” ([6], p. 559, A582/B610)
Transcendental Dialectic: the latter is the “absolute whole of all possible experience” as a single finished totality, whereas the former is a totality always in the making, that “can only be given in the course of the advance of experience.”\textsuperscript{34} In other words, universality taken globally (U2) is not the “collective unity of possible experience” that Kant studies in the dialectic context. Consequently, the articulation of U1 and U2 is not the opposition underlined by Kant between distributive and collective unity, but constitutes a distinct pair in its own right.

The connection established between the \textit{local} unity of conscience in the synthesis of a particular manifold (U1) and the \textit{global} unity of experience (U2) specifically turns on the concept of necessity. The necessity proper to the synthesis of recognition fulfills the link between the generic unity of apperception (\textit{any} phenomenon as an object) and the transcendental unity of nature as a whole (\textit{all} objects in nature), and this relies on the fact that the necessity of the transcendental synthesis of apperception extends to the necessity of laws of nature:

Now since this unity [the necessary unity of consciousness] must be regarded as necessary \textit{a priori} (since the cognition would otherwise be without an object), the relation to a transcendental object, i.e., the objective reality of our empirical cognition, rests on the transcendental law that all appearances, insofar as objects are to be given to us through them, must stand under \textit{a priori} rules of their synthetical unity, in accordance with which whereby their relation in empirical intuition is alone possible \[\ldots\].\textsuperscript{35}

To sum up, the scope of the unity of apperception takes on two different aspects that only the equivalence of universality and necessity allows Kant to unify. A distinction has to be made, regarding the unity of apperception, between a formal level and a global level. Still, the equivalence thesis makes it possible to connect the two kinds of unity of experience that Kant brings into play, and the first-edition Transcendental Deduction relies heavily on that connection.\textsuperscript{36}

\textbf{Conclusion}

Can universality and necessity be taken to be (at least extensionally) equivalent notions? No clear and explicit ground for this equivalence thesis is to be found, be it in the Introduction or in the rest of the \textit{Critique of Pure Reason}. No genuine argument other than an explanation collapsing into a definition is proposed for it (universality consisting in there being no exception allowed as possible). Still, universality and necessity are not considered as synonymous, since sometimes universality is said to be a more convenient criterion for apriority than necessity, and sometimes it is the other way round. Universality and necessity are clearly equivalent \textit{qua} distinct notions. This cannot be reduced to a

\textsuperscript{34}[2], p. 302.
\textsuperscript{35}[6], pp. 233-234, A109-10.
\textsuperscript{36}The twofoldness of the unity of apperception is not operated any more in the second edition of the Transcendental Deduction, which considers the sole local level of each given object, as opposed to the global level of all objects in nature. See for instance §20, p. 252, B143: Kant is cautious to always consider only the manifold in a \textit{given} intuition: one manifold at a time. So the second-edition Transcendental Deduction relies on a different argumentation, whose analysis goes beyond the scope of this paper.
matter of definition. To that extent, Kant upholds a substantial thesis about universality and necessity, without proving it.

This equivalence thesis shows up in the Critique in specific yet essential places, to ensure critical steps. Two central examples have been examined in this paper, namely: the univocality of apriority despite the variety of scientific a priori knowledge; and the univocality of the unity of apperception despite the duality of its scope. Without the equivalence, the unity of a priori synthetic knowledge would be jeopardized, since the truths produced by pure natural sciences would not obviously have the same kind of validity as that of the truths produced by mathematics. Also, without the equivalence, the local unity of each given manifold of intuitions and the global unity of nature would not be exactly on a par, which would hinder the whole argument developed in the first-edition Transcendental Deduction of the categories.

In fact, the justification of the equivalence thesis lies precisely in the leverage that Kant gains from it. Kant does not in fact aim at justifying the equivalence thesis per se, but rather at putting it to work. Its justification lies in its overall usefulness only. It is so fundamental and so instrumental in establishing essential points in the Transcendental Analytic, that it has to be recognized as a built-in tenet, as a genuine hidden principle of transcendental philosophy, whose justification cannot but be internal. It is never properly proven by Kant in the Critique but, in the perspective of the Critique, it is actually not supposed to be proven.

References

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