The modern rationalist tradition initiated by Descartes has as one of its central tenets the independence of the human understanding from the senses. Regardless of the different ways in which independence from experience is understood, there is much common ground among the modern views on the a priori. Yet Kant, culminating this tradition, introduces an entirely new conception of the a priori never before articulated in the history of philosophy. This is the notion of elements in knowledge which are independent of experience but nevertheless closely connected, in a special way, with experience.

Although for Kant the a priori has a privileged position in the structure of knowledge — as it has for other modern rationalist philosophers — one of the most striking, and often neglected, aspect of his conception of the a priori is the great extent to which it is opposed to foundationalism. In particular, Kant’s conception strikingly diverges from that of Descartes, who has of course been regarded as providing a rationalist model of an unmitigated foundationalist vision of the structure of justification and knowledge.

Kant believes that knowledge forms a unified body. In this body the propositions in what we might call the core of knowledge are a priori, necessary, and thus unrevisable. These core propositions play a distinctively Kantian role in the structure: non-core propositions, in
particular empirical propositions, are epistemically related to them in a special way — but not by way of being logically deduced from them. Rather, experience and the whole of knowledge are essentially dependent on the a priori core because without the a priori there would be no experience or knowledge at all. The a priori makes experience possible: it constitutes experience.

Kant often uses 'experience' to refer to empirical knowledge (which always contains sensation), or simply to refer to sensation. In addition, he sometimes uses it to include a broad range of notions related to empirical cognition, such as meaningful representation, representation with an objective reference, or representation capable of truth value (that is, representation that does or does not correspond to an object which is independent of our representations). Taking experience in this broad sense, to say that the a priori constitutes experience means not only that the very possibility of empirical knowledge — of sensation becoming an object of knowledge — depends on the a priori, but also that the meaningfulness and objective reference of our knowledge claims depend on the a priori.

Moreover, as we will see below, for Kant the sensory ingredient of experience in turn gives meaning to and legitimizes the a priori. Without the possibility of application to the sensory matter of intuition, the a priori would not amount to knowledge; it would even be devoid of meaning. The constitutive role of the a priori with respect to experience, together with its need for some kind of support from experience, amounts to a reciprocal relation between the a priori and sensory data. The constitutive role of core propositions in the structure of knowledge is foreign to foundationalism, and the reciprocal relation between them and other elements of knowledge is anathema to it.

I wish to address in this paper the broad features of this Kantian conception that make it a unique and revolutionary view. I believe we should not lose sight of the peculiar character of the Kantian notion of the a priori, which I shall call the 'constitutive a priori,' if we seek to understand Kant's system. For this notion is at the heart of what Kant regards as his Copernican revolution in metaphysics. I also consider the Kantian constitutive a priori as crucial for understanding much of twentieth-century philosophy — for example the work of
Carnap and of Wittgenstein. In these philosophers there are also 'fixed' elements among our knowledge claims, such as analytic sentences for Carnap and 'hinge' propositions for Wittgenstein in *On Certainty*. Although these philosophers differ between themselves and with Kant regarding many of the features of these elements — for example for Wittgenstein 'hinge' propositions are neither a priori nor necessary nor un revisable — they both give to their 'fixed' propositions a Kantian constitutive role in the cognitive enquiry. 'Fixed' propositions in these views are fixed in virtue of their constitutive role, namely making our enquiries possible. The presence of these Kantian alternatives to foundationalism in philosophers as diverse as Carnap and later Wittgenstein shows the far reaching repercussions of the Kantian a priori.¹

The notion of the constitutive a priori cannot be easily made intelligible in a short presentation, since it is intimately related to many of the most difficult questions of Kant's theoretical philosophy. In order to approach an appreciation, even if a modest one, of the deep transformation that the Kantian constitutive a priori effects in epistemology, I propose to begin by contrasting it with the a priori as conceived by Descartes² — who, by giving questions concerning the whole of

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¹ There are of course other more recent philosophers who offer Kantian alternatives to foundationalism — among whom the most prominent is Wilfrid Sellars — although not necessarily by adopting the view that there are fixed elements in the structure of knowledge which play a constitutive role.

² In this paper, following Kant, I use 'a priori' as a modifier of 'knowledge' or of ingredients of knowledge. Thus in talking about Descartes's a priori I mean Descartes's notion of knowledge (*cognitio or scientia*) independent of experience or the intellectual ideas involved in such knowledge. As far as I have been able to determine, Descartes does not use 'a priori' in this Kantian way. Moreover, on the occasion when Descartes uses it to modify 'method of proof,' by the end of the *Second Replies*, he does not mean a method independent of the senses, but rather a method that proceeds, as he puts it, 'from causes to effects.' Descartes is characterizing there — following the medieval and seventeenth century usage of 'a priori' — the analytic method employed in the *Meditations on First Philosophy*. See *Reply to Objections II* in *The Philosophical Works of Descartes*, trans. Elizabeth S. Haldane and G.R.T. Ross (Cambridge: Cambridge University Press
our knowledge and the role of the a priori a leading part in the philosophical enquiry, thereby prepares the ground for Kant. In particular, I propose to draw a contrast between Cartesian rationalist foundationalism and Kant’s views. The distinctive features of the Kantian constitutive a priori will become more readily apparent when explained in the context of Kant’s opposition to Cartesian or to any other form of foundationalism.

I

The general philosophical approaches of Descartes and Kant have enough in common to allow for an instructive comparison of their views on the structure of knowledge as a whole, and the role of the a priori in this structure. Both philosophers place epistemology at the center of philosophy and give the ‘I think’ a privileged position in the

1967) II, 48. All references to Descartes’s works will be from this two volume translation, to be abbreviated as ‘HR,’ and from *Descartes: Philosophical Letters*, trans. Anthony Kenny (Minneapolis: University of Minnesota Press 1981), to be abbreviated as ‘K.’ For a reference to Descartes’s adoption of the medieval and seventeenth-century usage of ‘a priori,’ see Alquié’s annotation to his edition of the reply in *Descartes, Oeuvres philosophiques*, F. Alquié, ed. (Paris: Garnier 1967), II, 581-5. I owe this last reference to Edwin Curley.

3 That Descartes puts epistemology at the center of philosophy is a widely accepted but not uncontroversial point. Mārgaret Wilson, for example, in her book *Descartes* (London, Henley, and Boston: Routledge and Kegan Paul 1978) argues that to hold that Descartes accords epistemological questions priority over questions about the nature of reality is misleading. However, by ‘epistemological questions or issues’ she seems to have in mind mainly Cartesian doubt and the problem of skepticism. She seems to think, in addition, that, because many of Descartes’s epistemological views are undeveloped or lack complexity, he does not give priority to epistemology. In this paper I will not assess the intrinsic value, sophistication or complexity of specific epistemological doctrines of Descartes. Nor will I try to answer Wilson on this point. Here I can only assert without argument that regardless of how limited Descartes’s epistemological views are, especially in comparison with Kant’s, I still believe that Descartes puts epistemology at the center of philosophy — particularly in his most widely read
structure of knowledge. Nonetheless, there are fundamental differences between the two philosophers — even with respect to these two very general features of their views.

Descartes's *Meditations* are developed as a search conducted from the point of view of rational human beings with a limited understanding, a search with the goal of arriving at certainties that can ground the most important parts of human knowledge. The Cogito, as the first escape from hyperbolic doubt, is a certainty attained from the human point of view. This prior discovery of the existence of the human mind does not correspond with the priority of beings according to their formal reality — indeed the hierarchy in terms of formal work, the *Meditations*. As it will become clearer below, my conviction is for the most part based on the method followed in the *Meditations*. This is a method conceived in essential dependence of the limitations of human understanding and of the fact of human knowledge.

4 The minimum common ground of adopting the human rational point of view, and of giving a central role to the 'I think' has led to Kantian interpretations of Descartes, such as Martial Gueroult's interpretation of the Cogito in his *Descartes' Philosophy Interpreted According to the Order of Reasons*, trans. Roger Ariew (Minneapolis: University of Minnesota Press 1984), and to Cartesian interpretations of the Kantian transcendental unity of apperception. I reject these interpretations, but I will not offer a full discussion of them here. My main reason for rejecting such interpretations is my conviction that we must understand the two above-mentioned features of Kant's philosophy in connection with Kant's transcendental idealism. This form of idealism is opposed to the transcendental realism of Descartes. It is also opposed to the other side of Descartes's transcendental realism, namely Descartes's empirical psychology. For English language interpretations of Kant which emphasize the centrality of transcendental idealism in Kant's philosophy, see Graham Bird, *Kant's Theory of Knowledge* (New York: Humanities Press 1962); and Henry Allison, *Kant's Transcendental Idealism* (New Haven and London: Yale University Press 1983).

5 This is the reality *simpliciter* — being or perfection — that entities (including ideas) have, as opposed to the objective reality that only ideas can possess precisely in virtue of being entities that represent something or other. Different entities have different degrees of formal reality: substances have more formal reality than accidents or modes; and the infinite substance has more than finite substances. Ideas can have more or less objective reality depending on the formal
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reality is discussed explicitly for the first time in the Third Meditation. In other words, the relationships of dependence among beings according to their metaphysical nature and causal priority is not what guides the unfolding of the Meditations, otherwise the First Meditation should have been concerned with the nature of the infinite substance: God. The method is dictated by the subjective conditions of thinking, by the conditions of the discovery of truths by us, not by the objective relationships of dependence among truths or essences. The Cartesian method in the Meditations is not externally imposed on humans by a canon or logic which stands over and above the human mind’s processes of connecting its own reasons. The Meditations do not follow the order of a pure logic — that is, relationships among concepts or essences that are independent of the facts concerning how human minds can gain access to clear and distinct ideas of the understanding.  

6 In my ‘Subjective Justification,’ Canadian Journal of Philosophy 19 (1989) 363-82, I draw the contrast between ‘subjective’ and ‘objective’ justification: between psychological-epistemological reasons that a person might possess for believing something and logical reasons that objectively provide grounding for propositions independently of the empirical ways in which believers might establish connections among them. I believe this distinction overlaps in general terms with Descartes’s distinction between analytic and synthetic methods. Martial Gueroult, in characterizing the two methods (I, 9), seems to have in mind something very similar to the distinction between subjective and objective justification in my sense. For a recent detailed discussion of the analytic method in the Meditations, see Edwin Curley, ‘Analysis in the Meditations: The Quest for Clear and Distinct Ideas’ in Essays on Descartes’ Meditations, Amelie Oksenberg Rorty, ed. (Berkeley and Los Angeles: University of California Press 1986), 153-76. Curley takes the main distinguishing trait of the analytic method to be its non-deductive character, as opposed to the deductive character of the synthetic method. His description of the non-deductive procedure emphasizes specific ways — such as the introduction of concepts by means of examples, or the ‘dialectical method’ — by which Descartes attempts to guide any of us, who are attached to the senses and proceed according to common sense, to arrive at the clear and distinct perception of the first principles. Leaving aside the details of Curley’s account,
Kant in the Critique of Pure Reason also gives epistemology a principal role in his philosophical approach. He, like Descartes, is concerned with the limitations and possibilities of human reason, and his investigation is also conducted from the point of view of rational human minds. This is done in contrast to Leibniz, who departs from the Cartesian procedure of the Meditations by comfortably adopting a point of view external to the limited human understanding. Leibniz can be seen as confidently unfolding a metaphysical story that could have been handed down to us by God or could have been written by a non-human logician following the order of reasons of pure logic and of relationships among concepts that are independent of the fact of human knowledge. Nevertheless Kant, contrary to Descartes, and in this respect closer to Leibniz, gives logic — as the discipline that exhibits the forms of judgment and the formal objective relationships of dependence among truths — an extremely important role in his system.

In the Metaphysical Deduction of the First Critique, formal Aristotelian logic (which Kant calls ‘general logic’) offers the clue to the discovery of the a priori concepts of the understanding that are necessary conditions of the possibility of any knowledge. General logic systematizes the forms of judgment, which are independent of the particular character of the objects judged. Since nothing can be an object of experience or of knowledge without being thought, and nothing can be thought without being judged, general logic provides the list of forms of judgment that necessarily underlie any experience and knowledge whatsoever. The prominent position of logic in the construction of Kant’s epistemology shows that, in putting epistemol-

his understanding of the analytic method does not seem inconsistent with the broad features of my way of presenting the method here.

7 All references to the Critique of Pure Reason are from Norman Kemp Smith’s translation: Immanuel Kant’s Critique of Pure Reason (New York: St. Martin’s Press 1965), and to the standard numbering of the A (first) or B (second) German editions.

8 See A 50-62/B 74-86; A 67-83/B 92-109.
ogy at the center of philosophy, Kant does not adopt a psychological or empirically subjective point of view — as does Descartes.

Another central anti-psychologistic tenet of Kantian epistemology is that the ultimate ground of all judgment and all thought is what Kant calls 'pure or original apperception.' This is a spontaneous act of the understanding — identified with the representation 'I think' — that must be able to accompany all my representations. It is potential consciousness of the act of thinking in abstraction from any contents to which thought might be applied, as opposed to empirical experience of mental states as they succeed each other in time. What Kant calls the 'transcendental unity of apperception' is the unity of self-consciousness in an entirely logical or formal sense. It is formal because it lacks empirical content and does not amount to knowledge of a subject, even though it makes possible the representation of the object of knowledge or experience in general. Transcendental apperception is postulated as a presupposition of experience and knowledge (including experience and knowledge of our own minds or mental states) by philosophical reflection on the possibility of any experience and knowledge. It should be contrasted with empirical apperception, which takes place through introspection or non-philosophical empirical reflection on our individual minds.

The obscurity of the notion of pure apperception is undeniable, and this is not the place to attempt to clarify it, but this much is clear in the doctrine: pure apperception is self-consciousness as the a priori condition of the possibility of any particular act of thinking, and so it is certainly different from the empirical self-consciousness of a given individual thinker considered by Descartes. According to Kant, Descartes never arrives at the conception of the transcendental unity

9 Kant says: 'Certainly, the representation 'I am,' which expresses the consciousness that can accompany all thought, immediately includes in itself the consciousness of a subject; but it does not so include any knowledge of that subject, and therefore also no empirical knowledge, that is, no experience of it' (B 277).

of apperception, since he either attends solely to empirical self-consciousness or erroneously turns this empirical self-consciousness into a metaphysical entity, the soul (which, for Kant, can only be an idea of reason unknowable to us). Moreover, Kant criticizes Descartes most explicitly in the Refutation of Idealism for taking the existence of the empirical self as an absolutely certain premise while at the same time calling into question the existence of the physical world. Kant here interprets Descartes as confusing transcendental self-consciousness with a determinate awareness of one's own mental states succeeding one another in time. The former is a condition of all rational thinking and thereby a condition of any knowledge whatsoever (including our knowledge of the existence of the external world). The latter amounts merely to empirical knowledge of a particular empirically existing subject. This confusion leads Descartes illegitimately to attribute the certainty of transcendental self-consciousness to empirical self-consciousness.12

11 See The Paralogisms of Pure Reason: A 341-8/B 399-406; A 349-405; B 407-32. For a very original and thorough discussion of Kant's philosophy of mind, see Karl Ameriks, Kant's Theory of Mind: An Analysis of the Paralogisms of Pure Reason (Oxford: Clarendon Press 1982). For another helpful, although much briefer, English language commentary on this topic, see Henry Allison, ch. 13. I am not suggesting that either of these Kant scholars would agree with the sentences preceding this note. For an exposition from a Descartes scholar who seems to disagree with the contrast I am making between Descartes and Kant on the transcendental self, see Martial Gueroult, I, ch. 3-4. In these chapters Gueroult gives a Kantian-transcendental interpretation of the Cartesian Cogito.

12 This part of the Critique is Kant's answer to skepticism regarding the possibility of knowledge of things in space. Descartes's 'problematic idealism' denies that we can have immediate experience and thus certainty with respect to the existence of objects outside our minds. For Kant we have immediate knowledge of objects in space, since space is an a priori intuition that makes it possible that there be an object of knowledge for us in the first place. Kant's solution to the problem raised by 'problematic idealism' involves turning the Cartesian argument of the First and Second Meditations against Descartes by establishing a necessary connection between empirical self-consciousness — Descartes's Cogito — and immediate experience of objects in space (see B 274-9).
Thus, although both Descartes and Kant adopt the standpoint of the rational human mind, for Kant, unlike Descartes, there is a level of self-consciousness which is an a priori logical condition that makes possible the rational activities of any empirical human mind but is not identified with any such mind. Furthermore, Descartes and Kant also disagree regarding what is cognitively possible for the empirical human mind. Descartes can be seen, from a Kantian point of view, as endowing the finite empirical individual human self with something akin to the intellectual intuition that, according to Kant, only God can possess. Of course clear and distinct perception in Descartes does not create its object the way God’s intellectual intuition does for Kant.\(^{13}\) Moreover, Cartesian clear and distinct perception can be activated only fleetingly and after disciplined effort, due to the fragility of human memory and the power of the prejudice in favor of the senses. Finally, for Kant, God’s intellectual intuition is an immediate but also a non-conceptual grasp of the object of knowledge, whereas, on the contrary, in Descartes, clear and distinct perception with the mind’s eye is a state of the understanding. Nevertheless, there are the following three parallels between clear and distinct perception in Descartes and God’s intellectual intuition in Kant.

First, Cartesian clear and distinct perception amounts to a single comprehension of essences that does not involve a step by step procedure or mediation, but is instead akin to visual instantaneous intake of a given visual field involving immediate relation to an object or singular content. For Kant, on the contrary, our understanding, unlike God’s, is discursive.\(^{14}\) This means that our understanding operates by means of (a priori or empirical) general concepts, which are not in immediate relation to an object or singular content, but rather to other representations (be they concepts or

\(^{13}\) See, e.g., B 72, and B 139. This clarification was prompted by the comments of an anonymous referee.

\(^{14}\) For a discussion of the discursive character of human understanding in contrast to the intuitive character of God’s intellect, see Kant’s \textit{Critique of Judgment}, sec. 77.
intuitions). Concepts are characterized as predicates of possible judgments, and Kantian judgments involve highly complex unification of diverse concepts and intuitions. The act of judgment, to which all acts of the understanding can be reduced, is neither single, nor simple, nor instantaneous.

Second, although Cartesian clear and distinct perception is unaided by anything foreign to the intellect, it is also unaided by intellectual inferential processes. Indeed, Descartes subordinates the logical inferential processes of proving truths as understood by contemporary formal logic to clear and distinct perception. For example, in Rule XI of the *Rules for the Direction of the Mind* (HR I, 33-5), Descartes regards it as a problem that memory is usually unable to bring to the present singular act of intuition of a conclusion all the diverse mental acts

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15 In order for an a priori concept to acquire or to be applied to a content (to have an object), a mediating a priori intuitional third element is needed. See the First *Critique*, chapter on The Schematism of the Pure Concepts of Understanding, A 173/B 176 ff.

16 In the Metaphysical Deduction Kant says: 'Thus in the judgment, "all bodies are divisible," the concept of the divisible applies to various other concepts, but is here applied in particular to the concept of body, and this concept again to certain appearances that present themselves to us. These objects, therefore, are mediatingly represented through the concept of divisibility. Accordingly, all judgments are functions of unity among our representations, instead of an immediate representation, a *higher* representation, which comprises the immediate representation and various others, is used in knowing the object, and thereby much possible knowledge is collected into one' (A 69/B 93-4).

17 Kantian 'judgments' would roughly correspond — without the complexities associated with Kant's doctrine of judgment — to Cartesian ideas when understood as propositions. But 'judgment' in Kant can also be understood as the act of judging, and thus it can also correspond to Cartesian perception of ideas. What Descartes calls 'judgment' is the act of assenting to or dissenting from, affirming or denying, ideas apprehended by the understanding, and does not belong to the faculty of understanding but to the faculty of choice or free will. (See *Fourth Meditation*, HR I, 171-9.) Therefore, whereas clear and distinct perception belongs to the understanding, apprehension of ideas (propositions) as *true* must be an act of the will. For difficulties associated with these doctrines see the works cited below in note 20.
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involved in the steps of the proof leading to this conclusion. He offers
the solution of running over all the steps of the proof repeatedly in his
mind until he can pass so quickly from the first to the last step that
practically no step is left to the memory. The assumption here is that
the understanding of a proof, and thus its success as a vehicle for
attaining truth, requires the presentation of the whole proof at once
before the mind’s eye.\(^\text{18}\)

For Kant, God’s intellectual intuition, precisely because it is non-
conceptual, does not involve or need logic. But the human intellectual
process essentially involves the a priori concepts of the understanding
which are inextricably connected with the logical functions of judg-
ment. A priori or empirical concepts are predicates of possible judg-
ments, and a priori concepts in particular are derived from the logical
forms of judgment exhibited in formal logic. These forms in turn play
distinctive roles in inferential (syllogistic) processes.

Third, contrary to the Cartesian picture of achieving intellectual
immediate knowledge entirely without the aid of non-intellectual
contents, Kant believes that we humans, unlike God, cannot find in
our own minds a content for our intellecions — there are no innate
ideas for Kant.\(^\text{19}\) Nor can we find in our own minds the content of our

\(^{18}\) For Descartes’s hostility towards logic, see Edwin Curley, *Descartes Against the
Skeptics* (Cambridge, MA: Harvard University Press 1978), 25-34. For the same
topic, and a discussion of the contrast between Descartes and Leibniz regarding
their differing conceptions of proof, see Ian Hacking, ‘Proof and Eternal Truths:
Descartes and Leibniz,’ in *Descartes: Philosophy, Mathematics and Physics*, Stephen
Gaukroger, ed. (Sussex: The Harvester Press 1980), 169-80. Hacking argues,
among other points, that the Cartesian independence of truth from proof is
illustrated by Descartes’s doctrine that the eternal truths depend on God’s will.
For Leibniz and for us, as Hacking rightly points out, if a complete set of
Euclidean axioms is true, then necessarily the Pythagorean theorem is true too.
But for Descartes, God is at liberty to create a Euclidean but non-Pythagorean
universe.

\(^{19}\) In my ‘Kant and Innatism,’ *Pacific Philosophical Quarterly* 68 (1987) 285-305, I
discuss the connection between Kant’s stand against innatism and his transcen-
dental and anti-psychologistic views. There I argue for the view that to make a
priori knowledge rest on innate ideas amounts in the end to psychologism.
intuitions. Such a content can only come from outside the mind, in virtue of our being sensibly affected by objects. Only God, according to Kant, gives himself the content of his knowledge by creating it and is thereby able to apprehend with his intellect such a content at once without mediation. Only God has a non-conceptual, non-mediated, intellectual grasp of the object of knowledge. Descartes does not, as I suggested above, possess the highly developed notions of concept and of judgment deployed by Kant, and his use of the notions of idea and of perception of ideas is ambiguous, but he would agree in general terms with Kant’s view of God’s understanding. For he would agree that God is not constrained to applying concepts to intuitions in order to have knowledge. The disagreement between Descartes and Kant concerns the human intellect.

I emphasized above that for Descartes we do not create for ourselves the contents of our understanding. But, for Descartes, this is precisely because God puts them there as innate ideas. Therefore, we also do not need to be affected by matter to understand the fundamental features of the physical world. In the Cartesian view, we have direct access to an inner content sufficient by itself for building the basic parts of the sciences — including the basic parts of physics — and for understanding our experience of the external world. Through this inner content we can also have knowledge of the existence of God, and of causal relations between God and us, even though God and the corresponding causal relations are beyond the bounds of what we can experience. For Kant, on the contrary, in order to have any knowledge whatsoever, and, in particular, in order to have empirical knowledge of the physical world, we need to be affected by the external world.

20 Some illuminating discussions of the difficulties of Descartes’s views on ‘ideas,’ thoughts, consciousness, perception with the mind’s eye, judgment, and so on, are, for instance, Edwin Curley, ‘Descartes, Spinoza, and the Ethics of Belief’ in Spinoza, Essays in Interpretation, M. Mandelbaum and E. Freeman, eds. (La Salle, IL: Open Court 1975), 159-89; Anthony Kenny, Descartes: A Study of his Philosophy (New York: Random House 1968), ch. 5; Margaret Wilson, ch. 4.
The Cartesian self-sufficiency of the contents of the understanding in relation to experience has a complementary side which Kant rejects as well. This aspect furthers the disagreement between the two philosophers concerning what is cognitively possible for the empirical human mind. The issue concerns how the truth (or the possibility of truth) of our knowledge claims based on the understanding can be guaranteed or established.

For Descartes, when we are working within the context of a science, such as geometry, we are not concerned with giving philosophical foundations to our knowledge, and we can regard clear and distinct ideas of the understanding as a guarantee of truth. Thus Descartes can be interpreted as holding that at a certain level of the intellectual enquiry we can establish, by inspecting our minds alone, that the necessary and sufficient conditions for truth have been satisfied. However, at another level, namely in the context of the philosophical reflection generated by hyperbolic doubt, a justification based on clear and distinct ideas does not by itself secure the truth of the ideas. There is no ultimate philosophical or metaphysical guarantee based on our clear and distinct ideas alone that, for example, the physical world does have the essential feature — extension — that our intellect attributes to it. In the *Meditations* the metaphysical guarantee is attained only when Descartes gives a proof of the existence of a veracious God. Therefore, from the point of view of the meditator who searches for ultimate philosophical conditions of truth, clear and distinct ideas of the understanding are a necessary but insufficient condition of truth. Since clear and distinct ideas must be certified by the existence of a non-deceiving being who is superior and external to human minds, the ultimate philosophical condition for the correspondence between the intellectual representations of human minds and the reality knowable to them is independent of and external to human minds.21

21 I am aware that my interpretation of Descartes here is insufficiently developed and *prima facie* controversial; however, this is not the place to defend it. The issues involved are directly relevant to the topic of the Cartesian Circle. All of the
For Kant, however, the a priori conditions of the possibility of our experience and knowledge are at the same time conditions constitutive of the possibility of the very reality with which our knowledge claims are concerned. This is one of the central tenets of Kant’s transcendental idealism. The reality that, in Descartes, our clear and distinct ideas are supposed to match is a reality wholly independent of the human mind; precisely because it is so independent a veracious God is needed to secure the possibility of a match. For Kant this Cartesian reality transcends the realm of the object of knowledge; it is entirely unknowable to us. It is a reality that, from the philosophical point of view of the critical reflection on the conditions of the possibility of human knowledge, is acknowledged to be independent from the features common to minds with a discursive understanding and a mode of intuition according to space and time. Cartesian reality is a reality as it is in itself independently of the a priori conditions that make it into an object for us.

Kant holds, contrary to this Cartesian view (a type of view that Kant labels ‘transcendental realism’), that the reality with which our knowledge is concerned is phenomenal reality, reality as it appears to us. A priori conditions contributed by the mind provide structure to some-

22 Reality for Descartes should not be equated with existence. Thus in the Fifth Meditation, Descartes says: ‘I discover in myself an infinitude of ideas of certain things which cannot be esteemed as pure negations, although they may possibly have no existence outside of my thought, and which are not framed by me, although it is within my power either to think or not to think them, but which possess natures which are true and immutable. For example, when I imagine a triangle, although there may nowhere in the world be such a figure outside my thought, or ever have been, there is nevertheless in this figure a certain determinate nature, form, or essence, which is immutable and eternal, which I have not invented, and which in no wise depends on my mind, as appears from the fact that diverse properties of that triangle can be demonstrated...’ (HR I, 179-80). The proof of the existence of God in this Meditation depends on the possibility of this and related distinctions.
thing independent of the mind — to something unknowable by us if not subject to these conditions. Kant seeks to reveal, from the philosophical standpoint, that our knowledge claims can match a reality independent of the mind only if such reality, whatever it is, conforms in the first place to the a priori conditions of our knowledge. Anything that can be a candidate for making our knowledge claims true or false must be so articulated by the mind. It follows that the Kantian philosophical conditions of the possibility of assigning truth-values to our knowledge claims are entirely dependent on and internal to features common to all human minds. Yet, this is not to say that we can establish the truth or the possibility of truth of our knowledge claims simply by inspecting the contents of our minds.

II

For Descartes there is knowledge grounded in pure thinking, in the intellect alone. This knowledge is not only independent from the senses with respect to its grounding, it is also acquired independently of experience. The ideas of the understanding, according to Descartes, are not formed by abstraction from what we acquire through the senses. The understanding is thus independent of sensation both with respect to the origin and with respect to the justification of its ideas. In place of abstraction from sensation Descartes postulates that the human mind is innately furnished by God with the ideas needed for understanding whatever a finite mind is constrained to understand. Therefore, despite the fact that ideas of the understanding are absolutely independent of experience, we can have a priori knowledge of the physical world. Although there is an important relation between the ideas of the intellect and empirical observations in the actual

23 Notice that here, when talking about Kant’s doctrines, unlike when I describe Descartes’s views, I speak of the ‘possibility’ of truth, rather than of truth simplicer. The reason for this qualification will become clearer below.
development of Descartes's physics,²⁴ such observations do not affect the truth or the justification of the ideas of the understanding; they only supplement intellectual ideas in the course of physical investigation.

Kant, in the Introduction to the Critique, claims that although all knowledge begins with [anfangen mit] experience, there is knowledge — a priori knowledge — that arises [entspringen aus] absolutely independently of experience (B 1). Therefore the independence of the a priori in Kant is not to be interpreted as an independence with respect to origin — namely, as an independence in terms of not being abstracted from sensation. The independence of the a priori in Kant must be viewed as referring to the grounds or justification of knowledge.²⁵

For Kant a priori knowledge includes the knowledge of logic, of space and time (mathematics), and the knowledge of the laws of the understanding that involve the categories. The latter in turn ground the a priori part of Newtonian physics. All this knowledge is absolutely independent of sensation in so far as the knowledge claims of which it consists are grounded entirely independently of sensation. No particular empirical propositions enter directly into their justification. Thus Kant is in agreement in this respect with the traditional conception of the a priori.²⁶ However, the Kantian independence of

²⁴ Gerd Buchdahl, for example, appealing to the Principles, among other texts, points out that physical assumptions enter crucially into Descartes's scientific method, and that according to Descartes we are free to frame any physical assumptions provided that their deduced consequences agree with observations. See G. Buchdahl, Metaphysics and the Philosophy of Science (Oxford: Basil Blackwell 1969), 79-154.

²⁵ I argue for this point in my 'Kant and Innatism,' of which this present paper can be regarded as a development and qualification. In particular I here attempt further to clarify Kant's claim that a priori knowledge arises absolutely independently of experience.

²⁶ Empiricists, such as Hume, share with Kant and Descartes the general characterization of a priori knowledge as knowledge justified or grounded independently of sensations (impressions for Hume). The notion of justification or grounding, as opposed to origin or formation of an idea, must be what Hume
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the a priori from sensation is not, in another sense, absolute. For there
is a reciprocal relation between the a priori and sensation established
by the Copernican revolution.

There is a positive and a negative claim involved in Kant's concep-
tion of his Copernican revolution, a positive and a negative claim with
respect to the relationship between a priori knowledge and sensation.
The two claims together amount to a claim of reciprocity between a
priori knowledge and sensation.

The positive claim of the Copernican revolution can be taken as
directed against both empiricism and rationalism:

There are only two possible ways in which synthetic representations and their
objects can establish connection, obtain necessary relation to one another, and,
as it were, meet one another. Either the object alone must make the repre-
sentation possible, or the representation alone must make the object possible....
In the latter case, representation in itself does not produce its object in so far as
existence is concerned, for we are not here speaking of its causality by means of
the will. None the less the representation is a priori determinant of the object, if
it be the case that only through the representation is it possible to know anything
as an object. (A 92/B 124-5)²⁷

has in mind when he draws the distinction between reasoning on the basis of
'relations of ideas' alone, and on the basis of 'matters of fact.' (See D. Hume,
Enquiry Concerning Human Understanding (Oxford: Oxford University Press
1975) sec. IV, part I.) Otherwise he could not hold consistently both this distinc-
tion and his basic tenet that all ideas are ultimately originated in impressions.
Hume can also be interpreted as sharing with Descartes the view that a priori
knowledge ('relations of ideas') is entirely independent of sensation, as opposed
to the view that there is a reciprocal relation as the one discussed here. This
unlikely alliance between Descartes and Hume and other empiricists is due to
the fact that all of them are pre-Kantian. Of course empiricists do not share with
Descartes the view that ideas of the understanding are independent of sensation
with respect to their origin, and do not share the rationalist claim that we can
have a priori knowledge of the physical world. The empiricist attack on the latter
consists in an attack on innate ideas; therefore, it does not affect Kant's views.

²⁷ The Copernican revolution is announced in the Preface to the second edition of
the Critique at B xvi, which explicitly links the Copernican revolution with the
explanation of a priori knowledge. Other brief presentations of the main point
of the Copernican revolution are, for example, at A 114, A 128-9, and B 166-7.
This positive claim goes against empiricism and simultaneously transforms, in a radical way, the traditional rationalist claim that there is no knowledge of the physical world without the a priori. The Kantian view is that the object of knowledge itself is the product of a determination by the faculty of understanding together with the faculty of intuition of something independent of the mind. The a priori elements in knowledge for Kant consist of the a priori forms of intuition (space and time), the a priori concepts or categories of the understanding (substance, causality, community, and so on), and the principles of the understanding corresponding to the categories (such as the causal principle). These a priori elements are not only conditions of the possibility of knowledge of the physical world but also conditions of the physical world itself as an object of knowledge. Whatever is given in sensation is nothing to us — it does not become experience — if it is not formed and synthesized by space, time and the categories, if it does not conform to the a priori ingredients of experience. Experience is a possible object of knowledge in the first place precisely because it has built into it the determinations imposed by the a priori. This positive claim of the Copernican revolution is the claim that the a priori constitutes experience or the object of knowledge.

The negative claim of the Copernican revolution is directed exclusively against rationalism. This is the claim that only experience (containing sensation) can give content to the a priori and can legitimize it as knowledge:

Sensible intuition is either pure intuition (space and time) or empirical intuition of that which is immediately represented, through sensation, as actual in space and time. Through the determination of pure intuition we can acquire a priori knowledge of objects, as in mathematics, but only in regard to their form, as appearances; whether there can be things which must be intuited in this form, is still left undecided. Mathematical concepts are not, therefore, by themselves knowledge, except on the supposition that there are things which allow of being presented to us only in accordance with the form of that pure sensible intuition. Now things in space and time are given only in so far as they are perceptions (that is, representations accompanied by sensation) — therefore only through empirical representation. Consequently, the pure concepts of the understanding, even when they are applied to a priori intuitions, as in mathematics, yield knowledge only in so far as these intuitions — and therefore indirectly by their means the pure concepts also — can be applied to empirical intuition. Even, therefore, with
the aid of [pure] intuition, the categories do not afford us any knowledge of things; they do so only through their possible application to empirical intuition. In other words, they serve only for the possibility of empirical knowledge; and such knowledge is what we entitle experience. Our conclusion is therefore this: the categories, as yielding knowledge of things, have no kind of application, save only in regard to things which may be objects of possible experience. (B 147-8)\(^\text{28}\)

Against his rationalist predecessors,\(^\text{29}\) Kant argues in the *Critique* that the demonstration by pure thought of, for example, the existence and attributes of God cannot amount to knowledge. Descartes’s use of the causal principle in arguing for the existence of God is illegitimate since we can know about causal relations only in so far as they concern entities in space and time. The category of causality can have a meaning beyond its logical use only if, as a condition of a possible experience, it relates to appearances, that is, only if it relates to things as they appear to us in space and time. In general, the a priori concepts of the understanding do not provide us with knowledge unless they are applied to spatio-temporal things — to contents given according to the forms of human intuition. In other words, in order to achieve knowledge, understanding needs to relate to a priori intuition, and the latter needs to be given a content, i.e., the matter of intuition (sensation).

\(^{28}\) For other passages that make the same point, see for example the beginning of the chapter on Phenomena and Noumena at B 298 / A 239 ff., or the Schematism at B 178 / A 139, B 185 / A 146, or at B 186 / A 147. In these passages Kant is explicit not only about the fact that the a priori does not amount to knowledge if it is not applicable to empirical intuition, but also about the fact that it lacks meaning or content if it is not so applicable.

\(^{29}\) The negative claim against traditional rationalism has in turn a double aspect as it applies to philosophy and to non-philosophical knowledge. Speculative a priori metaphysics which seeks to know an unknowable realm should be replaced by an a priori metaphysics that concerns itself with the conditions of knowledge of appearance, of things as we experience them. In addition, non-philosophical a priori knowledge, such as mathematics, amounts strictly speaking to knowledge only if it is applicable to experience.
Anything of which we cannot have any sensible experience we cannot know. We cannot know things as they are in themselves independently of the a priori features imposed on them by our faculties of understanding and intuition. What is known — the object of knowledge — is not the nature of things independently of these two faculties. Reason is the faculty of thinking, not of knowing, entities, such as God, which can never be given in sensation. A priori knowledge of the understanding does not give us knowledge of the ideas of reason — of God, freedom, and immortality — since they concern a subject matter entirely beyond the bounds of sense.

The a priori intuitional ingredients of knowledge, space and time, which according to the positive claim of the Copernican revolution have a pivotal role in turning sensation into a knowable object for us, are also affected by the negative claim of the revolution. In the Aesthetic Kant argues that since space and time are a priori, they do not represent a reality completely independent of our minds. Consequently space and time cannot give us knowledge of things as they are in themselves, namely, of things as they are independently of the ways in which human minds are necessarily constrained to experience them. Space and time give us knowledge of appearances, but not of what lies beyond the limits of human experience. Moreover the knowledge they can give us is not strictly speaking knowledge if it is not applicable to sensation. Thus geometry, the study of space, is not to be regarded as fully amounting to knowledge until it is taken in

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30 One central aspect of Kant's revolution of the a priori is the introduction — in addition to the a priori concepts of the understanding — of necessary a priori ingredients of experience that are intuitional. Understanding and intuition are two separate faculties, and to the extent that each provides separately a priori necessary elements of knowledge they are in a certain sense independent. Yet the pure a priori concepts of the understanding and the pure a priori forms of intuition are ultimately not independent from each other in knowledge, since the categories must be schematized — subsumed under space and time — in order for the principles of the understanding associated with them to be applicable to an empirical content, and thus to amount to knowledge.
conjunction with physics. The latter includes a posteriori data and hence sensation.

The two sides of the Copernican revolution are nicely put together in the following text:

Thus no one can acquire insight into the proposition that everything which happens has its cause, merely from the concepts involved. It is not, therefore, a dogma, although from another point of view, namely, from that of the sole field of its possible employment, that is, experience, it can be proved with complete apodictic certainty. But though it needs proof, it should be entitled a principle, not a theorem, because it has the peculiar character that it makes possible the very experience which is its own ground of proof, and that in this experience it must always itself be presupposed. (A 737/B 765)

This formulation of the synthesis of the positive and negative sides of the revolution adds a new wrinkle: the applicability to sensation demanded of the a priori concepts and principles of the understanding (in this case the causal principle) has to be proved. As I will explain in the following section, the required proof establishes the legitimacy of the concepts and principles of the understanding and appeals in a certain sense to experience — without, however, thereby robbing the concepts and principles of the understanding of their a priori status.

It follows from the Copernican revolution that the traditional conception of the a priori is on firm ground only with respect to our knowledge of formal logic and other cases of (a priori) analytic knowledge. For Kant, to show the possibility of synthetic a priori judgments is to show that it is possible to have a priori knowledge of something other than the workings of the understanding as a faculty independent of intuition. It is also to show that this knowledge is directly grounded on resources internal to our human faculties (our mode of intuiting — space and time — and the categories). According to Kant, in the picture operating in the traditional view (for example, in Descartes) it is impossible to give a satisfactory explanation of how we can have a priori knowledge of the physical world, since the physical world on that view is entirely independent of our minds. The only explanation of such a knowledge available to Descartes is that we have innate ideas about the physical world — for instance the innate idea that the essence of matter is extension, and the innate ideas of geome-
try — and that these ideas are right because they have been implanted in our minds by a veracious God.

From a Copernican point of view this conception fails for at least two reasons. First, the Cartesian explanation of a priori knowledge of the physical world in terms of innate ideas assumes that we can know the physical world without experiencing this world. Consequently the Cartesian explanation does not acknowledge that we cannot know anything that lies beyond the limits of experience. Complementarily it does not require that the a priori be legitimized by its applicability to experience. The negative claim involved in the Copernican revolution is thereby contradicted. Second, the traditional conception of a priori knowledge does not arrive at the entirely novel and paradoxical Kantian insight involved in the positive claim of the Copernican revolution: namely, that a priori knowledge itself makes sensation into experience thus into a possible object of knowledge. According to Kant, after this revolution we can satisfactorily explain both that we must know the physical world by experiencing it, and that we can have a priori knowledge of the physical world. This is because sensation — whose possible presence delimits possible knowledge — must conform to a priori knowledge in order to be knowable at all.

III

I will now use the Kantian and Cartesian views discussed so far to explain Kant’s opposition to foundationalism. Approaching the constitutive a priori from the standpoint of a contemporary epistemological concern will improve our understanding of the distinctive features of the Kantian a priori.

The label ‘foundationalism’ is used in contemporary epistemology for a variety of views. The common conception shared by different versions can be explained as follows: every proposition that we are justified in claiming to know is either itself self-justifying (self-supporting) — that is, it does not derive its justification or support from other propositions — or it is justified (supported) by some other propositions that are in turn either self-justifying or justified by self-justifying propositions. Hence the self-justifying propositions com-
prise the foundation of the totality of our knowledge claims, and the non-foundational propositions depend (immediately or mediately) for their justification on the foundational ones. The whole body of knowledge claims forms a structure in which knowledge claims are like building blocks ordered by non-symmetrical dependency relations. Some propositions depend for their support on the self-supporting ones and nothing else; they in turn play the role of supporting others which depend directly on them, and thus only indirectly on the self-supporting ones; and so on. These relations form a chain of dependency in only one direction: the supported depend on the supporting propositions but not vice versa. In rationalist foundationalism the self-justifying propositions are a priori, and the type of inferential relation that establishes the dependency between foundational propositions and the rest is deduction. Contemporary versions of foundationalism are principally empiricist versions. For the most part their self-supporting propositions are not a priori, and the inferential relations of dependency among propositions are non-deductive (such as evidential relations).

Among Descartes's works the Rules fits most neatly with the central elements of rationalist foundationalism. According to this work we must reject merely probable knowledge and trust only indubitable knowledge. The goal of certainty in knowledge concerns all the sciences taken together as a single endeavor since all sciences are interconnected. Yet certainty has so far been achieved only by arithmetic and geometry; therefore, the other sciences must imitate them. The first principles of the mathematical sciences are known with certainty by intuition, which is produced by the 'light of


32 Roderick Chisholm can be regarded as the contemporary English language paradigm of empiricist foundationalism. See, for example, his Theory of Knowledge (Englewood Cliffs, NJ: Prentice-Hall 1977).
reason' alone. The rest of the propositions are consequences derived from the first principles by rational deduction. The intuitive apprehension of the propositions that are absolutely simple allow us to proceed to the knowledge of all others by simple intuitive steps. The simple truths or principles known by intuition are thus, in contemporary terminology, self-justifying or self-supporting and constitute the foundation of all knowledge.

In later writings, such as the *Discourse on Method*, the *Meditations*, and the *Principles of Philosophy*, Descartes raises the possibility of philosophical doubt regarding the simple intuitive propositions of the mathematical sciences. He finds the solution to this kind of doubt again in a priori knowledge, although this time in metaphysical certainties. A priori metaphysical knowledge of the existence of the self and of God is proposed as the grounding of all knowledge. Metaphysics provides the roots for the tree of all the sciences. Nonetheless, the structure of our knowledge, in the early as well as in the later writings, is conceived as having an a priori foundation which does not epistemologically depend on anything else and from which the basic knowledge of other sciences necessarily follows by means of deduction. This is the picture that has led contemporary epistemologists to regard Descartes as the paradigm of traditional foundationalism. Although this view of Descartes needs qualification, it is on the whole right — at least for the relationship between

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33 See *Rules* I-VI, HR I, 1-19. The emphasis on the simplicity of the foundational truths is a peculiarity of Descartes, not to be found in most other foundationalist views. Gueroult places a great deal of importance on the simple character of the nature of the Cogito in the *Meditations*. See Gueroult, I, ch. 3. The simplicity of foundational truths should be contrasted with the complexity of Kant's judgments discussed above.

34 Thus in a letter to Mersenne of 28 January 1641, Descartes says that the six Meditations contain all the foundations of his Physics, K, 94; in the introduction to the French translation of the *Principles* he says that: 'philosophy as a whole is like a tree whose roots are metaphysics, whose trunk is physics, and whose branches, which issue from this trunk, are all the other sciences' (HR I, 211).
the basic truths of metaphysics and the basic parts of the rest of knowledge.\textsuperscript{35}

Three aspects of the Cartesian foundationalist conception can be illuminatingly contrasted with the Kantian view. The first concerns the difference between the character of our a priori knowledge of the base or foundation of knowledge for Descartes and the character of our a priori knowledge of the core of Kant's structure. The second concerns the epistemological independence of the elements in the foundation for Descartes and in the core for Kant. The third concerns the type of logical relationship between the foundation in Descartes or the core in Kant, respectively, and the rest of our knowledge claims. An essential feature of this third point of divergence involves the question of whether, once we have established the right connections between the grounding elements of knowledge (foundation or core) and our other knowledge claims, truth or only the possibility of truth has been established. The Kantian views on these three points are intimately tied with one another; indeed, they are simply different aspects of a single view: the constitutive a priori and the Copernican revolution in metaphysics.

For Descartes, as has been stressed repeatedly above, our a priori knowledge of the foundation consists in the perception by the understanding of clear and distinct ideas. The truths that we so perceive are said (for example, in the Meditations and in the Principles) to be known by the 'natural light.'\textsuperscript{36} In the geometrical (synthetic) exposition of the Meditations at the end of the Second Replies they are said to be 'intelligible per se,' 'evident,' or 'self-evident.' Some of the propositions called 'axioms' are supposed to be immediately evident or self-evident,

\begin{itemize}
\item \textsuperscript{35} Clearly, for scientific method this picture amounts to an oversimplification. As I pointed out above, Gerd Buchdahl and other commentators point to the empirical elements in Descartes's derivation of physics. Furthermore, the tension in Descartes's conception of his scientific method between the use of the hypothetical-deductive method and deduction can undermine the certainty of science. See G. Buchdahl, 118-55.
\item \textsuperscript{36} In the Third Meditation at HR I, 160-5; in Principle XI at HR I, 223; and so on.
\end{itemize}
whereas for other axioms meditation is needed in order for them to become evident.\textsuperscript{37} I take it that the minimal feature shared by Cartesian foundational propositions is their evidence or self-evidence; and I interpret this to consist in the fact that if these propositions are understood, then necessarily they are true and believed to be true (leaving aside the question of the possibility of raising a metaphysical doubt about some of them before the proof of the existence of a veracious God).\textsuperscript{38} In the Rules the examples of foundational self-evident propositions are mathematical, while in the Meditations and the Principles they are metaphysical; but both the mathematical and the philosophical propositions share this central feature — evidence or self-evidence — which makes them candidates for the role of being foundational.

Kant is very explicit about his disagreement with any such conception of the character of our a priori knowledge of the core principles which for him are conditions of the possibility of all knowledge. Among

\textsuperscript{37} 'I bid them carefully rehearse those propositions, intelligible per se, which they find they possess, e.g., that the same thing cannot at the same time both be and not be; that nothing cannot be the efficient cause of anything; and so forth; and thus employ in its purity, and in freedom from the interference of the senses, that clarity of understanding that nature has implanted in them, but which sensuous objects are wont to disturb and obscure. For by this means the truth of the following Axioms will easily become evident to them' (HR II, 54); 'Among other things they must reflect that while possible existence indeed attaches to the ideas of all other natures, in the case of the idea of God that existence is not possible but wholly necessary. For from this alone and without any train of reasoning they will learn that God exists, and it will be not less self-evident to them than the fact that number two is even and number three odd, and similar truths' (HR II, 55). For an interesting discussion of Descartes's use of these notions, see Anthony Kenny, ch. 8.

\textsuperscript{38} Compare my use of 'evident' with Bernard Williams's use of this word and others such as 'self-verifying,' 'incorrigible,' 'pragmatically self-defeating' and so on, in B. Williams, \textit{Descartes: The Project of Pure Enquiry} (New York: Viking Penguin 1978), 72-88. In this work Williams gives the following definition: 'that a proposition is \textit{evident} (with respect to A) means that if it is true, then A believes it' (77). I am using 'evident' in a more standard way.
these are philosophical principles — the principles of the understanding — whose specific epistemological character is derived again from the discursive nature of our understanding. In the chapter of the Critique entitled 'The Discipline of Pure Reason in its Dogmatic Employment,' Kant draws a sharp contrast between philosophical and mathematical knowledge. He says that 'philosophical knowledge is the knowledge gained by reason from concepts; mathematical knowledge is the knowledge gained by reason from the construction of concepts' (A 713/B 741). Philosophy is concerned exclusively with universal concepts, whereas mathematics cannot achieve anything with concepts alone but concerns itself with construction in pure intuition (A 715-16/B 743-4). Intuition here is not, of course, intellectual intuition à la Descartes, but intuition as used by the geometer when producing demonstrations via the construction of geometrical entities.  

The difference between philosophy and mathematics does not arise because philosophy is conceived by Kant as consisting of analytic propositions produced by the mere analysis of concepts. On the contrary, philosophy as a reflection on the conditions of the possibility of any experience consists of synthetic a priori propositions. The only intuition given a priori is the form of intuition — space and time — and mathematics is the a priori science that studies this form. But in philosophy no intuition is given a priori due to the discursive nature of the philosophical endeavor. In other words, philosophy deals with a priori concepts (such as the concepts of reality, substance, force, and so on) which concern the possibility of empirical knowledge — of sensible experience.  

39 For an explanation of the notion of construction in pure intuition and of its central role in Kant's conception of geometry, see Michael Friedman, 'Kant's Theory of Geometry,' The Philosophical Review 44 (1985) 455-506. 

40 Thus Kant says: 'There is indeed a transcendental synthesis [framed] from concepts alone, a synthesis with which the philosopher is alone competent to deal; but it relates only to a thing in general, as defining the conditions under which the perception of it can belong to possible experience' (A 719/B 747). 

41 'A transcendental proposition is therefore synthetic knowledge through reason,
The mathematical method has the advantage that it can realize its concepts in a priori intuition. But philosophy cannot attain knowledge of the natural world through its a priori discursive concepts alone, because it is unable to intuit a priori and thus confirm the reality of such a world. The success of the mathematical method can, however, give rise to the illegitimate expectation that it can be applied in philosophy; and this — typically rationalist — illusion therefore neglects the differences between the two disciplines (A 724-5/B 752-3). The definitions, axioms, and demonstrations so essential to mathematics cannot be achieved or imitated by the philosopher (A 726-7/B 754-5 ff.). Since the philosophical synthetic principles are derived from a priori concepts rather than from a priori intuition, they cannot be immediately certain; and it follows, for Kant, that there are no axioms in philosophy. There is no knowledge of the philosophical synthetic principles that is immediately and directly obtained from the concepts occurring in them. These principles can be regarded as certain only after a proof of their validity has been given — that is, after a transcendental deduction or philosophical legitimation showing that the categories involved in them are applicable to objects of empirical intuition. From the fact that the philosophical principles at the core of knowledge require a transcendental proof, it follows that they are not evident.\footnote{\textit{\textsuperscript{42}}}

\footnote{\textsuperscript{42}} 'Now one concept cannot be combined with another synthetically and also at the same time immediately, since, to be able to pass beyond either concept, a third something is required to mediate our knowledge. Accordingly, since philosophy is simply what reason knows by means of concepts, no principle deserving the name of an axiom is to be found in it.... But a synthetic principle derived from concepts alone can never be immediately certain, for instance, the proposition that everything which happens has a cause. Here I must look round for a third something, namely, the condition of time-determination in an experience; I cannot obtain knowledge of such a principle directly and immediately
The second difference between Kant's conception of a priori principles and Cartesian foundationalism relies on the very same Kantian point on which the lack of evidence of the principles rests: the need for a transcendental deduction of the categories associated with the philosophical principles at the core of knowledge. This need shows that they are not, to put it in a terminology used by some contemporary foundationalists, self-justifying or self-supporting. In particular, it has the peculiarity of making the principles dependent on experience for their legitimation. The objective reality of the categories and principles is established when it is shown that they do apply to human experience in general because they are a priori features necessary to any possible experience with a spatio-temporal structure, and thus necessary to any actual human experience.

Kant sometimes puts the point of the dependency of the a priori on sensory experience, as I mentioned above, by saying that the sensory ingredient of experience gives meaning and content to the a priori elements of knowledge. In particular, without their application to the sensory matter of intuition, the categories would not only be devoid of objective reality and truth, but also of meaning. Pre-Copernican rationalist attempts to apply the concepts of the understanding, such as substance and causality, beyond logic to what we cannot experience, make the use of these concepts illegitimate and deprive them of meaning or content.

Kant shows the truth of his Copernican view by proving the possibility of synthetic a priori knowledge. Synthetic a priori judgments, such as those of mathematics, the transcendental principles of the understanding, and the basic laws of natural science, make our expe-

from the concepts alone. Discursive principles are therefore quite different from intuitive principles, that is, from axioms; and always require a deduction. Axioms, on the other hand, require no such deduction, and for the same reason are evident — a claim which the philosophical principles can never advance, however great their certainty. Consequently, the synthetic propositions of pure, transcendental reason are, one and all, infinitely removed from being as evident ... as the proposition that *twice two make four* (A 732-3/B 760-1).
rience, and knowledge of it, possible. Unlike analytic judgments (for example, logic) they extend our knowledge beyond the concepts contained in them since they essentially concern experience. Nevertheless, they are still a priori since they concern only the possibility of human experience. Their truth is not directly grounded on particular, actual experiences — the subject matter of synthetic a posteriori judgments — but on all the sensory representations and only those that our minds can constitute as knowledge. In other words, in order to show that synthetic a priori judgments are true, we need only to appeal to the universal structural features of any possible experience we can have. Synthetic a priori judgments need to be confirmed only by the necessary traits of any of our experiences, no matter the sequences of sensations that confirm or disconfirm synthetic a posteriori judgments.\footnote{In the \textit{Critique}, in the section on the Postulates of Empirical Thought, Kant gives as the first postulate: '1. That which agrees with the formal conditions of experience, that is, with the conditions of intuition and of concepts, is possible' (A 218/B 265).}

Hence, there is no inconsistency in Kant between the a priori character of the categories and principles, on the one hand, and their dependency on experience for their meaning and objective reality, on the other. For in the unfolding of the transcendental deduction of the categories there is no appeal to any actual synthetic a posteriori judgment, but only to possible experience in general. The proof of legitimacy consists in an argument for the claim that the core principles are exhibited in any possible experience that we can have. This proof thereby includes actual experience — intuitional empirical contents, and these contents are thus shown to share with any other contingent content that we might possibly experience the ineliminable and indispensable structural features so legitimized.

To sum up: Kantian core propositions are not self-supporting because they are in need of proof. The proof legitimizes the a priori by showing its applicability to possible experience — and the proof therefore essentially involves the negative claim of the Copernican
revolution. But the proof consists in showing that the a priori makes possible (constitutes) its own ground of proof — the proof therefore essentially involves the positive claim of the Copernican revolution as well.44

Foundational propositions in Descartes's system, on the other hand, do not have the constitutive role assigned to Kantian core propositions by the positive claim of the Copernican revolution. More importantly in the context of the present discussion, Cartesian foundational propositions are not in need of any further support, deduction, proof, or legitimation — least of all from experience. Nor do they need to borrow a content or meaning from experience. They do not depend in these respects on experience even if understood as the possibility of experience in general. For, as the negative claim of the Copernican revolution reminds us, Cartesian foundational propositions purport to extend our knowledge to a realm beyond the limits of possible experience — an unknowable realm, according to Kant. For example the causal principle is illegitimately applied to non-spatio-temporal beings. Traditional rationalism is thus oblivious to constraints imposed by possible experience. Consequently, foundational propositions are taken by the traditional rationalist to be completely independent of experience: both from particular experiences and from experience conceived as a possibility.

44 As I suggested earlier, there is a strong claim involved in the proof: not only are the categories (and a priori intuitions) necessary conditions for us to experience (represent) things the way we do, but they are necessary conditions for there being an objective world distinct from our contingent ways of representing it. The stronger claim, or more specifically our knowledge that the stronger claim is true, is the only one suitable for an answer to skepticism. Barry Stroud in his 'Transcendental Arguments,' reprinted in Kant on Pure Reason, Ralph Walker, ed. (Oxford: Oxford University Press 1982) 117-31, makes a similar point regarding the strength required of transcendental arguments if they are to succeed in answering the skeptic. Stroud argues that recent attempts to use transcendental arguments to answer skepticism rely on the verification principle. Although he does not say it explicitly, he seems to suggest that Kant's argument also relies on the verification principle. I believe Kant's argument does not need to rely on such a principle, but this is not the place to argue for this view.
Finally, with respect to the type of relationship between Cartesian foundational propositions and the rest of the body of knowledge, the Cartesian relationship is one of deductive implication between the truth of the foundational premises and the truth of specific knowledge claims. As we saw above, Descartes gives a secondary role to purely logical proofs and suggests that deduction must be ultimately certified by intuition. Moreover, Descarte’s central philosophical work, the *Meditations*, does not follow the synthetic (geometrical/deductive) method, but the analytic method. Yet the analytic method is only the human method of discovery—the method of beings limited by a finite understanding, by the prejudices of common sense, by the grip of sensory ideas, and so on. It is the meditator’s method for the discovery of those indubitable truths that, once in place, serve as a foundation from which the central parts of the body of knowledge, such as the basic parts of physics, follow deductively.\(^{45}\)

The Kantian view of the relationship between core propositions and the rest of our knowledge follows from the points already made about the positive claim of the Copernican revolution. Although Kant uses the word ‘deduction’ to refer to his proof of the objective reality of the categories, he does not mean by it what formal logicians do. He uses the term rather in the juridical sense of his time.\(^{46}\) If Kant did use it in the logician’s sense, what logical implication would he take himself as showing? One interpretation might be that the objective reality of the categories is implied by observable features of our actual experience. Thereby the categories would be necessary conditions, in the

\(^{45}\) For details on how the *Meditations* might relate to the foundations of Cartesian physics, see F. Curley, ch. 8; for the role of God in the derivation of the laws of motion, see M. Gueroult, ‘The Metaphysics and Physics of Force in Descartes,’ in Stephen Gaukroger, ed., 196-229.

\(^{46}\) Dieter Henrich has shown this in ‘Kant’s Notion of a Deduction and the Methodological Background of the First Critique,’ in *Kant’s Transcendental Deductions: The Three ‘Critiques’ and the ‘Opus Postumum’*, Eckart Förster, ed. (Stanford: Stanford University Press 1989), 29-46. This legal notion of a deduction refers to a justification of a claimed right and concerns only acquired rights—as opposed to innate rights.
logical sense, of the facts we experience, of the actual truth of exper-
iental claims. But this would amount to deriving the categories di-
rectly from empirical facts — from the truth of synthetic a posteriori
judgments — and would consequently void the a priori character of
the categories. It would also mean that the principles associated with
the categories are not necessary truths. On this interpretation, con-
trary to what Kant claims, the proof would be empirical, a type of
derivation that according to Kant is only suitable for empirical con-
cepts.\(^{47}\)

The interpretation of the relationship between the a priori and the
rest of our knowledge in terms of deduction in the logician’s sense
would mean either that the truth of empirical propositions logically
implies the truth of core propositions, or that the truth of core propo-
sitions logically implies the truth of empirical propositions. The first
alternative is eliminated on the basis of the above explicit rejection of

\(^{47}\) See section 13 of the Transcendental Deduction (A 84-92/B 116-24). The follow-
ing paragraph from that section makes the point under discussion very explicit:
‘Let us take, for instance, the concept of cause, which signifies a special kind of
synthesis, whereby upon something, A, there is posited something quite differ-
ent, B, according to a rule. It is not manifest a priori why appearances should
contain anything of this kind (experiences cannot be cited in its proof, for what
has to be established is the objective validity of a concept that is a priori); and it
is therefore a priori doubtful whether such a concept be not perhaps altogether
empty, and have no object anywhere among appearances.... Appearances might
very well be so constituted that the understanding should not find them to be in
accordance with the conditions of its unity.... If we thought to escape these
tolstome enquiries by saying that experience continually presents examples of
such regularity among appearances and so affords abundant opportunity of
abstracting the concept of cause, and at the same time of verifying the objective
validity of such a concept, we should be overlooking the fact that the concept of
cause can never arise in this manner. It must either be grounded completely a
priori in the understanding, or must be entirely given up as a mere phantom of
the brain. For this concept makes strict demand that something, A, should be
such that something else, B, follows from it necessarily and in accordance with an
absolutely universal rule. Appearances do indeed present cases from which a rule
can be obtained according to which something usually happens, but they never
prove the sequence to be necessary’ (A 90-1/B 122-4).
it by Kant. The second alternative neglects a central aspect of Kant’s conception: the categories, and in general the a priori in knowledge, are necessary conditions of the possibility and intelligibility of any human experience, not of the actual contingent truth of particular empirical experiences or knowledge claims. If there is to be any meaningful human experience at all, if our representations are not to be chaotic but are to have an objective counterpart, if the manifold of sensation is to have the required unity for it to belong to a unified experience, if we can truly or falsely predicate something of it — then the a priori must be a feature common to all our representations and their objects. Therefore, if there is an ‘if-then’ in this direction, it cannot be a deductive implication between the a priori and the truth of particular empirical knowledge claims. The a priori is rather a necessary condition of our empirical knowledge claims being meaningful, having an object, belonging to a unified experience, or having a truth value at all.\footnote{Gordon Brittan has very clearly captured this point in his adaptation of the semantic notion of presupposition to the discussion of the anti-reductionism in Kant’s philosophy of science. To distinguish presupposition from implication, Brittan defines the former as: ‘A presupposes B if and only if (a) if A is true, then B is true, (b) if (not-A) is true, then B is true.’ Thus, for instance, unlike the case of logical deduction, the analogue of modus tollens for presupposition does not hold. See G. Brittan, \textit{Kant’s Theory of Science} (Princeton: Princeton University Press 1978), ch. 1. Brittan criticizes, and successfully shows to be wanting, other alternative views of ‘necessary condition’ (not discussed here) that preserve the deductive interpretation of the link between the categories and principles, and the rest of knowledge.} This is as much as a transcendental argument can prove. The Kantian procedure therefore has no resemblance with Cartesian deduction.

The difference in procedure is the difference between logical deduction of the truth of that which the premises ground and a Kantian transcendental proof. In the foundationalist enterprise the independent truth of the a priori premises of the deduction establish the actual truth of the derived (a priori or empirical) conclusions. The Kantian transcendental argument is an argument that shows the
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relationship between the a priori and experience by showing the constitutive role of the former with respect to the latter. However, this constitutivity concerns only, as we have seen, the possibility of experience. Thus in a successful Kantian transcendental argument only the possibility of meaning, objective reference, knowledge, and truth is established. Moreover, the a priori, which is the source of such a possibility (i.e., which makes possible meaning, objective reference, knowledge, and truth), is itself legitimizes by the proof.

The central features of the Cartesian foundational role of the a priori are inherited by Spinoza and Leibniz. Kant, in providing rationalism with an empiricist twist, distances himself from this tradition and starts a far-reaching revolution in the conception of the structure of knowledge as a whole. The effects of this Copernican turn are still present in our century. Without a priori intuition, a contemporary philosopher such as Carnap gives formal logic — the syntax of language — the constitutive role Kant gives to space, time, and the categories. Without a priori necessary presuppositions, and while rejecting the conception of a unified single body of knowledge, a very different contemporary philosopher such as Wittgenstein acknowledges the need for fixed, although revisable, constitutive points in the ongoing piecemeal process of building and rebuilding our knowledge claims. The deep influence of the Kantian constitutive a priori is still with us; but a fuller discussion of this point shall be left for another occasion.