Johan Boberg

Scientically Minded

Science, the Subject and Kant’s Critical Philosophy
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Abstract

Modern philosophy is often seen as characterized by a shift of focus from the things themselves to our knowledge of them, i.e., by a turn to the subject and subjectivity. The philosophy of Immanuel Kant is seen as the site of the emergence of the idea of a subject that constitutes the object of knowledge, and thus plays a central role in this narrative. This study examines Kant’s theory of knowledge at the intersection between the history of science and the history of the modern subject, on the one hand, and in the tension between modern experimental and mathematical science and more traditional Aristotelian conceptions of epistemic perfection, on the other.

The dissertation consists of four chapters. In the first chapter, I examine Kant’s concept of experience, and its relation both to Early Modern experimentalism and to the Wolffian tradition. In the second chapter, I argue that Kant adheres to a broadly Aristotelian conception of epistemic perfection – the ideal of understanding – but transforms this ideal into the self-understanding of reason, where reason can only have insight into the products of its own activity. In the third chapter, I use Kant’s conception of space and time to exemplify such products of reason, and argue that, for Kant, space and time are constructively generated representations that function as principles for ordering empirical knowledge. In the fourth and final chapter, I examine Kant’s conception of the subject, and situate it in relation to both the long history of the modern subject and German Enlightenment philosophy. Whereas the modern philosophical conception of the subject is usually taken to combine an ‘I’ functioning as the subject to which mental acts are attributed and an ‘I’ that has the ability to immediately perceive itself as the subject of these acts, I argue that Kant reconceives this relation between the ‘I’ and its acts as a purely intellectual self-relation. The unity of the ‘I’ is not a perceived unity, but a unity brought about by the intellect.

Keywords: Immanuel Kant, the subject, science, experience, understanding, episteme, time, space, spatialization of time, epistemic ideals, knowledge, Christian Wolff, Aristotle

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To Ida, Ellen and Hedvig
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Johan Boberg, January 2020
Introduction

What is modern philosophy? For a long time, a popular answer has been that modern philosophy is characterized by a turn to the subject or subjectivity – by a change of focus from the things themselves to our knowledge of them, or rather to the foundation of this knowledge in the knowing subject. With René Descartes, the story goes, the subject was placed at the center of philosophical reflection as the indubitable source of certainty that founds all other knowledge. In one of the most influential accounts of this event, Martin Heidegger interprets it as a fundamental reconfiguration of ontological thought, whereby the traditional distinction between subject and object – and in its wake, subjectivity and objectivity – is turned on its head. Whereas ‘subject’ previously referred to the things out in the world and ‘object’ to things present to the mind, the mind – or the ‘I’ – now became the pre-eminent subject, and all other subjects were reduced to mere ‘objects’ for this subject.¹

Over the course of the twentieth century, the accuracy of this narrative has repeatedly been questioned. Most recently, Alain de Libera has engaged in a multi-volume project of writing the history of the modern subject, where the development of conceptions of subject and subjectivity that are usually regarded as paradigmatically modern are traced back to their emergence in the Middle Ages. Rather than being the invention of a lonely genius – or even of the Modern Age – the philosophical conception that we today associate with the subject is shown to have a long pre-modern history, emerging as a product of a medieval synthesis of Aristotelian and Augustinian conceptions of the soul.² In engaging in such an undertaking, de Libera is part of a growing tendency to question the idea of a radical discontinuity between medieval and early modern modes of thought.³

As it turns out, Descartes – the supposed instigator of the modern turn to the subject – hardly ever called the ‘I’ a ‘subject,’ but in fact explicitly avoided applying this concept, which he, in line with his scholastic predecessors, took to be an absolutely concrete word, and therefore ill-suited for inquiries into thought.⁴ If we are to look for the real beginnings of the ‘Cartesian subject,’

¹ See, for example, Heidegger, Die Frage nach dem Ding, 106.
² See de Libera, “Sujet”; “Augustin critique d’Averroès”; “When Did the Modern Subject Emerge?”; Naissance du sujet; L’invention du sujet moderne.
³ In the case of Descartes, see, for example, Alainen, Descartes’s Concept of Mind; Ariew, Descartes among the Scholastics; Carriero, Between Two Worlds.
⁴ See Moriarty, Early Modern French Thought, 11–13.
one of the best candidates for being the author of this modern story of ‘the subject’ is rather Immanuel Kant. It was Kant who, in his critique of his predecessors’ metaphysical conception of the soul, attributed the logical concept subject to the Cartesian cogito, and thereby established a tradition that reads Descartes as someone whose fundamental concern is the nature of the subject. When Descartes is later named the father of modern philosophy, we have the completion of the story of modern philosophy as inaugurated by a radical turn to the subject and subjectivity.

Although discussions of the ‘subject of thought’ are numerous long before Kant, the subject seems to gain a new and central role in philosophical thought with him. At least in Kant, it seems, we find someone who, as Heidegger said, reverses the traditional order between subject and object – where the subject becomes the subject of knowledge, and all other things in the world become reduced to mere objects of knowledge. Finally, philosophy seems to be transformed into a reflection on the subject. And it is in the wake of Kantian philosophy that we witness the stabilization of something like our modern dichotomy between subject and object; since Kant, it has become common to mean by ‘subject’ a knowing, thinking and willing being, as opposed to the ‘objects’ of the world.

Moreover, this seems to be a turn to the subject that is more radical than the earlier conception of the event. For the Kantian subject, as it is often conceived, is itself constitutive of its knowledge of the world. It has more character, one could say, for this subject is endowed with ‘forms’ of knowledge: space and time, as well as categories such as causality, magnitude and substance, are conditions that the subject brings to experience, and which make experience possible in the first place. Today, the idea that there are subjective forms through which the world is experienced has become part of the intellectual commons.

But is this a Kantian idea? What is the Kantian subject? And is transcendental reflection – the reflection on the conditions and limits of knowledge – a reflection on the nature of the subject? Is the subject, so to speak, the object of transcendental philosophy? And when we come to know the conditions of knowledge, do we gain knowledge about the subject? Kant has surely come to be associated with a philosophy of the subject or subjectivity, but what is the role of the subject in his philosophy?

Kant thus has a privileged place in the history of the ‘subject.’ First, because the establishment of the general opposition between subject and object – and subjectivity and objectivity – with which we are familiar today is to a large extent indebted to Kant. Kant’s works can therefore be used to study how older modes of thought transformed into our modern conceptions. Secondly, Kant’s philosophical thought is located at a privileged place at the

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5 For this point, see Balibar, “Citoyen sujet,” 39/36; de Libera, “When Did the Modern Subject Emerge?,” 194.
crossroads of different traditions, and is formed accordingly. On the one hand, Kant can be located in the general history of the development of modern conceptions of the subject, with roots down in medieval philosophy and in the particular context of the German Enlightenment. On the other hand, Kant can be positioned in the history of the reflection on the conceptual foundations of the experimental and mathematical sciences. It is because of this location at the intersection that Kant’s thought has lent itself – and continues to lend itself – to both a philosophy of the subject and a philosophy of science.

The main purpose of this study is to investigate the ‘Kantian moment’ in this historical process, at the intersection between the history of the subject and the history of science, and examine how these two traditions are refracted through each other. This means that the project is not simply to examine Kant’s thought, but rather to use Kant as a prism through which the greater intellectual trends involved in the constitution of modern conceptions of the subject and knowledge are refracted. How is Kant’s theory of knowledge related to, on the one hand, the emerging experimental and mathematical sciences and, on the other hand, to more traditional conceptions of knowledge? How are we to understand the constitution of the object of knowledge? And what is its relation to the subject?

* The specialized literature on Kant has, of course, been consulted in this undertaking, and conflicting interpretations are addressed in the analysis where such discussions are deemed helpful in clarifying the issues in focus. The main objective, however, is not to contribute to Kant scholarship, but rather to use Kant to study the larger intellectual transformations described above. For this reason, the different chapters are not primarily framed in relation to contemporary Kant scholarship, but in relation to the larger trends and transformations of which Kant’s thought is an integral part. Given this general objective, it would have been misleading to frame the discussion in relation to the scholarship on Kant, however fruitful it has proven to be.

The character of this study will be somewhat trans-disciplinary. The investigation undertaken has only been possible by drawing on research and material from several different disciplines. Philosophical material and studies are of course central, but I have also found it necessary to draw on material from, as well as research on, the history of natural philosophy, the history of geometry, and the history of chronography. Only by combining the history of philosophy and history of science, broadly construed, can the object of investigation of this study take shape.

In approaching the questions posed above, this study draws on three main areas of research. First, it draws on studies of the history of philosophical conceptions of knowledge, and more specifically on critical studies of the
supposed ‘traditional’ analysis of knowledge as justified true belief. Secondly, it draws on studies of the history of science, and more specifically on the history of Early Modern experimentalism and the history of geometry. Thirdly, it draws on studies of the history of the modern subject. Since the different chapters of the dissertation are thematically quite distinct, the relevant literature will be presented in each respective chapter.

Disposition

The dissertation is divided into four chapters. The first chapter is devoted to experience, which is one of the most central concepts of Kant’s theoretical philosophy. I begin by situating Kant’s notion of experience in the experimental tradition of natural philosophy, for which experience is empirical knowledge of particular events in space and time, typically acquired through observation and experiment. A first objective in this chapter is to move away from more psychological or phenomenological conceptions of experience,
and to situate Kant’s thought in the context of a reflection upon the conditions and limits of empirical knowledge. I proceed to analyze Kant’s understanding of concepts as organized in hierarchies of genera and species. I argue that this traditional conception is first of all conceived, by Kant, through Christian Wolff’s influential notion of awareness as constituted by a process of differentiation, and that this notion of awareness, furthermore, is developed by Kant through his distinction between intuitions and concepts in such a way that awareness becomes the result of a conceptual discrimination. I analyze the distinction between acquaintance and comprehension, which I argue replaces the Wolffian distinction between sensitive and intellectual knowledge. A crucial point here is that comprehension is related back to what Aristotle called noûs, which is knowledge of indemonstrable principles. Finally, I extend the analysis of the previous sections by connecting it to the distinction between knowledge a priori and a posteriori, and argue that Kant, at least occasionally, still understood the distinction in a traditional way as explanatory knowledge and non-explanatory knowledge, respectively.

In the second chapter, I argue that Kant considers knowledge in light of the traditional Aristotelian ideal of epistêmê (‘understanding’) as explanatory knowledge of why things are as they are. The argument begins with a brief consideration of Aristotle’s formulation of the ideal, and then examines Wolff’s adoption and reformulation of the ideal in the German context. Contrary to the growing tendency to read Kant’s notion of Wissen as expressing a ‘traditional’ analysis of knowledge as justified true belief, I argue that this term, in the strict sense, designates the Aristotelian ideal of explanatory knowledge – understanding – and that Erkenntnis rather is Kant’s general term for knowledge. Wissen is inferential knowledge, and, in its strict and proper form, it should proceed from grounds that provide insight into why things are as they are, not merely that things are a certain way. However, since experience only provides knowledge of individual events, it is unable to convey understanding in the proper sense. Reason can therefore only have insight into that which it brings about itself. The Aristotelian ideal is thus transformed into a self-understanding of the activity of reason. In a sense, Kant is thus a proponent of a ‘traditional’ analysis of knowledge, but this analysis has its roots in the Aristotelian tradition.

The third chapter uses the examples of time and space to investigate this self-knowledge or self-understanding of reason. Time is the primary example, because Kant’s analysis of time has often been read as an early predecessor to the late nineteenth-century and early twentieth-century discussion of the subjective experience of time. On such a reading, Kant’s aim would be to describe how time (and space) is experienced by the subject. This is also the interpretation proposed by a number of contemporary scholars, who argue in favor of a phenomenological reading of the Transcendental Aesthetic. Contrary to this view, I argue that, as pure intuitions, space and time are construc-
tively generated representations that function as principles for ordering empirical knowledge. To make this argument, I draw on the history of the discipline of geometry, and, more specifically, on the development of the geometrical concept of space in the Early Modern period. I argue that both Kant’s conception of space and his spatialized conception of time involve an appeal to this geometric concept of space, being three- and one-dimensional geometric spaces in which things are located. I use the works of mathematician Leonhard Euler to exemplify this geometric conception of space, and show how the properties that Kant attributes to space and time make perfect sense as claims about the geometrical representation of three- and one-dimensional coordinate systems, as Euler presents them. Lastly, I end with a consideration of the place for an ‘experience’ of time in Kant’s philosophy.

In the fourth chapter, I finally investigate how the subject is conceived in Kant’s critical philosophy. I approach the issue from the perspective of the history of the modern subject. Specifically, I draw on de Libera’s works on the medieval pre-history of the ‘modern’ conception of the subject. I recount some of the main features of de Libera’s story, and use them as analytical tools in the following discussion. I begin by giving an account of the Aristotelian tradition and the introduction of the ontological notion of the subject into the discussion of the soul. I then turn to the Augustinian problem of self-awareness. Finally, I present the synthesis of these two rival traditions in the philosophy of Peter John Olivi. Against de Libera, who sees Kant as someone who distances himself from the modern conception of the subject, and reverts to an older Thomistic position, I argue that Kant is at the same time a proponent of a ‘modern’ conception of the subject and a fierce critic of the ontological claims made on its behalf. Kant conceives of the ‘I’ as both the vehicle of self-awareness and as the subject of predication, but denies that, through thinking the ‘I’ we have an experience or intuition of the substrate in which all our states inhere. For Kant, the ‘I’ expresses the pure intellectual unity of our states. I develop this reading in three steps. First, I consider the account of self-awareness in the Wolffian tradition, and its relation to both the concept ‘subject’ and to the ‘I.’ Secondly, I examine Kant’s pre-critical conception of the ‘I’ as a mental substance that has an immediate intuitive awareness of itself as the substrate of its acts. Finally, I study Kant’s rejection of this intuitive self-relation in the critical period and his reconception of the unity of the ‘I’ as a unity only of thought.

Material and Method

The ambition of this dissertation is to consider Kant’s philosophy in relation to the broader intellectual trends and transformations that were underway in his time. My focus is on Kant’s ‘mature’ philosophy, and especially on the *Kritik der reinen Vernunft*, which is central to the present analysis. While I do
not analyze the development of Kant’s thought up to or during the critical period, I do occasionally touch upon such developments, where they help to clarify the issues under investigation.

This study draws on a wide range of sources. These sources can be divided into three main categories. The first category of sources consists in materials related to Kant. These, in turn, can be subdivided into three different kinds. First, we have the published works. Although the philosophical issues I deal with focus on his critical thought, I draw on the whole bulk of his published works, to the extent that they shed light on the issues I discuss. Secondly, we have the so-called ‘Reflections’ in his Nachlass. These are drawn on when appropriate, but should be used with care, since correct dating is often hard to establish, and their validity in reflecting Kant’s considered view can be questioned. Thirdly, we have the lecture notes from Kant’s courses, recorded by his students. These sources raise several issues: the notes are typically not directly from the classroom, but compiled afterwards, and sometimes by combining notes from different years. Moreover, the students might have misheard, miswritten or misunderstood what Kant said. Furthermore, the texts in the Academy edition themselves suffer from editorial problems.9 For these reasons, Reflections and lecture notes should be used with care. They are never used against the views expressed in Kant’s published works, but only to support the interpretation of them. Kant’s lectures are often indispensable, since many of the points expressed in his published works are first developed in his lectures, and sometimes expanded upon at greater length in them. Because of their problematic status, the lectures have been compared against each other to find recurring patterns of thought.

The second category of sources consists in textbooks and treatises. Many of these were written to be used in teaching. Aside from such textbooks, I also draw on treatises on philosophy and natural philosophy more generally, both written in the German context and in the wider European context. This also includes classical works by such authors as Aristotle and Thomas Aquinas.

The third category of sources consists of dictionaries and encyclopedias. These are used primarily to investigate issues related to conceptual history, such as the dissemination and adoption of certain concepts in an intellectual milieu.

These materials are used to re-enact the intellectual context within which Kant wrote. Sometimes this is a matter of tracing a direct influence, as in the case of the textbooks that Kant used for his lectures. More often, however, the issue is one of reconstructing a way of thinking that Kant took part in. When I turn to Aristotle or Aquinas, for example, the aim is not to trace a

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line of direct influence of these authors on either Kant, or other authors in the German Enlightenment. The line of intellectual descent might very well pass through sources long lost or forgotten, but my purpose here is not to engage in an intellectual archaeology of such materials. Instead, I use such authors as paradigmatic expression of modes of thought that I find echoed in my later sources. Such exemplary cases are used as objects of comparison that help shed light on significant features of the later discussions that are easily overlooked, and thus bring about a change of perspective.

References

Kant’s works are cited according to the volume and page numbers of the Academy edition of Kant’s gesammelte Schriften (hereafter AA). Exceptions from this rule are Kritik der reinen Vernunft, Kant’s Reflections, and lecture notes that are not included in the Academy edition. Kritik der reinen Vernunft is cited according to established convention: ‘A’ and ‘B’ before a page number refer to the pagination of the first and second edition (1781/1787), respectively. Reflections are indicated by an ‘R’ followed by a number. For longer Reflections, page numbers to the Academy edition are also provided. Lecture notes that are not included in the Academy edition are cited according to the pagination of the edition specified in the Bibliography.

References cite works in the original language. When translations are used, these are specified in the Bibliography. If the translation includes the pagination of the source, I cite only the page number of the source. When the pagination is not included in the translation, the page number of the source and the translation, respectively, are cited in the reference as \(a/b\), where \(a\) is the page number of the source, and \(b\) is the page number of the translation.

Translation and Transcription

For Kant’s works, I have relied on the translations found in the Cambridge Edition of the Works of Immanuel Kant. I have likewise used authoritative translations, where such are available, for other sources. The translation I have used is specified in the Bibliography under the respective source. My own translations are marked with a ‘(my trans.)’ in the reference. Modifications made to translations are marked with a ‘(trans. mod.)’ in the reference. For the most part, such revisions have been introduced to establish a uniform
vocabulary.10 Below, I briefly present the reasons for the vocabulary I have chosen.

* 

The Aristotelian term ἡξίς and its Latin counterpart habitus are notoriously hard to translate. The Greek word literally means ‘having,’ which is preserved in the Latin habitus.11 The terms are typically translated as ‘state,’ ‘stable disposition’ or ‘habit.’ Since I am only concerned with states or dispositions that are involved in the possession of intellectual virtue, however, I have chosen to translate the terms as ‘ability.’ This translation would not work for ἡξίς or habitus in general, but it does work, I think, in the case of these virtues: a habitus demonstrandi can be translated as an ‘ability to demonstrate’ without distortion. Moreover, the German term for this concept is Fertigkeit.

Fürwahrhalten is usually translated as ‘taking something to be true’ or ‘holding-to-be-true,’ but since the term was introduced to render the Latin term assensus into German, I have chosen to translate it as ‘assent.’12 This mode of translation has become more common in recent years.13

Bewusstsein is translated as ‘awareness’ instead of ‘consciousness.’ The former is preferred because Kant and the Wolffian tradition have a cognitive conception Bewusstsein as constituted by making distinctions. I believe the less technical ‘awareness’ better captures this concept, and is less likely to provoke associations to what contemporary philosophy of mind typically means by ‘consciousness’ (see Chapter One).14

Noûs, intelligentia and Verständnis are technical terms for the Aristotelian intellectual virtue that has the first principles of knowledge as its object. The latter two are often translated as ‘understanding,’ but since I use this latter term for other purposes (see below), I have instead chosen ‘comprehension,’ following Jonathan Barnes’s translation of Aristotle.15 For the same reason, I translate the related terms intelligere and verstehen as ‘to comprehend’ when they are used as technical terms.

Comprehendere and begreifen are technical terms used by Wolff for inferential knowledge from first grounds. They are typically translated as ‘to comprehend,’ but since this term is used for other purposes (see above), I have instead chosen ‘to grasp.’

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10 Even in the Cambridge Edition, the translation of technical terms is not always consistent. The term Merkmal, to give one example, is sometimes translated as ‘mark’ and sometimes as ‘characteristic.’
11 See Klein, A Commentary on Plato’s Meno, 161, n. 162.
12 See Theis, “Du savoir, de la foi et de l’opinion de Wolff à Kant,” 214.
13 See, for example, Chignell, “Kant’s Concepts of Justification”; Pasternack, “Kant on Opinion”.
14 On the difference between Bewusstsein and ‘phenomenal consciousness,’ see Sturm and Wunderlich, “Kant and the Scientific Study of Consciousness,” 53–57.
15 See Barnes, Aristotle’s Posterior Analytics, 267–68.
Intellectus and Verstand are translated as ‘intellect’ instead of ‘understanding.’ Both terms work equally well, but since I want to use ‘understanding’ for other purposes (see below), I have chosen ‘intellect.’

Cognitio and Erkenntnis are translated as ‘knowledge’ instead of ‘cognition,’ since I take Erkenntnis to be Kant’s general term for ‘knowledge’ (see Chapter Two).

Wissen is translated as ‘understanding’ instead of ‘knowledge.’ The reasons for this choice are conceptual. I take this notion to descend from Aristotle’s notion of epistēmē, which, as Myles Burnyeat has convincingly argued, is better translated as ‘understanding’ than ‘knowledge’ (when referring to a state of mind), since it is concerned with explanation rather than justification (see Chapter Two). Whether the lowercase wissen identifies this ideal of knowledge or merely knowledge in general has to be determined from case to case, depending on the context.

Epistēmē, scientia and Wissenschaft (until the second half of the eighteenth century) had a double use, and could refer either to a body of knowledge, or to the state of mind of someone who has acquired such knowledge (see previous entry). To keep these two uses apart, I translate them as ‘science’ and ‘understanding,’ respectively. The second use of the term Wissenschaft became antiquated in the second half of the eighteenth century, and Kant replaced it with Wissen (see Chapter Two).

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16 See Burnyeat, “Aristotle on Understanding Knowledge”.
The titles of cited sources are given in the original, except for Greek sources, which are given in English. Quotations of primary sources in foreign languages are given in English in the body text and in the original in the footnote, except for Greek sources, which are only given in English. Quotations in footnotes are only given in English.

I have modernized the long s (ſ), but preserved the sharp s (ß). Ligatures are broken up: I have replaced æ with ae, ſ with ſ, etcetera (except for ß). Purely typographical features of eighteenth-century Fraktur type have been modernized: the virgule (/) has been replaced with a comma, the ę used for Umlaut has been replaced with „, and the double hyphen has been replaced with the single.

I transcribe letter-spacing in spacing, and both boldface and the use of different typeface (for example Schwabacher) are transcribed in bold. These three are often used for emphasis, but sometimes they can also indicate that a word or sentence is mentioned rather than used, and will then be translated accordingly. Latin and French words that are set in Roman type are transcribed in italic.

The first letters of quotations have sometimes been changed without mention to upper- or lowercase in the body text for syntactical fit, but never in the original provided in the footnote. Likewise, punctuation has sometimes been inserted at the end of quotations, but never in the original provided in the footnote.
At the end of the nineteenth century, the Scottish philosopher Andrew Seth complained that Kant used ‘experience’ in a queer and misleading way. “Erfahrung, or experience, a term which should expressly emphasize the subjectivity, comes to signify for Kant, perhaps unconsciously, a stable and connected world of things,” Seth wrote, patently unaware of the oxymoronic sound that the expression ‘subjective experience’ would have had for Kant.¹ Still, the remark is indicative of a shift that had occurred in the time span separating the two authors. During the nineteenth century, ‘experience’ increasingly acquired what we may call a ‘subjective’ sense, pointing to the interior life of the subject of experience – how things immediately appear to the individual, prior to the intervention of man’s rational capacities. Perceptions, sensations, impressions, etcetera came to be seen as subjective states, and were often taken to have a deeply problematic relation to the outside world. In this spirit, Hippolyte Taine, in his influential *De l’intelligence* (On Intelligence, 1870), wrote: “our external perception is an internal dream in harmony with external things; and, instead of saying that hallucination is a false external perception, we should say that external perception is a true hallucination.”² Sense-experience does not reveal the world to us, it seemed; at best, it is in harmony with it.

Traditionally, *Erfahrung* was a conception of empirical knowledge with active and methodological connotations, meaning exploration, inquiry or trial. Already in the eighteenth century, however, there was a drift in the German language whereby *Erfahrung* moved in the direction of passivity and receptivity that Seth took for granted.³ But Kant’s intellectual development moved in the opposite direction from these greater trends.⁴ In *Kritik der reinen Vernunft* (Critique of Pure Reason, 1781), Kant writes that “experience is without doubt the first product that our intellect brings forth as it works on the raw

¹ Seth, “Epistemology in Locke and Kant,” 186.
² Taine, *De l’intelligence*, 1:411 (my trans.): “notre perception extérieure est un rêve du dedans qui se trouve en harmonie avec les choses du dehors; et, au lieu de dire que l’hallucination est une perception extérieure fausse, il faut dire que la perception extérieure est une hallucination vraie.”
⁴ For Kant’s intellectual development, see Hinske, “Wandlungen in Kants Verständnis von Erfahrung.”
material of sensible sensations." And, in the second edition, he clarifies this point further by saying that the result of this activity of the intellect is “a knowledge of objects that is called ‘experience.’”

With this conception of experience, Kant aligns himself – knowingly or not – with the more traditional sense of the term, where experience is not something one passively starts out from, but rather something one achieves through intellectual work. “Experience is not the means but the end of knowledge of sense-objects,” Kant wrote in a striking passage, late in life. “One makes experience – it is not a mere influence on the senses.” Experience should thus not be understood as the feedstock, but the result of knowledge; we use sensations to attain experience. That is, it is not a transient event, a snapshot as it were, of mental life, but the achievement of knowledge of empirical matters. This achievement does not require that we transcend the subjective states of our senses, but rather that we recognize what is given through them.

In this chapter, I will examine Kant’s concept of experience and show that it is rooted, both in Early Modern experimental natural philosophy and draws on Aristotelian epistemology, interpreted through Wolffian philosophy. In the first section, I argue that Kant’s active conception of experience, outlined above, should be understood in the context of the Early Modern conception of experience in terms of the techniques of observation and experiment. The bedrock of experience consists of discrete knowledge of individual events, and the collection of such knowledge is a communal project.

In the second section, I show that Kant understands concepts as ordered in hierarchical structures of genera and species, in line with the traditional Porphyrian theory of predicables. Kant interprets this theory through Christian Wolff’s influential account of awareness (Bewusstsein) as constituted by a process of differentiation. I argue that Kant retains an essentially Wolffian notion of awareness, but reconceives it through his own distinction between intuitions and concepts in such a way that awareness is the result of conceptual discrimination.

In the third section, I argue that what Kant calls ‘acquaintance’ is a form of knowledge that functions as a replacement for sensitive knowledge in the

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8 Kant, *Opus postumum*, AA XXII, 493–94: “Die Erfahrung ist nicht das Mittel sondern der Zweck der Erkenntnis der Sinnenobjekte […] man macht die Erfahrung; sie ist kein bloßer Sinneinflus”. 
9 For Kant, *Erfahrung is empirical Erkenntnis*. I take the latter to mean ‘knowledge,’ but this is of course contested in contemporary Kant scholarship. The issue is dealt with thoroughly in Chapter Two.
Wolffian tradition. When we have acquaintance, we use concepts without necessarily being aware of the marks that we thereby apply, and we are said to ‘comprehend’ the thing when the formerly obscure use of a concept is made clear and distinct. This notion of comprehension is related to what Aristotle calls *noûs*, which is the form of knowledge that has indemonstrable principles as its object.

In the fourth section, the analysis presented in the previous two sections is extended by connecting it to the distinction between *a priori* and *a posteriori*. I begin by examining the traditional medieval understanding of this distinction, according to which we have knowledge *a priori* when our explanation proceeds from what is prior in nature. Then I show that Kant, on occasion, still used the distinction in a traditional way. Finally, I use the Porphyrian model to explain why Kant thinks that experience can never provide more than general and contingent judgments.

Early Modern Experience

In this section, I will situate Kant’s notion of experience in the context of Early Modern experimentalism. I will show that Kant understands experience in terms of the techniques of observation and experiment, which were central to the Early Modern natural philosophy. According to this conception, the bedrock of experience consists of discrete knowledge of individual events, and the collection of such knowledge is a communal project.

Observation and Experiment

During the last few decades, historian of science Peter Dear has studied the gradual transformation of the concept and practices of experience in mainstream natural philosophy in the West, from an Aristotelian-Scholastic notion of experience to Early Modern experimental experience. One of the hallmarks of Early Modern experimentalism, Dear argues, is that “discrete experience” works as “the primary empirical component of natural philosophy.” Whereas Aristotelian-Scholastic experience had been directed at the general

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10 Aristotle’s term *enpeiría* was rendered as *experientia* or *experimentum* in Latin, and there seems to be no systematic distinction between the two until the Early Modern period. For discussions, see Barker, “Experience and Experimentation,” 39; Dear, *Discipline & Experience*, 13, n. 4; Park, “Observation in the Margins, 500–1500,” 17; Schmitt, “Experience and Experiment,” 86.


and natural behavior of things, experimentalism elevated the individual, even exceptional, event in its specificity. This ‘learned’ experience – ‘learned,’ since it was not the common property of men in general, but acquired by experts – often took the form of detailed reports of individual experiments or observations, conducted at specific points in time and space.\textsuperscript{13} Collections of such reports were known as ‘natural histories,’ and became an institutional and communal replacement for the anonymous ‘memory’ of Aristotle, in the progression from sense perception to science.\textsuperscript{14}

A report made by the natural philosopher Robert Boyle can serve to exemplify the character of this new form of experience. In a work from 1660, Boyle described an experiment that he had conducted with an air-pump, a paradigmatic case of learned experience, since the air-pump served precisely to induce states that do not occur naturally. Boyle had established that winged insects become unable to fly when air is removed, but was unsure whether this was because the medium had become too rare to carry their wings, or because they were physically weakened by its absence.\textsuperscript{15} He continued by studying the nature of respiration in order to establish if living beings could survive the removal of air, and gave the following report of his findings:

To satisfy ourselves, in some measure, why respiration is so necessary to the animals, that nature hath furnish’d with lungs, we took a lark, one of whose wings had been broken by a shot; but, notwithstanding this hurt, the bird was very lively; and put her into the receiver, wherein she, several times, sprung up to a considerable height. The vessel being carefully closed, the pump was diligently ply’d, and the bird, for a while, appear’d lively enough; but, upon a greater exsuction of the air, she began manifestly to droop, and appear sick; and, very soon after, was taken with as violent, and irregular convulsions, as are observ’d in poultry, when their heads are wrung off, and died; (tho’ when these convulsions appear’d, we let in the air,) with her breast upward, her head downward, and her neck awry; and this within ten minutes, part of which time had been employ’d in cementing the cover to the receiver.\textsuperscript{16}

When Boyle had finished his report, he went on to discuss theories of respiration and consulted other relevant ‘experiences.’ In the end, he concluded that living beings cannot survive a prolonged removal of air. The experiments,

\begin{footnotes}
\footnote{13 Dear, \textit{Discipline \\& Experience}, 4, 14; “Jesuit Mathematical Science,” 134.}
\footnote{14 Robert Hooke expresses this communal point clearly, see Hooke, \textit{Micrographia}, “Preface”. On the notion of ‘history’ in Early-Modern science, see Pomata and Siraisi, “Introduction”. On memory Aristotle writes: “Thus from perception there comes memory, as we call it, and from memory (when it occurs often in connection with the same item) experience; for memories which are many in number form a single experience.” (Aristotle, \textit{Posterior Analytics}, 100\textsuperscript{b}. Cf. \textit{Metaphysics}, 980\textsuperscript{b}–81\textsuperscript{a})}
\footnote{15 See West, “Robert Boyle’s Landmark Book of 1660,” 37–38.}
\footnote{16 Boyle, “Physico-Mechanical EXPERIMENTS,” 461.}
\end{footnotes}
together with the collected reports of others, form evidence, in a quasi-juridical sense, for the general conclusion. In this completely artificial experimental setting, we are far removed from the Aristotelian-Scholastic recording of the natural behavior of things; the aim is to induce the exceptional.

In Early Modern experimentalism, experience came to be understood as a method for the penetrating interrogation into the secrets of nature, through a combined use of two techniques: observation and experiment. These terms could refer both to the acts of acquiring knowledge and to the knowledge acquired by the acts. This new conception of experience is lucidly formulated by Christian Wolff in his *Psychologia empirica* (Empirical psychology, 1732):

> An ‘observation’ is an experience, which deals with those facts of nature that happen without our intervention. An ‘experiment’ is an experience, which deals with those facts of nature that do not happen except by our intervention.

It is in the wake of this new conception of experience that we need to locate Kant. Kant’s philosophical works typically deal only with experience in general, but in his lectures on physics, Kant distinguishes between three different kinds of experience. First, he distinguishes between common experiences (*experientia vulgaris*) and artificial experiences (*experientia artificialis*). Common experiences only use man’s ordinary perceptual capacities, whereas in artificial experiences, the senses are aided by artificial means. Secondly, artificial experiences are distinguished into observations and experiments. Observational experiences are acquired by strengthening the senses, for example, by means of magnifying glasses and telescopes. Experimental experiences are acquired through a manipulation of the objects of experience, in order to study them under artificial conditions. Kant exemplifies the latter by invoking Boyle’s
experiment, described above, saying that we use experiments when, for instance, we “want to know the changes undergone by an animal in the air-pump.” Kant, *Danziger Physik*, AA XXIX, 103 (my trans.): “die Veränderungen eines Thiers unter der Luft Pumpe wissen will.”

From this it is clear that Kant is rooted in the experimental conception of experience. He typically only analyzes experience in general because he is concerned with the conditions of empirical knowledge as such. The appearances made accessible through the use of a telescope are different from those available to unaided vision, to be sure – as are the appearances that come about through experiments – but the conditions for acquiring knowledge from them are the same. Kant’s main interest lies in investigating these general conditions of knowledge.

Communal Experience

Kant now and then adds a further distinction, between original and derived experience, that cuts right through the three just described. Experience is original when we have acquired it on our own and derived when it is “communicated by others.” Since the discrete experience of Early Modern experimentalism often took the form of recordings of induced or exceptional events, natural philosophers were necessarily heavily reliant on the testimony of others who reported such findings.

Kant concedes that reliance on the testimony of others is an indispensable part of the practice of science, and of knowledge more generally. The progress of knowledge is a communal project, and consequently we cannot do without the testimony of others. But this is no cause for worry, he thinks, since “the fact that it is testimony does not hinder there being certainty in this


21 Kant, *Danziger Physik*, AA XXIX, 103 (my trans.): “die Veränderungen eines Thiers unter der Luft Pumpe wissen will.”

22 Kant, *Briefwechsel*, AA XI, 142: “den einzigen Weg der Naturforschung”. That Kant, like most of the early experimentalists, viewed observation and experimentation as two sides of a single empirical method is evidenced by the fact that he often mentions them in one breath. Nonetheless, ‘experiment’ is sometimes used loosely in reference to observations. See Vanzo, “Kant on Experiment,” 77, n. 6.


25 Steven Shapin and Simon Schaffer have analyzed the pressure that this need for trust put on natural philosophy in the British context, and described, for example, the techniques used to makes exceptional findings vivid and authoritative to those not present. See Shapin and Schaffer, *Leviathan and the Air-Pump*; Shapin, *A Social History of Truth*.

26 On the communal character of knowledge, see Deligiorgi, *Kant and the Culture of Enlightenment*, chap. 2.
matter. For we can just as well accept something on the testimony of others as on our own experience. For there is just as much that is deceptive in our experience as in the testimony of others.”

Surely, the use of the experience of others is subject to a set of negative conditions, without which the judgment of another could not be accepted in my considerations of the truth: Are his senses reliable? Can his recollection of the event be trusted? Is he sincere in his reports? Or, in relation to the more technical territory that we have been navigating above: Are his instruments reliable? Has he conducted his experiments with due care? And so forth.

But these questions should not only be directed at others. We could equally well ask: Have my senses betrayed me? Do I remember correctly? Did I record the observation appropriately, or have I made some mistake? Is there something I have overlooked when performing my experiments? We could even ask if we are deceiving ourselves: Am I only looking for evidence that supports the conclusion I would like to see reach?

In fact, we often trust the judgments of others more than our own. Someone with little training in making observations with a telescope or in operating an air-pump might readily accept the judgment of an expert, if their results are in conflict. It is in this sense that Kant thinks that there can be just as much deception in our own experience as in that of others. Therefore, given the sincerity of my interlocutor and the reliability of his capacities, I can use his observations and experiments as equal grounds of knowledge as my own.

Perhaps one could extend this distinction between original and derived experience also to appearances. An appearance (Erscheinung), Kant explains, is the “undetermined object of an empirical intuition.” And depending on

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27 Kant, Wiener Logik, AA XXIV, 896: “Auch hindert es gar nicht, daß Gewißheit darin seyn sollte, weil es ein Zeugniß ist. Denn wir können etwas eben so gut auf das Zeugniß Anderer annehmen, als auf eigene Erfahrung. Denn bey unserer Erfahrung ist eben so viel trügliches, als bey Anderer Zeugnissen.”

28 On this subject, see Newton, “Kant on Testimony and the Communicability of Empirical Knowledge,” esp. 280–83.

29 We cannot simply decide to be convinced of something – evidence speaks for itself – but the will can indirectly influence what we take to be true, by directing the use of the intellect. Avoiding that which speaks against something and seeking out that which speaks in its favor would be such an indirect influence (see Kant, Kant’s handschriftlicher Nachlaß: Logik, R2508). On the issue of self-deception, see Papish, Kant on Evil, Self-Deception, and Moral Reform, chap. 3.

30 Kant, Kritik der reinen Vernunft, A20/B34: “unbestimmte Gegenstand einer empirischen Anschauung”. At least officially, Kant makes a distinction between ‘appearance’ and ‘phenomena.’ See Ibid., A248–49.
whether this intuition is my own or communicated to me by others, we could distinguish between original and derived appearances. This is a consequence of how the notion of appearance works in practice: appearances can be depicted and communicated to others, and Kant’s consideration of the conditions of knowledge is neutral with respect to the ‘owner’ of an appearance.

When Kant speaks of an “explanation of given appearances from chemical principles” in his book on the foundations of natural science, for example, it is the objects appearing that are to be explained, not how something subjectively appears or seems to the subject. The appearance is not a mental image in the secluded space of the soul, but designates the undetermined object of sensation. This is also evidenced by that fact that Kant regularly speaks of

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31 Kant, *Metaphysische Anfangsgründe der Naturwissenschaft*, AA IV, 469: “Erklärung gewisser Erscheinungen aus chemischen Principien”.

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such things as the freezing of water or the eclipse of the moon as “appear-
ances of nature” (Erscheinungen der Natur). When we attempt to explain such
appearances, we do not seek to explain mental phenomena, but the objects
that present themselves to us.

Galileo Galilei’s famous drawings of his observations of sunspots in Istoria
e dimostrazioni intorno alle macchie solari (Letters on Sunspots, 1612) can serve to
illustrate ‘derived’ appearances (see fig. 1.1). Galileo argued that what he had
observed was spots on the sun, and in this judgment he could of course have
been mistaken; the spots could have been caused by the optical lens of the
telescope, for instance. Establishing the truth in this case is a matter of attain-
ing knowledge of what the appearance is an appearance of. When the thing
depicted in the drawing is considered as an undetermined object – when we
abstract from what we take ourselves to know about it – it is an ‘appearance,’
in Kant’s sense of the term. When we successfully establish the truth of the
matter, Kant would say, we move from appearance to experience; we achieve
empirical knowledge of the object.

The Relation between Experience and the Intellect
Kant famously criticized his predecessors for not sufficiently distinguishing
between sensation and the intellect, the result of which was that they either
intellectualized the senses or sensitivized the operation of the intellect. Kant’s own distinction between intuitions and concepts takes aim at this error
of the tradition. In this section, I will scrutinize the relation between experi-
ence (sensitive knowledge) and the work of the intellect, and examine how
the distinction between intuitions and concepts sets Kant’s conception of ex-
perience apart from that of his Wolffian predecessors.

I will begin with Kant’s understanding of the structure of concepts, which
draws on the Porphyrian theory of the predicables, according to which con-
cepts are organized in hierarchies of genera and species. Secondly, I will show
how the Porphyrian theory is read through the Wolffian conception of aware
ness (Bewusstsein) as constituted by a process of differentiation. Thirdly, I will
argue that Kant rethinks the Wolffian model through his distinction between
intuitions and concepts, in such a way that awareness is understood as the
result of conceptual discrimination; the consequence of this is that even sen-
sitive knowledge requires the work of the intellect. Finally, I show that, on
Kant’s account, the capacity to use concepts does not require that one is
aware of what one is doing when one applies them.

32 See, for example, Kant, Danziger Physik, AA XXIX, 104.
33 See Kant, Kritik der reinen Vernunft, A271/B327.
The Theory of Predicables

The theory of predicables can be traced back to Aristotle, but became most influential in the form it was given by Porphyry. A variant of the theory was absorbed in the Wolffian tradition, and inherited by Kant. This theory is concerned with the way in which general concepts can be predicated of other concepts, and often distinguishes between five different predicables: genus, species, differentia (‘difference’), proprium (‘attribute’) and accidens (‘accident’). The genus and specific difference constitute the essence of the species, and a species is traditionally defined through its genus and specific difference. For example, when Aristotle defines ‘man’ as a ‘rational animal,’ the species ‘man’ is defined through its genus ‘animal’ and specific difference ‘rational.’ According to this model, the species is formed by adding a specific difference to the genus in order to specify the specific way of having or being that genus. An attribute is a property that can be derived from, but does not belong to, the essence of a species; it is a necessary property, whereas an accident is a contingent property.

The distinction between genus and species is relative: that which is considered to be a species in relation to a genus can also be considered a genus in relation to a subspecies. Similarly, that which is considered a genus in relation to a species can be considered a species in relation to a higher genus. Something is considered higher insofar as other things are subordinated to it, and the latter is lower in relation to the former. From this relative structure, one can construct a hierarchy that constitutes a so-called ‘Porphyrian Tree.’ In fig. 1.2, we see a Porphyrian Tree from the Königsberg Aristotelian Paul Rabe’s Cursus philosophicus (Course in Philosophy, 1703). The hierarchy of subordination is: substance–body–compound body–living body–animal–man (and individual men, Peter or Paul). The specific difference of the respective species is given on the right-hand side.

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34 A pioneering study of this aspect of Kant’s thought is de Jong, “Kant’s Analytic Judgments and the Traditional Theory of Concepts.” See also Anderson, “It Adds up after All”; “The Wolffian Paradigm and its Discontent”; The Poverty of Conceptual Truth, esp. chaps. 2–4.
35 I will use ‘attribute’ to translate proprium and Eigenschaft (the German term used by Kant) to stress that this is not just any kind of property. The Latin equivalent of Eigenschaft, provided by Kant, is attributum (see Kant, Über eine Entdeckung, AA VIII, 229). The ‘predicables’ should not be confused with the ‘predicaments’ (the Aristotelian categories), and we should also be aware that Kant himself uses the word ‘predicables’ in a completely different way and in another context (see Kant, Kritik der reinen Vernunft, A82/B108).
37 See Rabe, Cursus philosophicus, 46. Paul Rabe was the most famous Aristotelian philosopher in Königsberg at the beginning of the eighteenth century. He was inspector of the Collegium Fredericianum, where Kant studied as a boy, and wrote the textbook of logic and rhetoric that was commissioned by the King of Prussia for the gymnasium at the time Kant attended it (Sgarbi, “Kant, Rabe e la logica aristotelica,” 274).
In this hierarchy, ‘man’ is what Aristotle calls the ‘indivisible form’ (*átomon eîdos*), what was called the *infima species* (‘lowest form’ or ‘species’) in Latin. This species is actualized in the matter of individual substances, and constitutes their nature or essence. There are no species placed below the lowest, only numerically different individuals having this nature: individual men, such as Peter and Paul, who share the nature of being rational animals. In Aristotelian philosophy, such things as human beings, horses and plants are paradigmatic substances, or ‘primary substances’ as they are called. In Kant is rooted in this tradition, but understands the Porphyrian Tree to represent a hierarchy of spontaneously produced concepts, not an ontological hierarchy of forms. We make distinctions through concepts, and these distinctions are made by means of ‘marks’ or ‘differences,’ which are the partial concepts of which complex concepts are composed. We acquire higher concepts by abstracting from marks, thereby making them less determinate, while lower concepts are gained by adding marks, making them more determinate. In such a hierarchy, there must be a highest concept which is not itself a species of some other genus, and from which no further abstractions can be made.

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38 Aristotle, *Categories*, 2a. Individual men and horses are primary substances, whereas *man* and *horse* are secondary substances.
40 Lorne Falkenstein has pointed out that *Merkmale* (‘marks’) correspond to the *differentiae* of the traditional account. The concept is the sum of all the marks or differences that are contained in it, and distinguish it from all other concepts. See Falkenstein, “Kant’s Account of Intuition,” esp. 168, 172.
41 See Kant, “Erste Einleitung in die Kritik der Urteilskraft,” AA XX, 215: “one specifies the general concept by adducing the manifold under it.”
made without annihilating the concept as a whole.\footnote{See Kant, \textit{Logik Blomberg}, AA XXIV, 259; \textit{Logik Pölitz}, AA XXIV, 569; \textit{Logik Busolt}, AA XXIV, 655; \textit{Logik Dobna-Wundlacken}, AA XXIV, 755.} This highest concept of all concepts is that of a mere \textit{Etwas} ("something"), which is simply the concept of something that can be thought without contradiction, and it is distinguished only from that which is self-contradictory (a mere empty sign of thought).\footnote{Kant, \textit{Logik Pölitz}, XXIV, 569 (my trans.): “man übereingekommen ist nicht tiefer zu gehen[...]”} The concept \textit{something} could perhaps be said to express the form of a concept in general, without any determinate content.

But whereas there is a highest concept in this hierarchy – since abstraction must come to an end at some point – there is no corresponding lowest concept (\textit{conceptus infimus}), because, for Kant, there is no ontology of primary substances at which the division of genera and species naturally come to an end. In Aristotelian philosophy, we recall, the \textit{species infimus} is the form that is actualized in a primary substance. In Kant’s version of this theory, concepts are instead immediately applied to the individuals given through intuitions. In this process, however, there are always further distinctions that could have been made that we either do not notice or disregard. For this reason, Kant says, we can only speak of a ‘lowest concept’ conventionally, where “we have agreed not to go deeper.”\footnote{Kant, \textit{Logik Pölitz}, AA XXIV, 569 (my trans.): “denn Erkenntnisse enthalten sowol Begriffe als Anschauungen. Cognitio infima wäre also die unmittelbare Anschauung, weil die nur ein einzeln Ding enthält.”} Concepts can always be made more determinate, but at some point they will be deemed sufficiently determinate to be applied in judgments to individuals. The different individuals falling under one and the same species are numerically different instances of the same concept or species.\footnote{Kant applies the distinction between matter and form on a number of different levels: to the relation between intuitions and concepts, between concepts and judgments, between individual bits of knowledge and systems, etcetera. In this relation, the former is considered to be composite and the latter its manner of composition: “The essence of each composite consists in the form, i.e., in the manner of composition.” (Kant, \textit{Metaphysik Mrongovius}, AA XXIX, 826)} These individuals are not, however, themselves part of the hierarchical order of concepts, just as the primary substances in Aristotelian philosophy are not part of the hierarchy of forms.

Since we could always make more fine-grained distinctions, strictly speaking, there cannot be a lowest concept; nonetheless, Kant argues, there can be a lowest instance of knowledge (\textit{cognitio infima}), “since knowledge contains both concepts and intuitions. Cognitio infima is thus the immediate intuition, because only it contains an individual thing.”\footnote{Kant, \textit{Logik Pölitz}, AA XXIV, 569 (my trans.): “denn Erkenntnisse enthalten sowol Begriffe als Anschauungen. Cognitio infima wäre also die unmittelbare Anschauung, weil die nur ein einzeln Ding enthält.”} The process of conceptual determination provisionally comes to an end in the act of applying concepts to intuitions in judgments. Concepts that are actualized in intuitions render the latter intelligible – they are the intelligible form of intuitive matter.\footnote{See, for example, Kant, \textit{Logik Pölitz}, AA XXIV, 756.}
compare Kant’s version of the Porphyrian theory with the traditional Aristotelian version of it, we see that empirical knowledge, or experience, has the same position—structurally speaking—in Kant’s philosophy that individual substances have in Aristotelian philosophy. In the former, the lowest concept or species is actualized in the empirical knowledge of objects; in the latter, the lowest species is actualized in individual substances. This reflects the general transition from being to knowledge that Kant’s critical turn inaugurated, that is, the transition from ontology to epistemology.

Kant inherited the theory of predicables from the Wolffian tradition, and it is also in a particular Wolffian blend that we find the theory formulated in his works. The theory is interpreted through Wolff’s widely influential conception of ‘awareness’ (Bewusstsein48), to which I now turn. As will become clear, Wolff’s account of awareness is itself intimately related to the Porphyrian theory.

The Wolffian Conception of Awareness

On Wolff’s account, awareness is always an awareness of objects, and we become aware of an object by distinguishing it from other objects.49 He explains that “I am aware that I see the mirror when I not only distinguish the various parts that I perceive in it from each other, but rather also represent the distinction of the mirror from other things that I either see at the same time or saw shortly before.”50 This means that awareness is not a primitive property of representations—not a phenomenal consciousness in the sense of contemporary philosophy of mind—but differential through and through. We could never be aware of an object in isolation, since objects must be related so as to be distinguished from each other.51

Wolff uses ‘clarity’ and ‘distinctness’ to account for this process of differentiation. Clarity isolates a thing from its surroundings, and distinctness isolates its parts from each other.52 The senses provide us with clear but confused conceptions that can be made distinct through the work of the intellect: if we are able to distinguish colors from each other when they are presented to us, we have a clear conception of them; but since we are unable to spell out the marks by which we identify individual colors, our conception is still confused or indistinct.53

48 See Introduction, “Translation and Transcription”.
51 See Wunderlich, *Kant und die Bewusstseinstheorien des 18. Jahrhunderts*, 20–23. On the latter point, see also “Kant on Consciousness of Objects and Consciousness of the Self,” 166.
Like many of his predecessors, Kant follows Wolff in taking awareness to be achieved by making distinctions. In *Anthropologie in pragmatischer Hinsicht* (Anthropology from a Pragmatic Point of View, 1798), he presents what looks like the orthodox Wolffian view, saying that “The awareness of one’s representations that suffices for the distinction of one object from another is ‘clarity.’ But that awareness by means of which the composition of representations also becomes clear is called ‘distinctness.’” There is reason, however, to think that this is not Kant’s most considered view of the matter. In *Kritik der reinen Vernunft*, we get a slightly different account:

Clarity is not, as the logicians say, the awareness of a representation; for a certain degree of awareness, which, however, is not sufficient for memory, must be met with even in some obscure representations, because without any awareness we would make no distinction in the combination of obscure representations; yet we are capable of doing this with the marks of some concepts (such as those of justice and fairness, or those of a musician who, when improvising, hits many notes at the same time). Rather a representation is clear if the awareness in it is sufficient for an awareness of ‘the difference’ between it and others. To be sure, if this awareness suffices for a distinction [Unterscheidung], but not for an awareness of the difference [des Unterschiedes], then the representation must still be called obscure.

The difference between the two quotes does not hinge on the characterization of awareness as such, but rather on the relation between awareness and the epistemic ideals of clarity and distinctness: on the question whether clarity merely involves an ability to make distinctions (as Wolff would have it), or if it rather requires an awareness of the ‘difference’ between things. When speaking of the ‘difference’ (Unterschied) here, Kant is relating the notion of

54 This has been argued in a number of recent studies. See Dyck, “A Wolff in Kant’s Clothing,” 45–47; Rosefeldt, *Das logische Ich*, 213; Sturm and Wunderlich, “Kant and the Scientific Study of Consciousness,” 53–57; Wunderlich, *Kant und die Bewusstseinstheorien des 18. Jahrhunderts*, 135–45. Falk Wunderlich notes that Kant’s characterization of awareness is “compatible not only with the Wolffian definition, but also with that of Rüdiger and Crusius, according to whom distinguishing presupposes awareness.” (Ibid., 141; my trans.) For a reading of Kant in line with the latter tradition, see Indregard, “Consciousness as Inner Sensation”. On the tradition of Rüdiger and Crusius, see Wunderlich, *Kant und die Bewusstseinstheorien des 18. Jahrhunderts*, 40–46; Thiel, *The Early Modern Subject*, 343–49.


awareness to the theory of predicables. For, as we read in his lectures on logic: “The difference of the species which belong under the same genus is the specific difference.”57

Already in an essay from the early 1760s, Kant remarks that “it is one thing to distinguish [unterscheiden] things from each other, and quite another thing to know the difference [Unterschied] between them.”58 This is the same point that he stresses two decades later in *Kritik der reinen Vernunft*. What he argues in the latter is that ‘clarity’ should not be identified merely with the ability to distinguish an object from other objects, as the Wolffians would have it; instead, clarity is awareness of the ‘difference.’59 The reason why I take this to represent Kant’s most considered view of the matter – the view belonging to the critical period – is because the changed relation between awareness and clarity is rooted, as I will argue, in Kant’s distinction between intuitions and concepts (which was foreign to the Wolffians).60

### Sensitive and Intellectual Knowledge

Wolff understands the opposition between *distinguishing* and *knowing the difference* through his distinction between sensitive conceptions (which are clear but confused) and intellectual conceptions (which are clear and distinct). Colors are paradigmatic examples of the former. They are clear, for we are able to distinguish between them when they are presented to us, but they are still confused, for we are unable to account for the marks or differences by which we know individual colors.61 We do not lack the ability to distinguish, but we cannot account for the ground of the distinction. In the case of ‘obscure’ conceptions, however, we do, to some degree, lack the ability to make proper distinctions. For example, many of us do not completely know the meaning of ‘virtue,’ Wolff says, and therefore sometimes mistakenly call a vice a virtue.

57 Kant, *Logik Busolt*, AA XXIV, 655 (my trans.): “Der Unterschied der Specierum die unter einerley Genus gehören, ist differentia specifica.”

58 Kant, “Die falsche Spitzfindigkeit,” AA II, 59 (trans. mod.): “es ist ganz was anders Dinge von einander unterscheiden und den Unterschied der Dinge erkennen.”

59 Both Corey W. Dyck and Wunderlich recognize the difference between the two passages just quoted, but neither of them provide an account of how it relates to Kant’s overall intellectual development. See Dyck, “A Wolff in Kant’s Clothing,” 46–47; Wunderlich, *Kant und die Bewusstseinstheorien des 18. Jahrhunderts*, 141.

60 Tobias Rosefeldt offers the first passage as evidence for his claim that Kant adheres to a Wolffian conception of awareness (see Rosefeldt, *Das logische Ich*, 213). As mentioned, I do not take this to be an expression of Kant’s considered view of the matter. It is possible that the *Anthropologie* rather expresses an earlier conception of awareness. This is suggested by the fact that, in the paragraph that precedes the one quoted above, Kant seems to lapse into a Leibnizian position, where all sensible perceptions are always already present in the mind, although in an obscure manner. On this ‘relapse,’ see Oberhausen, “Dunkle Vorstellungen als Thema,” 134, n. 56.

and vice versa. Something is obscure when we are unable to make proper distinctions.

Alexander Baumgarten, who seems to be the immediate influence on Kant in these matters, describes the situation in the following way:

I think about some things distinctly, and some confusedly. One who is thinking about something confusedly does not distinguish its marks, although one nevertheless represents or perceives them. For, if one distinguished the marks of something confusedly represented, then one would have thought distinctly what one confusedly represented. If one did not at all perceive the marks of something confusedly thought, then through these one would not be able to distinguish the thing confusedly perceived from others. Therefore, one who is confusedly thinking something represents some things obscurely.

In the case of clear but confused thoughts (sensitive representations), we perceive the marks of the thing without distinguishing them. Had we distinguished between them, the thought would have been distinct, since, for Baumgarten, this is precisely what it means to have a distinct thought. Although we do not distinguish between the marks of the thing when we have a confused thought, we must nonetheless, in some sense, perceive them, for otherwise we would have been unable to distinguish the thing from other things; that is, we would not have been aware of the thing at all. To account for this difference, Baumgarten introduces the terminology used by Kant above:

The knowledge of diversity is DISTINCTION, and the ground of distinction in the thing that is to be distinguished is a DISTINGUISHING MARK (difference, character, or distinctive character in a broad sense, mark, characteristic mark).

In Baumgarten’s book, Unterscheidung is listed as the German translation for distinctio (‘distinction’), and Unterscheid for differentia (‘difference’). Baumgarten’s point in the first quote could thus be reformulated in the following way: when we have a clear but confused thought of a thing, and thus distinguish it from other things, we perceive its distinguishing marks or differences, but these grounds of distinction are only perceived obscurely. When the grounds – the differences – are also clearly perceived, we have a distinct thought of the thing.

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This is the same point that Kant wants to make, although reworked through his own division between intuitions and concepts. The distinction between an awareness that is sufficient for making a ‘distinction’ and one that also involves an awareness of the ‘difference’ invokes Baumgarten’s terminology, as we see, and Kant’s claim seems to be that we can have an awareness sufficient for making a distinction without thereby also being aware of the ground upon which this distinction is made, that is, without being aware of its distinguishing mark or difference.66

Like Baumgarten, Kant thinks that these ‘differences’ are involved when we distinguish between objects; what he opposes, however, is the idea that our becoming aware of these marks or differences amounts to a transition from a sensitive to an intellectual conception of the thing. What he rejects is the idea that we first have sensitive knowledge of things (experience), and only later apprehend them through the intellect. Kant’s critique of the view of the “logicians,” in the quote above – and his reconfiguration of the relation between awareness and clarity – should be read against the backdrop of his rejection of the Wolffian understanding of the relation between sensation and intellect. He writes: “Intellekt gehört zu aller Erfahrung und ihrer Möglichkeit, und das erste, was er dazu tut, ist nicht, daß er die Vorstellung der Gegenstände deutlich macht, sondern daß er die Vorstellung eines Gegenstandes überhaupt möglich macht.”67 That is, the intellect does not first become involved when sensations are made distinct, but the intellect, through its concepts, is always already part of experience.

Even if we are perfectly able to make distinctions between things – that is, to apply our concepts to the objects of sensation – this does not mean that the concepts we apply are themselves clear to us, according to Kant. But when a concept is obscure, this does not thereby entail that we lack the ability to make proper distinctions, as Wolff would have it. Kant wants to insert a level below that of clarity: the use of obscure concepts that nevertheless involves an ability to make proper distinctions between objects.

Clarity and obscurity as well as distinctness and indistinctness (or confusion68) are logical oppositions, Kant argues, and should therefore not be used to differentiate between faculties (intellect and sensibility), but should only be applied to concepts (the activity of the intellect).69 A clear but indistinct concept is one where we are aware of the mark that distinguishes it from other concepts; a concept that is both clear and distinct is one within which the

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66 Cf. Kant, Metaphysik von Schön, AA XXVIII, 495.
67 Kant, Kritik der reinen Vernunft, A199/B244 (trans. mod.): “Zu aller Erfahrung und deren Möglichkeit gehört Verstand, und das erste, was er dazu thut, ist nicht, daß er die Vorstellung der Gegenstände deutlich macht, sondern daß er die Vorstellung eines Gegenstandes überhaupt möglich macht.”
68 Kant thinks that we should speak of ‘indistinct’ rather than ‘confused’ representations. See, for example, Kant, Wiener Logik, AA XXIV, 805.
69 Kant, Kritik der reinen Vernunft, A44/B61.
marks—the constitutive components of the concept—are also clear (to some degree). The dichotomy is thus transferred from the act of distinguishing between objects to the distinction between, and within, concepts. That is, Kant separates the logical consideration of concepts in terms of clarity and distinctness from the issue of their application to objects. This avoids what, from Kant’s perspective, looks like a confusion in the Wolffian account, where clarity and distinctness could either be related to things or to ideas: on the one hand, we are said to differentiate between objects and their parts; on the other, we are said to differentiate between the marks of ideas.

Making Obscure Concepts Clear and Distinct

Many of our concepts are too obscure for us to be able to state which marks distinguish them from others, Kant thinks. Yet, we are able to use them, and therefore must be aware of some distinctions, otherwise we would be completely in the dark. But what kind of awareness does this ability require? Kant named the concepts justice (Recht) and fairness (Billigkeit) as examples in the quote above, and they are recurring examples of obscure concepts in his works. “Philosophers and jurists have not yet been able to develop and to explicate the concepts of justice and fairness,” Kant says in one of his lectures. “But we need only give one of them a case in concreto and he will quickly say to what extent it is just, and to what extent it is fair.” Kant’s point is that we might very well be able to distinguish between what is just and what is fair in a given case without thereby being aware of the marks that are involved in making this distinction. The objects are thought through the concepts and their marks, and it is by means of these concepts that we are able to discriminate between the objects. But it is one thing to use a concept and another to be aware of what one is thereby doing, on a conceptual level.

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70 Kant, Wiener Logik, AA XXIV, 843–44: “Philosophen und Juristen haben den Begriff von Recht und Billigkeit noch nie entwickeln und auseinander setzen können. Aber man darf einem nur einen Fall in concreto geben, so wird er bald sagen, in wie fern es recht, und in wie fern es billig ist.” Kant refers here to the distinction between judging concretely and judging abstractly. When we judge concretely, we do so by means of examples, and know the rules of judgment only as embodied in concrete cases; when we judge abstractly, we have insight into the rules of judgment themselves (see Ibid., AA XXIV, 795).

71 In Die Metaphysik der Sitten, Kant provides examples of such cases: “Suppose that the terms on which a trading company was formed were that the partners should share equally in the profits, but that one partner nevertheless did more than the others and so lost more when the company met with reverses. By fairness he can demand more from the company than merely an equal share with the others. In accordance with proper (strict) justice, however, his demand would be refused” (Kant, Die Metaphysik der Sitten, AA VI, 234; trans. mod.).

72 There are passages where Kant speaks of both sensible and intellectual distinctness (see, for example, Kant, Kant’s handschriftlicher Nachlaß: Logik, R1690; Logik Pölitz, AA XXIV, 511). And commentators sympathetic to a ‘Wolffian’ reading of Kant’s concept of awareness often cite this fact (see, for example, Dyck, “A Wolff in Kant’s Clothing,” 47; Sturm and Wunderlich, “Kant and the Scientific Study of Consciousness,” 55; Wunderlich, Kant und die Bewusstseinstheorien des 18. Jahrhunderts, 140). It is not evident, however, how this is to be squared with the fact that Kant repeatedly
In a discussion of definitions towards the end of *Kritik der reinen Vernunft*, Kant returns to the examples of justice and fairness. Together with substance and cause, justice and fairness are given as examples of concepts that cannot, strictly speaking, be provided with a definition, since they are given *a priori*. He offers the following clarification:

For I can never be certain that the distinct representation of a (still confused) given concept has been exhaustively developed unless I know that it is adequate to the object. But since the concept of the latter, as it is given, can contain many obscure representations, which we pass by in our analysis though we always use them in application, the exhaustiveness of the analysis of my concept is always doubtful, and by many appropriate examples can only be made *probably* but never *apodictically* certain.73

We are able to use these concepts, but incapable of providing a complete account of the marks contained in them (or at least we cannot be certain that our account is complete). That is, although we are able to “use” these marks in the application of the concept, we might still “pass by” them when we analyze the concept. The success of an attempt to explain such a concept can only be tested by examining if the explanation fits the object of the concept, for example cases of justice and fairness. Still, the exhaustiveness of the explanation can at best become probable through testing, because we could never completely survey all possible applications of the concept. It is worth noting that the ability to check an explanation of a concept against its object (the examples) presupposes that we already can use the concept, for otherwise we would not be able to single out the “appropriate examples” of the concept. Without this discriminatory capacity, we would have had nothing to test the explanation against; the explanation of a concept is checked against its use.

The obscurity of a concept thus does not, as Wolff would have it, entail an inability to make proper distinctions. Obscurity, according to Kant, is only a lack of logical clarity, and is compatible with a perfectly sound ability to use the concept:

The difference between an indistinct and a distinct representation is merely logical, and does not concern the content. Without doubt the concept of justice that is used by the healthy intellect contains the very same things that the most subtle

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speculation can evolve out of it, only in common and practical use one is not aware of these manifold representations in these thoughts.\textsuperscript{74}

In this critique of his predecessors, Kant still retains a fundamentally Wolffian conception of awareness. For as we have seen, he is reworking the old model through his own distinction between intuitions and concepts. Baumgarten said that in sensitive knowledge, we perceive the marks by which we distinguish objects, but are not aware of them. Kant argues instead that in sensitive knowledge (experience), we apply conceptual marks when we distinctions between objects, but we might not be aware that we are applying them.

Acquaintance and Comprehension

In this section, the results from our previous investigation will be applied to Kant’s discussion of the different degrees to which knowledge can be elevated. I will focus on two of these – acquaintance and comprehension – and argue that Kant’s distinction functions as a replacement for the division between sensitive and intellectual knowledge in the Wolffian tradition. Acquaintance is a form of knowledge in which we use concepts without necessarily being aware of the marks that we thereby apply and comprehension is a form of knowledge that is attained when the formerly obscure use of a concept is made clear and distinct.

The Different Degrees of Knowledge

A recurring theme in Kant’s lectures on logic is his account of the different levels to which knowledge (Erkenntnis) can be elevated. Although Kant’s account varies somewhat over the years and between different lectures, I propose the following reconstruction as an ideal type of his taxonomy:

1. to represent (vorstellen, repraesentare)
2. to perceive (wahrnehmen, percipere)
3. to be acquainted with (kennen, nosere)
4. to comprehend (verstehen, intelligere)
5. to have insight (einsehen, perspicere)
6. to grasp (begreifen, comprehendere)\textsuperscript{75}

\textsuperscript{74} Ibid., A43/B60–61 (trans. mod.): “Der Unterschied einer undeutlichen von der deutlichen Vorstellung ist bloß logisch und betrifft nicht den Inhalt. Ohne Zweifel enthält der Begriff von Recht, dessen sich der gesunde Verstand bedient, eben dasselbe, was die subtilste Speculation aus ihm entwickeln kann, nur daß im gemeinen und praktischen Gebrauche man sich dieser mannigfaltigen Vorstellungen in diesem Gedanken nicht bewußt ist.”

\textsuperscript{75} The names of 1 and 3–6 are completely stable in Kant’s lectures (although the Latin is not always provided). One lecture lists concipere instead of perspicere, but this may very well be an error on the
As will be shown more extensively in Chapter Two, the last three degrees in this taxonomy—comprehension, insight, and grasping—restate the Wolffian orthodoxy in these matters. According to Wolff, to comprehend something is to have distinct knowledge of its immediate marks; to have insight into something is to have inferential knowledge from grounds; and to grasp something is to have inferential knowledge from first grounds.76 Wolff, in turn, drew on traditional Aristotelian epistemology: comprehension, as we will see in Chapter Two, corresponds to what Aristotle calls noûs (‘comprehension’), which is knowledge of indemonstrable principles, while grasping is related to the what Aristotle calls epistēmē (‘understanding’), since to grasp something is to have explanatory knowledge of why it is as it is.

All this will be explained more thoroughly later on. For now, I would like to focus on the distinction between ‘acquaintance’ and ‘comprehension.’ The first two stages in Kant’s taxonomy—representation and perception—should, properly speaking, be classified as proto-knowledge.77 But what about the third? Kant says repeatedly that to be acquainted with something is to know (erkennen) it in comparison with other things with respect to identity and difference, whereas we are said to comprehend something when we know it through the intellect.78 Curtis Sommerlatte argues that acquaintance is attained through intuitions alone, which intuitively present the marks that are compared, whereas comprehension is a conceptual awareness of the reasons for making distinctions between things. Taken together, acquaintance and comprehension make Erkenntnis possible, he argues, since the latter requires the combination of intuitions and concepts.79

76 That ‘comprehension,’ ‘insight’ and ‘grasping’ are well established terms in the Wolffian tradition explains why they remain fairly stable throughout Kant’s various accounts of the taxonomy. The second and third degrees fluctuate more, which is also what one would have expected, given that Kant—after having distinguished between intuitions and concepts—introduces a distinction between ‘representation,’ ‘perception’ and ‘knowledge’ (the first two of which are part of the taxonomy), not found in the Wolffian tradition. See Kant, Kritik der reinen Vernunft, A320/B376–77.

77 See Ibid.

78 See Kant, Logik Blomberg, AA XXIV, 135; Logik Philipp, AA XXIV, 418; Logik Dohna-Wundlacken, AA XXIV, 730; Kant’s handschriftlicher Nachlaß: Logik, R2394.

79 Sommerlatte, The Central Role of Cognition in Kant’s Transcendental Deduction, 41–42. Observe that Sommerlatte renders verstehen as ‘to understand’ instead of ‘to comprehend.’
Sommerlatte does not recognize, however, that Kant is appealing to well-established Wolffian distinctions in this context. For Wolff, ‘comprehension’ is a technical term with a very precise meaning: it is distinct knowledge, and more specifically, distinct knowledge of the first grounds from which demonstrative knowledge must begin (see Chapter Two). That is, comprehension is the first stage of intellectual knowledge; as we saw in the previous section, Wolff takes sensitive knowledge to be clear but confused, and intellectual knowledge to be clear and distinct. When we transition from the former to the latter, we comprehend the thing, that is, we attain clear knowledge of the marks that distinguish the thing from other things (marks which were previously obscure).

Kant appeals to this Wolffian idea when he explains comprehension as knowledge through the intellect. 80 This is the kind of knowledge we have when we are aware of the ‘difference,’ in the sense described in the previous section. But unlike his predecessors, Kant does not oppose this awareness of marks and differences to a pre-conceptual, exclusively sensitive knowledge; rather, it is distinguished from the use of concepts in our knowledge of objects. Kant seems to introduce the term ‘acquaintance’ to identify this specific kind of knowledge that precedes comprehension, and which, structurally, has the same position as sensitive knowledge had in the Wolffian tradition. 81 This parallel is particularly evident in one of Kant’s lectures from the 1770s, where he says that “we are acquainted with light and color, but do not comprehend this.” 82 We can recall that Wolff took colors to be paradigmatic examples of clear but confused conceptions – sensitive knowledge. What Kant is suggesting is that we can differentiate between colors, without knowing the marks and differences that distinguish them from each other.

Human and Animal Knowledge

A potential problem for this interpretation is posed by Kant’s occasional ascription of acquaintance to animals. There is good reason to think that Kant does not attribute awareness, and hence the capacity for conceptual thought, to animals. 83 Kant thinks that while animals have sensation and imagination

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80 It is worth noting here that in his lectures on logic from the early 1770s, Kant – like Wolff before him – describes comprehension as distinct knowledge through the intellect (see Kant, Logik Blomberg, AA XXIV, 133–35; Logik Philippi, AA XXIV, 418). As we have seen, Wolff considered sensitive knowledge to be clear but confused and intellectual knowledge to be clear and distinct. At this time, Kant has not yet developed his distinction between intuition and concept; in calling comprehension ‘distinct’ knowledge, he does not yet question this Wolffian opposition between sensibility and intellect. From the 1780s onward, however, Kant no longer calls comprehension ‘distinct’ knowledge, but only knowledge through the intellect. Presumably, this is because clarity and distinctness have been moved into the area of logic.

81 To my knowledge, Wolff does not use kennen and nosce as technical terms.

82 Kant, Logik Philippi, AA XXIV, 419 (my trans.): “Licht und Farbe kennen wir, aber wir verstehens nicht.”

they lack intellect. Yet, he says that “animals also have acquaintance but not with awareness.”84 Now, if animals lack the capacity for conceptual thought, but are capable of acquaintance, then it seems reasonable to take the latter to designate something pre-conceptual, as Sommerlatte does.85

On closer inspection, one finds that Kant is actually ascribing a lower form of acquaintance to animals, for “animals indeed compare representations with one another, but they are not aware of where the harmony or disharmony between them lies.”86 “The comparison of representations of which animals are capable is achieved instinctively, by means of sensation and imagination: “The dog distinguishes the roast from the loaf,” Kant explains in an essay from the early 1760s, “and it does so because the way in which it is affected by the roast is different from the way in which it is affected by the loaf (for different things cause different sensations).”87 Kant seems to continue to adhere to this conception of the animal mind throughout his intellectual development.

On Sommerlatte’s interpretation, comprehension would be added on top of this primitive form of animal representation to constitute Erkenntnis (which he calls ‘cognition’ and I call ‘knowledge’) in humans. But this does not seem to be what Kant is arguing. Animals, Kant says, possess an analogue of reason (analogon rationis) in their instincts – supposingly implanted in them by “a higher reason”88 – and operate only through laws of sensibility. And since they lack the capacity for discursive thought, the operation of their minds differs in kind (species), and not only in degree, from the minds of humans.89 Whereas animals instinctively compare the objects provided to them by the senses, humans compare objects by means of conceptual marks of identity and difference.90 As Kant says, echoing Baumgarten: “that which contains the ground for the comparison with other things is called a ‘mark.’”91

It is presumably by means of such conceptual marks that we humans – as discursive beings – have acquaintance of objects. Such marks are used in acquaintance, and when we become aware of them, we attain comprehension. If this interpretation is correct, comprehension should not be understood as

85 See also Sommerlatte, “Erkenntnis in Kant’s Logical Works,” 1419.
86 Kant, Metaphysik Mrongovius, AA XXIX, 888 (trans. mod.): “Thiere vergleichen zwar Vorstellungen mit einander, aber sie sind sich nicht bewußt, worin sie mit einander harmoniren oder disharmoniren.”
87 Kant, “Die falsche Spitzfindigkeit,” AA II, 60 (trans. mod.): “Der Hund unterscheidet den Braten vom Brote, weil er anders vom Brote gerührt wird (denn verschiedene Dinge versachen verschiedene Empfindungen).”
88 Kant, Metaphysik L2, XXVIII, 594: “eine höhere Vernunft”.
89 See Kant, Metaphysik Dobma, AA XXVIII, 690; Metaphysik L2, AA XXVIII, 276; Metaphysik L2, AA XXVIII, 594; Metaphysik Volckmann, AA XXVIII, 450.
90 See Kant, Logik Dobna-Wundlacken, AA XXIV, 725.
91 Kant, Logik Philipp, AA XXIV, 407 (my trans.): “Das heißt nun ein Merkmal was den Grund der Vergleichung mit andern enthält.” See also Kant, Logik Blomberg, AA XXIV, 106.
a discursive capacity added on top of intuitive acquaintance. Acquaintance is already discursive, and comprehension only articulates the conceptual content that was already contained in the former, although perhaps obscurely. When discursivity is added to sensibility in humans, acquaintance is completely transformed. For this reason, animals can only be said to possess an analogue of human (discursive) acquaintance.

Kant’s refusal to attribute awareness to animals does therefore not entail that they lack phenomenal consciousness in the modern sense. Kant clearly attributes both sensation and imagination to animals, and is explicitly opposed to purely mechanistic explanations of animal behavior that do not ascribe representational faculties to animals. What he claims is that animals lack the capacity for discursive thought, and concepts really are nothing but more or less fine-grained forms of awareness. Awareness is established by making distinctions, and this is achieved through conceptual marks.

The Distinction between a priori and a posteriori

In this section, we will extend the analysis presented in the previous two sections by connecting it to the distinction between a priori and a posteriori. I will begin with an explanation of the traditional understanding of this distinction, according to which we have knowledge a priori when our explanation of it proceeds from what is prior in nature. Then I show that Kant, on occasion, still understood the distinction in a traditional way. Lastly, I explain why Kant thinks that experience can only provide general and contingent judgments, and never truly universal judgments.

Prior in Nature and Prior in Relation to Us

A further Aristotelian distinction can be added to the Aristotelian or Porphyrian hierarchical order proceeding from the highest genus to the lowest species: that between what is ‘prior in nature’ and what is ‘prior in relation to us.’ Aristotle says that:

Things are prior and more familiar in two ways; for it is not the same to be prior by nature and prior in relation to us, nor to be more familiar and more familiar to

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92 Kant’s concept of Empfindung (‘sensation’) comes closest to expressing these kinds of features. See Sturm and Wunderlich, “Kant and the Scientific Study of Consciousness,” 57–59.
93 See McLear, “Kant on Animal Consciousness,” 5.
94 This is also a reason why ‘awareness’ seems to better capture what Kant is talking about than ‘consciousness.’ That we are able to use concepts, without being aware of all the conceptual marks that we apply, is easy to understand. But are these unconscious? Perhaps one could say so, but that easily leads down the wrong tracks, when we start to speak of having unconscious representations etcetera.
us. I call prior and more familiar in relation to us items which are nearer to perception, prior and more familiar absolutely \(\text{haplōs}\) items which are further away. What is most universal is furthest away, and the particulars are nearest – these are opposite to each other.\(^{95}\)

In this order, the highest genus is prior in nature, since it is more universal, and the lowest species is prior in relation to us. In the Scholastic tradition, this distinction between what is prior ‘absolutely’ (\(\text{haplōs}\) or \(\text{simpliciter}\)) and what is prior in relation to us was coupled with Aristotle’s distinction between demonstrations that explain ‘why’ (\(\text{dióti}\) or \(\text{propter quid}\)) something is the case and demonstrations that merely prove ‘that’ (\(\text{hóti}\) or \(\text{quia}\)) something is the case (we will return to this distinction in Chapter Two).\(^{96}\) Here is what Thomas Aquinas says:

Demonstration can be made in two ways: One is through the cause, and is called \(\text{propter quid}\), and this is to argue from what is prior absolutely. The other is through the effect, and is called a demonstration \(\text{quia}\), this is to argue from what is prior in relation to us.\(^{97}\)

To my knowledge, William of Ockham is the first known source to call demonstration \(\text{propter quid}\) by the name \(\text{a priori}\) (‘from what is prior’) and demonstration \(\text{quia}\) by the name \(\text{a posteriori}\) (‘from what is posterior’).\(^{98}\) His reason for giving these names to the classical distinction was that the premises of the first kind of demonstration “are absolutely prior to the conclusion,” whereas the premises of the second are better known to the one performing the proof.\(^{99}\) The order of priority referred to as \(\text{a priori}\) is thus what Aristotle calls a priority in ‘nature.’\(^{100}\)

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\(^{95}\) Aristotle, *Posterior Analytics*, 71b–72a (trans. mod.).

\(^{96}\) William of Moerbeke, on whose translation of the *Posterior Analytics* Aquinas probably relied, rendered Aristotle’s distinction between knowing \(\text{hóti}\) and knowing \(\text{dióti}\) as \(\text{quia}\) (‘that’) and \(\text{propter quid}\) (‘on account of what’), respectively, and \(\text{haplōs}\) as \(\text{simpliciter}\) (‘simply’ or ‘absolutely’). See, for example, Aristotle, *Analytica posteriora*, recensio Guillelmi de Moerbeka, 286, 299 (Bekker 71b–72a, 78a).


\(^{98}\) Ockham is often identified as the one who first gave the terms their canonical definitions (see, for example, Miller, “Spinoza and the \(\text{a priori}\),” 556–57; Biard, *Science et nature*, 172; Palkoska, *The \(\text{a priori}\) in the Thought of Descartes*, 320–21). However, as Martin Pickavé points out, the way the distinction is presented by Ockham “gives the impression that it is a way of speaking already common.” (Pickavé, “La notion d’\(\text{a priori}\) chez Descartes et les philosophes médiévaux,” 434–35; my trans.) Aquinas used the distinction in a completely different way (see Aquinas, *Expositio libri Posteriorum*, lib. 1 l. 42 n. 3). For a discussion, see Biard, *Science et nature*, 171–72.

\(^{99}\) Ockham, *Summa logicae*, bk. 3.2, chap. 17 (my trans.): “sunt simpliciter priores conclusiones”.

\(^{100}\) It has been noted that the distinctions \(\text{propter quid} / \text{quia}\) and \(\text{a priori} / \text{a posteriori}\) are not completely identical for Ockham. There are, for example, demonstrations that are \(\text{a priori}\) and still \(\text{quia}\). See Mittelstrass, “Changing Concepts of the \(\text{a priori}\),” 116; Pickavé, “La notion d’\(\text{a priori}\) chez Descartes et les philosophes médiévaux,” 437.
This is the formation of the traditional distinction between *a priori* and *a posteriori* demonstrations that explain a fact from what is prior in nature and demonstrations that merely prove the fact, respectively. With time, proofs *a posteriori* often came to be associated with experiential knowledge, both because experience merely proves *that* something is the case and because the immediate objects of experience are ‘prior in relation to us.’ Those things that are located higher in the Porphyrian Tree are more universal and thus prior in nature, whereas those things that are lower are prior in relation to us. Individual (primary) substances – Peter and Paul, in fig. 1.2 – are the first objects of our knowledge, and only by beginning from such objects can we eventually arrive at more universal knowledge.

The Persistence of the Traditional Conception

This traditional distinction between *a priori* and *a posteriori* was still very much in vogue in German Enlightenment philosophy. In a particularly clear case, the philosopher Christian August Crusius explicitly develops it through the Aristotelian distinction between knowing *that* and knowing *why*.

A *proof* is either *a priori*, if the truth of the conclusion is derived from its ground, which makes it true, so that it is understood *verstehet* not only *that* but *why* it is true. A *proof a posteriori* is when the truth of the conclusion is derived from a ground of knowledge which only indicates *that* it is true, so that it is understood *that* the thing is so, but not yet *why* it is so.

There are three kinds of proofs *a posteriori*, according to Crusius: proofs from experience, inferences from effects to causes, and proofs by contradiction. That proofs by contradiction are classified as *a posteriori* might be surprising, given that, since Kant, we have come to associate the expression with experience. In the 1770s, however, Kant called proofs by contradiction *a posteriori*, as did Leibniz before him, and precisely for the reason that they prove only *that* something is true, not *why*.

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102 Crusius, *Weg zur Gewißheit*, §47 (my trans.): “ein Beweis [ist] entweder *a priori*, wenn man die Wahrheit der Conclusion aus ihrem Grunde, welcher macht, daß sie wahr ist, also herleitet, daß man daraus verstehet, nicht nur daß, sondern *warum* sie wahr ist. Ein Beweis *a posteriori* ist, da man die Wahrheit der Conclusion aus einem Erkenntnisgrunde, welcher nur anzeigt, daß sie wahr ist, dergestalt herleitet, daß man daraus nur verstehet, daß die Sache also sey, noch nicht aber, *warum* sie also ist.”

103 Ibid., §524.

104 See Adams, *Leibniz*, 109; Kant, *Logik Philippi*, AA XXIV, 393. But later on Kant will say that “We prove *a posteriori* when we prove through experience, *a priori* when we prove through reason.” (Kant, *Logik Busolt*, AA XXIV, 651; my trans.)
Even in the critical period, Kant would from time to time explain the distinction between *a priori* and *a posteriori* in the traditional way. I know something *a priori*, he says in one of his lectures on metaphysics, when “I begin from the grounds,” and I know something *a posteriori* when “I begin from the consequences.” Knowledge from experience is *a posteriori*, he continues, because “experience contains the last consequence of our knowledge.” As if tacitly recognizing that there are other kinds of knowledge that also fit this characterization (for example proofs by contradiction), however, Kant specifies that “from now on when we call knowledge *a posteriori*, then we are always understanding it to be from experience.”

In speaking of ‘grounds’ and ‘last consequences’ here, Kant is appealing to the Aristotelian distinction between what is prior in nature and what is prior in relation to us. As we saw above, experience comes last in the order of nature because, on Kant’s account, the process of conceptual determination comes to a halt in the application of a concept to an individual given through intuition. And we saw that, for Kant, experience attains the same position, structurally speaking, as individual substances have for Aristotle. The immediate experience of individuals is thus the lowest instance of knowledge, from which all empirical knowledge must begin. From such discrete instances of empirical knowledge, we make inductive generalizations to acquire empirical principles that can be used in chains of inference (we will return to the issue of induction below).

**Inferences from What Is Prior**

In *Kritik der reinen Vernunft*, Kant calls the highest point of the conceptual hierarchy the limit *a parte priori* (‘from the prior part’) and the lowest point the limit *a parte posteriori* (‘from the posterior part’). The former is the limit for grounds, the latter is the limit for consequences. We recognize here a traditional use of the distinction between *a priori* and *a posteriori*: it is a question of what is prior and posterior ‘absolutely,’ and not in relation to the acquisition of knowledge.

Kant invokes this distinction in a discussion of reason as the faculty of inference, and gives the following example:

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105 Kant, *Metaphysik Mrongovius*, AA XXIX, 748 (trans. mod.): “fan ge ich von den Gründen an”; “Fange ich von den Folgen an”; “die Erfahrung die letzte Folge unserer Erkenntniß enthält”; “und wenn wir künftig Erkenntniße *a posteriori* nennen, so verstehen wir immer solche, die aus der Erfahrung sind”.

106 See, for example, Kant, *Metaphysische Anfanggründe der Naturwissenschaft*, AA IV, 469; *Metaphysik Mrongovius*, AA XXIX, 751.
Everything composite is alterable. Bodies are composite. Consequently, bodies are alterable.\textsuperscript{107}

In this chain of reasoning, we begin from knowledge that is “more remote” (in relation to us), move forward to something “closer,” and finally arrive at the conclusion.\textsuperscript{108} But since our knowledge of the conclusion is conditioned, this knowledge is only attainable under the presupposition that the total series of premises can be provided, for “only under this presupposition is the judgment before us possible \textit{a priori}.”\textsuperscript{109} That is, only under the presupposition that the complete series of conditions can be given is this judgment something that is, in principle, possible \textit{a priori}.

From this passage, we get the picture that a judgment \textit{a priori} is one that is derived from marks higher up in the Porphyrian Tree (they are absolutely prior, more universal). In Kant’s example, compositionality is an essential part of the concept body (it is not derivable from something more immediate), whereas alterability is not. However, since alterability is a mark of compositionality – which is what the inference reveals – it belongs necessarily to the concept body (it is an ‘attribute’ of the concept, since attributes are necessary, but not essential, marks of concepts). By revealing this structure of the concept, the inference makes it \textit{distinct}.

It is against this backdrop that the distinction between analytic and synthetic judgments become intelligible. Kant explains the distinction in the following way:

\begin{quote}
Either the predicate \textit{B} belongs to the subject \textit{A} as something that is (covertly) contained in this concept \textit{A}; or \textit{B} lies entirely outside the concept \textit{A}, though to be sure it stands in connection with it. In the first case I call the judgment ‘analytic,’ in the second ‘synthetic.’\textsuperscript{110}
\end{quote}

To be contained ‘in’ a concept is not a mere metaphor, but refers to the structure of the Porphyrian Tree.\textsuperscript{111} To be contained ‘in’ a concept is to be a mark located higher in the conceptual tree, either higher in the tree of genera or higher in the tree that could be constructed for any of the specific differences.

\textsuperscript{107} Kant, \textit{Kritik der reinen Vernunft}, A330–31/B387: “alles Zusammengesetzte ist veränderlich”; “die Körper sind zusammengesetzt”; “folglich sind die Körper veränderlich”. The proposition ‘bodies are composite’ is an example of an indemonstrable proposition. That is, it cannot be further derived from something more primitive, but simply states an essential part of the concept of body.
\textsuperscript{108} Ibid.: “entfernern”; “nähere”.
\textsuperscript{109} Ibid., A331/B388: “nur unter deren Voraussetzung das vorliegende Urtheil \textit{a priori} möglich ist!”
\textsuperscript{110} Ibid., A6/B10 (trans. mod.): “Entweder das Prädicat \textit{B} gehört zum Subject \textit{A} als etwas, was in diesem Begriffe \textit{A} (versteckter Weise) enthalten ist; oder \textit{B} liegt ganz außer dem Begriff \textit{A}, ob es zwar mit demselben in Verknüpfung steht. Im ersten Fall nenne ich das Urtheil analytisch, in dem andern synthetisch.”
To be contained ‘under’ a concept is to be located further down in the conceptual tree. In the example above, alterability is contained in the concept body, and if we are not aware of this containment, the mark is obscure and can be brought to light through a process of analysis. The analysis is said to ‘clarify’ the concept, since it displays marks that are obscurely contained in the concept. Analytical judgments are a priori because they use something higher in the conceptual tree as a ground for knowing something lower. In Kant’s example, it is explained that bodies are alterable because alterability is a mark of compositionality. The proposition ‘bodies are composite’, one the other hand, is indemonstrable, since it is not derivable from some more immediate mark of the concept. Presumably, as discussed in the previous section, such indemonstrable propositions are the proper objects of comprehension; when we know such propositions, we are aware of the immediate marks contained in a concept (whereas an awareness of mediate marks would instead qualify as having insight).

Inductive Inferences

In the example above, the inferential process moved from the universal to the particular – from the more general to the less general. It made the concept body more distinct by showing a mark that was previously obscurely contained in the concept. In empirical judgments, the predicate attributed to a subject is not contained in the concept itself in this way; for this reason, empirical judgments are synthetic and not analytic. It was noted above that the empirical judgment is the ‘last consequence’ in the hierarchical order of knowledge. But in what way does empirical knowledge begin from consequences? This question can be answered by turning to the issue of induction.

In his lectures on logic, Kant classifies inductions as enthymemes, that is, syllogisms with an unstated major premise. “The rule of reason in the case of apodeictic certainty in inferences always goes from the universal to the particular,” Kant says, but there are, nonetheless, inferences – and induction is one of them – where we move in the other direction. This mode of inference is “completely opposed to logical rule, to be sure, but we cannot do

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112 On this distinction between being contained ‘in’ and ‘under’ a concept, see, for example, Kant, Logik Dohna-Wundlacken, AA XXIV, 760–62.
113 For an account of how analytical judgments can provide Erkenntnis, see Tolley, “Kant on the Place of Cognition in the Progression of Our Representations,” sec. 5.
114 Kant associates having comprehension with being able to define something. See Kant, Logik Dohna-Wundlacken, XXIV, 730; Kant’s handschriftlicher Nachlaß: Logik, R1729, R2986.
115 See Kant, Logik Blomberg, AA XXIV, 287; Logik Philippi, AA XXIV, 477–78; Logik Pölitz, AA XXIV, 594; Logik Busolt, AA XXIV, 678–79. Kant’s predecessors also understood inductions to be enthymemes. See, for example, Meier, Vernunftlehre, §429.
without it, and along with it most of our knowledge would have to be abolished at the same time.”

In *Kritik der reinen Vernunft*, he explains that:

> Experience never gives its judgments true or strict, but only assumed and comparative, *universality* (through induction), so properly it must be said: as far as we have yet perceived, there is no exception to this or that rule. [...] Empirical universality is therefore only an arbitrary increase in validity from that which holds in most cases to that which holds in all, as in, e.g., the proposition ‘All bodies are heavy.’

Induction moves from the particular to the general, and proceeds according to a principle of generalization that Kant formulates in the following way in his lectures on logic: “What belongs to many things of a genus, belongs also to the remaining ones.” This principle extends a property from *some* instances of a genus to *all*, and not from some or all instances of a genus to the genus itself. For this reason, the judgment is said to be *general* and not universal. In a Reflection, Kant explains the difference between the two:

> Logical universality says something about genus or species, and not about all individuals in an aggregate of a genus or a species, for the latter yields only particular propositions. Such as: ‘all the planets of our system are dark bodies.’

When something is predicated universally, it belongs necessarily to the genus or species in question, that is, it is part of what it is to *be* this genus or species (or can be derived from the essence). When something is predicated generally, however, the predicate belongs to all individuals subsumed under a genus or species. What belongs to a genus or species will also belong to all individuals subsumed under it, but what belongs to all individuals will not necessarily

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119 Kant, *Kant's handschriftlicher Nachlaß Logik*, R3284 (my trans.): “Was vielen Dingen einer Gattung zukommt, kommt auch den übrigen zu.” On Kant’s notion of induction, see Vanzo, “Kant on Experiment,” esp. 82.

120 Contrast this formulation of the principle of generalization to Georg Friedrich Meier’s, which predicates the property to the genus. See Meier, *Vernunftlehre*, §429.

121 Cf. Ibid., R3282.
belong to the genus or species itself. For this reason, Kant says that “Empirical universality is only an analogue of logical universality.” However thoroughly we investigate the properties of individual things, we will never reach what belong to them necessarily, in virtue of being this kind of thing. When a predicate is acquired through experience, it is always contingently attributed to the individual. Empirical universality (generality) is only an analogue of logical universality, because it attributes a property to all individuals subsumed under a concept (for example, Peter, Paul and all other humans contained under the species man), whereas logical universality attributes a property to the genus or species itself (for example, ‘man is a living being’), and as a consequence to any individual subsumed under the concept.

The universality of the judgment ‘all bodies are alterable’ arises from what is contained in the concept body, and alterability is a necessary feature of all individual bodies, since the mark is part of what it is to be a body; to the extent that an individual is a body, it is also alterable. The judgment ‘all bodies are heavy’ cannot be derived in this way, however. It proceeds from the bottom up in the hierarchy of knowledge, that is, a parte posteriori. For Kant, the problem with induction is that we can never reach the genus or species from individuals. Even when we make ever more general judgments – all cows are heavy, all mammals are heavy, all animals are heavy, etcetera – we do not attribute the property to higher and higher genera, but only abstract more and more with regard to the subject-term under which individuals are subsumed.

Concepts are in themselves general, which means that they can be applied on indefinite number of occasions. Only intuitions are individual, and therefore it is only by applying concepts to intuitions that concepts obtain to individuals. In our example, the concepts body and heavy are applied to empirical intuitions, and when they are applied to the same object, an intuited body is determined as being heavy. Given that we have established that a sufficiently large number of bodies are heavy, we might conjecture through induction that ‘all bodies are heavy.’ But this judgment does not attribute something to the species body; it attributes something to all individuals in an aggregate of the species. For this reason, the judgment is contingent: heaviness is not part of what it is to be a body as such.

Conclusion

In this chapter, I have examined Kant’s conception of experience. It has been related both to Early Modern experimentalism and to Wolffian tradition. We have seen that experience, for Kant, is not passive and receptive, but something that is achieved through the work of the intellect. In the first section, I

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123 Ibid., R3286 (my trans.): “Empirische allgemeinheit ist nur analogon der logischen.”
situated this notion of experience in the context of the Early Modern experimental conception of experience, that is, in terms of the techniques of observation and experiment. The bedrock of experience consists of discrete knowledge of individual events.

In the second section, we saw that Kant understands concepts as being ordered in hierarchies of genera and species, in continuity with the Porphyrian theory of predicables. Moreover, he interprets this theory through the Wolffian conception of awareness. I argued that Kant retains an essentially Wolffian understanding of awareness, but reconceives this theory through his own distinction between intuitions and concepts in such a way that awareness results from conceptual discrimination. Contrary to the Wolffians, Kant does not draw a strict line between sensitive and intellectual knowledge, but argues that sensitive knowledge, or experience, always already involves the work of the intellect, through the application of concepts. However, on Kant’s account, the capacity to use concepts does not entail that we are aware of what is contained in the concepts we apply. We must therefore distinguish between the use of a concept – the content of which often escapes our awareness – and the logical clarification of the marks contained in this concept.

In the third section, I argued that what Kant calls ‘acquaintance’ functions as a replacement for what the Wolffian tradition calls ‘sensitive knowledge.’ It is a form of knowledge where we differentiate between things, but are unaware of the marks by which this differentiation is achieved. When we become aware of what we actually do when we apply concepts, we do not transition from sensitive to intellectual knowledge, however – as Kant’s Wolffian predecessors argued – but rather articulate the conceptual content that was always already present in our experiential knowledge: we ‘comprehend’ the thing.

In the fourth section, I argued that Kant, on occasion, still used the distinction between a priori and a posteriori in a traditional way. When we know something a priori, we know it from its grounds (which are prior in nature); and when we know something a posteriori, we know it from its consequences (which are prior in relation to us). Inferences, properly speaking, should proceed from the universal to the particular. But in induction, we conjecturally infer from what holds in many instances to what holds in all. The propositions acquired in this way will only be general – they will attribute a property to all individuals contained under a genus or species (a concept) – but never truly universal, since they cannot determine what belongs to the genus or species itself, that is, what it is to be this kind of thing.

It is illuminating to contrast Kant and Aristotle on the issue of comprehension. For Aristotle, sense perceptions are abstracted from individual substances; from such perceptions, the indivisible form or lowest species, the form man, for instance, can be abstracted. Through further abstraction, from the form man, we can attain the genus animal, then living being, and so on. These abstracted forms reflect the ontological order of nature. They are acquired
through *epagogē* (‘induction’) – which is a matter of seeing the universal in the particular – and the knowledge attained through induction Aristotle calls *noûs*, or ‘comprehension.’

As we will see in the next chapter, Kant’s notion of comprehension is related back to the Aristotle through Wolff. But for Kant, comprehension is separated from induction: induction, as we have seen, only provides conjectural generalizations, never universal propositions. Furthermore, the process of acquiring universal propositions, such as ‘bodies are extended’, is not, for Kant, a matter of abstracting a universal content from experience; rather, it is a matter of clarifying the spontaneous activity of the intellect itself, which produces concepts that are *used* in knowledge.¹²⁴ Kant writes that

> although all our knowledge commences *with* experience, yet it does not on that account all arise *from* experience. For it could well be that even our experiential knowledge is a composite of that which we receive through impressions and that which our own faculty of knowledge (merely prompted by sensible impressions) provides out of itself, which addition we cannot distinguish from that fundamental material until long practice has made us attentive to it and skilled in separating it out.¹²⁵

Experiential knowledge is *prior in relation to us*, to use Aristotle’s terminology; it is the knowledge we acquire first. But contained in this knowledge are concepts that we are not yet aware of applying, and these concepts, furthermore, are conditions that make experience possible. They are therefore prior *absolutely* speaking, although we become aware of them only after “long practice.” Experience is a compound of impressions and concepts, but some of these concepts are infused by the intellect itself, they are given *a priori*. Our knowledge of the concepts that the intellect “provides out of itself” is posterior in relation to us (in the order of our acquisition of knowledge), but prior absolutely speaking, since these concepts make experiential knowledge possible in the first place.

Now, Kant conceives of the process of elucidating these conceptual conditions as one of becoming aware of what it is that we do (without being aware of it), and philosophy therefore does not teach us anything *new*:

> In analytic philosophy, I simply make obscure representations in the soul clear. For all propositions of philosophy are known to everyone, although only in obscure representations that are made clear and distinct through philosophy [so] that


¹²⁵ Ibid., B1–2 (trans. mod.): “aber gleich alle unsere Erkenntniß *mit* der Erfahrung anhebt, so entspringt sie darum doch nicht eben alle *aus* der Erfahrung. Denn es könnte wohl sein, daß selbst unsere Erfahrungserkenntniß ein Zusammengesetztes aus dem sei, was wir durch Eindrücke empfangen, und dem, was unser eigenes Erkenntnissvermögen (durch sinnliche Eindrücke bloß veranlaßt) aus sich selbst hergiebt, welchen Zusatz wir von jenem Grundstoffe nicht eher unterscheiden, als bis lange Übung uns darauf aufmerksam und zur Absonderung desselben geschickt gemacht hat.”
he becomes aware of them and so to speak remembers, as he feels that these are the same propositions of which he was also previously aware, albeit indistinctly. For example, if I speak about justice to someone who is not a legal scholar, he will concede [something] to me insofar as it appears to him that he had also previously known it.\(^{126}\)

Kant returns here to the example of justice (Recht) that we touched upon earlier, and he argues, we see, that the philosopher’s elucidation of such an \textit{a priori} concept will not teach anyone anything new.\(^{127}\) It will only reveal what we always already knew \textit{in practice} but were unaware of. For this reason, the common man in Kant’s example will accept the explanation of the concept when he recognizes it as something that he, in a sense, already knew. The work of philosophy is therefore a form of recollection of what the intellect has already provided out of itself:

The soul thus works for the most part in obscure representations, and it takes some time before one makes them clear. Hence Socrates rightly says: ‘I am not the teacher of my listeners, but only the midwife of their thoughts.’ For, as a midwife during the birth of a child brings the latter into the light, so, too, the philosopher brings the obscure representations of his listeners into the light and makes them clear.\(^{128}\)

For Kant, then, comprehension is a form of recollection of the spontaneous activity of the intellect: it is a form of self-knowledge of the intellect.

Nevertheless, comprehension still has the same function as in the original Aristotelian formulation: it is knowledge of indemonstrable principles. This knowledge, however, is not taken to reflect the ontological order of nature, but to express the activity of the intellect. In Aristotelian philosophy, comprehension provides the foundation for demonstrable knowledge. More specifically, it provides the foundation for \textit{epistêmē} (‘understanding’); explanatory knowledge of why things are as they are. This epistemic ideal is the subject of the next chapter, where I will argue that we find it expressed, not only in the Wolffian tradition, but also in Kant’s works. Yet, just as ‘comprehension’ is

\(^{126}\) Kant, \textit{Anthropologie Mrongovius}, AA XXV, 1221–22 (trans. mod.): “In der Analytischen Philosophie mache ich nur die dunklen Vorstellungen in der Seele klar. Denn alle Satze der Philosophie sind iederman bekannt aber nur in dunkeln Vorstellungen die durch die Philosophie klar und deutlich gemacht werden daß er sich derselben bewußt wird und so zu sagen erinnert indem er fühlt daß dieses dieselben Setze sind, der er sich vorher auch obgleich undeutlich bewußt war ZE. Wenn ich iemandem der kein Rechtsgelehrter ist, vom Recht sage so wird er mir so weit zu geben als es ihm scheint daß er es vorher auch gewußt habe[…].” Cf. Kant, \textit{Menschenkunde}, AA XXV, 871.

\(^{127}\) On this point, see Oberhausen, “Dunkle Vorstellungen als Thema,” 136.

reconceived as a recollection of the spontaneous activity of the intellect, so will the epistemic ideal of understanding be transformed, in Kant’s hands, into a self-understanding of reason: reason can only understand what it has brought about itself.
2. The Ideal of Knowledge

What do we strive for when we seek knowledge? One of the classical answers to this question, provided by Aristotle, is that we seek understanding. The mere gathering of bits and pieces of knowledge will not truly satisfy the mind – what we desire is to know why things are as they are, which requires a more comprehensive grasp of things. Robert Pasnau has argued that philosophers historically have showed little interest in analyzing ‘knowledge’ in the everyday sense of the term. Rather, they have concerned themselves primarily with the epistemic ideal to which men should aspire. The most influential case of such an epistemic ideal is undoubtedly the Aristotelian ideal of *epistēmē* (‘understanding’), which remained influential in the Western tradition for two millennia.

In this chapter, I will argue that Kant still considers the question of knowledge in light of this traditional Aristotelian ideal. He calls the ideal *Wissen*, which, in its strict form, should be read as ‘understanding,’ in the Aristotelian sense, although reconceived through the intellectual trends of the time. In reading Kant in this way, I go against the currently popular claim that Kant’s notion of *Wissen* presents a ‘traditional’ analysis of knowledge as justified true belief. Those who read Kant in this way, I argue, fail to place Kant’s discussion of knowledge in its proper intellectual setting. A great deal of this chapter will be devoted to re-enacting this lost context.

In the first section, I begin by returning to Aristotle for the first formulation of the epistemic ideal. This presentation is not meant to provide an exhaustive account of Aristotle’s thoughts on the matter, but merely to present the different elements of his account that will be important for the subsequent discussion of the absorption of the ideal into German Enlightenment philosophy. What Aristotle calls *epistēmē* (*scientia* in Latin) can refer either to a body of knowledge (a ‘science’) or to the state of mind of someone who has acquired such knowledge (‘understanding’). Since what Aristotle has in mind is not mere knowledge, but explanatory knowledge of why things are as they are, ‘understanding’ is a suitable term for this specific kind of knowledge.

Having briefly surveyed Aristotle’s notion, I examine how Christian Wolff adopts the epistemic ideal, and reconceives it through both the post-Cartesian ideal of clear and distinct thought, and the Early Modern conception of experience in terms of the dual techniques of observation and experiment.
Wolff calls the ideal *Wissenschaft*, which, like its Greek counterpart, can designate either a body of knowledge or a state of mind – science or understanding. I suggest that Kant replaces the second of the two with *Wissen*, and that this term, at least in its strict sense, designates an ideal of knowledge, whereas *Erkenntnis* is knowledge more generally.

In the second section, I re-enact the greater intellectual context in which Kant’s discussion of knowledge is situated. I begin by digressing for a moment on the conceptual history of *knowledge*, in its different forms, in eighteenth-century philosophy. By comparing the four main languages of intellectual discourse of the time – English, French, German, and Latin – I argue that these languages usually distinguished between knowledge in a general and comprehensive sense, on the one hand, and the Aristotelian ideal of knowledge, on the other. In German, *Erkenntnis* was the general term, whereas *Wissenschaft* designated the ideal, and I suggest that the former remains the general term for knowledge in Kant’s works. Next, I address an obvious problem for the suggestion that *Erkenntnis* is Kant’s general term for knowledge; namely, that Kant seems to allow for false *Erkenntnis*. This has led many of Kant’s interpreters to conclude that the term refers to some lower form of cognition, rather than knowledge. To the contrary, I argue that Kant explicitly claims that *Erkenntnis* requires truth, and that ‘false *Erkenntnis’ should be understood as apparent knowledge, that is, something that seems to be knowledge, but actually is not.

Having established the basic conceptual framework, I turn to Thomas Aquinas’s distinction between opinion, faith and understanding (*scientia*). In the German context – and in the Early Modern period more generally – discussions of the ideal of understanding typically distinguish it from opinion and faith. This tripartite distinction was originally made by Aquinas, and I therefore turn directly to the source. Aquinas drew the notions of opinion and understanding from Aristotle, and the notion of faith from Augustine. Opinion, faith and understanding were all considered forms of inferential knowledge – through probable proofs, through testimony or through demonstration, respectively. Of the three, understanding was considered the ideal form of knowledge whereby we come to see the truth intellectually, through the process of inference, whereas the other two were forms of knowledge in which we lack such insight.

In the final section, I study how Kant inherits this ideal of knowledge. I argue that when Kant says that understanding (*Wissen*) is based on an objectively sufficient ground, this means that it is inferred from a ground that provides certain knowledge of the conclusion. I argue that a ‘ground,’ in this context, is a known truth from which some other known truth is inferred. Following the Aristotelian tradition, Kant distinguishes between grounds that merely prove that something is true and grounds that also explain the truth. Moreover, Kant thinks that the latter is a ground properly speaking, since
grounds should provide insight, not just knowledge. Here, we witness the continued influence of the Aristotelian epistemic ideal, for only insight will properly satisfy reason for Kant. It is this kind of knowledge that comes under the heading of a priori. Since experience, as we saw in the previous chapter, can only provide knowledge of individual things, and generalizations from such knowledge, it is unable to convey understanding in the proper sense. Reason can only have insight into that which it brings about itself. The Aristotelian ideal is therefore transformed into a self-understanding of the activity of reason itself.

The Epistemic Ideal

Due to the influence of contemporary analytical epistemology, there is a widely held belief today that there is a ‘traditional’ analysis of knowledge, handed down throughout history from Plato on, which says that knowledge is justified true belief. During the last few decades, this idea has found its way into studies of Kant, where it is either taken for granted that ‘knowledge’ simply means ‘justified true belief’ – perhaps with some additional criterion – or explicitly argued that Kant held such a view. The attribution of such an analysis of knowledge to Kant might perhaps not seem very controversial, since – after Plato – Kant is the historical figure most commonly identified by epistemologists as a proponent of the traditional analysis.1 Epistemologists and Kantians thus mutually reinforce each other’s views – the former by finding a precursor in Kant, the latter by tacitly applying the apparatus of contemporary epistemology in their historical interpretations; namely, the latter assume we can translate Kant into “middle-to-late twentieth- and twenty-first-century philosophical English,” as Robert Hanna terms it, without thereby distorting the text.2

It is ironic that this conception of knowledge would gain traction in Kant scholarship just when the historical accuracy of this narrative has come to be severely criticized.3 Some of the critics of this narrative, however, have suggested that “the real beginning of the Standard Analysis is in the seventeenth century amidst the philosophical analysis performed in support of the new science.”4 Perhaps this might be a way forward for Kantians as well. Even if

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1 See Aaron, Knowing and the Function of Reason, 7–8; Shope, The Analysis of Knowing, 12–19; Sosa, Knowledge and Justification, 1:99; Moser, Knowledge and Evidence, 232; Hendricks, Mainstream and Formal Epistemology, 13; Daney, Sosa, and Steup, A Companion to Epistemology, 395.
2 Hanna, Kant, Science, and Human Nature, 6, n. 18.
4 Gerson, Ancient Epistemology, 3.
Plato did not have a ‘traditional’ or ‘standard’ analysis of knowledge, perhaps Kant did. Against such a suggestion, I will argue that Kant took part in a completely different epistemic discussion, and that we will misunderstand significant aspects of his account of knowledge if we do not recognize that it puts forward an epistemic *ideal*.

When scholars identify an affinity between Kantian thought and epistemology, it is Kant’s account of *Wissen* that they find relevant. Historically, this Kantian term has not attracted much attention; while it has been assumed that it means ‘knowledge’ in some familiar sense of the term, the details have for the most part gone unarticulated. Only recently has sustained intellectual effort been devoted to its analysis, and this work has been guided by the assumption that Kant is working with a ‘traditional’ analysis of knowledge. This approach, starting from the concerns and assumptions of the present, has been detrimental to historical sense, and has led, I will argue, to a misconception of how Kant and his predecessors understood the question of knowledge.

I believe Robert Pasnau is right in his assessment that philosophers of the past have shown little interest in analyzing knowledge in the broad sense of the everyday English word. Instead, their primary focus has been on the epistemic *ideal* towards which humans should strive. The most influential case of such an epistemic ideal is Aristotle’s account of *epistēmē* in the *Posterior Analytics*, which shaped how philosophers thought about knowledge for much of the next two millennia. If we do not take into account that, in this intellectual paradigm, the question of knowledge concerns an *ideal*, we will not understand what is at stake. The theory of knowledge should be approached, as Pasnau says, “as a special subject within the history of virtue theory.” It is a matter of intellectual perfection.

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5 In commentaries on Kant’s works, *Wissen* is regularly dealt with in a cursory manner. See, for example, Cohen, *Kommentar zu Immanuel Kants Kritik der reinen Vernunft*, 213–14; Kemp Smith, *A Commentary to Kant’s “Critique of Pure Reason, “* 576–78; Heimsoeth, *Transzendentale Dialektik*, 4:776–88. And it is safe to say that until recently, it is Kant’s concept of *faith* that has caught most scholarly attention. On Kant’s concept of faith and its historical context, see, for example, Forschner, “Die Stufen des Fürwahrhaltens”; Jüngel, “Der Mensch im Schnittpunkt von Wissen, Glauben, Tun und Hoffen”.

6 See, for example, Chignell, “Belief in Kant”; “Kant’s Concepts of Justification”; Höwing, “Kant on Opinion, Belief, and Knowledge”; “Kant über Wissen, Allgemeingültigkeit und Wahrheit”; “Zur Vollständigkeit von Kants Unterscheidung zwischen Meinen, Glauben und Wissen”; Pasterneck, “Kant on Opinion”; “Kant on Knowledge, Opinion, and the Threshold for Assent”; Stevenson, “Opinion, Belief or Faith, and Knowledge”; Willaschek and Watkins, “Kant on Cognition and Knowledge”.

7 Pasnau, “Epistemology Idealized,” 987. See also “Science and Certainty”; “Medieval Social Epistemology”; *After Certainty*.

8 For the persistence of the Aristotelian ideal, from the rediscovery of the *Corpus Aristotelicum* in the twelfth century down to the seventeenth-century, see Pasnau, “Science and Certainty”; Serene, “Demonstrative Science”; Serjeantson, “Proof and Persuasion”; Dear, *Discipline & Experience*.

9 Pasnau, *After Certainty*, 144.
The Aristotelian ideal was still widely influential in eighteenth-century German thought, although in a form adapted to the concerns of the time, and I will argue that it shaped Kant’s thought on knowledge. The literature on the influence of German Aristotelianism and Scholasticism on key notions of transcendental philosophy is by now quite extensive. In this chapter, I set out to reconstruct an Aristotelian-Scholastic element in Kant’s thought that has nonetheless by and large gone unnoticed. In contrast to some of the other Aristotelian influences in Kant’s philosophy, the Aristotelian ideal of epistémē, or scientia as it was called in Latin, was already a central component of the dominant Wolffian tradition.

In this first section, I will begin by turning directly to the source of this ideal of knowledge – to Aristotle. This brief sketch is not meant to give an exhaustive account of Aristotle’s thoughts on these matters, but only to describe a number of elements that are relevant to the subsequent discussion of how the ideal was inherited in the tradition. Then I will study how the Aristotelian ideal is absorbed, in the German Enlightenment, and, in particular, how it is reconceived by Christian Wolff.

**Aristotelian epistémē**

The Greek word epistémē (and its Latin counterpart scientia) was an ordinary word for knowledge that Aristotle put to philosophical use. As a technical term, it could designate either an organized body of knowledge or the state of mind of someone who has acquired such knowledge. Both geometry and the knowledge of the geometrician are forms of epistémē in this sense. Myles Burnyeat has convincingly argued that epistémē in the second sense should be translated as ‘understanding’ rather than ‘knowledge,’ since it is concerned with explanation rather than justification (as we will see later, the distinction between explanation and justification is crucial).

For want of a better alternative, I will follow Burnyeat’s advice and distinguish between ‘science’ and ‘understanding,’ respectively. ‘Understanding’ is a suitable term, both because it can be taken to involve explanation and because it is usually considered a more demanding cognitive state than

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knowledge. And although the fit is not perfect, we can use ‘understanding’ as a technical term to distinguish between knowledge, generally speaking, and a more advanced state of knowing that involves the ability to explain. However, in so doing, we must remember that Aristotle does not take himself to be offering an analysis of everyday Greek; he elucidates an ideal – what humans ought to strive for but rarely, if ever, fully achieve.

As a state of mind, Aristotle classifies understanding as a héxis, that is, an acquired state or ability that is firm and stable (habitus in Latin). It is one of the five excellences of thought (later known as ‘intellectual virtues’), and is characterized as a héxis apodeiktiké, an ‘ability to demonstrate.’ We might freely call it an ‘ability to explain,’ since demonstration, strictly speaking, is a means of explaining propositions, not merely proving them. Hence, understanding is the state of mind in virtue of which we have the ability to explain.

Aristotle expresses the distinction between explanatory and non-explanatory knowledge in terms of knowing ‘that’ (hóti) something is the case and knowing ‘why’ (dióti) it is, respectively. The senses, he says, provide us with “the most authoritative knowledge [gnóseis] of particulars. But they do not tell us the ‘why’ of anything – e.g. why fire is hot; they only say that it is hot.” The ‘why’ does not designate just anything that answers the question, but involves a specific conception of the ideal case of providing an explanation.

The explanation is that because of which something is as it is; Aristotle says that “we think that we understand [epístasthai] something when we know [eidómen] its explanation [aitían].” This means that we know, not only that which explains something, but also that it is what explains the thing (we see the connection between the two).

Corresponding to this distinction between knowing ‘that’ (the fact) and knowing ‘why’ (the explanation), there is a distinction between two forms of demonstration. Generally, a demonstration is a deduction that proceeds from

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12 Up until the seventeenth century, this state of mind could still be called ‘science’ in English. Someone possessing metaphysical or mathematical knowledge could thus be said to have ‘science.’ See, for example, Locke, An Essay Concerning Humane Understanding, bk. 1, chap. 4, §22.
13 Héxis is part of Aristotle’s technical vocabulary, and is usually translated as ‘state,’ ‘stable disposition’ or ‘habit.’ See Aristotle, Categories, 8b; Metaphysics, 1022b. A héxis can either be an excellence or a defect, depending on whether it attains or diverges from its natural state (Aristotle, Physics, 246b). See Introduction, “Translation and Transcription”.
14 Cf. Kosman, “Understanding, Explanation, and Insight in Aristotle’s Posterior Analytics,” 7–9, 13–14. The other excellences of thought were: comprehension, wisdom, prudence and skill.
15 Aristotle, Metaphysics, 981b.
16 What answers the question ‘Why?’ is the aitia, often rendered as ‘cause,’ but better understood as ‘explanation.’ The term was originally used in moral and legal contexts in reference to an account of blame or responsibility, and was later put to philosophical use as a way of assigning the reason or explanation for something. Although causes are answers to why-questions, not all answers to why-questions are causes, and it is thus preferable to use the more inclusive term ‘explanation.’ See Vlastos, “Reasons and Causes in the Phaedo,” 292–96; Frede, “The Original Notion of Cause”.
17 Aristotle, Posterior Analytics, 94b.
first principles, that is, from premises that cannot be further demonstrated. Among demonstrations, some are structured in such a way that the principles explain the conclusion, whereas others merely prove the conclusion. The former are demonstrations of the reason why and the latter are demonstrations of the fact. As we saw in the previous chapter, the distinction between a priori and a posteriori originally referred to demonstrations of this kind: demonstrations that explain the fact or merely prove the fact. Both kinds of demonstration were traditionally taken to provide understanding, in Aristotle’s sense, although the former represented the highest form.

Aristotle sets a high standard for ‘absolutely’ (haplōs) understanding something; for a demonstration to give rise to understanding in the strictest sense, it must proceed from premises that are true, primitive and immediate, which means that they are irreducible to anything more fundamental; furthermore, the premises must be more familiar than, prior to, and explanatory of the conclusion. By those measures, hardly anyone has ever possessed genuine understanding. But if we take Pasnau’s advice and read the Posterior Analytics as presenting an ideal of knowledge, this is not necessarily a problem, since an ideal might very well be unattainable in practice. Moreover, reading Aristotle in this way helps to explain why he does not seem to measure up to his own standards, and why he only provides illustrations of different aspects of understanding, never an account of its complete realization: describing an ideal is one thing, achieving it is another.

The requirement that understanding must be attained through a demonstration of the reason why does not make much sense as a requirement for knowing a proposition in an everyday sense. Arguments that justify propositions need not be deductive, and even when they are, it is demanding too much to require that they explain the truth of the conclusion from first principles. As a justification of the conclusion, the truth of the premises is enough, given that the inference is correct. Aristotle surely recognizes this. What he describes is not a procedure for justifying a proposition, but one for properly explaining it. For this to be achieved, the proof must be composed so as to show how the premises explain the conclusion; moreover, the ultimate premises must not themselves be in need of explanation. As we saw in the previous chapter, Aristotle calls the kind of knowledge that we have of such first principles noûs or ‘comprehension.’ Comprehension is also an excellence of thought, but it is attained through induction (epaggège), which is a

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20 Ibid., 71b. For the rationale behind these criteria, see Ibid., 71b–72a.
22 See, for example, Aristotle, *Posterior Analytics*, 71b–72a.
23 See, for example, Ibid., 85b. Burnyeat understands Aristotle as saying that first principles are self-explanatory, while James H. Lesher does not. See Burnyeat, “Aristotle on Understanding Knowledge,” 125; Lesher, “The Meaning of NOÛS in the Posterior Analytics,” 65.
matter of seeing the universal in the particular. If understanding is to be achieved through demonstration from first principles, there must be something from which the demonstration can begin, or else we would end up in an infinite regress. Comprehension is knowledge of such indemonstrable propositions.

Christian Wolff on Intellectual Virtue

The Aristotelian ideal of knowledge became tremendously influential in the Western tradition, and was still widely accepted during the German Enlightenment. The most influential German philosopher between Leibniz and Kant, Christian Wolff, absorbed its general features, and the impact of the ideal is witnessed throughout his works. In a discussion of man’s duties towards his intellect, Wolff explicitly formulates the ideal in terms of the acquisition of intellectual virtue. His account both draws on and extends the classical Aristotelian taxonomy, adapting it to the concerns of the time:

There are, in total, five intellectual virtues: intelligentiam, scientiam, sapientiam, prudentiam, artem, or comprehension, understanding, wisdom, prudence and skill. I find it necessary to increase their number, and to add discernment, the art of invention, the art of observation and experiment, wit, language comprehension and thoroughness.

The Aristotelian view of the intellectual virtues (or excellences of thought) is here combined with both a post-Cartesian conception of intellectual perfection in terms of clarity and distinctness of thought, and a modern conception of experience in terms of the dual techniques of observation and experiment. In this hybrid of ancient and modern ideas, the Aristotelian influence is located at the structural level (and one must be careful not to overstate the continuity in this historical trajectory). This means that the structural relationship between comprehension and understanding remains intact, although the content of these intellectual virtues or perfections is reconceived in modern terms.


On Wolff’s influence on German philosophy, see Ueberweg, Grundriss der Geschichte der Philosophie, 3:90; Wundt, Die Deutsche Schulphilosophie im Zeitalter der Aufklärung, 122; Beck, Early German Philosophy, 261. On his influence on German scientific and philosophical language, see Blackall, The Emergence of German as a Literary Language, chap. 2.

Wolff defines intellectual virtues as “abilities [habitus] for the right use of the intellect in any knowledge [cognition] of things whatsoever” (Wolff, Philosophia moralis sive Ethica, 1.§ 142; my trans.).

Wolff distinguishes several different degrees of knowledge. We know (erkennen) a thing whenever we can represent it, and representation involves an awareness of truth. Wolff introduces Begriff as a technical term for such a representation in the human mind. His term has a wider scope than ‘concept’ – comprising both sensitive and intellectual representations – and is best rendered as ‘conception.’ As we saw in the previous chapter, Wolff argues that the senses provide us with clear but confused conceptions of things, and if these conceptions are made distinct, we are said to comprehend (intelligere, verstehen) the represented thing. The intellect is the power to make our conceptions distinct. To have insight (perspicere, einsehen) is to know the connection between different truths, that is, we gain insight when we infer one truth from another. This movement from truth to truth through inference is an operation of reason. And reason, Wolff writes – echoing Leibniz – “is insight into the connection of truths.” Lastly, we are said to grasp (comprehendere, begreifen) a thing when we know it from its first ground. The degree of perfection of our knowledge is measured by its degree of distinctness, and grasping a thing is the highest possible degree of knowledge. As we saw in the previous chapter (and will discuss further in the last section of this chapter), Kant adopted these definitions in his account of the degrees of knowledge of which the discursive mind is capable.

Wolff’s distinctions directly map onto the intellectual virtues of comprehension (Verständnis) and understanding (Wissenschaft). As we saw, sensitive conceptions are confused; only through the work of the intellect do they become distinct. Comprehension (Verständnis) is the first stage of distinct knowledge, and it is characterized as “the ability to make oneself a distinct conception of present things and to note judgments from experiences.” Although comprehension is reconceived through the ideal of distinctness of thought, it retains the structural role of providing the foundation for under-

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30 Wolff, Vernünfftige Gedancken von Gott, §§368, 381; Psychologia empirica, §483.
31 Wolff, Vernünfftige Gedancken von Gott, §77. In the register of technical terms at the end of the books, comprehendere is given as the Latin counterpart of begreifen.
32 Wolff, Vernünfftige Gedancken von Gott, §77. In the register of technical terms at the end of the books, comprehender is given as the Latin counterpart of begreifen.
33 Ibid., §§279–80. Leibniz similarly says that in order to ‘to grasp’ (comprendre) something “one must have all the ideas of everything that goes to make it up, and all these ideas must be clear, distinct, adequate.” (Leibniz, Essais de Théodicée, 92/114) On Leibniz’s concept, see Antognazza, “Faith and Reason,” 725–26. Cf. Aquinas, Summa Theologiae, I, q. 12 a. 7 co.
34 Wolff, Vernünfftige Gedancken Von der Menschen Thun und Laßen, §280 (my trans.): “Die Fertigkeit von vorkommenden Dingen einen deutlichen Begriff sich zumachen und aus den Erfahrungen Urtheile anzumerken”
standing (Wissenschaft), since these distinct conceptions and experiential judgments “are the first grounds of our knowledge.” Comprehension can thus be characterized as “an ability to make the grounds of knowledge known to oneself.” As in Aristotle’s philosophy, comprehension provides the non-demonstrable foundation of demonstrable knowledge.

In the first half of the eighteenth century, Wissenschaft came in the same two forms as its Greek and Latin predecessors, and signified either a body of knowledge or a state of mind. Wolff uses the term in the second sense when he defines Wissenschaft as “an ability of the intellect to irrevocably prove everything that one asserts from incontrovertible grounds,” thus drawing on the traditional characterization of understanding as an ability of the intellect. Like Aristotle before him, Wolff takes understanding to be the ability to demonstrate, where the significant aspect of demonstration is its explanatory character. Knowing explanations is what sets the knowledge of the philosopher apart from that of the common man. The latter may learn much about what is possible in nature from experience, but he is incapable of specifying the grounds that make things possible. Invoking the Aristotelian distinction between knowing that and knowing why, Wolff says that a philosopher ought “not only to know that something is possible, but also be able to state the ground for why it is possible.” Understanding is knowledge of why something is as it is, and, “as long as a thing has a ground for why it is, one can know how it can be, that is, one can grasp it or, to say it in another way, explain

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35 Ibid. (my trans.): “die ersten Gründe unserer Erkänrniß sind[…].”
36 Ibid. (my trans.): “eine Fertigkeit die Gründe der Erkänrniß sich bekand zu machen.”
37 John Carriero has recently argued that we should read Early Modern discussions of knowledge as being concerned with understanding, invoking Burnyeat’s reading of Aristotle. See Carriero, “Epistemology Past and Present,” esp. 180–81.
38 Wolff, Vernünfftige Gedancken von den Kräfften des menschlichen Verstandes, Vorbericht, §2 (my trans.): “eine Fertigkeit des Verstandes alles, was man behauptet, aus unwidersprechlichen Gründen unumstößlich darzuthun.” The German word rendered as ‘ability’ is Fertigkeit, which is Wolff’s translation of the Latin habitus. See Introduction, “Translation and Transcription”.
39 Wolff, Vernünfftige Gedancken von Gott, §383. Werner Schneider that thinks there is a conflict between the characterization of understanding as an ability of the intellect, on the one hand, and as inferential knowledge that comes about through reason, on the other (Schneiders, “Christian Wolff über Verstand und Vernunft,” esp. 47). Thomas Aquinas, however, also characterizes understanding in this way (see Aquinas, Summa Theologiae, I–IIae q. 57 a. 1–2). For both Aquinas and Wolff, reason is not a distinct faculty, but the ‘third operation’ of the intellect (see Aquinas, Questiones disputatae de veritate, q. 15 a. 1; Summa Theologiae, I° q. 79 a. 8; Wolff, Philosophia moralis sive Ethica, 1:§ 14; Philosophia rationalis sive Logica, pt. 1, sect. 1, chap. 1, §52).
40 Wolff, Vernünfftige Gedancken von den Kräfften des menschlichen Verstandes, Vorbericht, §5 (my trans.): “nicht allein wissen, daß etwas möglich sey; sondern auch den Grund anzeigen können, warum es möglich ist[…]”
it comprehensibly.”41 Understanding requires comprehension, that is, distinct conceptions all the way down to the first ground.42

Comprehension and understanding are thus not requirements for knowing something in the everyday sense; rather, they are perfections of knowledge. Common men surely have knowledge through the confused conceptions of the senses, but philosophers strive for understanding. This is intellectual knowledge that rises above sensation, and the intellectual virtues of comprehension and understanding represent the first and last stage, respectively, of intellectual knowledge. As we will see below, Kant adopts Wolff’s technical distinction between comprehension, insight and grasping in his own discussion of the different degrees of knowledge. Recognizing this provides a key to Kant’s conception of knowledge on the whole, and I will argue that Kant continues to adhere to the ideal of knowledge originally crafted by Aristotle and later modified by Wolff. I will contend that Kant’s term for this ideal is Wissen, while Erkenntnis is used by Kant – as by his predecessors – for knowledge in the loser and more inclusive sense.

This last claim is, of course, controversial. It has become increasingly common among Kant scholars to argue that Erkenntnis should neither be translated nor understood as ‘knowledge,’ but designates a state of intentional awareness of an object that is neutral with respect to truth. It is Wissen, they maintain, that comes closest to what we today (in epistemology) mean by ‘knowledge.’ Against this widespread view, I will argue that Wissen is Kant’s term for the ideal of knowledge that has been called ‘understanding’ above. Kant surely recognizes – as did followers of Aristotle – that the extent to which this ideal can be realized varies between different forms of knowledge: we can neither allow empirical proofs in mathematics, nor require mathematical certainty in historical matters.43 The ideal, however, remains the same.

An Epistemic Paradigm

Contemporary readers of Kant often hold that the distinction between Erkenntnis and Wissen is obscured if both terms are rendered as ‘knowledge.’ Thus the distinction between ‘cognition’ and ‘knowledge’ is often preferred in current scholarship. Sometimes this is simply a way to keep the prose clear of ambiguity, but it is often argued that Erkenntnis is not a form of knowledge,

41 Wolff, Vernünfftige Gedancken von Gott, §77 (my trans.): “Denn so lange eine Sache einen Grund hat, warumb sie ist, kan man erkennen, wie sie seyn kan, das ist, man kan sie begreiffen, und indem man es anders saget, verständlich erklären.”
42 On these distinctions, see also Ludovici, Ausführlicher Entwurff einer vollständigen Historie der Wolffischen Philosophie, 2:§371.
43 Already in the Middle Ages, the ideal of scientia was relaxed in various ways and adapted to specific areas of knowledge. See Pasnau, “Medieval Social Epistemology”.

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but rather a mental state of representing an object with awareness (‘cognition’). *Erkenntnis*, we are told, does not require truth, is not accompanied by justification and does not involve belief (or assent); consequently it is a poor candidate for ‘knowledge.’ Instead, it is in Kant’s notion of *Wissen* that we find something close to what we today would recognize as knowledge, since it involves assent (read as ‘belief’), an objective ground (read as ‘justification’) and truth.44 That is, it seems to contain all three components of the ‘standard’ analysis of knowledge.45

The basic problem with this view is that it fails to identify correctly which of the two words is a technical term for Kant: *Wissen* is taken to mean ‘knowledge’ in some familiar sense of the term, whereas *Erkenntnis* is a technical term, identifying an intentional state of representing an object with awareness. Against this, I will make the case that *Erkenntnis* is a better candidate for ‘knowledge’ in a broad and inclusive sense, while *Wissen* designates a technical term for knowledge in a specific idealized sense inherited from the Aristotelian tradition (‘understanding’).

Instead of trying to translate Kant into “middle-to-late twentieth- and twenty-first-century philosophical English,”46 with its assumptions about the nature of knowledge, I will examine below how different concepts of knowledge were expressed in the philosophical language of the eighteenth century. This is also a philosophical language, to be sure, and the point is not to say that the older conception of knowledge is correct or superior to that of contemporary epistemology; my aim is rather to identify what would have been recognized as knowledge at this time. This is important, because it seems to me that some of the problems involved in accepting *Erkenntnis* as a form of knowledge have to do with the fact that knowledge in earlier times was often conceived as a form of perception or apprehension of the truth – a sensitive or intellectual *seeing* of the truth – which means that the question of justification does not always arise (at the same time, the absence of justification does not mean that we are not dealing with knowledge).

In this section, I will re-enact the wider intellectual context within which Kant’s analysis of knowledge was developed. This will be done in three consecutive steps. First, I will survey the intellectual vocabulary of the time, and study how knowledge in general and the ideal of knowledge (‘understanding’), respectively, were described in the Early Modern period. Secondly, I will address an argument often leveled at readings of *Erkenntnis* as ‘knowledge’: Kant seems to allow for false *Erkenntnis*, which seems to suggest that the term cannot mean ‘knowledge.’ Thirdly, I will turn to the epistemic setting in which

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44 Thomas Höwing admits that Kant does not mention the component of truth in his discussion of *Wissen*, but argues that it is contained in Kant’s notion of justification (Höwing, “Kant über Wissen, Allgemeingültigkeit und Wahrheit,” 119).

45 For interpretations of *Erkenntnis* and *Wissen* along the lines sketched here, see footnote 6.

the Aristotelian ideal of knowledge appropriated by Kant was embedded: the tripartite distinction between opinion, faith and understanding.

The Relation between cognitio and scientia

While it is widely recognized that Erkenntnis and Wissen correspond to the Latin terms cognitio and scientia, what this implies is usually overlooked. The distinction was fundamental to the Aristotelian-Scholastic tradition, and had its origin in the Posterior Analytics. Already in the first Latin commentary on Aristotle’s treatise, Robert Grosseteste distinguishes between four senses of scientia, ranging from the broad notion of a mere “comprehension of the truth” (veritatis comprehensio) in general, possible even in the case of contingent matters, down to the strictest notion of explanatory knowledge of immutable things, which is the notion proper to Aristotle’s ideal of knowledge.47

This practice of distinguishing between broader and stricter notions of scientia became a recurring theme in Scholastic philosophy, and was later transferred into the vernaculars.48 In the Latin tradition, cognitio was often used as the broad and inclusive term for knowledge, and scientia could either coincide with mere knowledge in general or be defined in some more strict and technical manner. In his widely influential Institutionum logicarum (Logical Instruction, 11626), Franco Burgersdijk, for instance, writes that scientia, used broadly, simply refers to “any knowledge [cognitione] or true assent,” whereas scientia in the strictest sense is “assent to propositions which are known [cognoscuntur] through the cause or effect.”49 In the first case, cognitio and scientia coincide, whereas in the latter case, scientia is defined as a specific form of cognitio. It is the strict sense that is proper to philosophy.

We find the same distinctions in the most important German philosophical lexicon of the eighteenth century, Johann Georg Walch’s Philosophisches Lexicon (Philosophical Lexicon, 1726).50 In the entry on ‘Wissenschaft,’ Walch says that the term can refer either to our knowledge (Erkenntnis) or to the doctrine that we know (erkennen). He then goes on to make a three-fold distinction regarding the first sense of the term. He says that it is used in a broad manner to designate “any knowledge [Erkänntnis] whatsoever,” in a narrow manner for “knowledge that is completely certain,” and in a very narrow manner for “certain knowledge, whose certainty is grounded on the nature of a thing.” The last form also goes by the name of “demonstration a

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47 Grosseteste, Commentarius in Posteriorum Analyticorum libros, bk. 1, chap. 2.
48 For medieval examples, see Pasnau, After Certainty, 146.
49 Burgersdijk, Institutionum logicarum, 1:324 (my trans.): “qualibet cognitione, sive assensu vero”; “assensu propositionum, quae per causam aut effectum cognoscuntur[…].”
50 On the influence of Walch’s lexicon, see Roeleke, “Die deutschsprachige Fachlexikographie der Philosophie in ihrem europäischen Umfeld,” 1996.
priori.”51 For Walch, Erkenntnis is clearly the general term for knowledge; when Wissenschaft is used in the broadest manner, it simply means ‘knowledge’ in a loose, noncommitting sense. For both Burgersdijk and Walch, the two terms coincide in the broad use, while the strict use is the technical term proper to philosophy.

When Kantians invoke the fact that scientia is the Latin counterpart to Wissen, they often assume that it is used in the broad sense of knowledge in general, and is opposed to non-factive states of cognition. Even when they address the high demands associated with the concept – that is, that Kant takes it to involve certainty – they see the demands as made on knowledge itself (that knowledge, as such, requires certainty), and not as a requirement for a specific form of knowledge.52 If this were the case, however, one would have to explain the point of distinguishing between broader and stricter forms of knowledge in the tradition.

If we consult the three main encyclopedias of the Enlightenment, it is clear that the strict use of the term was the one proper to philosophy:

**SCIENCE**, in Philosophy, a clear and certain Knowledge of any Thing, founded on self-evident Principles, or Demonstration.

Chambers, *Cyclopaedia* (1728)

Wissen, Latin Scire, means to derive something through inferences from indubitable grounds.

Zedler, *Grosses vollständiges Universal-Lexicon* (1732ff)

**SCIENCE**, s. f. (Log. & Metaphys.) science, in terms of philosophy, signifies clear and certain knowledge of some thing, founded either on self-evident principles, or on demonstrations.

Diderot and Alembert, *Encyclopédie* (1751ff)53

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52 Eric Watkins and Marcus Willaschek think that Kant’s concept of knowledge is “much more demanding than most currently discussed variants of the tripartite conception of knowledge” since it requires certainty (Willaschek and Watkins, “Kant on Cognition and Knowledge,” sec. 2). Andrew Chignell has instead argued for a fallibilist reading, but is quite alone in this assessment (Chignell, “Kant’s Concepts of Justification,” 42). For a critique of Chignell, see Pasternack, “Kant on Knowledge, Opinion, and the Threshold for Assent,” 57, 62–63.

All three encyclopedias present roughly the same concept. In the main languages of intellectual discourse of the time, we find the following terminological distinction:

<table>
<thead>
<tr>
<th>Latin</th>
<th>English</th>
<th>French</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>scientia</td>
<td>science or knowledge</td>
<td>science</td>
<td>Wissenschaft or Wissen</td>
</tr>
<tr>
<td>cognitio</td>
<td>cognition or knowledge</td>
<td>connaissance</td>
<td>Erkenntnis</td>
</tr>
</tbody>
</table>

In the technical field of logic, there was conceptual commensurability in the Kuhnian sense, that is, concepts could be “translated without residue or loss.” Nevertheless, we see that philosophical English is ambiguous in ways that the other languages are not: knowledge is regularly used in both cases.

Let us look at an example. When John Locke’s magnum opus was translated into Latin in 1701, *cognitio* was used for knowledge in general, whereas *scientia* was used for more qualified states of knowing (both were called ‘knowledge’ by Locke). Similarly, when the work was translated into German in 1757, *Erkenntnis* was the general term for knowledge and *Wissenschaft* the more qualified. The substantivized infinitive *Wissen* played no role. If we move forward a century to the second German translation of the work in 1873, however, *Wissen* has replaced *Erkenntnis* as the general term for knowledge, and there is no distinct term for the more qualified state. The disappearance of the distinction is perhaps a result of the weakened influence of the Scholastic culture from which it descended. Whereas the earlier translators had seen it fit to clarify the text by introducing a distinction not marked in Locke’s English, his nineteenth-century translator apparently saw no such need.

Similarly, the first French and Latin translations of *Kritik der reinen Vernunft* used *connaissance* and *cognitio* for *Erkenntnis*, and *science* and *scientia* for *Wissen*. In English, however, the use of ‘science’ to designate a state of mind had become antiquated by this time, and translators had to make due with ‘cognition’ and ‘knowledge.’ One of Kant’s early translators, John Richardson, was sensitive to the ambiguity this introduced. In his translation of Kant’s book on logic, Richardson used ‘cognition’ and ‘knowledge’ interchangeably to

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54 They diverge, it seems, on the question of whether knowledge of self-evident principles itself constitutes science. Aristotelians would typically distinguish knowledge of first principles from demonstrative knowledge. The former was called *intellectio* in Latin, and was often rendered as ‘intelligence’ in English. See, for example, Watts, *Logick*, pt. 2, chap. 2, sect. 9, §3.
55 Kuhn, “Commensurability, Comparability, Communicability,” 36.
56 See Locke, *De intellectu humano*, esp. 235; *Versuch vom menschlichen Verstande*, esp. 560. The translators introduce *scientia* and *Wissenschaft* where ‘knowledge’ is distinguished from ‘opinion.’ This is significant, since it is not knowledge in general that is distinguished from opinion and faith (or belief), but knowledge in a qualified sense, as we will see below.
58 See Kant, *Critique de la raison pure*, 2:56–7, 615; *Critica rationis purae*, 53–54, 563.
translate *Erkenntnis*, and sometimes even “cognition or knowledge.”59 When translating *Wissen*, however, he inserted the Latin “*(scire)*” after ‘knowing’ to distinguish it from other forms of knowledge, thus marking the limitations of his own language in properly expressing the different concepts of knowledge at play in the text.60

The moral of the story is that seventeenth- and eighteenth-century philosophical English was ambiguous in a way that Latin, French and German was not. The Germanic ‘knowledge’ could be used both broadly and strictly, whereas ‘cognition’ and ‘science,’ which were transliterations from Latin, marked the technical distinction between knowledge generally and certain knowledge. But when the use of ‘science’ to designate a state of mind became antiquated – which happened earlier in English than the corresponding change in the German term *Wissenschaft* – this was no longer possible. What we have to remember, in the end, is that neither *cognitio* nor *scientia* (or their counterparts in the other languages) were distinguished from knowledge, but distinguished *forms* of knowledge: we saw above that both Burgersdijk and Walch used the former in their explanation of the latter. Moreover, among the two, the former was the broad and inclusive term, whereas the latter identified an ideal of knowledge (an intellectual virtue).

The identification of *Wissen* as Kant’s term for ‘knowledge,’ which has become popular today, has as a consequence that the question of knowledge appears to be quite peripheral to Kant’s theoretical philosophy. As Marcus Willaschek and Eric Watkins note, “the only paragraph in the whole *Critique* that explicitly addresses the concept of knowledge does so in order to clarify, not the concept of knowledge, but that of belief.” Rather than signaling to the authors that something might be amiss, however, this discovery is taken to support their “previous observation that knowledge is not Kant’s central concern in the first *Critique*.”61

This would be quite astonishing, given what we know of the concerns of Early Modern and Enlightenment philosophy in general. Furthermore, for purely historical reasons, an identification of *Wissen* as the general term for ‘knowledge’ seems improbable: *Wissen* does not appear to have been a central term in eighteenth-century German philosophy. As late as 1786 – when Kant was publishing his mature philosophy – the use of *Wissen* to refer to “the state when one has representations of external things” is deemed rare.62 And the use of *Wissenschaft* to refer to a state of mind, whether in a broad or strict manner, had by this time become antiquated; in its common use, the term referred to bodies of knowledge (sciences).63

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59 See Richardson, *Logic*, 42, 89.
60 See Ibid., 89, 98.
63 See Ibid., s.v. “Die Wissenschaft”.

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Given the account above, it would not be far-fetched to assume that Kant used the rare word \textit{Wissen} as a technical term to replace \textit{Wissenschaft} as a state of mind (a more qualified form of knowledge). Later on, in the third section of this chapter, I will argue that this is the case. And if this is correct, the technical nature of the concept would also explain its quite peripheral place in Kant’s works. Now, from the perspective of the contemporary discussion of these matters, the obvious objection to this reading would be that \textit{Erkenntnis} cannot be Kant’s general and inclusive term for ‘knowledge’ – which is what we are left with if \textit{Wissen} is a stricter form of knowledge – since Kant evidently thinks that \textit{Erkenntnis} can be false. I will now address this potential problem.

The Problem of ‘False \textit{Erkenntnis}’

Kant sometimes uses the expression ‘false \textit{Erkenntnis},’ and to many of his interpreters this is evidence that \textit{Erkenntnis} should neither be understood nor translated as ‘knowledge,’ since that would leave us with a blatant oxymoron: ‘false knowledge.’ Knowledge, as it is commonly understood, entails the truth of that which is known, which means that if a claim to knowledge turns out to be false, it is also disqualified as knowledge. That is, it never was knowledge in the first place, but merely appeared to be. Knowledge is not neutral with respect to truth, but entails achievement – that the knower actually has grasped what is true.

Steeped as they are in heavily regimented language, philosophers instinctively react to expressions such as ‘false knowledge’ with charges of self-contradiction, and they are perhaps equally appalled by the pleonastic ‘true knowledge’ (also used by Kant). When quoting Kant’s use of ‘false \textit{Erkenntnis}’ in his \textit{Conceptions of Truth} (2003), Wolfgang Künne replaced ‘judgment’ for ‘knowledge’ in order “to spare the reader this embarrassment.” Kantians today rarely feel such discomfort, however, having come to the conclusion that \textit{Erkenntnis} actually does not mean ‘knowledge,’ but should rather be translated as ‘cognition,’ which has the advantage of being neutral with respect to truth.

Yet, if we take a step outside the well-ordered world of philosophical vocabulary, we can recognize a wider register for ‘true’ and ‘false.’ For not only judgments, propositions and utterances are said to be true or false; we also speak of ‘the true God,’ ‘false teeth,’ ‘a true friend,’ ‘false prophets,’ and even

\footnote{Künne, \textit{Conceptions of Truth}, 108, n. 59.}
\footnote{For the claim that \textit{Erkenntnis} can be either true or false, see, for example, Ameriks, \textit{Interpreting Kant’s Critiques}, 11; Gicovacki, \textit{Anamorphosis}, 45; Hanna, \textit{Kant, Science, and Human Nature}, 6, n. 18; McLeart, “Two Kinds of Unity in the \textit{Critique of Pure Reason},” 99, n. 54; Prauss, \textit{Erscheinung bei Kant}, 63–64; Stang, \textit{Kant’s Modal Metaphysics}, 171; Willaschek and Watkins, “Kant on Cognition and Knowledge”. Georges Dicker is more hesitant, calling it “an isolated oxymoron” (Dicker, \textit{Kant’s Theory of Knowledge}, xii).}
occasionally ‘a true lie.’ Bernard Bolzano identified this register as an opposition between the *genuine* or *real*, on the one hand, and the *illusory* or *apparent* on the other. ‘True’ is used in this sense, he writes, when one wants to express that a thing actually is what it is designated to be (which he took to be an improper use of the word).66

Bolzano observes that logicians writing in both German and Latin have been quite prone to speak of ‘false’ *Erkenntnis* and *cognitio*, which he considers to be a deviation from the proper use of language. On his diagnosis, the logicians have disassociated ‘knowledge’ – which he evidently takes to be the proper meaning of the respective terms – from truth, and conceived the former as merely “the relating of a representation to an object.”67 This charge is leveled at Kant among others, and Bolzano’s reading therefore aligns itself quite well with contemporary readings of Kant on this matter (although the latter do not find it problematic).

I will question this reading, presented by both Bolzano and contemporary Kant scholars, by taking my point of departure in George Friedrich Meier’s *Auszug aus der Vernunftlehre* (Excerpts from the Doctrine of Reason, 1752), which was the textbook Kant used when lecturing on logic. Since most of Kant’s uses of ‘false *Erkenntnis*’ are found in these lectures, Meier’s book provides a key to untangling what Kant actually has in mind. As we will see, Meier invokes the linguistic register of the *real* against the *apparent* when defining true and false *Erkenntnis*, which means that he is concerned with *apparent knowledge*, rather than *false cognition*. For the sake of readability, I will render *Erkenntnis* and its cognates as ‘knowledge’ here.

Meier defines true and false knowledge in the following way:

*False or incorrect knowledge* (*cognitio falsa*) is knowledge that is not knowledge, and yet appears to be knowledge. [...] *(True or correct knowledge* (*cognitio vera*), not only appears to be knowledge, but also in fact is.68

Continuing a few paragraphs later, he explains that “When we represent a thing otherwise than it is, we believe that we know it, and yet we do not know it. Accordingly, our knowledge is false.”69 It is evident that ‘false knowledge,’ as Meier uses the expression here, is not a form of knowledge at all, but only something that has the appearance of being knowledge.70 That is, ‘true’ and

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67 Ibid., 1:§38 (my trans.): “das Beziehen einer Vorstellung auf einen Gegenstand.”
69 Ibid., §99 (trans. mod.): “Wenn wir uns eine Sache anders vorstellen als sie ist, so glauben wir sie zu erkennen, und erkennen sie doch nicht. Es ist demnach unsere Erkenntnis falsch §. 92.”
70 Baumgarten makes the same point. See Baumgarten, *Metaphysica*, §515.
‘false’ are used according to the linguistic register of the genuine or real and the illusory or apparent. Meier’s definitions are embedded in a normative framework in which the aim is the apprehension of truth. His invocation of semblance is crucial, since it is the mark of this normative relation to truth – something needs to appear to be true in order for it to be mistaken for knowledge. This normative aspect is explicit in his discussion of the different perfections of knowledge:

Because false knowledge is not knowledge at all, the truth of knowledge (veritas cognitionis eruditae) is its third perfection. This can be called the principal perfection of knowledge, because without it knowledge is not knowledge at all, and thus not capable of any perfection.\(^71\)

Meier clearly states that truth is an indispensable condition of knowledge, since without truth there would be no knowledge at all. In his *Metaphysik* (Metaphysics, 1755), this claim is clarified further. In this work, Meier distinguishes between metaphysical and logical truth, explaining that the metaphysical truth of knowledge is its correspondence to the essence of knowledge – the attributes and determinations that make knowledge what it is – and that the logical truth of knowledge is its correspondence to its object. When something not only appears to be knowledge, but actually is, then it is true knowledge (in the metaphysical sense).\(^72\) Since knowledge essentially involves an apprehension of the truth, false knowledge is the mere semblance of knowledge.

Meier uses this conception of false knowledge in his explanation of error, in which false knowledge functions as one component:

> Error (cognitio erronea, error) consists in our taking false knowledge to be true, and true knowledge to be false. Consequently, 1) every erroneous knowledge is false; 2) not every false knowledge is erroneous, namely, if we know that it is false; 3) error arises from false knowledge. Had we no false knowledge at all, we could also have no errors. Error is worse than merely false knowledge, for error is a hidden poison.\(^73\)

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\(^71\) Meier, *Auszug aus der Vernunftlehre*, §27 (trans. mod.): “Weil eine falsche Erkentniß gar keine Erkentniß ist, so ist die Wahrheit der Erkentniß (veritas cognitionis eruditae) die dritte Vollkommenheit derselben. Dieselbe kan die Grundvollkommenheit der Erkentniß genennet werden, weil ohne sie die Erkentniß gar keine Erkentniß, und also auch keiner Vollkommenheit fähig ist.”


\(^73\) Meier, *Auszug aus der Vernunftlehre*, §109 (trans. mod.): “Der Irrthum (cognitio erronea, error) besteht darin, wenn wir die falsche Erkentniß für wahr, und die wahre für falsch halten. Folglich 1) ist eine iede irri Erkentniß falsch §.99; 2) ist nicht eine iede falsche Erkentniß irrig, wenn wir nämlich erkennen, daß sie falsch sey §.99; 3) aus der falschen Erkentniß entsteht der Irrthum. Hätten wir gar keine falsche Erkentniß, so könten wir auch keine Irrthümer haben. Der Irrthum ist schlimmer als die bloß falsche Erkentniß, denn er ist ein verborgenes Gift.”
Having seen how Meier conceives of these matters, let us now turn to Kant. Most of Kant’s discussions of false knowledge are found in his lectures on logic, and more specifically in the parts that treat error and illusion. This is what one would expect, given what we have just seen. And if we read Kant in the light of the text on which his lectures are based, we can recognize, I think, that he too speaks of apparent knowledge (not false cognition). Here is one remark from the early 1770s:

That something is false is nothing but an intermingling, that is, that the judgment contradicts the object. Only the illusion of false knowledge, by means of which it is similar to the truth and easily becomes mistaken for it, is error. It is an analogue of truth. The human intellect may often take false knowledge to be true, and this is an erroneous judgment.

This shows that the expression was used by Kant already a decade before the publication of his mature philosophy, and we find similar treatments of error and illusion throughout the eighties and nineties. Kant repeatedly makes the point that for error to emerge, we need not only false judgments, but false judgments that are taken to be true. And that they are taken to be true means that they are taken to be instances of knowledge (although he does not always call them ‘false knowledge’). For error to emerge, something needs to appear to be knowledge, or something that actually is knowledge needs to appear not to be.

If this interpretation is correct, we are not faced with an oxymoron, but simply with another register for the use of ‘true’ and ‘false.’ To call something ‘false knowledge’ is thus to say that it is not actually knowledge, yet seems to be so and is easily mistaken for it. Moreover, Kant even directly states that truth is an inseparable condition of knowledge (Erkenntnis):

We come now to an essential condition of the perfection of knowledge, namely to truth. Truth is the agreement of knowledge with the object, but this is merely a definition of the meaning of the word. Truth is not the only perfection, nor is

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74 See Kant, Logik Blomberg, AA XXIV, 81, 105, 160; Logik Philippi, AA XXIV, 401; Logik Pölitz, AA XXIV, 529, 531, 548, 554; Wiener Logik, AA XXIV, 832–33. See also Kritik der reinen Vernunft, A58/B83, A709/B737; Jäsche Logik, AA IX, 54.

75 Kant, Logik Philippi, AA XXIV, 401 (my trans.): “Daß etwas falsch sey ist nichts als eine Vermengung d.i. daß das Urtheil dem Gegenstande widerspricht. Allein der Schein der falschen Erkenntniss, vermittelst dessen sie der Wahrheit ähnlich ist und leicht verwechselt wird ist Irrthum. Es ist ein Analogon der Wahrheit. Der menschliche Verstand kann offt falsche Erkenntnisse für wahr halten und das ist ein irriges Urtheil.”

76 See, for example, Kant, Logik Busolt, AA XXIV, 631; Logik Dohna-Wundlacken, AA XXIV, 720, 725; Logik Pölitz, AA XXIV, 531–32; Wiener Logik, AA XXIV, 832.

77 The same issue can be raised with regard to Kant’s definition of ‘proof.’ On the one hand, Kant says that “a proof is distinct knowledge of the correct connection of a proposition with sufficient grounds.” (Kant, Logik Busolt, AA XXIV, 650; my trans.) And yet, in the next breath, Kant willingly speaks of proofs as being false. ‘Proof’ is clearly a honorific, and still neither we nor Kant would have any problem with ‘false proofs.’
it, in all respects, the principal perfection. Of course, a completely false knowledge
is nothing, since I know no object through it. Hence, it is an inseparable condition
of perfection, but the degree of truth is not necessarily the same. Rather, it differs
according to the different respects. In logical respect, truth is the principal per-
fection.78

This is not an isolated instance, but something that Kant says time and again
in his lectures on logic.79 It is clearly a development of Meier’s point above,
that truth is the principal perfection of knowledge, since without truth there
would be no knowledge at all, and hence no perfections of knowledge.80 As
Kant says in one of his late lectures: “Without truth there is no knowledge.”81
And again, in his lectures on anthropology:

Truth is the greatest perfection of knowledge, since it is demanded that every
knowledge in the first place be true; if it is not true, it lacks everything and it is no
knowledge at all.82

Truth is the principal perfection of knowledge, since it makes the other three
perfections – generality, distinctness and certainty – possible. Without truth,
there would be nothing of which our knowledge could be a more or less gen-
eral, more or less distinct and more or less certain representation. This is what
it means for truth to be the principal perfection. Still, Kant want to make
room for the partial falsehood of our knowledge, since – if I understand him

78 Kant, Logik Pölitz, AA XXIV, 525 (my trans.): “Wir kommen jetzt zu einer wesentlichen Bedin-
gung der Vollkommenheit eines Erkenntnisses nehmlich zur Wahrheit. Wahrheit ist die Ueberein-
stimmung der Erkenntniß mit dem Gegenstand, das ist aber bloß eine Erklärung der Wortbedeut-
tung. Wahrheit ist nicht die einzige Vollkommenheit auch nicht in aller Absicht der Haupt Volk-
ommenheit. Freylich eine ganz falsche Erkenntniß ist nichts, denn dadurch erkenne ich kein Object,
sie ist also eine unzertrennliche Bedingung der Vollkommenheit aber der Grad der Wahrheit ist
nicht nothwendig derselbe, sondern der ist verschieden nach den verschiedenen Absichten. In lo-
gischer Absicht ist Wahrheit die Hauptvollkommenheit.”

79 See Kant, Logik Blomberg, AA XXIV, 56; Logik Philippi, AA XXIV, 366; Logik Pölitz, AA XXIV,
517; Wiener Logik, AA XXIV, 811. See also Jäsche Logik, AA IX, 49–50.

80 Watkins and Willaschek recognize that Meier uses ‘false Erkenntnis’ in the sense described above
and that this could suggest that Kant does as well, but still they think that Kant’s definition of a
‘false Erkenntnis’ as one that is not in agreement with its object “shows that the relation between a
representation and its object that is constitutive of a cognition is not one of adequate representation
or ‘agreement’” (Willaschek and Watkins, “Kant on Cognition and Knowledge,” sec. 1, n. 22).
Nonetheless, Kant’s definition of the truth and falsity of an Erkenntnis as its agreement or disagree-
ment with its object – however awkward it may be – does not speak against the interpretation I
have suggested here, since Kant is simply following Meier’s definitions: “the logical truth of knowledge
(veritas cognitionis logica) consists in its agreement with its object, and the logical incorrectness of it
(falsitas cognitionis logica) consists in its not agreeing with its object.” (Meier, Auszug aus der Vernunftlehre, §99;
trans. mod.) If this is possible for Meier to reason thus, then it should also be possible for Kant.

81 Kant, Wiener Logik, AA XXIV, 811 (trans. mod.): “Ohne Wahrheit findet gar keine Erkenntniß
Statt.”

82 Kant, Anthropologie Morgenröth, AA XXV, 1224 (trans. mod.): “Die Wahrheit ist die größte Voll-
kommenheit der Erkenntnisse denn zu jeder Erkenntniß wird zuerst erfodert daß sie wahr sei; ist
sie dieses nicht so fehlt ihr alles und sie ist gar keine Erkenntniß.” Cf. Kant, Anthropologie Friedländer,
AA XXV, 483–84.
correctly – he is thinking of complex knowledge, and we would normally not disqualify the whole just because parts of it turn out to be false.\textsuperscript{83}

I take this to be sufficient evidence that Kant does not take \textit{Erkenntnis} to be a mere intentional relation to an object that is neutral with respect to truth. This does not mean, however, that it is knowledge in the sense that contemporary epistemology understands the concept. Kant’s distinction between \textit{Erkenntnis} and \textit{Wissen} – both of which are \textit{forms} of knowledge – must rather be understood against the backdrop of a taxonomy of knowledge that was inherited from the Scholastics, and which was still widely influential in both the seventeenth and eighteenth century. We turn next to this setting.

**Opinion, Faith and Understanding**

In the foregoing, I accounted for the Aristotelian ideal of \textit{scientia} (‘understanding’) as a specific form of knowledge, namely, explanatory knowledge of why things are as they are. Although \textit{scientia} was also an everyday word for knowledge, the Aristotelian ideal represented the proper and strict use of the term within philosophy, whereas \textit{cognitio} was used for knowledge more broadly. I would now like to turn to the conceptual context in which this Aristotelian ideal became embedded and handed down through history. As we will see, the vocabulary of knowledge was multiform, and its taxonomy was often structured in ways that will seem foreign to the modern eye.

In the Early Modern period, books of logic typically divided proofs into two general kinds: demonstrative or certain proofs and dialectical or probable proofs. Among Thomists, it was common to insert this typology of proofs into a tripartite distinction between three forms of assent: \textit{opinio} (‘opinion’), \textit{fides} (‘faith’ or ‘belief’) and \textit{scientia} (‘understanding’).\textsuperscript{84} Opinion and understanding were taken from the Aristotelian corpus; the former was associated with conjectural or dialectical ways of getting at the truth, and the latter was knowledge through demonstration (either of the fact or of the reason why). The notion of faith was derived from Augustine, who Thomas Aquinas cites as saying that “faith is a virtue whereby we believe what we do not see.”\textsuperscript{85} And more broadly, faith was considered to be knowledge through human or divine testimony or authority.\textsuperscript{86} Being ‘seen’ is not a matter of sight as such, but of being seen intellectually, that is, being capable of becoming self-evident. Faith is certitude without self-evidence. This tripartite distinction was

\textsuperscript{83} This is the point made by Meier. See Meier, \textit{Auszug aus der Vernunftlehre}, §100. For the same point made by Kant, see, for example, Kant, \textit{Logik Blomberg}, AA XXIV, 93–96.

\textsuperscript{84} See Serjeantson, “Proof and Persuasion,” 139.

\textsuperscript{85} Aquinas, \textit{Summa Theologiae}, II–IIae q. 4 a. 1 co.: “fides est virtus qua creduntur quae non videntur[…].”

\textsuperscript{86} Augustine’s notion was developed by Hugo of St. Victor (also quoted by Aquinas in this context), who claimed that faith is a kind of certainty of things absent, which is beyond opinion but comes short of \textit{scientia}. See Brown, “The Theological Virtue of Faith,” 221–23; Siebert, \textit{Knowing and Trusting}, 50, 233.
absorbed by eighteenth-century German philosophy, and the logical works of Wolff, Alexander Baumgarten and Kant all feature chapters on these three forms of assent.87

When *scientia* is distinguished from opinion and faith in this context, we are thus not dealing with knowledge in an everyday sense – just as faith is not just any belief that someone might happen to have – but with the technical notion of an ideal state of knowing, what we have called ‘understanding.’ More specifically, it identifies certain knowledge of conclusions that are held to be true when they are proven from our prior knowledge of the premises. It is inferential knowledge, attained through reason.

Aquinas associates the intellect with the capacity for immediate intuition, a direct perception of the truth, whereas reason is the capacity for discursive thought, that is, the capacity to search, investigate, abstract, specify, and infer.88 Intellect and reason are actually not distinct faculties in a reified sense, but distinct operations of the same faculty (the intellect).89 They correspond to different ways of knowing “because the intellect knows by simple intuition, while reason knows by a process of discursion from one thing to another.”90 Aquinas compares these two forms of knowing to rest and movement, and reason actually is a kind of *movement* of the intellect (which is why its activity is called *discursus*, literally ‘running about’). In Aquinas’s teleological view, natural things move in the direction of their natural place, and come to rest when it is reached. Similarly, the intellect moves, in the process of inquiry or discovery, in the direction of the truth (its ‘natural place’), and comes to rest when it is reached.91

Aquinas thus says, following Aristotle, that in understanding (*scientia*) “the movement of reason begins with the comprehension of principles [*ab intellectu principiorum*] and ends at the same through the process of analysis.”92

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89 See Aquinas, *Quaestiones disputatae de veritate*, q. 15 a. 1; *Summa Theologiae*, I q. 79 a. 8. In the wake of the rediscovery of Aristotle’s *On the Soul*, medieval philosophers developed a theory of the three operations of the intellect, which would become a cornerstone of the logical tradition. Formerly, the works of the *Organon* had been read as concerned with three different areas of study: simple terms, propositions and syllogisms. Now they were interpreted as reflecting the three basic operations of the intellect. Reason is the ‘third operation,’ along with simple apprehension and judgment. See Pini, “Reading Aristotle’s *Categories* as an Introduction to Logic,” 157. For a formulation of such a view, see Aquinas, *Expositio libri Perihermenesias*, pr. 1–2.

90 Aquinas, *Summa Theologiae*, I q. 59 a. 1 ad 1: “quia scilicet intellectus cognoscit simplici intuitu, ratio vero discurrendo de uno in alium[…].”

91 See ibid., I q. 79 a. 8; *Quaestiones disputatae de veritate*, q. 15 a. 1.

92 Aquinas, *Quaestiones disputatae de veritate*, q. 14 a. 1 co. (my trans.): “motus rationis incipit ab intellectu principiorum, et ad eundem terminatur per viam resolutionis[…]” The term *resolutio* is
demonstration, the conclusion is traced back to, or analyzed into, principles that are known through themselves (comprehended). In this process, thought moves discursively through a set of syllogistic inferences that prove the truth of the conclusion from first principles. These first principles are ‘immediate’ or ‘indemonstrable,’ for, as Aquinas says “one may not proceed to infinity in demonstrations.”93 When this process is brought to its end, it gives rise to assent: “thought leads to assent, and assent brings thought to rest.”94 These demonstrations can prove either that something is the case or why it is the case. The latter is understanding (scientia) in the most strict and proper sense of the term.

In this tradition, opinion and faith are also taken to be forms of inferential knowledge: in the former case, from probable premises or through topical inferences; in the latter, either from human or divine testimony or authority. Hence, all three modes of assent identify forms of knowledge, but they differ as to the source and strength of assent. According to Aquinas, there are two ways in which the intellect can give assent:

First, through being moved to assent by its very object, which is known either through itself (as in the case of first principles, of which there is comprehension), or through something else already known (as in the case of conclusions, of which there is understanding). Secondly, the intellect assents to something, not through being sufficiently moved to this assent by its proper object, but through an act of choice, whereby it turns voluntarily to one side rather than to the other. And if now this be accompanied by doubt or fear of the opposite side, there will be opinion, while, if there be certainty and no fear of the other side, there will be faith.95

These two ways of giving assent are distinguished by whether the truth is ‘seen’ by the intellect or not. In this first case, the truth of the object is seen opposed to compositio, and this dichotomy is the Latin counterpart to what we usually call ‘analysis’ and ‘synthesis.’ See Sweeney, “Three Notions of resolutio and the Structure of Reasoning in Aquinas”.

93 Aquinas, Expositio libri Posteriorum, lib. 1 l. 4 n. 14: “cum in demonstrationibus non sit abire in infinitum[...]” See also Aquinas, Summa Theologiae, I–IIae q. 13 a. 3 co., I–IIae q. 66 a. 5 ad 4, I–IIae q. 91 a. 3 co.

94 Aquinas, Quaestiones disputatae de veritate, q. 14 a. 1 co. (trans. mod.): “cogitatio inducit ad assensum, et assensus cogitationem quietat.” Aquinas says that ‘thought’ (cogitatio) is “the movement of the deliberating mind [animi] not yet perfected by a full vision of the truth.” (Aquinas, Summa Theologiae, II–IIae q. 2 a. 1 co.; trans. mod.)

95 Aquinas, Summa Theologiae, II–IIae q. 1 a. 4 co. (trans. mod.): “Uno modo, quia ad hoc movetur ab ipso objecio, quod est vel per se ipsum cognitum, sicut patet in principii primis, quorum est intellectus; vel est per alium cognitum, sicut patet de conclusionibus, quam est scientia. Alio modo intellectus assentir alucii non qua sufficienct moveratur ab obiecto propriio, sed per quandam eleccionem voluntarie declinans in unam partem magis quam in aliam. Et si quidem hoc fit cum dubitacione et formidine alterius partis, erit opinio, si autem fit cum certitudine absque tali formidine, erit fides.”
by the intellect, for “those things are said to be seen [videre] which, of themselves, move the intellect or the senses to knowledge of them.”\(^9\)\(^6\) There is both sensitive and intellectual knowledge, since both the senses and the intellect can be brought to knowledge of the object.

In faith, on the other hand, we believe something that cannot be seen by our own senses or intellect. The knowledge of faith (cognitio fidei)\(^9\)\(^7\) is supernatural; Aquinas compares it to how the pupil, in an ordinary learning process, cannot be taught the foundations of things from the beginning, but has to accept certain things that he does not yet understand. “And for this reason it is said that it is necessary for the pupil to believe.”\(^9\)\(^8\) The pupil still knows that which he has been taught, but not through the sight of his own intellect; his knowledge is based on the authority of the teacher. Similarly, Aquinas thinks that man can reach knowledge of God through divine instruction, and this gives rise to the knowledge of faith, which is also based upon authority.\(^9\)\(^9\) And finally, dialectical syllogisms and conjectural inferences, giving rise to opinion, are also considered to be forms of knowledge (cognitio), although knowledge lacking certainty.\(^1\)\(^0\)

For our present purposes, the important thing is that when assent is provoked by the intellect itself, it is because the truth of the object is ‘seen’ directly by the intellect. Comprehension and understanding corresponds to two ways in which this apprehension of truth can be brought about: either immediately, in an intellectual intuition of the object; or mediately, through the discursive movement of the intellect (called reason), where the truth of the matter is revealed progressively, without any gaps, and therefore without any need for choice. In the case of comprehension, the truth is known through itself (per se notum) and is “perceived immediately by the intellect”; in the case of understanding, the truth is known through another thing (per aliud notum), and is therefore “perceived by the intellect, not immediately, but through an inquiry of reason.”\(^1\)\(^1\)

Partly on the basis of the passage quoted above, Maria Rosa Antognazza has argued that the genuinely traditional conception of knowledge – pace contemporary epistemology – takes knowledge to be a perception of the truth, attained from the object immediately present to the knowing mind.\(^1\)\(^2\) “Perceiving some truth or fact,” she writes, “is not a matter of having justification

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\(^9\)\(^6\) Ibid.: “Illa autem videri dicuntur quae per seipsam movet intellectum nostrum vel sensum ad sui cognitionem.”

\(^9\)\(^7\) Aquinas, \textit{Quaestiones disputatae de veritate}, q. 14 a. 10 s. c. 3.

\(^9\)\(^8\) Ibid., q. 14 a. 10 co.: (trans. mod.) “Et ideo dicitur, quod oportet addiscentem credere[…].”

\(^9\)\(^9\) Ibid.

\(^1\)\(^0\) For both opinion and faith, see Siebert, \textit{Knowing and Trusting}, 187–98.

\(^1\)\(^1\) Ibid., \textit{Summa Theologiae}, I–IIae q. 57 a. 2 co. (trans. mod.); “percipitur statim ab intellectu”;

\(^1\)\(^2\) See Antognazza, “The Benefit to Philosophy of the Study of Its History,” 169. The argument has recently been developed in Ayers and Antognazza, “Knowledge and Belief from Plato to Locke”.

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for a belief in the form of other beliefs. It is being in a position not to need a justification or reasons.”103 I agree that in the case of discursive knowledge, where the intellect moves “from one thing to another”104 so as to eventually attain a “full vision of the truth,”105 we are not actually dealing with a form of justification, if the concept of justification is taken to allow for a belief (or assent) that is justified but still false. The procedure is rather one of finally coming to see the truth – being in its presence – and this aspect of seeing the truth is emphasized, for example, in the way that philosophers favored 

understanding over mere knowing: as we will see in the next section, proofs by contradiction were typically criticized for not completely revealing the truth of the matter, since we only come to know that something is true, not why it is, through them.

But in contrast to Antognazza, I do not think that this exhausts the traditional view of knowledge. As we have seen, this is only the ideal of knowledge, not knowledge as such. Not only comprehension and understanding, but also opinion, faith and sensation, are forms of knowledge for Aquinas (who is Antognazza’s primary example). The latter three are not forms of scientia, to be sure, but they are forms of cognitio, which is knowledge more broadly.106

Aquinas’s account of opinion, faith and understanding was still widely influential in the seventeenth and eighteenth century. It is expressed for example by Pierre-Sylvain Régis in his Système de Philosophie (System of Philosophy, 1690):

Understanding [science] is certain and evident knowledge [connaissance] acquired through demonstration. […] Faith is certain and evident knowledge based on the authority of God or men; and […] opinion is uncertain knowledge founded on a merely probable ground.107

This was also the view absorbed in the Wolffian tradition, where opinion and faith and understanding were all described as forms of knowledge (cognitio or Erkenntnis), and characterized in the way Régis put it.108

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103 Antognazza, “The Benefit to Philosophy of the Study of Its History,” 171.
104 Aquinas, Summa Theologiae, I q. 59 a. 1 ad 1: “de uno in aliud”.
105 Ibid., II–Iae q. 2 a. 1 co. (trans. mod.): “plenam visionem veritatis”.
106 Contemporary historians of medieval philosophy often render cognitio as ‘cognition,’ and take it to be some lower-level cognitive state that does not involve truth. Matthew Kent Siebert, however, has recently made a strong case for cognitio as Aquinas’s general term for ‘knowledge.’ See Siebert, Knowing and Trusting, esp. 155–86. See also Kenny, Medieval Philosophy, 169.
107 Régis, Système de Philosophie, 1:58 (my trans.; emphasis removed): “la science est une connaissance certaine & évidente acquise par une démonstration. […] la foi est une connaissance certaine & évidente fondée sur l’autorité de Dieu ou des hommes; & […] l’opinion est une connaissance incertaine fondée sur une raison seulement probable.”
108 For references, see footnote 87.
The Ideal of Understanding in Kant’s Works

Having traced the Aristotelian ideal of knowledge down through history, let us now finally turn to Kant. As I have already indicated, I take Kant to adopt Aristotle’s ideal, at least to some extent. And if we are to understand how Kant conceives of the different forms of knowledge attainable to man, we must understand him against the backdrop of the taxonomy of knowledge described in the previous section, and not against that of contemporary epistemology. Kant is also concerned with the perfections of knowledge.

I suggested above that *Wissen* is the term for the traditional ideal of knowledge in Kant’s works. This term should not, therefore, be read merely as ‘knowledge,’ but as referring to a specific kind of knowledge. It is rather *Erkenntnis* that is Kant’s general term for ‘knowledge.’ To mark the distinction between *Wissen* and *Erkenntnis*, I have throughout this book – somewhat unorthodoxly – rendered them as ‘understanding’ and ‘knowledge,’ respectively. This distinction is not perfect, for not all forms of *Wissen* are explanatory knowledge (which was the main reason for choosing ‘understanding,’ as we saw in the first section). Sometimes it would be better to speak merely of ‘certain knowledge,’ since Kant, like many of his predecessors, allows for less demanding instantiations of the ideal. But in want of a better alternative, I have decided to use ‘understanding’ as a technical term for this Aristotelian ideal (in its varying forms), which is also why I have chosen to translated *Verstand* as ‘intellect.’

The first thing to note, when we relate Kant’s discussion of knowledge back to the discussion that was described in the previous section, is that understanding, traditionally, was a form of inferential knowledge. It is this inferential nature, I will argue, that is invoked when Kant speaks of *Wissen* as having an objectively sufficient ground, since a ‘ground,’ as we will see, is that from which something else is inferred. It is important to recognize this inferential nature, for otherwise one easily mistakes it for justification, in the contemporary sense. A judgment can of course be justified through an inference, but when the inference that gives rise to understanding is interpreted as a justification, one easily conflates that which is non-inferential with that which lacks justification. Eric Watkins and Marcus Willaschek, for example, write that *Erkenntnis* “cannot be equated with knowledge, since it […] does not require justification or warrant.” If the thing that it does not require is inference, however, the strength of the argument is significantly diminished. The issue that is up for discussion has been misconstrued.

So where does Kant’s use of *Wissen* come from? Wolff’s dual use of *Wissenschaft* and *scientia* was a commonplace in eighteenth-century German

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109 As we have seen above, Aristotle takes both demonstrations *that* and demonstrations *why* as providing ‘understanding.’ See also Pasnau, “Medieval Social Epistemology”.

110 See Introduction, “Translation and Transcription”.

And we find it in Meier’s *Auszug aus der Vernunftlehre*, which Kant, as we have seen, used as textbook when lecturing on logic. It was in the course of giving his lectures on logic that Kant developed the distinction between *Meinen*, *Wissen* and *Glauben* that later found its way into *Kritik der reinen Vernunft*. Whereas Meier, writing in the 1750s, still used *Wissenschaft* to designate both a body of knowledge (a ‘science’) and the state of mind of someone who has acquired such knowledge (‘understanding’), Kant replaced the latter with the capitalized infinitive *Wissen* in his lectures.

The use of *Wissenschaft* to refer to a state of mind became antiquated over the course of the eighteenth century, as we saw in the previous section, and the term was instead typically used only to refer to bodies of knowledge (which is also how Kant uses the term). Kant thus replaces the older dual use with the distinction between *Wissenschaft* and *Wissen*. He points to the connection between science (*Wissenschaft*) and understanding (*Wissen*) by saying that “science in general is nothing other than the knowledge (*Erkenntnis*) through which we understand *wissen* something.” He also emphasizes that “understanding means to assent to something with sufficient certainty and grounds, so that no doubt remains nor can remain.” This latter point invokes the traditional conception, expressed by Aquinas above, where opinion was taken to involve a ‘fear of the opposite side,’ that is, a recognition that one’s judgment could be false.

In this section, I will argue that Kant continues to adhere to the Aristotelian ideal of knowledge. First, I will begin with a brief consideration of the distinction between opinion, faith and understanding in Meier’s book, and his account of the relation between demonstrable and indemonstrable

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113 See Meier, *Auszug aus der Vernunftlehre*, §§185, 434.
115 This is explicit in Kant’s lectures from the early 1770s. Where Meier uses *Wissenschaft* to designate a state of the soul, Kant instead uses *Wissen*. See Meier, *Auszug aus der Vernunftlehre*, §185; Kant, *Logik Blomberg*, AA XXIV, 227; *Logik Philippi*, AA XXIV, 440.
116 In a study of the persistence of the doctrine of intellectual virtue in Kant’s works, Riccardo Pozzo says that no one will dispute that Kant’s use of *Wissenschaft* does not match Aristotle’s definition of *epistēmē* as *bēsīs apodeiktikē* (Pozzo, “Kant on the Five Intellectual Virtues,” 178). This is undeniably true, of course, but misses the target, since Kant replaces the term *Wissenschaft* with *Wissen* when referring to the state of mind of someone who has acquired this kind of knowledge. The question should be to what extent the latter corresponds to the Aristotelian concept. Pozzo is aware of Meier’s dual use of *Wissenschaft*, but does not recognize Kant’s terminological innovation (see Pozzo, *Georg Friedrich Meiers ‘Vernunftlehre’*, 233–35).
119 For Meier’s use of the expression, see Meier, *Auszug aus der Vernunftlehre*, §160.
knowledge. Secondly, I will analyze Kant’s understanding of the relation between demonstrable and indemonstrable knowledge as inferential and non-inferential knowledge. I will argue that, for Kant, a ‘ground’ is itself an instance of knowledge from which other knowledge can be inferred, and moreover, that a ground, properly speaking, is something that not only explains that something is true, but also why it is true. Thirdly, I will return to Kant’s discussion of the different degrees of knowledge, and argue that both insight and grasping— at least in the strict sense – should explain why something is true, not only that it is true. Since the Wolffian term ‘grasping’ was intimately connected with the ideal of understanding, this suggests a similar connection for Kant as well. We will see that Kant thinks that philosophy must always proceed by explaining things in this sense, that is, by providing insight into why things are as they are. Lastly, I will suggest that the reason why Kant thinks that the use of empirical principles in science does not properly satisfy the aims of reason is because they fail to convey insight into the matter, although they certainly provide knowledge.

Demonstrable and Indemonstrable Knowledge

Meier presents a taxonomy of knowledge that closely resembles the ones provided by Aquinas and Régis above. In a traditional manner, Meier makes a tripartite distinction between opinion, faith and understanding: opinion is uncertain knowledge, faith (or belief) is knowledge based on testimony, and understanding is completely certain knowledge.120

The degree of certainty in knowledge is based on the proof through which it is attained. In every proof, we have a ground of proof and a consequence, and the proof of the consequence is either completely certain or not. In the former case, it is a sufficient proof or a ‘demonstration’; in the latter, it is an insufficient proof, that is, merely probable knowledge.121 Understanding and opinion are both forms of inferential knowledge, and the conclusion is held to be true either with or without certainty. It is the conclusion that is understood or held as an opinion, and one’s assent to this conclusion is based on the proof through which it is derived.

Meier’s explanation of demonstration closely resembles that of Aquinas, presented above. “In a demonstration from reason,” Meier writes,

all grounds of proof must be completely certain; thus, they are either demonstrable or not. In the first case, they must be proved again. Consequently, a proof does not become a demonstration until I arrive at nothing but indemonstrable grounds of proof. Empty judgments, axioms, and postulates are thus the first

120 See Ibid., §§181, 185, 206.
121 Ibid., §191.
beginnings of all demonstrations from reason. When the proof has been conducted up to such judgments the intellect rests completely.122

The conclusion that is known through the demonstration should therefore not be conceived of as justified belief (although it qualifies as that too), but as demonstrable knowledge, in contrast to indemonstrable knowledge. The latter is not something that lacks justification, but the kind of knowledge that “becomes certain for us as soon as we know it distinctly” and is “totally certain without proof.”123 Demonstrable knowledge, however, requires a proof that reveals the truth.124 For Meier, as for Aquinas, this is a matter of mediate and immediate knowledge. In the case of indemonstrable knowledge, we have a direct vision of the truth, whereas in demonstrable knowledge, the truth has to be brought to light through several successive steps. When the conclusion that we seek to understand has been traced back to indemonstrable grounds, Meier says, “the intellect rests completely.” That is, the discursive movement of the intellect comes to a halt, having reached its end, as Aquinas would say.

Explanatory Grounds

In his lectures on logic, Kant clearly recognizes the distinction between inferential and non-inferential knowledge as a distinction between what is and what is not in need of proof. At one point, Kant notes that it is better to call the latter indemonstrabel (‘indemonstrable’) than unerweißlich (‘unprovable’) – which is Meier’s term – to avoid the impression that we are dealing with something that should be supported by proof, but is not.125 Meier identifies empty judgments, axioms and postulates as instances of indemonstrable knowledge, but does not count experiential judgments as belonging to this category.126 Against this, Kant argues (as did Wolff before him127) that all particular experiences are also indemonstrable, and gives as examples that “there is a sun in the heavens, the barometer has fallen or risen.”128 These are

122 Ibid., §318 (trans. mod.): “In einer Demonstration aus der Vernunft müssen, alle Beweisthümer, völlig gewiß seyn §.193. 204; sie sind also entweder erweislich oder nicht §.313. In dem ersten Falle müssen sie wieder bewiesen werden. Folglich wird ein Beweis nicht eher eine Demonstration, bis ich nicht auf lauter unerweisliche Beweisthümer komme. Die leeren Urtheile, die Grundurtheile und Heisecheurtheile sind demnach die ersten Anfänge aller Demonstrationen aus der Vernunft §.314. 315. Alsldenn beruhiget sich der Verstand völlig, wenn der Beweis bis auf solche Urtheile fortgeführt worden.”
123 Ibid., §192 (trans. mod.): “wird uns gewiß so bald wir sie deutlich erkennen”; “ohne Beweis völlig gewiß”.
124 Ibid., §193.
125 Kant, Logik Pölitz, AA XXIV, 561.
126 Meier, Auszug aus der Vernunftlehre, §319.
127 Recall that Wolff also counted experiential judgments among the ‘first grounds’ of knowledge.
128 Kant, Logik Blomberg, AA XXIV, 231: “es ist eine Sonne am Himmel, das Barometer ist gefallen, oder gestiegen”. See also Logik Philipp, AA XXIV, 443. Some analytical judgments are also inde-monstrable. The judgment ‘Every body is extended,’ for example, presents an immediate mark (extension) of the concept (body) that cannot be further derived (Logik Blomberg, AA XXIV, 275).
immediately certain, and known without proof. General empirical judgments, however, can only be inferred through induction (as we saw in Chapter One).\textsuperscript{129}

Indemonstrable propositions, Kant says, “have no particular ground of knowledge, but instead they are themselves the grounds of knowledge.”\textsuperscript{130} To be clear, this does not mean that they lack justification; to say that these immediately certain propositions have no ground is to say that they are that from which everything that is inferred must begin.\textsuperscript{131} Your knowledge that there is a sun in the heavens has no ground precisely because you can see it directly (to have a ground is to be inferred).

When philosopher’s find a precursor to the modern analysis of knowledge in Kant’s works, they are primarily looking at the Canon of Pure Reason,\textsuperscript{132} where we find the traditional tripartite distinction between three modes of ‘assent’ (Fürwahrhalten\textsuperscript{133}). In one of his Reflections, Kant gives a condensed characterization of this distinction:

Assent from a ground of knowledge that, however, is neither subjectively nor objectively sufficient is opinion [Meynung].

Assent from a ground of knowledge that is subjectively but not objectively sufficient is faith [Glaube].

Assent from a ground of knowledge that is both subjectively an objectively sufficient is understanding [Wissen].\textsuperscript{134}

By interpreting assent – holding something to be true – as ‘belief’ and the objectively sufficient ground as ‘justification,’ contemporary scholars read Wissen as expressing a ‘traditional’ analysis of knowledge. But this overlooks the way in which ‘ground’ functions in these cases. As we have seen, these three forms of assent were traditionally understood as forms of inferential

\textsuperscript{129} Kant, \textit{Logik Philippi}, AA XXIV, 443. Thomas Höwing treats the particular experience (my seeing a square table in the room) as the ground of my assent to the corresponding proposition (‘there is a square table in the room’), and the latter is then taken to be an instance of Wissen (see Höwing, “Kant über Wissen, Allgemeingültigkeit und Wahrheit,” 117). But a particular experience, on both Meier’s and Kant’s account, would only be a ground of a proposition to the extent that the latter is some other proposition derived from the former, as when we generalize, through induction, from particular cases.

\textsuperscript{130} Kant, \textit{Logik Blomberg}, AA XXIV, 275 (trans. mod.): “haben keinen besonderen Erkenntniss-Grund, sondern sie sind die Erkenntniss Gründe selbst[…]”. Cf Kant, \textit{Wiener Logik}, AA XXIV, 893: “An inducerbale proposition is a proposition that is immediately certain. What is certain without any ground of proof is immediately certain.”

\textsuperscript{131} See Kant, \textit{Logik Pölitz}, AA XXIV, 561 (my trans.): “All our knowledge must begin from immediately certain propositions.”

\textsuperscript{132} See Kant, \textit{Kritik der reinen Vernunft}, A820–31/B848–59.

\textsuperscript{133} See Introduction, “Translation and Transcription”.

\textsuperscript{134} Kant, \textit{Kant’s handchriftlicher Nachlaß: Logik}, R2477: “Das für wahr halten aus einem Erkenntnisgrunde, der aber weder subjektiv noch objectiv hinreichend ist, ist Meynung. ¶ Das für wahr halten aus einem Erkenntnisgrunde, der zwar subjektiv, aber nicht objectiv hinreichend ist, ist Glaube. ¶ Das für wahr halten aus einem Erkenntnisgrunde, der so wohl subjektiv als objectiv hinreichend ist, ist Wissen.” Erich Adickes dates this Reflection to the period 1780–89 or perhaps to 1776–79.
knowledge, and the ‘ground’ is then *that from which* something is inferred (and the ground itself is an instance of knowledge).

Kant inherited the concept of a ground of knowledge from Wolff, who in his turn got it from Gottfried Wilhelm Leibniz. Leibniz explains that:

A ground is a known truth whose connection with some less well-known fact leads us to give our assent to the latter. But it is called a ‘ground,’ especially and above all, if it is the cause not only of our judgment but also of the truth itself – which makes it what is known as an ‘a priori ground.’

Leibniz is here distinguishing between a ground (raison) of judgment and a ground of truth, and he evidently conceives this distinction in accordance with the Aristotelian-Scholastic distinction between merely proving something and also explaining it. It is important to notice that the ground is described as “a known truth,” which means that the ground itself is a piece of knowledge. Depending on the kind of ground that is invoked, it can either establish *that* the “less well-known fact” is true, or also explain *why* it is true.

Like Wolff before him, Kant uses the expressions ‘ground of knowledge’ (ratio cognoscendi) and ‘ground of being’ (ratio essendi) to make the Leibnizian distinction. And early in his career, Kant explicitly related it to the traditional Aristotelian-Scholastic distinction, saying that a ground of knowledge is a “ground that” (ratio quod) and a ground of being is a “ground why” (ratio cur). In a ground of knowledge, one truth is inferred from another known truth. This establishes *that* something is true, but does not explain *why* it is true. The ground of being, however, “is the grounds of that which belongs to a thing considered according to its possibility.” As an example of the latter, Kant says that it is because a triangle has three sides that it also has three corners; the former is the ground of the latter.

Kant thinks that a ground, in the full sense of the term, is that from which something is explained, that is, a ground from which the truth, as he says, also “originates.” When we use empirical principles as grounds, we “arrive at” knowledge, but the things we know do not, strictly speaking, follow from the grounds. They are principles of knowledge, not of being. In this context at

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136 Leibniz, *Nouveaux essais sur l’entendement*, bk. 4, chap. 17, §3 (trans. mod.): “La Raison est la vérité connue dont la liaison avec une autre moins connue fait donner nostre assentiment à la dernière. Mais particulièrement et par excellence on l’appelle Raison, si c’est la cause non seulement de nostre jugement, mais enceor de la vérité même, ce qu’on appelle aussi Raison à priori”.


139 Ibid.: “ist der Grund von dem, was dem Dinge zukömmt nach seiner Möglichkeit betrachtet[…].”


141 Kant, *Metaphysik Mrongovius*, AA XXIX, 748: “gekommen bin”.

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least, Kant is using the distinction between *a priori* and *a posteriori* in a traditional way: “If I begin from the consequences,” he explains, “then I know something *a posteriori*; if I begin from the grounds, then I know *a priori*.142 And the idea of a hierarchical order of being – or an explanatory order – is invoked when he says that “I can make a consequence into a ground,”143 by which he means that we make something that is a consequence in the order of being into a ground in a proof of some truth.

What is the problem with reversing the explanatory order in this way? The problem is not, as far as I can see, that there is any doubt with regard to the truth of the conclusion thus inferred. The problem is rather that when we establish *that* something is true but do not know *why* it is true, the truth is still – to some extent – concealed from view. Were we to establish empirically that the sum of the angles in a triangle is equal to two right angles, for example, however true this is, it is still to move in the opposite direction from the explanatory order. For empirical triangles have this property as a consequence of their nature as triangles: given the definition of a triangle and its construction, we can show that it necessarily has this property, as a consequence of its essence.144

Perfections of Knowledge

When Kant defined understanding (*Wissen*) above as having a ground of knowledge that is objectively sufficient, this means that the ground establishes the truth with certainty.145 However, since this ground was called a ‘ground of knowledge,’ it only needs to establish *that* the thing is true, not *why*. This is in line with how understanding was traditionally conceived: although explanatory knowledge was the highest form of understanding, certain knowledge of a conclusion also qualified as understanding, although in a less strict sense.

Does Kant also consider explanatory knowledge to be the highest form of understanding? Let us address this question by returning to Kant’s account, in his lectures on logic, of the different degrees to which knowledge can be elevated, which we touched upon in Chapter One. Let us rehearse Kant’s taxonomy again:

1. to represent (*vorsellen, repraesentare*)
2. to perceive (*wahrnehmen, percipere*)

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142 Ibid. (trans. mod.): “Fange ich von den Folgen an, so erkenne ich etwas *a posteriori*, fange ich von den Gründen an, so erkenne ich *a priori*.“ Houston Smit has also argued that Kant uses the distinction between *a priori* and *a posteriori* in a traditional way, see Smit, “Kant on Apriority and the Spontaneity of Cognition”.


144 On mathematical construction, see Chapter Three.

3. to be acquainted with (*kennen, noscere*)
4. to comprehend (*verstehen, intelligere*)
5. to have insight (*einsehen, perspicere*)
6. to grasp (*begreifen, comprehendere*)

What Kant offers his students is a set of technical terms that had been introduced by Wolff, who Kant obviously takes to be the authority in these matters. Specifically, the last three represent an appeal to the Wolffian orthodoxy, which we recognize from our discussion of Wolff above. In the previous chapter, I argued that what Kant calls ‘acquaintance’ assumes the position that sensitive knowledge had in Wolff’s system: acquaintance involves the application of concepts, but these concepts are often obscure to us. The transition from acquaintance to the next three degrees of knowledge does not constitute a transition from sensitive to intellectual knowledge, but is a matter of articulating a conceptual content of which we were previously unaware.

Kant gives a traditional account of the last three stages in his taxonomy (in my words):

*To comprehend something* is to know it through its immediate marks, or to have knowledge of it through the intellect.

*To have insight into something* is to know it through mediate marks, or to know it through reason or inference. Insight is knowledge through grounds.

*To grasp something* is to have insight into something to a degree sufficient for some purpose, or to have complete insight through reason.

This fits Wolff’s original account quite well. Comprehension is knowledge through the intellect, whereas insight and grasping are forms of inferential knowledge through reason. The distinction between intellect and reason invoked here can be explained through the distinction between immediate and mediate marks. In the analytical judgment ‘bodies are composite’ the predicate attributed to the subject is an immediate mark, which means that it is not derivable from a more fundamental mark of the concept. This judgment is therefore *indemonstrable*, that is, certain without inference. The analytical judgment ‘bodies are alterable,’ however, attributes a mediate mark to the subject, and the realization of the truth of this proposition requires a process of reasoning whereby we gain insight into the matter by showing that alterability is a mark of *compositionality*.

As we saw above, Wolff’s distinctions mapped directly onto the Aristotelian distinction between the intellectual virtues comprehension and understanding: comprehension is distinct knowledge of indemonstrable principles and understanding is grasping something from indemonstrable principles.

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146 See Chapter One, Section Three.
147 For references, see Chapter One, footnote 75.
148 See Chapter One, Section Four.
That Kant appeals to this conception of intellectual perfection shows that the traditional epistemic ideal is still present in his thought. Moreover, as I will show below, he employs this conception in explaining his own project.

But when insight and grasping are said to be knowledge through ‘grounds,’ what sense of ‘ground’ does Kant have in mind – grounds of knowledge or of being? As we have seen, Kant thinks that a ground that explains a truth is a ground in the proper sense of the term. This point is enforced in one of his early lectures, where Kant says that “proper, true insight is actually attained only through direct, genetic proof.” He then continues to explain that something is proved directly “when its truth can be shown from the relation to the grounds,” and specifies that this ground should be a ground of being, not of knowledge. This means that insight, properly speaking, requires explanatory power.

Together with that between proofs a priori and a posteriori, the distinction between direct and indirect proofs that Kant invokes here was central to the mathematical discussion of the Early Modern period, and both distinctions were inherited from the Aristotelian-Scholastic tradition. In virtue of their formal structure, proofs preserve certainty; but as we have seen, certainty was not all that was expected of demonstrations in this tradition. Ideally, demonstrations should explain the inferred conclusion, and it is here that the distinction between direct and indirect proofs becomes important.

Let me take an illustrative example. In La logique, ou l’art de penser (Logic or the Art of Thinking, 51683), Antoine Arnauld and Pierre Nicole identify as one of the central mistakes of geometers that they pay more attention “to certainty than to evidence, and to convincing the mind than to enlightening it.”

Geometers are praiseworthy for wanting to assert only what is convincing. But they seem not to have noticed that in order to have perfect understanding [science] of some truth, it is not enough to be convinced that it is true if we do not also discern why it is true by grounds taken from the nature of the thing itself. Until we reach this point, the mind is not fully satisfied and continues to seek more knowledge [connaissance] than it has, which is an indication that it still does not have true understanding.


150 See Mancosu, Philosophy of Mathematics and Mathematical Practice in the Seventeenth Century, chap. 4.

151 Arnauld and Nicole, La logique ou l’art de penser, 433/254: “de la certitude que de l’évidence, & de convaincre l’esprit que l’éclairer.”

152 Ibid., 433–4/254 (trans. mod.): “Les Geometres sont louables de n’avoir rien voulu avancer que de convaincant; mais il semble qu’ils n’ont pas assez pris garde qu’il ne suffit pas pour avoir une parfaite science de quelque verté, d’être convaincu que cela est vray, si de plus on ne penetre pas des raisons prises de la nature de la chose mesme pourquoy cela vest vray. Car jusqu’a ce que nous soyons arrivez à ce point-là, nostre esprit n’est point pleinement satisfait, & cherche encore une plus grande connaissance que celle qu’il a: ce qui est une marque qu’il n’a point encore la vraye science.”
In their distinction between knowledge (connaissance) and understanding (science) – which I continue to translate in the way established in the introduction\(^\mathrm{153}\) – the authors invoke the Aristotelian-Scholastics distinction between knowing *that* and knowing *why*. The geometers, they say, cannot “change the fact that we have a much more accurate, complete, and perfect knowledge of the things we know by their true causes and principles than of those we have proved only by indirect and unfamiliar ways.”\(^\mathrm{154}\) In particular, they are critical of the use of proofs by contradiction, which fail to show why something is as it is. “This kind of demonstration,” they say, “can convince the mind but it cannot enlighten it, which ought to be the main result of understanding [science].” And since we strive not only to know things, but also to understand them, “the mind is not satisfied unless it knows not only that something is, but why it is.”\(^\mathrm{155}\)

What we have here is an ideal of knowledge that requires that we completely see the truth, that we penetrate it down to its sources. We can relate this back to Antognazza’s point above, that there is a kind of perceptual ideal of knowledge in the tradition, according to which we should not only be justified in holding something to be true, but also see it with ‘the mind’s eye,’ so to speak. I argued that this should not be equated with knowledge as such, but must be considered an ideal of knowledge, since opinion and faith, as well as sensation, were also considered to be forms of knowledge, in the tradition.

This is evidently also how Arnauld and Nicole view the matter, for they clearly do not equate science with ‘knowledge,’ but rather see it as a specific kind of knowledge. For them, the problem with proofs by contradiction is not that they fail to provide knowledge. When we prove something through a contradiction, we prove it indirectly from a falsehood that follows from some assumed premise. Such proofs succeed perfectly well to prove, with certainty, the truth of the conclusion, and as a result provide conviction. What they fail to do is to convey the kind of insight required for the higher ideal of knowledge – understanding – which is also, they say, the only thing that will truly satisfy the mind.

Kant makes a similar point towards the end of *Kritik der reinen Vernunft*, in a discussion of transcendental proofs:

The direct or ostensive proof is, in all kinds of knowledge, that which is combined with the conviction of truth and simultaneously with insight into its sources; the

\(^{153}\) See Introduction, “Translation and Transcription”.

\(^{154}\) Arnauld and Nicole, *La logique ou l’art de penser*, 441/258: “changer par là la nature de nostre esprit, ny faire que nous n’ayons une connoissance beaucoup plus nette, plus entiere, & plus parfaite des choses que nous sçavons par leurs vrayes causes & leurs vrayes principes, que de celles qu’on ne nous a prouvées que par des voyes obliques & étrangeres.”

\(^{155}\) Ibid., 436/255 (trans. mod.): “Ces sortes de demonstrations […] peuvent convaincre l’esprit, mais qu’elles ne l’éclairent point, ce qui doit estre le principal fruit de la science.”; “nôtre esprit n’est point satisfait, s’il ne scâit non seulement que la chose est, mais pourquoi elle est”.
proof by contradiction [der apagogische Beweis], on the contrary, can produce certainty, to be sure, but never graspability of the truth in regard to its connection with the grounds of its possibility. Hence, the latter are more of an emergency aid than a procedure which satisfies all the aims of reason.156

Both direct and indirect proofs yield certain knowledge, but the latter fail to combine this certainty with insight into why the thing is true. Or, as Kant says at roughly the same time in one of his lectures, through proof by contradiction “I have proved the proposition […] but not grasped it.”157 We see that Kant appeals to insight and graspability (Begreiflichkeit) here, and furthermore, that these are associated with knowing a truth from its grounds of possibility, that is, from grounds of being.158

Kant’s view resonates with that of Arnauld and Nicole, who held that proofs by contradiction “are acceptable only when others cannot be given, and that it is a fault to use them to prove what can be proved positively.”159 That Kant finds such proofs fully acceptable within mathematics, for example, does not put him apart from Arnauld and Nicole. His point is simply that in mathematics such proofs, although they fail to provide insight, will not deceive us, whereas in philosophy they might (as the antinomies are meant to show).160 Philosophy must proceed directly, which means that philosophy must always explain things, and never merely seek to convince. Kant’s transcendental proofs are therefore meant to be proofs that explain things from their grounds of possibility. They are not, as in traditional ontology, explanations of the possibility of things in themselves, but rather explanations of the possibility of something as an object of empirical knowledge, or experience.161

The Deductive Ideal of Science

It is well known that Kant distances himself from the exclusively deductive conception of science maintained by Wolff, Meier and many others in the

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158 As we saw above, grounds of being “is the grounds of that which belongs to a thing considered according to its possibility.” (Kant, *Metaphysik Morgenstern*, AA XXIX, 809)

159 Arnauld and Nicole, *La logique ou l’art de penser*, 437/256: “sont recevables, que quand on n’en peut donner d’autres, & que c’est une faute de s’en servir pour prouver ce qui se peut prouver positivement.”


161 Ibid., A783/B811.
preceding tradition. Sciences are systematic bodies of knowledge, Kant argues, but not all systems need to be deductive. Rather, systematicity arises out of a unifying idea of the body of knowledge as a whole that precedes its individual parts. This does not mean that Kant completely deserts the deductive ideal of knowledge, but merely that he recognizes that different forms of knowledge are characterized by different forms of systematicity.

In *Metaphysische Anfangsgründe der Naturwissenschaft* (Metaphysical Foundations of Natural Science, 1786), however, Kant presents a stricter conception of science, where the mere historical doctrine of nature is opposed to natural science. The former is said to contain “nothing but the systematically ordered facts about natural things,” whereas the latter is knowledge through principles. In opposing ‘history’ to ‘science’ in this way, Kant is using the technical language of the tradition, according to which ‘history’ signifies descriptive knowledge of individuals, and ‘science’ explanatory knowledge through inference. A science, he continues, must have the form of a rational or deductive system. But this is not enough, for the principles of such a system can either be a priori or merely experiential laws, and only the former suffice for science proper:

What can be called proper science is only that whose certainty is apodictic; knowledge that can contain mere empirical certainty is only ‘understanding’ [Wissen] improperly so-called. Any whole of knowledge that is systematic can, for this reason, be called ‘science,’ and, if the connection of knowledge in this system is an interconnection of grounds and consequences, even ‘rational’ science. If, however, the grounds or principles themselves are still in the end merely empirical, as in chemistry, for example, and the laws from which the given facts are explained through reason are mere laws of experience, then they carry with them no awareness of their necessity (they are not apodictically certain), and thus the whole of knowledge does not deserve the name of a science in the strict sense; chemistry should therefore be called a systematic art rather than a science.

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162 On Kant’s opposition to the deductive view, see, for example, Kant, *Logik Dobna-Wundlacken*, AA XXIV, 747; *Wiener Logik*, AA XXIV, 891. On the development of Kant’s teleological conception of science, see Hinske, “Die Wissenschaften und ihre Zwecke”.


Kant's point is that, in a broad sense of the term, any systematically ordered body of knowledge can be called a 'science,' but for it to be a science in the proper sense, the system should be ordered deductively. Moreover, for it to qualify as a science in the strictest sense, the grounds or principles from which things are explained cannot be empirical laws, but must be known \textit{a priori}. Furthermore, the knowledge we attain when we possess the content of such a science qualifies as understanding (\textit{Wissen}), properly speaking. This is what it truly is to understand something, it seems, in line with the traditional Aristotelian ideal.

The experiential laws used by chemistry are merely grounds of knowledge; they provide knowledge, but do not convey insight. When we use such laws acquired through induction, something that is a consequence in the explanatory order is used as a ground in a proof. The use of such experiential laws should only be a preliminary stage. According to the “demands of reason every doctrine of nature must finally lead to natural science and conclude there,” Kant writes, and this requires that we have insight, in the proper sense, into the laws put to use.\textsuperscript{167} This demand of reason is a consequence, it seems, of reason’s basic interests in \textit{understanding} things, which leaves it dissatisfied until it has traced things back to the grounds from which they originate:

Hence, the most complete explanation of given appearances from chemical principles still always leaves behind a certain dissatisfaction, because one can adduce no \textit{a priori} grounds for such principles, which, as contingent laws, have been learned merely from experience.\textsuperscript{168}

What Kant here calls ‘\textit{a priori} grounds’ (recalling Leibniz’s use of the same phrase) could also be called ‘explanatory grounds.’ The problem with chemistry and other empirical sciences of this kind, is that contingent limits are put on intelligibility: the boundaries set for insight are arbitrary, and the inquiry of reason is put to a halt before having fully reached its end. Further insight is still conceivable, which is why the condition is deemed arbitrary.

What we witness in reason’s \textit{dissatisfaction} with both indirect proof procedures and empirical principles is the continued influence of an ideal of knowledge that requires that we properly penetrate the truth, not merely know that it is true. The fault of proofs by contradiction and empirical principles is that they present the truth merely as a \textit{fact}, not as a \textit{reasoned fact}; that is, not as something that can be understood. They fail in intelligibility. Dissatisfaction results from the gap between what reason can posit as a task and the actual state of its achievements. It is another matter when we have insight.

\textsuperscript{167} Ibid., AA IV, 469: “Forderungen der Vernunft jede Naturlehre zuletzt auf Naturwissenschaft hinausgehen und darin sich endigen müsse”.

\textsuperscript{168} Ibid.: “daher die vollständigste Erklärung gewisser Erscheinungen aus chemischen Principien noch immer eine Unzufriedenheit zurückläßt, weil man von diesen als zufälligen Gesetzen, die bloß Erfahrung gelehrt hat, keine Gründe \textit{a priori} anführen kann.”
into the very limits of our knowledge itself – which the critique of reason is meant to provide – where we, as Kant writes in the preface to *Kritik der reinen Vernunft*, have to “deny understanding in order to make room for faith.”

**Conclusion**

In this chapter, I have argued that Kant still considers the question of knowledge in the light of the Aristotelian ideal of *understanding*. Traditionally, understanding was taken to be certain knowledge of a conclusion that is derived by means of an inference. In its strictest form, this inference should not only establish *that* something is true, but also explain *why* it is true. I have argued that *Wissen* (‘understanding’) is Kant’s term for this ideal of knowledge, whereas *Erkenntnis* is his general and inclusive term for knowledge.

Kant describes understanding as certain knowledge from grounds. But since grounds, in the proper sense, should not only prove *that* something is true, but also explain *why* it is true – that is, provide insight into the sources of the truth – empirical knowledge cannot supply grounds in the strictest sense. Empirical principles present their claims merely as *facts* about an aggregate of individuals, and inferences from such principles will not provide *insight* in the full sense of the term; the latter must proceed from reason itself.

This means that understanding, strictly speaking – that is, explanatory knowledge – can never arise from experience, but must be attained from reason. Reason, as Kant writes in the Preface to the second edition of *Kritik der reinen Vernunft*, “has insight only into what it itself produces according to its own design.” What he has in mind is of course not insight as mere inferential knowledge, for reason can certainly know things inferentially that are not of its own creation, but rather insight in the full sense of the term: insight into the *sources* of the thing, the grounds that make it possible. Hence, reason can only understand, in the strict sense of the Aristotelian ideal, the products of its own activity. True understanding is a form of *self*-understanding. Moreover, as we saw in Chapter One, this must be understood as a form of recollection of what it is that we actually *do*, since the products of reason are first known in their *use*, and can be brought to awareness only after long practice. What reason has insight into is thus not things as they are in themselves, but only the possibility of something as an object of empirical knowledge. In the next chapter, this form of insight into the products of reason will be studied.

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169 Kant, *Kritik der reinen Vernunft*, Bxxx (trans. mod.): “das Wissen aufheben, um zum Glauben Platz zu bekommen”. Where faith, as Kant explains in a later work, “is trust in the attainment of an aim the promotion of which is a duty but the possibility of the realization of which it is not possible for us to have insight into.” (Kant, *Kritik der Urteilskraft*, AA V, 472)

in the case of space and time, which, as we will see, are not things with an existence of their own, but constructively generated objects that are brought about by reason itself.
In the previous chapter, I argued that Kant continues to consider the ultimate aims of knowledge in light of the traditional Aristotelian ideal of understanding. However, since experience can only provide knowledge of individual things, and since all general knowledge attained from experience consists only of conjectural generalizations, empirical knowledge is unable to provide the foundation for understanding and insight in the proper sense. Only the products of the activity of reason itself can truly be understood. In this chapter, Kant’s theory of space and time will be used as an example of what it means for reason to have insight into the products of its own activity.

Kant’s theory of time has often been read as an early predecessor to the late nineteenth- and early twentieth-century analysis of the subjective experience of time or time-perception. Similarly, in an ongoing discussion of how one should understand Kant’s claims about space and time in the Transcendental Aesthetic, several interpreters have proposed what they call a ‘phenomenological’ reading, according to which Kant is concerned with space and time as they are experienced. Although these discussions are primarily concerned with the nature of space, the arguments are directly transferable to time, since Kant’s analysis of the two is parallel.

Contrary to the phenomenological reading, I will argue that the Transcendental Aesthetic is not concerned with experienced space and time, but that the two are constructively generated representations that function as principles for ordering empirical knowledge. To get a proper sense of the content of these representations, we must read Kant against the background of fundamental developments in geometry. I will argue that Kant’s account of both space and time draws on a geometrical conception of space that is not a perennial feature of geometrical thought, but an innovation of the last four centuries.

In the first section, I begin with the issue of the so-called ‘spatialization’ of time, that is, the representation of time in the figure of a line. I argue that the spatialized conception of time that we are familiar with today, not only requires that time is represented in the figure of a line, but, more specifically, that it is considered as a one-dimensional geometric space. I suggest that Kant’s description of time as an infinite and all-encompassing line should be understood as a one-dimensional geometric space in which things are located,
and I compare this to how time was represented in eighteenth-century chronography.

To develop this interpretation of time, a better understanding of Kant’s conception of space is needed, since time is represented through space. In the second section, I therefore turn to Kant’s theory of mathematics. I begin with Kant’s account of mathematical construction. Secondly, I analyze Kant’s conception of schematization. Thirdly, I show how schemata make empirical knowledge possible by autonomously prescribing standards of truth. Finally, after having explained what it means, for Kant, to represent the object corresponding to a regular mathematical concept, I ask what it could mean to represent space itself as an object.

To answer this question, I turn, in the third section, to the works of the mathematician Leonhard Euler. I examine Euler’s constructions of geometric coordinate systems or spaces, and argue that Kant understands space in a similar way. Furthermore, I suggest that we can use Euler’s account of geometric space to explain Kant’s distinction between conceptual and intuitive containment in the Transcendental Aesthetic, and that Euler’s coordinate systems show in what way space is both infinite and all-encompassing. Finally, I suggest that the pure representation of space should be understood as a method of objectification.

In the fourth and final section, this account of space is applied to Kant’s theory of time. I argue that Kant’s ‘spatialization’ of time invokes the representation of space as a coordinate system, and that time, therefore, is represented as a one-dimensional geometric space. To make this argument, I begin by returning to the issue of schematization, and show that the schematization of a concept in time requires the support of spatial intuition. Secondly, I make the case that Kant understands time as a one-dimensional geometric space, and I use one of Joseph Priestley’s chronographic charts to illustrate this geometric representation of time. Thirdly, I explain that the pure representation of time has to be empirically instantiated in order to function as a vehicle of knowledge. Lastly, I ask if there is any room for an ‘experience’ of time in Kant’s philosophy, given the account I have presented.

The Mathematization of Nature

In this section, the problem of a spatialization of time will be introduced. First, I will begin by briefly revisiting the thesis of a geometrization of space and time in the Early Modern period. I will suggest that this geometrization did not draw on traditional Euclidean geometry, but that the conception of geometrical space that was applied actually itself was an innovation of the time. Secondly, I will suggest that Kant is part of this historical trajectory, and that his ‘spatialization’ of time also invokes this newly developed conception of geometric space. Thirdly, I will explain the difference between traditional
Euclidean geometry and the new conception of geometrical space by contrasting two different accounts of motion.

The Geometrization of Space and Time

The mathematization of natural philosophy was one of the most decisive changes that scientific thought underwent during the so-called Scientific Revolution. Although astronomy had been considered a mathematical science from the moment of its birth, few natural philosophers would have sought to reduce physics to mathematics prior to the sixteenth century. The conception of the sixteenth and seventeenth century as a period of ongoing mathematization of nature has today become part of our cultural self-understanding.

The works of the philosopher and historian of science Alexandre Koyré were undoubtedly crucial for establishing this narrative of the Scientific Revolution (a term that Koyré himself coined). To Koyré, the Scientific Revolution represented “one of the deepest, if not the deepest, mutations and transformations accomplished – or suffered – by the human mind since the invention of the cosmos by the Greeks, two thousand years before.” Modern science brought about a mathematization of both nature and science, resulting in the destruction of the cosmos of Christian Aristotelianism. Central to this transformation, on Koyré’s understanding, was the geometrization of space, by which he meant “the replacement of the Aristotelian conception of space – a differentiated set of innerworldly places – by that of Euclidean geometry – an essentially infinite and homogenous extension – from now on considered as identical with the real space of the world.” The world of modern science is a “universe of hypostatized geometry” in which there is no longer room for questions of value, perfection, harmony, meaning, and purpose.

Hand in hand with this geometrization of space, E. A. Burtt, another early proponent of the mathematization thesis, saw a geometrization of time. Modern science, he wrote, had banished man from the real world, and demoted him to the status of an “irrelevant spectator” of the regular motion of the mathematical and mechanical system of nature. With this expulsion, science had also estranged itself from the experience of time as something lived, Burtt

2 For an overview of the historiography of ‘mathematization thesis,’ see Gorham et al., The Language of Nature, 1–23.
4 Koyré, From the Closed World to the Infinite Universe, viii.
5 Koyré, “The Significance of the Newtonian Synthesis,” 7–8. Koyré’s narrative has not gone unchallenged, of course. For a critique of Koyré’s depreciation of the experimental tradition, see, for example, Kuhn, “Mathematical vs. Experimental Traditions in the Development of Physical Science”. And for a problematization of the very idea of a unitary trajectory of mathematization, see Ariew, “The Mathematization of Nature in Descartes and the First Cartesians”.
argued: “time for modern physics becomes nothing more than an irreversible fourth dimension. Time, like a spatial dimension, can be represented by a straight line and co-ordinated with spatial facts similarly represented.”

In making this claim, Burtt drew on Henri Bergson’s characterization of the ‘homogeneous’ conception of time as a spatialization of lived duration. When we measure time, Bergson argues, we picture it in the figure of a line and thus project it into a symbolic space of our own creation: a fourth dimension, added to the three of ordinary Euclidean space. As Bergson sees it, the spatialization of time is a recurring feature of the philosophical tradition:

Unknowingly, we allow space to intrude on the field of time, that is, “we project time into space, we express duration in terms of extensity, and succession thus takes the form of a continuous line or a chain, the parts of which touch without penetrating one another.” The result is a symbolic representation of time, brought about through the practice of measuring it, which forces time to assume “the illusory form of a homogeneous medium.”

Instead of seeing this as a feature of the tradition as a whole, Burtt inscribed the Bergsonian idea in his narrative of Early Modern science. For Burtt, Galileo Galilei was the decisive figure in this development, since his studies of velocity and acceleration required a “geometrical representation of time,” and it was this conception of duration that lead to our contemporary understanding of time as “nothing but a measurable continuum” in which “the present moment alone exists, and that moment itself is no temporal quantity but merely a dividing line between the infinite stretch of a vanished past and the equally infinite expanse of the untrodden future.”

Burtt’s contextualization of Bergson’s problem, however, lacks historical precision. For as historians and philosophers of science have begun to emphasize, mathematization comes in many different forms. Galileo relied on a Euclidean conception of geometry, and was, in that sense, traditional in his

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7 Ibid., 86.
11 Ibid., 83/110.
13 For a discussion, see the introduction and the contributions in Gorham et al., *The Language of Nature*. 

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mathematical methods. And as Richard T. W. Arthur notes in a critical remark on the Bergsonian sensibility of some historians of science: even Aristotle compared time to a line. The spatialization of time that both Bergson and Burtt seems to have in mind, I will argue, requires a specific form of geometrization that draws on methods that are only about four centuries old. Burtt’s thesis of the geometrization of time and Koyré’s thesis of the geometrization of space both suffer from a neglect of the geometrical innovation that was a prerequisite for some of the events that they study. There was no ‘Euclidean space’ laying ready in geometry to be applied (in science) to space and time. Rather, the conception of geometrical space is, as we will see, itself a product of this revolutionary time.

The Spatial Representation of Time

Kant seems to have been Bergson’s main philosophical opponent in his critique of the homogeneous conception of time. And Bergson is certainly correct in charging Kant with a spatial conception of time. In the Transcendental Aesthetic, Kant attributes two significant characteristics to the representation of time. First, what we could call the unicity of time: that “Different times are only parts of one and the same time.” Second, the infinity of time: “that every determinate magnitude of time is only possible through limitations of a single time grounding it.” These two characteristics of the representation of time are acquired, Kant explains, by considering time in analogy with the figure of a line:

just because this inner intuition yields no shape we also attempt to remedy this lack through analogies, and represent the temporal sequence through a line progressing to infinity, in which the manifold constitutes a series that is of only one dimension, and infer from the properties of this line to all the properties of time, with the sole difference that the parts of the former are simultaneous but those of the latter always exist successively.

This is a clear expression of a spatialized conception of time, that is, of a projection of time into space, as Bergson said. The sole difference between

16 See Massey, The Origin of Time, chap. 2.
18 Ibid., A33/B50: “eben weil diese innre Anschauung keine Gestalt giebt, suchen wir auch diesen Mangel durch Analogien zu ersetzen und stellen die Zeitfolge durch eine ins Unendliche fortgehende Linie vor, in welcher das Mannigfaltige eine Reihe ausmacht, die nur von einer Dimension ist, und schließen aus den Eigenschaften dieser Linie auf alle Eigenschaften der Zeit außer dem einigen, daß die Theile der erstern zugleich, die der letztern aber jederzeit nach einander sind.”
space and time, Kant tells us, is that the parts of time are successive, whereas those of space are simultaneous.

In the first edition of *Kritik der reinen Vernunft*, Kant says that temporal relations “allow of being expressed” (*ausdrücken lassen*) in space, as if this were merely a useful mode of representation.\(^{19}\) Time’s dependence upon space for its figurative representation is emphasized more strongly in the second reworked edition of *Kritik der reinen Vernunft*.\(^{20}\) Now, Kant says that time “cannot be made representable to us except under the image of a line.”\(^{21}\) That is, time can only be represented and investigated by means of a spatial analogue: the *timeline*. The timeline, I will argue below, should be understood as a one-dimensional geometrical ‘space’ in which events are placed.

This conception of time has often been read as an early predecessor to the late nineteenth- and early twentieth-century investigations of subjective experience of time or time-perception. Typically, Kant is seen as a naïve predecessor who made the dogmatic mistake of internalizing the Newtonian conception of time, thereby “translating such a view of natural time into a transcendental condition of the mind,” as Michael R. Kelly puts it.\(^{22}\) On this view, Newton’s conception of time (and space) as an absolute ‘container’ of all things is transferred from the world to our *experience* of the world.

But does Kant aim to describe our ‘experience’ of time and space in the Transcendental Aesthetic (which is where he presents his analysis of time and space)? Over the course of the last three decades, several scholars have answered this question affirmatively, and argued in favor of a phenomenological reading of the Transcendental Aesthetic. These interpreters have foremost concerned themselves with space, but their arguments are directly transferable from space to time. It is customary in commentaries on the Transcendental Aesthetic to prioritize space at the expense of time. This custom is rooted, Paul Guyer explains, in the “derivative nature” of Kant’s theory of time with respect to space: Kant first develops his arguments in relation to space, and then transfers them to time.\(^{23}\) For this reason, the arguments presented below are just as applicable to time as they are to space.

In the French context, Michel Fichant has – following Martin Heidegger – proposed an ontological or phenomenological reading, in which the Transcendental Aesthetic is said to be concerned with the eidetic nature of an

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\(^{19}\) Ibid. (my trans.).

\(^{20}\) This stronger emphasis in the second reworked edition was noticed early on by Branislav Petronievs and later developed by Michael C. Washburn as the key to Kant’s whole reworking of his magnum opus. See Petronievics, “Warum stellen wir uns die Zeit als eine gerade Linie vor?”; Washburn, “The Second Edition of the Critique”.

\(^{21}\) Kant, *Kritik der reinen Vernunft*, B156: “uns nicht anders vorstellen machen können, als unter dem Bilde einer Linie[...].”

\(^{22}\) Kelly, “Phenomenology and Time-Consciousness,” n.p. See also Kelly, *Phenomenology and the Problem of Time*, 16. For an overview of investigations of the experience of time, see, for example, Andersen and Grush, “A Brief History of Time-Consciousness”.

\(^{23}\) Guyer, *Kant and the Claims of Knowledge*, 345.
intuitive or aesthetic space that is prior to, and founds, geometry. On this reading, the properties of unicity and infinity that we saw Kant attributing to time above, and which he equally attributes to space, are properties of pre-discursive, intuitive space and time. A similar phenomenological understanding of the Transcendental Aesthetic has been put forward in Anglophone Kant scholarship. This interpretation emerged from a dispute over the role of intuition in Kant’s philosophy of mathematics, and is therefore primarily concerned with the notion of space, but the points are transferable. Charles Parsons has argued that Kant makes claims “of a phenomenological character” in the Transcendental Aesthetic, and that Kant attributes unicity and infinity to space because “space as experienced is unique and boundless.” Following Parsons, Emily Carson has likewise argued that Kant’s attribution of unicity and infinity to space “is a claim about the space of experience, how space is given to us independently of and indeed prior to geometry.” The properties that geometry ascribes to space depend upon this fundamental, pre-geometrical, experienced space. Finally, Lisa Shabel has suggested that the reason why Kant does not provide much support for these claims about space is that he takes them to be “phenomenologically evident.”

The shortcomings of the phenomenological reading of the Transcendental Aesthetic, I will argue, consist in its limited view of geometry. This reading fails to recognize that the view that Kant is presenting draws on a conception of space that was developed in geometry and later applied in natural science. This geometrical conception of space was an innovation of the Early Modern period, and is not part of traditional Euclidean geometry. When Shabel writes that the unicity of space (its all-encompassing nature) strikes her “as perceptually, but not mathematically, suggestive,” this seems to be because she has traditional Euclidean geometry in mind. In later developments of geometry (that is, in analytical geometry), however, as we will see, there is a clear sense in which space functions as a both boundless and all-encompassing domain in which figures are embedded.

I will argue that, for Kant, both space and time are constructively generated representations, and not immediately given to us in ‘experience’ (in this un-Kantian use of experience). To make this point, I will have to investigate the historical underpinnings of Kant’s conception of space. As a consequence of Kant’s ‘spatialized’ conception of time, we need to have a clear understanding

24 Fichant, “Espace esthétique et espace géométrique chez Kant”. See also Heidegger, Kant und das Problem der Metaphysik, 44–47.
26 Carson, “Kant on Intuition in Geometry,” 496.
27 She explains that “the uniqueness of space is indicated by the fact that particular spaces are given in one all-encompassing space. The boundlessness of space is shown by the fact that any given space, however large, is given as bounded by more of the same.” (Ibid., 499)
29 Ibid., n. 18.
of space before we can see how space is applied to time. Since the ultimate aim is eventually to return to a consideration of time, I will begin by introducing the geometrical conception of space through its application to time in eighteenth-century chronography.

Chronography and the Timeline

Kant said that time can only be represented through a spatial analogue: the timeline. This representation of time as a timeline has become second-nature to us today, and it can therefore come as somewhat of a surprise that the history of the timeline – as a single homogeneous axis on which events are positioned – only goes back about two and a half centuries. In its graphic form, the timeline was created in the mid-eighteenth century by a group of inventive chronologers, the most prominent of whom were Jacques Barbeu-Dubourg, Thomas Jefferys, Johann Christoph Gatterer, and Joseph Priestley. Although their timelines were pedagogical tools for presenting chronological information, they constitute some of the clearest expressions of the new spatialized conception of time that Kant promotes and Bergson criticizes.

Earlier, chronology had been organized according to a tabular model listing significant events one after another without giving visual expression to the magnitude of time passing between them. In a small pamphlet published in 1753, the French polymath Jacques Barbeu-Dubourg complained that chronology was a dry and laborious discipline, “offering nothing to the mind but repellent dates, a prodigious accumulation of number which burden the memory, are difficult to lodge in the mind and escape thence all too easily.” To remedy this ill, he suggested that chronologers follow the model of geography, which he praised for presenting a vivid and easily surveyable picture of the world: “Geography has as its object the extent of the earth; Chronology has as its object the succession of time. May not duration be imitated and represented as effectively to the senses, as distinctly as space, and may not intervals of time be as easily counted in degrees?”

Barbeu-Dubourg showed how this could be done. He created a 16.5-meter-long chart, designed to be scrolled through, upon which historical events

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31 See Rosenberg and Grafton, Cartographies of Time, chap. 2.
32 Barbeu du Bourg, Chronographie, 5: “n’offre à l’esprit que des dates rebutantes, une prodigieuse multitude de nombres, qui chargent la mémoire, s’y entassent avec peine & lui échappent facilement.”; “La Géographie a pour objet l’étendue de la terre; la Chronologie a pour objet la succession du temps. La durée ne peut-elle pas être imitée & représentée aussi sensiblement, aussi distinctement que l’espace, & les intervalles n’en peuvent-ils pas être également comptés par des degrés?”
Figure 3.1. Excerpt from a timeline, beginning with the creation of the world. In Jacques Barbeu Du Bourg, *Chronographie, ou Description des tems* (Paris: Barbeu du Bourg, Lamote and Fleury, 1753), plate 1. Courtesy of Bibliothèque nationale de France.

were plotted horizontally, parallel to a homogeneous timeline (see fig. 3.1 for an excerpt). This was the invention – or at least one of the early inventions of chronography, the mapping of time. Stephen Boyd Davis has argued that chronography borrowed its conception of time as an infinite space from geometry and its mode of presentation from geography. Below, I will show how a specific conception of geometric space is crucial for this new understanding of time as an infinite container of events. To get a grasp of the specificity of the geometrical conception of space put to use here, let us contrast it with earlier geometrical practices.

The representation of time in the form of a line was not in itself an innovation. Galileo, for example, had used a line to represent quantities of time when defining uniform motion (see fig. 3.2). This practice of representing quantities or intensities geometrically drew on a tradition that is usually traced back at least to Nicole Oresme in the fourteenth century, who, among other things, represented time in the form of a line. And Oresme, in turn, referred back to Aristotle for support. But Oresme and Galileo, as well as other contemporaries, represented time as a line because it was conceived as a quantity, and quantities lent themselves to being represented by means of line segments (which was the standard Euclidian representation of numbers). This mode of representation, however, is not the same thing as thinking in terms of a

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33 For Barbeu-Dubourg's chronography, see Ferguson, “The 1753 *Carte Chronographique* of Jacques Barbeu-Dubourg”. For a comprehensive and graphic history of the timeline, see Rosenberg and Grafton, *Cartographies of Time*.
34 Davis, “May Not Duration Be Represented as Distinctly as Space?,” 123.
38 For Euclidean numbers, see Unguru, “On the Need to Rewrite the History of Greek Mathematics,” 93. Wolff gave expression to this view when he said that “if a straight line is chosen as unity, a number can also be expressed by a straight line.” (Wolff, *Elementa Matheos Universar*, 1:22)
general timeline on which events can be plotted, although the geometrical representation of time is a prerequisite for the latter. What is needed for the timeline to emerge is the geometrical concept of space.

But is geometry not always concerned with space?, one could ask. Actually, it is not; at least not in the sense that is relevant here. Let me explain this point by contrasting two forms of geometry: a geometry of figures and a geometry of figures in space. I will use Galileo and Leonhard Euler’s investigations of motion as examples. As the philosopher Jacob Klein notes in his important work on the transition from traditional Greek mathematics to modern symbolic mathematics, Oresme’s and Galileo’s geometrical treatments of motion did not conceive motion as a function of the variable time in a coordinate system (a Euclidean space), but were rather concerned with the general possibility of representing motion by means of geometrical figures.39

39 Klein, “Die griechische Logistik und die Entstehung der Algebra,” 217–20, n. 193. Pierre Duhem identified Oresme as the inventor of analytic geometry (Duhem, Études sur Léonard de Vinci, 3:375). His interpretation of Oresme’s _longitudo_ and _latitudo_ in terms of the geometrical concepts _abscissa_ and _ordinate_ (the coordinates of a point in a coordinate system, _x_ and _y_) was later rejected. See Maier, _An der Grenze von Scholastik und Naturwissenschaft_, 292–305.
In Galileo’s first theorem on accelerated motion, for example, the relation between time, speed and space is not expressed by a functional relationship \( v = s/t \), but through a geometrical diagram (see fig. 3.3).\(^{40}\) In this diagram, \( AB \) (time), \( BE \) and \( BF \) (speed), and \( CD \) (space) are not variables in the modern algebraic sense, but arbitrary but determinate quantities. And Galileo’s proof shows that two bodies will traverse equal distances, \( CD \), in equal times, \( AB \), if the first is uniformly accelerated from rest (the point \( A \)) to the maximum speed \( BE \) and the second is moving with the uniform speed \( BF \) that is equal to half of \( BE \). Since time multiplied by speed equals distance, the areas of the respective figures – the triangle of the accelerated body, \( ABE \), and the rectangle of the body with uniform speed, \( ABFG \) – represent the distance traveled by the respective body (which is equal to \( CD \)), and the equality of the two areas proves the theorem.

There are infinitely many possible quantities that could be chosen for the numbers in the diagram, and the generality of the proof consists in its validity regardless of the number that one assigns to the respective quantities, given that they preserve their geometrical relations.\(^{41}\) Galileo’s proof is conducted according to the procedures of traditional Euclidean geometry that would gradually be replaced by symbolic methods over the coming centuries.\(^{42}\)

Now, let us compare this treatment of motion with that of the Swiss mathematician Leonhard Euler. In his *Theoria motus corporum solidorum seu rigidorum* (Theory of Motion for Solid or Rigid Bodies, 1790), Euler provides algebraic procedures for determining the motion of a point in a coordinate system defined by two axes, \( OA \) and \( OB \) (see fig. 3.4). These axes describe a two-dimensional space in which the movement of the point is inscribed, and the axes are represented symbolically by the variables \( x \) and \( y \). For a point that moves along the curve \( ESF \) in this two-dimensional coordinate system, the distance traversed over the infinitesimal time \( dt \)\(^{43}\) is calculated by means of the Pythagorean Theorem in the following way: \( Ss = ds = \sqrt{(dx^2 + dy^2)} \).

By such algebraic means, we can determine both the direction and the speed of the point at a given position on the curve. The speed of the point is \( ds/dt \) (distance divided by time) and the direction of the point in this two-dimensio-

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\(^{42}\) For a lucid discussion of the difference between the modern symbolic conception of number and the concept of number emanating from the Greek tradition, see Stenlund, *The Origin of Symbolic Mathematics and the End of the Science of Quantity*, 10–15. For a thorough discussion of the difference between modern and Greek mathematics, see Klein, “Die griechische Logistik und die Entstehung der Algebra”; Unguru, “On the Need to Rewrite the History of Greek Mathematics”.

\(^{43}\) In this example, the variables \( x \) and \( y \) depend on \( t \).
The movement of a point in a two-dimensional geometric space. \( OA \) and \( OB \) are the coordinate axes, and the point traverses the curve \( ESF \). In Leonhard Euler, *Theoria motus corporum solidorum seu rigidorum* (Greifswald: A. F. Röse, 1790), tab. 1. Courtesy the National Library of Sweden.

Fig. 3.

The movement of a point in the same space, determined by the tangent of the curve, \( \frac{dy}{dx} \). The axes establish an ordered domain in which speed and direction can be determined. As we will see later on, Euler was a defender of a Newtonian conception of absolute space. By means of coordinate systems of this kind, he could give a mathematical expression to the absolute speed and direction of a point in space, since these two properties of the point are not determined in relation to some other object, but only in relation to a fixed, or absolute, spatial domain in which the point is inscribed.

Understanding the mathematical details of these two examples is not what is important at this moment. What we should attend to is the difference between the two geometrical practices: the traditional Euclidean diagram, in the first case, and analytic geometry, in the second. A proper understanding of the figurative character of traditional geometry, as exemplified in the first case, is hampered by the historical development of the discipline of geometry itself, which has brought about a loss of familiarity with older geometrical practices. For although contemporary mathematics understands geometry to be a science of space – and often projects this conception back upon the history of the discipline – this is a quite recent idea. From its ancient beginnings, and through much of its history, geometry had no use for the concept *space*. The object of geometry was individual figures – lines, triangles, spheres – and these figures were considered on their own, not as embedded in space. It was a geometry of figures. And as Edward Grant writes,

There is nothing in Euclid’s geometry to suggest that he assumed an independent, infinite, three-dimensional, homogeneous space in which the figures of his geometry were located. In a purely geometric sense, such a space would have been superfluous because every geometric figure has its own internal space. To assume

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\[44\] See Euler, *Theoria motus corporum solidorum seu rigidorum*, §47. I have simplified Euler’s equations, since he also considers cases where the angle \( AOB \) is not right.
that it also lies in a separate and independent three-dimensional space would have served no purpose whatever.45

The word closest to ‘space’ in Euclid’s Elements is chōrion or ‘area’ (what Grant calls ‘internal space’). The chōrion is not an ambient space in which a figure is embedded, but the area enclosed by the figure’s boundaries.46

The geometry that most of us know from school, however, is a geometry of figures in space, analytic geometry. In this form of geometry, space itself is constructed as a geometrical object, often represented in the form of a coordinate system. This is what we saw in fig. 3.4, where the geometrical object (the curve ESF) is investigated through a coordinate system in which it is embedded. Euler thus uses a different kind of geometry than Galileo, one that invokes a geometrical conception of space, expressed through the two axes. Although known as ‘Euclidean space,’ this conception is not a perennial feature of geometrical thought, lying ready to be applied in natural philosophy – as Koyré would have it – but an innovation of the Early Modern period.47 It was the algebraization of geometry that required that geometrical figures must be conceived of as located in an indefinite extended domain, described through a coordinate system, and this came late in the history of geometry.48

What does this development have to do with time? In section four, I will argue that the full-blown spatialization of time – of the kind represented by Kant and the chronographers – requires, not only a consideration of time through the geometric figure of a line (cf. fig. 3.2), but furthermore a consideration that draws on the geometrical conception of space, so that events take place in time, just as the point in fig. 3.4 moves in space. But to get there, we need first to get a proper understanding of the conception of space that underlies the conception of time.

Kantian Mathematics

This section analyzes Kant’s conception of mathematics. First, I will begin with Kant’s account of mathematical construction as an act of exhibiting an

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46 Mugler, Dictionnaire historique de la terminologie géométrique des Grecs, s.v. “χωρίον” (my trans.): “a limited space in a plane, usually a rectangle.” John Cook Wilson argues that chōrion “properly means a figure from the point of view of its area and not of its shape” (Cook Wilson, “On the Geometrical Problem in Plato’s Meno,” 226). When Euclid stated that it is impossible for two straight lines to enclose a ‘space,’ he was speaking of a chōrion. See, for example, Euclid, The Thirteen Books of Euclid’s Elements, bk. 1, prop. 4: “two straight lines will enclose a chōrion which is impossible.”

47 For an overview of these developments, see De Risi, Mathematizing Space, 1–13.

48 Ibid., 6. For an in-depth discussion of the geometrical concept of space, see Romiti, Cartesian Mind and Its Concept of Space, esp. chap. 5.
object corresponding to a concept. Secondly, I will turn the issue of schema-
tization, that is, to the way that the imagination is meant to provide a sensible
counterpart of a concept. Thirdly, I will show how schemata make empirical
knowledge possible by autonomously prescribing a standard for what will
count as knowledge. Lastly, after having explained what it is to represent the
object corresponding to a concept such as a line or triangle, I ask what it could
mean to represent space itself as an object.

The Use of Mathematical Diagrams

The figurative character of traditional geometry is known in the literature as

the diagrammatical style of mathematical reasoning. The diagrams referred
to by this term are the kind that one finds in Euclid’s *Elements* or in Galileo’s

works (see fig. 3.3). It is to such diagrams that Kant refers when he exempli-
fies the practice of mathematics in his works. It is also the construction of
diagrams of this kind that Kant has in mind when, in his various discussions
of mathematics, he speaks of the ostensive or geometrical construction of a
concept as the act of exhibiting the object corresponding to a concept in pure
intuition.

To exhibit the object of the concept *triangle*, for example, is to either imag-

ine a triangle or draw one on paper, and the figure represented in this way is
what Kant calls a ‘pure’ or ‘non-empirical’ intuition of the constructed object.

Pure intuition should not be understood as distinct kind of intuition, but ra-
ther as a distinct way of using intuitions. Even when geometers perform the
act of construction by drawing an image of a certain size and shape, it is not
the individual figure as an empirical object that is investigated, but the uni-
versal geometrical relations that are expressed by means of the figure. “Thus
I construct a triangle,” Kant explains,

by exhibiting an object corresponding to this concept, either through mere imag-

ination, in pure intuition, or, in accordance with this, also on paper, in empirical
intuition, but in both cases completely *a priori*, without having had to borrow the
pattern for it from any experience. The individual drawn figure is empirical, and
nevertheless serves to express the concept without damage to its universality, for
in the case of this empirical intuition we have taken account only of the action of

49 See, for example, Manders, “Diagram-Based Mathematical Practice”.
50 For a discussion of the diagrammatical aspect of Kant’s conception of mathematics, see, for
example, Shabel, *Mathematics in Kant’s Critical Philosophy*.
51 As J. Michael Young correctly explains, Kant “does not mean to posit a special sort of intuition
that miraculously but quite mysteriously enables us to intuit mathematical objects and to ground a
priori judgments. His claim is simply that even though we may represent only a particular thing or
collection of things, our representation can nonetheless be universal. For we can represent it as an
instance of a concept and as nothing but an instance of that concept.” (Young, “Construction,
Schematism, and Imagination,” 164)
constructing the concept, to which many determinations, e.g., those of the magnitude of the sides and the angles, are entirely indifferent, and thus we have abstracted from these differences, which do not alter the concept of the triangle.52

The empirical properties of figures constructed in this way are not relevant, since the figures are used only to express the marks of certain concepts. If the figure is used to express the concept triangle, it is conceived as the intuitive representation of what is contained in this concept, and nothing more. We abstract from all other properties of the figure.

This does not mean that we have to make these drawings ourselves, but only that when we inspect a diagram in a printed book, we have to recognize the printed image as an expression of the marks contained in the concept, and nothing but them. Galileo’s proof in fig. 3.3 is a typical example of such a construction. It is an empirical figure on the printed page, but it is used to prove a certain geometrical relationship between quantities of time, speed and space. By recognizing the diagram as a construction of these concepts in geometrical figures, it is possible to realize the truth of Galileo’s theorem. And the commentary that Galileo provides to the diagram guides us in the direction of realizing the truth of the theorem by means of the diagram. When we recognize the image as exhibiting certain concepts, it is as if we had constructed it ourselves.

Kant calls such constructions a priori, I would suggest, because they proceed from the concept (triangle, line, rectangle, etcetera), as a ground, to an intuition that is determined as an object of the concept (empirical intuitions can also be a priori in this sense, when we consider them as expressing certain concepts). Properties are conferred upon the intuition, rather than derived from it. The priority of the imagination in this process – which Kant points to in the quote – comes from its function in providing the model by which such an image can be constructed; the imagination provides the pattern for how a concept is to be rendered sensible.53 To understand how this activity of the imagination is thought to work, we have to turn to the issue of schematization, since the schema is that which provides a concept with a sensible counterpart. Below, the concept magnitude will be used to analyze schematization. Since magnitude is the concept involved in mathematical construction, it will


53 The contrast here is between the model provided by the schema, which is an act of spontaneity, and the use of an empirical paradigm.
also shed light on how the construction of, and operation with, diagrams is supposed to work.

Schemata as Procedures
Kant distinguishes between forms of thought and forms of sensibility. The former are categories such as substance and magnitude, and the latter are the fundamental modes in which intuitions can be given: space (or extension), on the one hand, and time (or succession), on the other. We can exemplify the two forms of sensibility by a message in Morse code:

\[ \text{– – – — — — – – –} \]

**Figure 3.5.** The distress signal ‘SOS’ in international Morse code.

The message ‘SOS’ in Morse code can either be expressed through the form of space (extension), as it is in this figure, or through the form of time (succession), if we instead imagine it to be expressed by a pulsating dot or by sound. The form of intuition refers only to the sensible aspect of such patterns, in abstraction from the conceptual determination of them as Morse code. In the figure above, we can distinguish between the manifold of strokes or pulsations that are given in a certain sensible form (extension or succession), and the conceptual determination of this manifold by a procedure for generating such messages (where ‘S’ is expressed as ‘– – –’, et cetera). This procedure requires the involvement of both sense and intellect. The actual message is a union of the two, but has an irreducible sensible and intellectual side: the sensible shape could just as well have been used to express the number nine (by nine strokes of varying length) or ‘3 + 3 + 3’ (if the difference in length is used to indicate the different manifolds added together), and so forth. The message itself does not reveal how it is to be read. This is determined by the procedure used in its construction.

Kant expresses the interdependence of sense and intellect in his famous dictum: “Thoughts without content are empty, intuitions without concepts are blind.”\(^{54}\) The consequence of this dependence is that it is “just as necessary to make our concepts sensible (i.e., to add the object to them in intuition) as it is to make our intuitions intelligible (i.e., to bring them under concepts).”\(^{55}\) Only by uniting concepts and intuitions can we acquire knowledge. But for this union to be possible, there must be “a third thing” in addition to concepts and intuitions, “which must stand in homogeneity with the category on the one hand and the appearance on the other, and makes possible the

\(^{54}\) Kant, *Kritik der reinen Vernunft*, A51/B75: “Gedanken ohne Inhalt sind leer, Anschauungen ohne Begriffe sind blind.”

\(^{55}\) Ibid. (trans. mod.): “eben so nothwendig, seine Begriffe sinnlich zu machen (d.i. ihnen den Gegenstand in der Anschauung beizufügen), als seine Anschauungen sich verständlich zu machen (d.i. sie unter Begriffe zu bringen).”
application of the former to the latter.” Kant calls this hybrid representation – both sensible and intellectual – the ‘transcendental schema,’ which is “the sensible concept of an object, in agreement with the category.” The schema is meant to show how a category can be applied to objects of sensation, and thereby serve as a means of empirical knowledge. It is explained in the following way:

Thus, if I place five points in a row, . . . , this is an image of the number five. On the contrary, if I only think a number in general, which could be five or a hundred, this thinking is more the representation of a method for representing a multitude (e.g., a thousand) in accordance with a certain concept than the image itself, which in this case I could survey and compare with the concept only with difficulty. Now this representation of a general procedure of the imagination for providing a concept with its image is what I call the schema for this concept.

The schema of a concept is thus not an image of it (. . . . .), but the method or general procedure by which such a sensible counterpart of a concept can be both displayed and recognized.

Let us investigate the example used in the quote more closely, the category magnitude. This concept could be explained, Kant says, as “the determination of a thing through which it can be thought how many units are posited in it.” On its own, however, this explanation does not reveal how the magnitude of an actual object can be measured. It is the conditions for its application that the schema is supposed to provide. Number is the schema of magnitude, Kant says, “which is a representation that summarizes the successive addition of one (homogeneous) unit to another.” Take the following example:

56 Ibid., A138/B177: “ein Drittes”; “was einerseits mit der Kategorie, andererseits mit der Erscheinung in Gleichartigkeit stehen muß und die Anwendung der ersteren auf die letzte möglich macht.” This procedure is homogeneous – in the sense of ‘being of the same genus’ – with both the concept and with appearances: it is both intellectual and sensitive, in prescribing what the sensitive correlate of an intellectual operation is. On homogeneity as being of the same genus, see Kant, *Metaphysik Vigilantius (Kj)*, AA XXIX, 991.

57 Kant, *Kritik der reinen Vernunft*, A146/B186: “der sinnliche Begriff eines Gegenstandes in Übereinstimmung mit der Kategorie[…].”


59 J. Michael Young has presented a procedural account of schemata similar to the one I will present below. See Young, “Construction, Schematism, and Imagination”.

60 Ibid., A242/B300: “die Bestimmung eines Dinges [...], dadurch, wie vielmal Eines in ihm gesetzt ist, gedacht werden kann.”

61 Ibid., A142/B182: “welche eine Vorstellung ist, die die successive Addition von Einem zu Einem (gleichartigen) zusammenbefällt.”
FIGURE 3.6. A line measured through the successive addition of a unit.

In this figure, the magnitude of a line is measured through the successive addition of a unit (—): the line is four units long. The figure displays the schema put to practice, and reveals what the sensible concept of a pure category actually amounts to. The procedure lets us translate between appearances and concepts, since it is at the same time sensible and intellectual. The schema is the procedure by which the sensible counterpart of a concept can be both displayed (exhibited) and recognized (read): four lines can be both the sensible expression of the number four and an empirical magnitude that is recognized as being four units long. In the first case, the schema is used to exhibit an image (or object) corresponding to the concept; in the second, the concept is applied to the image in order to determine the number of strokes.

In fig. 3.6, the unit itself has a magnitude, and this magnitude is used to measure the line. But it is possible to abstract also from the shape of the unit, and only consider it as a unit in general. When we construct multitudes of this kind, we can use dots, strokes, crosses, or whatever shape we prefer, because in the act of construction, we abstract from the physical shape of the sensible marks and treat them only as instances of a unit in general. By means of this kind of construction, we can determine that the result of the arithmetical operation ‘2 + 2’ is equal to the result of the operation ‘3 + 1,’ for example, by the following diagram:

\[
\begin{array}{cccc}
1 & 2 & 1 & 2 \\
| & | & | & | \\
1 & 2 & 3 & 1 \\
\end{array}
\]

FIGURE 3.7. A proof that ‘2 + 2 = 3 + 1’ by means of a diagram.

What is achieved by this procedure is the establishment of a relation of equality between the results of two arithmetic operations. The diagram is not concerned with any particular empirical multitude, but only with such a multitude in general. For this reason, the operation yields knowledge of actually existing things only indirectly.\(^6^2\) It provides knowledge of possible sensible multitudes, and to the extent that some existing thing is a sensible multitude, the rule will apply to it: for all empirical multitudes of three, the addition of one more thing will yield four things.

Kant argues that propositions of this kind (‘2 + 2 = 3 + 1’) are clear examples of propositions that are neither analytic nor empirical. We do not –

\(^6^2\) On the indirect nature of mathematical knowledge, see, for example, Ibid., B147–48, A157–58/B196–97, B299–300.
and cannot—establish the truth of arithmetic propositions by an analysis of the concepts involved (in the Porphyrian way, described in Chapter One). Anyone familiar with mathematics knows that it does not proceed through empirical investigation. And anyone who properly attends to what we actually do when we do mathematics, will also have to acknowledge that we do not arrive at the result through logical analysis, Kant thinks. In order to realize that ‘2 + 2 = 3 + 1,’ we must go beyond the concepts and construct them in intuition.\textsuperscript{63} To reach the result, no analysis of the concepts one, two, three and addition is needed, only a command of the procedures required for the construction of the concepts. When constructing the diagram, we move from the concept as a ground—that is, \textit{a priori}—to an intuition that expresses the concept, and, by means of this intuition, go beyond the concept and attribute something to it that was not already implicitly contained in the concept.

The Productive Use of the Imagination

We saw above that Kant called the schema “a general procedure of the imagination for providing a concept with its image.”\textsuperscript{64} When we use imagination in this way, we are not taught concepts from empirical examples, but rather prescribe sensible correlates to concepts: the imagination itself provides a model for what the sensible counterpart of the concept is. Kant calls this the productive use of the imagination, which is “an effect of the intellect on sensibility and its first application (and at the same time the ground of all others) to objects of the intuition that is possible for us.”\textsuperscript{65} This application of the intellect to intuitions makes the empirical use of the category possible by providing the general method for its application to sensation. The pure image of the concept, provided by the imagination, shares sensible form with actual appearances, since ‘pure intuition’ is not a separate \textit{kind} of intuition, as I argued above, but a separate \textit{use} of intuitions.\textsuperscript{66}

Galileo famously said that the universe “is written in the language of mathematics, and its characters are triangles, circles, and other geometrical figures, without which it is humanly impossible to understand a single word of it;
without these, one is wandering about in a dark labyrinth.”67 Fig. 3.3 offered an example of such a mathematical reading of nature, namely, the reading of motion by means of a geometrical diagram. In a remark that calls to mind this metaphor of reading the Book of Nature, Kant says that categories serve only “to spell out appearances, so that they can be read as experience.”68 More specifically, schemata provide the procedures for spelling out appearances in such a way that we can read empirical knowledge from them. It is through these procedures that appearances can be identified as instantiating categories, and schemata thereby show how the Book of Nature can be read.69

Our knowledge of such procedures is not knowledge of any actual existing object, but knowledge of the way in which something is possible as an object of knowledge. Kant calls this ‘transcendental knowledge.’70 And he writes that “The a priori conditions of a possible experience in general are at the same time conditions of the possibility of the objects of experience.”71 In our example above, the schema of magnitude showed both how empirical knowledge of magnitudes is possible and how it is possible for appearances to be the objects of such knowledge. That is, it showed both what it is to make this kind of judgment and what it is to be the object of such a judgment.

Kant’s critical revolution in philosophy entails that this possibility – of both knowledge and the object of knowledge – is not settled by an appeal to an external standard with which our judgments must harmonize in order to be in touch with the truth. Rather, the intellect autonomously prescribes, through schemata (among other things), what it is for an empirical object to be known as, for example, a magnitude. As Robert B. Pippin puts it, reason “does not ultimately rely on some privileged or indubitable or intuited piece of evidence, but completely determines for itself what to accept as evidence about objects.”72 The schema of the concept magnitude is precisely the procedure that establishes what to accept as evidence in the area of mathematical knowledge (although the examples given above were very rudimentary). This

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67 Galilei, Il saggiatore, 232/184: “è scritto in lingua matematica, e i caratteri son triangoli, cerchi, ed altre figure geometriche, senza i quali mezi è impossibile a intenderne umanamente parola; senza questi è un aggirarsi vanamente per un oscuro laberinto.”

68 Kant, Prolegomena, AA IV, 312: “Erscheinungen zu buchstabiren, um sie als Erfahrung lesen zu können[…].” Cf. Kant, Kritik der reinen Vernunft, A314/B370–71. This requirement of reading nature through concepts is the mark of the discursive nature of the intellect. An intuitive intellect would see the truth immediately, Kant thinks, whereas “we must first spell out before we read” (Kant, Metaphysik K2, AA XXVIII, 781; my trans.).


70 See Kant, Kritik der reinen Vernunft, A11/B25 (trans. mod.): “I call all knowledge transcendental that is occupied not so much with objects but rather with the mode of our knowledge [unsener Erkenntnisart] of objects insofar as this is to be possible a priori.” Cf. Ibid., A56–67/B80–81.


72 Pippin, Modernism as a Philosophical Problem, 54.
procedure does not describe some fact about either things or the mind, but rather describes how a specific kind of knowledge is possible: what it is to have this kind of knowledge and what it is to be an object of this kind of knowledge. And the procedure is not ‘accountable’ to any external standard of truth, but prescribe a standard whereby the correspondence of a judgment and its object can be settled.

This kind of knowledge – a knowledge of knowledge itself – is a priori: it is a knowledge derived from the ground that makes the thing possible. This is what we can understand, properly speaking, in the strict sense of ‘understanding’ discussed in the previous chapter. The insight we gain in this way is not an insight into the possibility of things in themselves, but only an insight into the possibility of something as a possible object of experience. The schema translates between concepts and appearances, and thus provides insight into what a possible object of knowledge must be like. Still, it is only by applying concepts to given empirical intuitions that we gain knowledge of actual objects. If we abstract from such application and consider the schema on its own, it does not provide knowledge of what some ‘thing’ is like in itself, only what the procedure for acquiring knowledge of empirical objects is like.

Space Represented as an Object

Kant’s most detailed account of space is given in the Metaphysical Exposition of the concept of space in the Transcendental Aesthetic. Commentators have often assumed that Kant is using ‘concept’ in a loose manner – merely meaning ‘representation’ – when he speaks of the ‘concept of space’ in this part of the book, since his objective is to establish that space is a pure intuition. It has recently been argued, however, that the point of the exposition is to establish that the concept refers to a pure intuition, that is, to determine what kind of object this concept is a concept of, as well as what properties we attribute to this object. That the Metaphysical Exposition is called an ‘exposition’ itself suggests that we must be dealing with a concept, since an exposition is a non-exhaustive explanation of what is contained in a concept. The exposition is ‘metaphysical,’ since the concept under analysis is not empirical but given a priori. In short, an exposition is a reflection on a concept that is already in our possession that seeks to establish what it is that we think through this concept. It is a reflection on our usage of the concept.

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73 See, for example, Allison, Kant’s Transcendental Idealism, 2004, 465–66, n. 5; Fichant, “Espace esthétique et espace géométrique chez Kant,” 534, n. 8; Janiak, “Kant’s Views on Space and Time,” sec. 3.1.

74 See Falkenstein, Kant’s Intuitionism, 149–51; Merritt, “Kant on the Transcendental Deduction of Space and Time,” 9–11.

75 Kant, Kritik der reinen Vernunft, B38: “I understand by exposition (expositio) the distinct (even if not complete) representation of that which belongs to a concept; but the exposition is metaphysical when it contains that which exhibits the concept as given a priori.” Cf. Merritt, “Kant on the Transcendental Deduction of Space and Time,” 9–10.
As we have seen, Kant takes the object of the concept *five* to be a multitude (. . . . .) and the object of the concept *line* to be a figure (—), but what is the object to which the concept *space* refers? The usual position of the “mathematical investigators of nature,” Kant says in the Transcendental Aesthetic, is that space and time refer to “two eternal and infinite self-subsisting non-entities […], which exist […] only in order to encompass [befassen] everything real within themselves.”76 What he has in mind, of course, is Newtonian absolute space and time. Against this view, Kant argues that the objects to which these concepts refer are not real things (or ‘non-entities’), but pure intuitions. As we will see below, Kant attributes similar properties to space and time as the Newtonians do – space and time are said to be both infinite and all-encompassing – and his disagreement with them concerns the nature of the objects to which we attribute these properties.

But does Kant not deny that space is an object? To be sure, he says explicitly that “Space is merely the form of outer intuition (formal intuition), but not a real object that can be outwardly intuited.”77 This does not mean, however, that we cannot represent space as an object, but only that space is not a real object among other objects of which we can have empirical knowledge. Nevertheless, space can be represented as an object, and, when it is, Kant calls it a ‘formal’ intuition of space, in distinction from a ‘form’ of intuition (although he fails to strictly uphold this distinction).78

In a dispute with the philosopher Johann Augustus Eberhard, Kant explains that he takes only the capacity to have spatial representations to be innate, “not the spatial representation itself.” He goes on the call the latter the ‘formal’ intuition of space, which means that the representation he has in mind is space represented as an object. This representation of space as an object is said to be an “originally acquired representation.”79 It is derived from the capacity for having spatial representations, but does not lie ready-made in our minds. The capacity that is exercised when we produce the representation of space as an object is the same capacity that we exercise when, for example, we imagine a line (—) and ‘draw it’ in thought. Arguably, it is the representations of space and time as objects (formal intuitions) that the Transcendental Aesthetic is concerned with; it is to these formal intuitions that the two concepts refer.80

76 Kant, *Kritik der reinen Vernunft*, A39/B56 (trans. mod.): “mathematischen Naturforscher”; “zwei ewige und unendliche für sich bestehende Undinge […] annehmen, welche dasind […], nur um alles Wirkliche in sich zu befassen.”
77 Ibid., A429/B457, n.: “Der Raum ist bloß die Form der äußeren Anschauung (formale Anschauung), aber kein wirklicher Gegenstand, der äußerlich angesehen werden kann.”
78 Ibid., B160, n.
79 Kant, *Über eine Entdeckung*, AA VIII, 222: “nicht die Raumvorstellung selbst”; “ursprünglich erworrene Vorstellung[…]”.
80 This is suggested by Kant, *Kritik der reinen Vernunft*, B160–61, n. For a discussion of this passage in relation to time and space, respectively, see Michel, *Untersuchungen zur Zeitkonzeption in Kant’s Kritik der reinen Vernunft*, 179–80; Udo, *Raum und Außenwelt*, 109.
Space, we are told in the Transcendental Aesthetic, is that in which objects outside us are represented, and within it “their shape, magnitude, and relation to one another is determined, or determinable.” That is, space is the representation of a domain in which objects have position and direction, and in which their shape and magnitude can be determined. In the Metaphysical Exposition, Kant presents four separate aspects of the representation of space. The first two concern the origin of the representation (its non-empirical nature and its role as a condition for the possibility of outer intuitions) and the last two concern the content of the representation. I will focus on the content here.

Kant identifies space as a pure intuition – not a concept – and he attributes the same two properties to this representation that we saw him attributing to time above. First, space is said to be “essentially single,” which means that “the manifold in it, thus also the general concept of spaces in general, rests merely on limitations.” That is, different spaces and places are all encompassed within a single and general spatial domain. Secondly, “space is represented as an infinite given magnitude.” That is, particular spaces are represented as limitations of a boundless domain. These two attributes – unicity and infinity – are attributed to the representation of space itself, and they correspond to the attributes that Koyré ascribed to the geometricized space of the Scientific Revolution, which he, as we saw, described as “an essentially infinite and homogenous extension.” It seems to me that this is precisely how Kant thinks that we conceive of space. In attributing these two properties to space, I will argue, Kant is following the Newtonians’ conception of space as something that “encompasses everything real” within itself.

But in what way is this all-encompassing space represented as an object? To approach this question, we can distinguish between the construction of a figure in space and the construction of space itself. Take the following quote:

We cannot think of a line without drawing it in thought, we cannot think of a circle without describing it, we cannot represent the three dimensions of space at all without placing three lines perpendicular to each other at the same point.

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82 See Ibid., B38–40.
83 Cf. Janiak, “Kant’s Views on Space and Time,” sec. 3.
85 Ibid., B39: “Der Raum wird als eine unendliche gegebene Größe vorgestellt.”
86 Koyré, *From the Closed World to the Infinite Universe*, viii.
87 Kant, *Kritik der reinen Vernunft*, B154: “Wir können uns keine Linie denken, ohne sie in Gedanken zu ziehen, keinen Cirkel denken, ohne ihn zu beschreiben, die drei Abmessungen des Raums gar nicht vorstellen, ohne aus demselben Punkte drei Linien senkrecht auf einander zu setzen[...]”
The first two examples refer to the traditional kind of geometrical construction, the construction of a line or a circle. The third, however, refers to a construction – or figurative representation\(^{88}\) – of space as such, that is, to a construction of the three-dimensional character of what we nowadays call ‘Euclidean space’.\(^{89}\) This is not some particular bounded space (a solid figure), but what Kant calls “space in general”\(^{90}\) or “universal space.”\(^{91}\) As we have seen, Kant thinks that time has to be figuratively represented as a line, since it does not yield any shape on its own. And if the pure intuition of time needs to be expressed figuratively in this way, in order to be thought, then the pure intuition of space presumably must likewise be figuratively represented in some way. Without any figurative character, it seems that we would be unable to think space at all. The abstraction that is required for the pure representation of space should therefore not be understood as an abstraction from the figurative character of this representation, but only from all empirical content.\(^{92}\)

If we thus take what Kant says about the figurative representation of time as our clue, the obvious parallel would be that space is represented through three perpendicular lines or planes that express the infinite extendedness of space (just as time is represented as “a line progressing to infinity”\(^{93}\)). Such a figurative representation of space in general is not the construction of a geometrical object in the traditional Euclidean sense (a line or triangle), but rather the construction of space as a domain in which geometrical figures are embedded. A domain characterized, not by a determinate extension in length, breadth and depth, but by a general unbounded extendedness in three dimensions.

One possible candidate for the representation of this kind of domain, although in two dimensions, is Euler’s representation of a coordinate system in fig. 3.4. In the next section, I will argue that Kant’s conception of space closely resembles that which we find in Euler’s works, and that, in his account of space, Kant therefore seems to be drawing on developments that had occurred within the discipline of geometry in the preceding centuries: the newly developed concept of geometric space.

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\(^{88}\) Kant calls the representation of time as a straight line the “the external figurative representation of time” (Ibid.). And if one wants to reserve ‘construction’ for the practice of ordinary Euclidean geometry, then one could perhaps instead speak of the ‘figurative representation’ of space.

\(^{89}\) Early in his career, Kant identified the three-dimensionality of space as one of the “characteristic marks which are initially and immediately thought in that concept” (Kant, “Untersuchung über die Deutlichkeit der Grundsätze,” AA II, 281).

\(^{90}\) Kant, Prolegomena, AA IV, 284: “Raum überhaupt”.


\(^{92}\) See Kant, Kritik der reinen Vernunft, A20–22/B34–36.

\(^{93}\) Ibid., A33/B50: “eine ins Unendliche fortgehende Linie”.

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The Geometrical Construction of Euclidean Space

In this section, I will argue that the concept of space that Kant’s exposition in the Transcendental Aesthetic aims to clarify is geometric space as it is presented by, for example, Euler. The properties of unicity and infinity that Kant attributes to space, I will argue, should not be understood as properties of an experienced space, as the phenomenological interpretations of the Transcendental Aesthetic would have it, but rather as properties of a constructively generated representation of space.

I will begin with a brief consideration of the relationship between Euler and Kant. Secondly, I will analyze Euler’s geometrical construction of coordinate systems, and argue that Kant’s conception of space is similar to Euler’s. Thirdly, I will use Euler’s conception of geometrical space to account for Kant’s distinction between conceptual and intuitive containment, and will argue that Euler’s coordinate systems show the way in which space is both all-encompassing and infinite. Finally, I suggest that the pure representation of space can be understood as a method of objectification.

Euler and Kant

Euler’s influence on Kant’s conception of space in the formative years leading up to the publication of Kant’s inaugural dissertation *De mundi sensibilis atque intelligibilis forma et principiis* (On the Form and Principles of the Sensible and the Intelligible World, 1770) has long been recognized in the literature.94 Euler was a famous defender of Newtonian absolute space against the relational conception of space defended by the German followers of Leibniz, and he argued that the relational conception is incapable of providing a foundation for the laws of motion. In Kant’s immediate intellectual context, it was Euler and the Wolffians, respectively, who were the proponents of absolute and relative space.95 As we will see, there are several interesting parallels between Euler and Kant with respect to the issue of space.

Kant mentions Euler explicitly in *Von dem ersten Grunde des Unterschiedes der Gegenden im Raume* (Concerning the Ultimate Ground of the Differentiation of Directions in Space, 1768).96 In this essay, Kant presents the argument – which he repeatedly invoked in the following decades, including the critical

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95 See Stan, “Newton and Wolff”.
— that a conception of space merely in terms of relations between positions cannot account for the directions of space; that is, it cannot account for above and below, left and right, front and back, which are not relations between positions, but require that the system of such positions is referred to space as a whole. Space as a whole is prior to its parts. The conception Kant takes himself to be defending is space “as it is construed by geometers and as it has also been incorporated into the system of natural science by penetrating philosophers.” Euler is certainly one of geometers and penetrating philosophers that Kant has in mind. Presumably, it is also these geometers and natural philosopher to whom Kant refers in Kritik der reinen Vernunft when he speaks, as we saw above, of the “mathematical investigators of nature.” What he has in mind, I will argue, is not merely the application of traditional Euclidean geometry in the study of nature, but rather the application of the newly developed conception of geometric space.

At the time of writing this essay, Kant has not yet come to conceive of space as a ‘form’ of intuition, but seems to be working under Newtonian preconceptions: absolute space, he argues, “has a reality of its own” that is independent of “the existence of all matter.” The properties that he ascribes to space do not seem to alter significantly with his critical turn, however. Unicity and infinity seem to be attributed to space already at this stage. They are implicit in the conception of space as a whole that is prior to its parts. And the reason for this continuity, I would argue, is that, even after his critical turn, Kant continues to conceive of the content of the representation of space in a basically Newtonian manner. By turning to Euler’s conception of geometric space, we can get a clearer sense of what the space of the geometers and natural philosophers that Kant takes himself to be defining is supposed to be like, more concretely.

Euler’s Coordinate Systems

Let us begin by turning to Euler’s Introductio in analysin infinitorum (Introduction to Analysis of the Infinite, 1748), where he develops the geometrical conception of space in detail. This is the same conception that was applied in the example that we touched upon briefly above (see fig. 3.4). Euler’s work is an

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97 For this argument, see Kant, De mundi sensibilis atque intelligibilis forma et principiis, AA II 403; Metaphysische Anfanggründe der Naturwissenschaft, AA IV, 483–84; Prolegomena, AA IV, 285–86.


99 Ibid., AA II, 378 (emphasis removed): “eine eigene Realität habe”, “dem Dasein aller Materie[…]”. 
introduction to the concepts and methods of mathematical analysis and analytic geometry. The first volume treats functions in general, and the second is concerned with functions applied to geometry. Euler distinguishes quantities into constant and variable quantities. A constant quantity has a determinate value, represented either by numbers or the initial letters of the alphabet (a, b, c). A variable quantity has an indeterminate value, represented by the final letters of the alphabet (x, y, z). The variable quantity can acquire any value and becomes determinate when we assign a value to it. Something is a function of a variable, x, if it is a formula composed of that variable, constants and operational symbols (for example, x^2 + a). The function of a variable quantity is also a variable quantity. These are the general foundations upon which Euler bases his analysis of functions.

In the second volume, Euler explains how a function can be “transferred into geometry,” primarily into a curve. It is here that space is introduced. In geometry, he writes, the variable x “is most conveniently represented by a straight line RS, of indefinite magnitude.” And, he continues, “since in a line of indefinite magnitude one may cut off any determined magnitude, the line and the variable quantity equally present the same idea of quantity to the

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101 Ibid., 2:5/5 (trans. mod.): “ad Geometriam translata”.
102 Ibid., 2:3/3 (trans. mod.): “convenientissime repraesentabitur per lineam rectam indefinitam RS.”
mind.” This line of indefinite length, providing a geometrical representation of the variable \( x \), is presented in fig. 3.8 (upper part).

In order to use this line to represent determinate magnitudes, we first choose a point, \( A \), on the line as the origin, and from this point any determinate quantity of the variable is represented as an interval beginning at the origin and ending at some other point on the line. The segment \( AP \) of the line \( RS \) is the geometrical representation of a determined value of the variable. If \( P \) is to the right of \( A \), then \( x \) is positive; if \( P \) is to the left of \( A \), then \( x \) is negative; and lastly, if \( A \) and \( P \) coincide, then \( x \) is zero. The interval \( AP \), cut off in this way from the line, is called the ‘abscissa’ (\( abscissa \), ‘cut off’), and is the first coordinate of a coordinate system (the \( x \)-coordinate).

The extremity, \( P \), of the abscissa determines the position of a point on the axis \( RS \) in relation to the origin \( A \). We have here a one-dimensional coordinate system, or a one-dimensional geometric space.

This first rudimentary coordinate system can easily be brought to the next dimension. To do this, we choose a variable, \( y \), and for every determinate value, \( AP \), in the line \( RS \), we construct a line, \( PM \), perpendicular to \( P \), and let \( PM \) represent a determinate value for \( y \) (see fig. 3.8, lower part). This second variable, \( y \), is called the ‘ordinate’ (\( applicata \), short for \( linea ordinatim applicatae \), ‘lines applied in an orderly way’), and is the second coordinate of the coordinate system (the \( y \)-coordinate). Together, the two coordinates, \( x \) and \( y \), determine the position of a point, \( M \), in this two-dimensional geometric space.

This is the construction of a ‘Euclidian space’ in two dimensions. The axes of this space do not enclose a space – the ‘area’ (\( chōrion \)) of Euclidean geometry – but divide it into different regions, defined by the positive or negative values of the coordinates. And a curve drawn in this coordinate system fills space, rather than delimiting it. In this general space, the position of a point is identified by the values of its coordinates, which, in turn, are constituted by the coordinate axes. The position of the point \( M \) is known if the length of the abscissa, \( AP \), and the ordinate, \( PM \), is known.

The axes of this coordinate system do not have a common origin, as we are accustomed to in contemporary analytic geometry; instead, the second axis is erected from a given point on the first axis. The so-called ‘Cartesian coordinate system,’ where the axes intersect in a common origin, was devel-

103 Ibid. (trans. mod.): “Cum enim in linea indefinita magnitudinem quamcunque determinatam abscondere liceat, ea pariter ac quantitas variabilis eandem quantitatis ideam menti offert.”
104 Ibid., 2:3-4/3–4.
Finally, Euler continues his procedure by constructing a coordinate system with three dimensions (see fig. 3.9). This system is ordered by three perpendicular planes \((QQ^1Q^2Q^3, TT^1T^2T^3\) and \(VV^1V^2V^3\) that intersect in the point \(A\), the origin of the system. As in the case of the previous two coordinate systems, these planes have no determinate limits, but only symbolize the extendness of space as such. “If we consider these three planes to be extended to

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109 See Verdun, “Leonhard Eulers Einführung und Anwendung von Bezugssystemen in Mechanik und Astronomie”. For images of the successive phases of Euler’s development of the coordinate system, see Verdun, *Leonhard Eulers Arbeiten zur Himmelsmechanik*, chap. 2. We know such systems as ‘Cartesian coordinate systems,’ but they are actually a later development of Descartes’s ideas. As Andrew Romiti notes, ‘Descartes never begins with coordinate axes and then places objects into the frame of reference marked out by those axes, as is done with the Cartesian coordinate grid in later developments of Cartesian geometry.’ (Romiti, *Cartesian Mind and Its Concept of Space*, 148, n. 83) Descartes’s axes (or ‘principal lines’) are part of the diagram itself.
infinity in each direction,” Euler writes, “then universal space is divided into eight regions.”[110] This is a full-blown ‘Euclidean space’ in three dimensions.

The figurative representation of a general space of this kind is not the construction of a ‘solid’ or ‘body’ in the traditional Euclidean sense, that is, a figure with determinate extension in length, breadth and depth.[111] Rather, it is a representation of space as a domain in which geometrical figures are located (or ‘encompassed’), and which is characterized by a general boundless extendedness in three dimensions, represented by the three perpendicular planes.[112] As Andrew Romiti notes, this kind of three-dimensional geometric space has no determinate extension in length, breadth and depth, but instead “the capability of containing objects that have length, breadth and depth.”[113] This space is not identified, as are figures in space, through the boundaries that delimit it, but is determined from within, through the axes or planes that figuratively represent the order of the domain.[114] This coordinate system presents a general spatial domain for objects in relation to which, as we saw Kant saying in the Transcendental Aesthetic, their “shape, magnitude, and relation to one another” can be determined.

The coordinate system is thus itself a geometrical construction, but a construction that has a distinct function in geometry: it is not itself an object of investigation, but a representation that gives order and unity to other figures (such as the curve in fig. 3.4). It encompasses all figures as parts of a whole, of which the coordinate axes are the principle of organization. It is in relation to this principle of organization that magnitude, shape, position and direction can be determined, although such determinations are, in the examples above, established in a ‘pure’ geometrical space. Through the three variables, \(x\), \(y\) and \(z\) (where \(z\) symbolizes the third dimension), any point in this all-encompassing space can be determined. The variables and their geometrical representations have no determinate quantity, but symbolize only the possibility of determining a point or figure in this domain.

It is precisely this kind of representation of space to which Kant appeals, under the influence of Euler, in the essay from 1760s: space “as it is construed by geometers and as it has also been incorporated into the system of natural science by penetrating philosophers.” What he has in mind is not the regular constructions of Euclidean geometry, but rather the representation of space as a whole of which different spaces or figures are parts, that is: “universal

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112 As Klein reminds us, speaking about the geometrical conception of space more generally, this kind of space “is by no means the domain of the figures and structures studied by Euclid and the rest of Greek mathematics. It is rather only the symbolic illustration of the general character of the extendedness of those structures.” (Klein, “The World of Physics and the ‘Natural’ World,” 21)
113 Romiti, *Cartesian Mind and Its Concept of Space*, 145.
114 On this point, see Ibid.
space [allgemeinen Raum] as a unity, of which every extension must be regarded as a part.”

In his essay, Kant describes the representation of universal space in a way that is directly parallel to how Euler represents three-dimensional space in fig. 3.9 (which Euler also called “universal space”). To make the parallel evident, I have inserted the names of Euler’s planes in the quote. Here is what Kant writes:

Because of its three dimensions, physical space can be thought of as having three planes, which all intersect each other at right angles. Concerning the things which exist outside ourselves: it is only in so far as they stand in relation to ourselves that we have any knowledge of them by means of the senses at all. It is, therefore, not surprising that the ultimate ground, on the basis of which we form our concept of directions in space, derives from the relation of these intersecting planes to our bodies. The plane upon which the length of our body stands vertically is called, with respect to ourselves, horizontal. This horizontal plane $[TT_1T_2T_3]$ gives rise to the difference between the directions which we designate by the terms above and below. On this plane it is possible for two other planes to stand vertically and also to intersect each other at right angles, so that the length of the human body is thought of as lying along the axis of the intersection. One of these two vertical planes $[VV_1V_2V_3]$ divides the body into two externally similar halves, and furnishes the ground of the difference between the right and the left side. The other vertical plane $[QQ_1Q_2Q_3]$, which also stands perpendicularly on the horizontal plane, makes possible the concept of the side in front and the side behind.

Kant says that we think space in this way, namely, in the figure of three perpendicular planes that intersect in a point. This is not how we directly experience things, but how we order them.

Kant invokes directionality because he takes it to require that space as a whole is prior to its parts. Directionality does not concern the relation between points in or parts of space, but is a ‘global’ property of space: it refers these points or parts to space as a whole, that is, to the domain in which they are directed. Direction, Kant explains, consists

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116 Ibid., AA II, 378–79 (trans. mod.): “In dem körperlichen Raume lassen sich wegen seiner drei Abmessungen drei Flächen denken, die einander insgesammt rechtwinklig schneiden. Da wir alles, was außer uns ist, durch die Sinnen nur in so fern kennen, als es in Beziehung auf uns selbst steht, so ist kein Wunder, daß wir von dem Verhältniß dieser Durchschnittsflächen zu unserem Körper den ersten Grund hernehmen, den Begriff der Gegenden im Raume zu erzeugen. Die Fläche, worauf die Länge unseres Körpers senkrecht steht, heißt in Anschauung unser horizontal; und diese Horizontalfläche gibt Anlaß zu dem Unterschiede der Gegenden, die wir durch Oben und Unten bezeichnen. Auf dieser Fläche können zwei andere senkrecht stehen und sich zugleich rechtwinklig durchkreuzen, so daß die Länge des menschlichen Körpers in der Linie des Durchschnitts gedacht wird. Die eine dieser Verticalflächen teilt den Körper in zwei äußerlich ähnliche Hälften und gibt den Grund des Unterschiedes der rechten und linken Seite ab, die andere, welche auf ihr perpendicularly steht, macht, daß wir den Begriff der vorderen und hinteren Seite haben können.”
in the relation of the system of these positions to the absolute space of the universe. In the case of any extended thing, the position of its parts relative to each other can be adequately known by reference to the thing itself. The direction, however, in which this order of parts is oriented, refers to the space outside the thing.117

Directionality is a property of figures that cannot be accounted for through the mere relative position of their respective parts, Kant argues. We can use the curve in fig. 3.4 to illustrate his point. Imagine that we make a mirror image of the curve $ESF$ on the left side of the $y$-axis, in which the point is instead moving upwards towards the left rather than towards the right. The points on this second curve would have the same relative positions among themselves as the points on the first curve (if the curves are considered in isolation). Still, the two curves are incongruent, and cannot be placed upon each other. The difference between the two figures, Kant argues, can only be accounted for by referring the different points on the curve to something beyond the figure, namely, to space as an ordered domain in which they are located. In our example, this space is represented as a coordinate system, and it is to the axes that order this system that the points of the respective curves would have to be referred in order to account for their directionality. Throughout his subsequent intellectual development, Kant continues to conceive of space, in this way, as a whole that precedes its parts.

Space Is Not a Concept

In the Transcendental Aesthetic, Kant argues that space is a representation that contains all determinate spaces within itself, as limitations of a single and infinite intuition, and not under itself, as concepts do. He describes the difference between the two forms of containment in the following way:

Space is represented as an infinite given magnitude. Now one must, to be sure, think of every concept as a representation that is contained in an infinite set of different possible representations (as their common mark), which thus contains these under itself; but no concept, as such, can be thought as if it contained an infinite set of representations within itself. Nevertheless space is so thought (for all the parts of space, even to infinity, are simultaneous). Therefore the original representation of space is an a priori intuition, not a concept.118

117 Ibid., AA II, 377: “in dem Verhältnisse des Systems dieser Lagen zu dem absoluten Weltraume. Bei allem Ausgedehnten ist die Lage seiner Theile gegen einander aus ihm selbst hinreichend zu erkennen, die Gegend aber, wohin diese Ordnung der Theile gerichtet ist, bezieht sich auf den Raum außer demselben[…].”

118 Kant, *Kritik der reinen Vernunft*, B39–40: “Der Raum wird als eine unendliche gegebene Größe vorgestellt. Nun muß man zwar einen jeden Begriff als eine Vorstellung denken, die in einer unendlichen Menge von verschiedenen möglichen Vorstellungen (als ihr gemeinschaftliches Merkmal) enthalten ist, mithin diese unter sich enthält; aber kein Begriff als ein solcher kann so gedacht werden, als ob er eine unendliche Menge von Vorstellungen in sich enthielte. Gleichwohl
The point Kant is making can be clarified by considering a parallel discussion in Euler’s work: the difference between the generality of the variable x and the generality of the line RS (in fig. 3.8), that is, generic and geometric containment. For although Euler says that the variable and the line “equally present the same idea of quantity to the mind,” they do not contain quantities in the same way, as we will see. And with the help of the example of these two forms of containment, we can, I think, elucidate the distinction between conceptual and intuitive containment that Kant wants to establish in the quoted passage.

Let us start with the variable x. Euler says that “a variable quantity is a genus under which [sub quo] all determinate quantities are contained.”\(^{119}\) General ideas, or ‘notions,’ of this kind are attained through a process of abstraction. From the perception of two trees, we can attain the idea two by removing contingent marks and, through further abstraction, ultimately acquire the idea quantity.\(^{120}\) The latter is a genus that contains an infinite number of determinate quantities that fall under it (as body is subordinated to substance in fig. 1.2).\(^{121}\) This is the traditional hierarchical classification of ideas in terms of genera and species that we analyzed in Chapter One, the Porphyrian model. When Euler says that the variable quantity contains all determinate quantities, he thus means that all numbers – whether positive or negative, integers or rationals, irrational or transcendentals, complex or zero – are subordinated to the genus quantity.\(^{122}\)

For Kant, this is a matter of conceptual subordination and, as we saw in Chapter One, he takes genera and species to be infinitely specifiable, since for every concept we could always make further specifications.\(^{123}\) A concept specified in this way will be contained in the subordinated concepts (in the way that substance is contained in body), since the latter are specifications of it. This is why Kant said above that every concept must be thought of as “contained in an infinite set of different possible representations.” Both Kant and Euler thus think that quantity is a genus that contains an infinite number of determinate quantities under itself. However, as Kant said in the quote above, this is not the kind of infinity that we attribute to space, since space does not contain determinate spaces under itself (as a genus), but rather within itself.

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\(^{120}\) See Euler, *Lettres à une princesse d’Allemagne*, 2:90–94.

\(^{121}\) See Ibid., 2:202–3.


\(^{123}\) Euler does not distinguish between intuitions and concepts as Kant does, of course, but rather between sensible ideas and notions.
We are not offered much justification for why Kant thinks that we conceive space in this way, and, as we saw above, Shabel claims that this is because Kant takes this to be “phenomenologically evident.” She says moreover that the all-encompassing nature of space strikes her “as perceptually, but not mathematically, suggestive.” The reason why the all-encompassing nature of space does not seem mathematically suggestive to her is, I believe, because she has traditional Euclidean geometry in mind. If we take Euler’s second kind of containment – geometrical containment – into account, however, I think we can see why Kant would want to say such a thing about geometrical space.

When the genus quantity – expressed by the symbol \( x \) – is transferred into geometry in the form of a line of indefinite length, there is a crucial change in the way that the variable contains all determinate quantities. Describing this second form of containment, Euler says that the segment \( AP \) in \( RS \) (in fig. 3.8) represents “the determined value encompassed [comprehensum] within the variable quantity.” The general line \( RS \) can encompass any quantity of whatever determination, and it is, in this sense, infinite or boundless, since it has no determinations on its own. When the variable quantity – that is, the genus quantity – is constructed geometrically, it no longer contains all determinate quantities under itself, but rather encompasses all of them within itself; not in the way that the genus is contained within the species, but as bounded parts of an infinite or indefinite whole – an all-encompassing space.

I take this to be the difference between conceptual and intuitive containment that Kant wants to establish in the Transcendental Aesthetic, and the two can be called ‘containing’ and ‘encompassing,’ respectively. We can recall that the Newtonian conception of space was described by Kant in precisely this way: space and time “encompass [befassen] everything real within themselves.” They are ‘non-entities’ that encompass all extended things as parts of a unified whole. In his inaugural dissertation, when Kant has finally reconstructed the ontological status of space and time, and now takes them to be forms of intuition and not real things, he characterizes space in the same way as Euler did above: space is “a singular representation encompassing [comprehendens] all things within itself; it is not an abstract common notion containing them under itself. For what you speak of as several places are only parts of the

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125 Ibid., n. 18.
same boundless space related to one another by a fixed position.”\textsuperscript{128} And finally, when Kant presents his account in the Transcendental Aesthetic, he likewise says that “if one speaks of many spaces, one understands by that only parts of one and the same unique space,” and he calls this “the single all-encompassing \textit{[allbefassenden]} space.”\textsuperscript{129}

For this reason, I would argue that the unicity and infinity of space should not be understood as phenomenological facts about the space of experience, but as attributes of the figurative representation of space. First, the representation is singular, since every relation between points in, or parts of, the domain can be determined in relation to an origin and the axes that organize the domain; every relation is part of one system. Secondly, the representation is infinite (or boundless), since the domain is represented through coordinate axes that merely express the general extendedness of the domain, and do not have any determinate length of their own. The axes present the possibility of determining the position of a point in the domain, and the procedure for doing so is without limitations. This means that every point, however distant from the origin, will always be contained in, and exceeded by, the domain itself.

It was this conception of space, as a unity or whole that precedes its parts, that Kant, under the influence of Euler, defended in the 1760s, and that he adhered to throughout his subsequent intellectual development. In this specific sense, Kant continues to conceive of the \textit{content} of the representation of space in a manner resembling ‘Newtonians’ such as Euler.

**Space as a Method of Objectification**

In the essay from the 1760s, Kant argues, as we have seen, that absolute space as conceived of by geometers and natural philosophers is something real that has an existence independent of all matter. In the critical period, when Kant has reconceived space as a \textit{pure intuition}, he instead claims that it is ‘a being of the imagination’ \textit{(ens imaginariun)}.\textsuperscript{130} This representation of space as an object is not empirically given, but, as Kant writes late in life, “a product of the imagination.”\textsuperscript{131}

It is not an easy task to account for what Kant means by this claim. But one suggestion, based on the account provided above, would be that Kant

\begin{itemize}
\item \textsuperscript{128} Kant, \textit{De mundi sensibilis atque intelligibilis forma et principiis}, AA II, 402 (trans. mod.): “\textit{singularis representaatio omnia in se comprehendens, non sub se continens notio abstracta et communis. Quae enim dicis \textit{spatia plura}, non sunt nisi eisdem immensi spati diversae partes, certo posito se invicem resipientes[...].}” See also Ibid., AA II, 413–14, n.
\item \textsuperscript{129} Kant, \textit{Kritik der reinen Vernunft}, A25/B39: “wenn man von vielen Räumen redet, so versteht man darunter nur Theile eines und desselben alleinigen Raumes”; “dem einigen allbefassenden Raume[...].”
\item \textsuperscript{130} Ibid., A291/B347.
\item \textsuperscript{131} Kant, \textit{Opus postumum}, AA XXII, 76: “ein Product der Einbildungskraft[...].”
\end{itemize}
conceives of the figurative representation of space in a similar way as he conceives of geometrical construction more generally. In the 1760s, as we saw above, Kant claimed that because space has three dimensions, we think of it in the figure of three planes intersecting in a point. Two decades later, in the critical period, he instead says that the three dimensions of space are “built upon the proposition that not more than three lines can cut each other at right angles in one point; this proposition can, however, by no means be proven from concepts, but rests immediately upon intuition, and indeed on pure a priori intuition, because it is apodictically certain.” To his former self, Kant thus replies that it is because we think, or imagine, space in this way that we attribute three dimensions to it. The properties of space are known through geometrical construction.

The space depicted in fig. 3.9 is thus a representation we produce for ourselves, and the act of exhibiting this representation is of the same kind as geometrical construction in general. Like geometrical construction, it is a product of the imagination: we construct figures by ‘drawing’ them in our minds, and likewise we produce the representation of a three-dimensional space by means of imagination. Kant even says that the representation of space “is a mere schema.” Presumably, this means that the representation of space expresses the general procedure for determining positions and figures in space. The individual representation of space in fig. 3.9 is an expression of this general procedure for conceiving spatial relations.

Kant’s departure from the ‘realist’ position of Euler and his former self does not involve a rethinking of the content of the representation of space, I argued above, but only a reconception of the nature of the object that we represent in this way. When we imagine space through three intersecting planes, this is not a representation of a thing that has a real existence of its own, but a product of the imagination. This is also why we can know the properties of this object a priori: it is an object of our own creation.

I would thus align myself with Ernst Cassirer in his rejection of psychological or phenomenological interpretations of the Transcendental Aesthetic. Whether one thinks that visual, perceptual or experiential space is bounded or boundless is of no consequence for the validity of Kant’s attribution of infinity to the pure intuition of space, because Kant is not concerned with the psychology or phenomenology of space, but with a principle of knowledge. “The space and time of pure intuition are for Kant never sensed or perceived space or time,” Cassirer correctly argues,

132 Kant, Prolegomena, AA IV, 284–85: “wird auf den Satz gebaut, daß sich in einem Punkte nicht mehr als drei Linien rechtwinklisch schneiden können; dieser Satz aber kann gar nicht aus Begriffen dargethan werden, sondern beruht unmittelbar auf Anschauung und zwar reiner a priori, weil er apodiktisch gewiß ist[…].”
133 Kant, Kritik der reinen Vernunft, A156/B195: “ist ein bloßes Schema[…]”
134 Cf. Ibid., Bxiii.
but the ‘mathematical’ space and time of Newton; they are themselves constructively generated, just as they form the presupposition and foundation of all further mathematical and physical construction. In Kant’s thought, ‘pure intuition’ plays the rôle of a definite fundamental method of objectification; it coincides in no way with ‘subjective,’ i.e., psychologically experienceable [erlebbaren] time and space.\(^{136}\)

In calling the pure intuition of space a product of the imagination and a schema, Kant is conceiving it as a procedure for coordinating empirical objects. Cassirer is thus right in characterizing pure intuition as a “method of objectification,” for the pure intuition is a procedure by which we can have spatial knowledge of empirical objects. But in abstraction from its empirical application — that is, as a pure coordinate system — this procedure does not tell us anything about what things are like in themselves (that is, what space ‘in itself’ is).

The coordinate axes present a pure space in which geometrical objects can be constructed, and this pure geometrical space can also be given empirical application. When this geometrical representation of space is applied empirically, it gives unity to an empirical manifold of existing things. In this application, the propositions and constructions of geometry attain the role of criteria for correct operation. This, I believe, is what Cassirer has in mind when he calls the pure intuition of space a method of objectification: geometry provides the rules by which our knowledge of objects is measured. If, for example, the sum of the interior angles of an empirical figure bounded by what seems to be three straight lines is not equal to that of two right angles, either there has been an error in our calculations, or our instruments are flawed, or the figure is not actually a triangle.

Such a practical application of geometry, in for example geography, requires a number of different instruments for us to be able to transfer the measurements in the field onto paper: something must function as the empirical instantiation of a straight line, of a right angle, of the unit of distance, etcetera. In fig. 3.10, we have a geographic map of a field, which can serve as an example. This map is an experience, in Kant’s sense, that presents us with empirical knowledge of a certain region of the world. In this map, the pure intuition of space is itself symbolically inscribed in the form of a compass prescribing direction and a scale prescribing magnitude. Taken together, these two describe the two-dimensional space in which the landscape is ‘encompassed.’\(^{137}\) The role of the compass is to refer this particular region of physical space described in the map to a larger whole. The relative positions of the different parts of the map can be described perfectly well within the map, but the direction of this system of relations requires that they are referred to something that lies beyond them, to space as a whole.


\(^{137}\) Since we are actually concerned with a space located on the surface of a sphere, the application of plane geometry will become increasingly problematic with larger distances.
In this example, we see how appearances are, as Kant says, “bound up with it [pure space] in one and the same empirical intuition, as matter and its form.”

Space is not a ‘thing’ to which we relate the empirical things of the world, but a method of objectification, that is, a procedure for the determination of empirical relations. That appearances and pure space are “bound up” with each other as form and matter was what I meant when I said that direction and magnitude are symbolically inscribed in the image of the map. They do not depict something that has an existence on its own, but rather express the formal order of space instantiated in the empirical manifold. And it is only as instantiated in this way, as the form of empirical matter, that the pure intuition can function as a vehicle of knowledge.

This is also what explains Kant’s claim that space (and time) is empirically real, but transcendentally ideal: when the representation of space is used as a principle for coordinating empirical things, it has reality; but if we abstract from such empirical use, the representation in itself does not provide any knowledge of what things are like in themselves. The representation of

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139 See Ibid., A28/B44.
three-dimensional space in fig. 3.9 is ‘ideal’ in this sense: it expresses only a principle of coordination to which we subject our empirical knowledge, and has no reality on its own.

The Spatialization of Time

In this section, the argument made above in relation to the pure intuition of space will be applied to Kant’s consideration of time. I will argue that Kant’s ‘spatialization’ of time invokes the representation of space as a coordinate system, and that Kant consequently conceives of time as a one-dimensional geometric space. I will begin by returning to the issue of schematization, and explain how the schematization of concepts in time requires the support of spatial intuition. Secondly, I will argue that Kant conceives of time as a one-dimensional geometric space, or a time axis. It was suggested above that Kant shares this conception of time with eighteenth-century chronography, and I will use here one of Joseph Priestley’s chronographic charts to illustrate Kant’s spatial conception of time. Thirdly, I will explain how this pure intuition of time always requires a foothold in empirical reality to provide knowledge, and why time therefore is dependent upon motion in space. Finally, I will ask if there is any room for the ‘experience’ of time in Kant’s philosophy.

The Schematization of Time

In the foregoing, I analyzed the schematization of the category magnitude in relation to space. Now, I will begin with a brief account of the schematization of the category in relation to time. Whereas spatial extension can be exhibited directly through figures, Kant argues, this is not possible for time. Time is not an object of spatial intuition, but still “cannot be made representable to us except under the image of a line, insofar as we draw it, without which sort of presentation we could not know the singleness of its dimension [die Einheit ihrer Abmessung] at all.”

Determining the motion of an actual object is, of course, an empirical matter, and cannot be part of a transcendental consideration, since the latter is supposed to account for the possibility of empirical knowledge. But we can imagine the continuous motion of a point in spatial intuition, and use this imagined object as a pure representation of time in our consideration. Kant

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140 Ibid., B156 (trans. mod.): “uns nicht anders vorstellig machen können, als unter dem Bilde einer Linie, sofern wir sie ziehen, ohne welche Darstellungsart wir die Einheit ihrer Abmessung gar nicht erkennen könnten[…]”
makes this distinction between an empirical and a pure consideration of motion by distinguishing between the “motion of an object in space,” that is, the change of place of an actual empirical object, and motion “as description of a space,” which is “a pure act of the successive synthesis of the manifold in outer intuition in general through productive imagination.” Euler’s geometrical description of a moving point in fig. 3.4 is an example of a pure description of space. It does not reproduce the motion of an actual object in physical space, but describes the possible motion of a point in general (and determines what holds for this point). Although the figure is an empirical image on a printed page, on Kant’s account, this image is an expression of productive imagination: it exhibits the concept of the motion of a point in a two-dimensional space.

Let us thus imagine a moving point and use this as a figurative representation of time. At the most basic level, it is not important how fast the point moves or if its motion is uniform. It is its successive alteration as such that lets us use it to trace time: movement is the successive change of place, and we can therefore use place to plot succession. Now, imagine that a second line is traced parallel to the first, representing the length of a person’s life. This point starts from a place parallel to where the first point was at the moment of birth, and moves in the same direction and with the same speed as the first, until it finally stops at the time of death. It could look like this:

![Figure 3.11. The movement of time. The upper line represents the movement of time in general, and the lower line represents the time span occupied by a person’s life.](image)

The upper line is a figurative representation of the succession of time in general, and the lower line is a representation of the time span of the person’s life (the points move from left to right). If the motion of the points is not uniform, the ratio between their respective lengths (\(\ell/\delta\)) will not correspond to the ratio of time that has elapsed. If the upper point moved faster in the beginning and slower towards the end, for example, the different segments of the line would not be temporally homogeneous. For the upper line to measure the life span represented by the lower line, the motion of the point must be uniform. Let the following figure represent a similar case, but with uniform motion:

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141 Ibid., B155, n.: “Bewegung eines Objects im Raume”; “Bewegung als Beschreibung eines Raumes”; “ein reiner Actus der successiven Synthesis des Mannigfaltigen in der äußeren Anschauung überhaupt durch productive Einbildungskraft[...]” For a discussion of this distinction, see Friedman, *Kant and the Exact Sciences*, 131–32.
FIGURE 3.12. The homogeneous movement of time. The upper line represents the homogeneous movement of time in general, and the lower line represents the time span occupied by a person’s life.

This figure represents the uniform movement of two points. But in order to determine this representation of duration as a magnitude, we must apply – as we have already seen in the case of space – the category magnitude. This is done in the figure where the uniform movement of the two points is presented. The figure represents two homogeneous magnitudes of time that are composed through the repetitive addition of a unit of time (—). That something is a magnitude, Kant says, means that it is a “unit conjoined out of many homogeneous things.” Therefore, it is only by relying on uniform motion that time can truly be represented as a magnitude (only in this way will the different parts of the line be temporally homogeneous). If this motion is not uniform, as in fig. 3.11, the different segments of the line will lack a common measure.

In fig. 3.12, the different strokes (—) represent the repetition of a unit of time measuring the whole. In this case, we can say that the person’s life started when three units of time had passed, and lasted for another three units, until it finally ended. This shows how a time span can be determined as a magnitude (a ‘how many’), that is, through “the successive addition of one (homogeneous) unit to another.” This is achieved through the repetitive addition of one and the same unit of time, represented through the uniform motion of a point. Since it is not space, but time that is measured, by means of space, the actual distance that the point travels during a unit of time is irrelevant; this distance is only used to determine the comparative lengths of the lines, as lengths of the unit of time that is used.

The Space of Time

In section three above, Kant’s conception of the pure representation of space was connected to developments within the discipline of geometry. The aim was to show that Kant’s conception of space reflects innovations that had occurred in geometry over the course of the previous century and a half. When geometry was reconceived through the concept of geometrical space, figures were no longer understood simply as enclosing an internal space or ‘area,’ but their limits were furthermore conceived of as delimitations of a general space: figures are bounded regions of unbounded space, and have position

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142 Kant, *Metaphysik Vigilantius* (K3), AA XXIX, 991: “unum ex pluribus homogeneis conjunctum”.

and direction in this space. I will argue below that Kant draws on this concep-
tion of space even in his analysis of time.

When Kant says that time is represented as “a line progressing to infini-
ty,” he does not have simple line-segments (cf. fig. 3.2) in mind, I would
argue. Line-segments could suffice for representing determinate durations of
time, but “every determinate magnitude of time is only possible through lim-
itations of a single time grounding it.” Hence, time is not simply repre-
sented as a line, but as a boundless one-dimensional space, and all determinate
time spans are bounded figures in this space.

This spatial nature of time is also evident in Kant’s explanation of the ‘mo-
ment’ (Zeitpunkt ‘point in time’). Kant defines ‘place’ as a position that a thing
has in relation to other things in space, that is, a place is a point in space. A
place in time is called a ‘moment,’ since time is represented as a line: different
moments are points on this line. Time is thus conceived as a boundless,
linear domain in which points are moments, a one-dimensional coordinate
system. The moment is a determinate position in time, that is, a position in
relation to that which precedes, follows and is simultaneous.

Such a position can only be determined in relation to something else. In
fig. 3.8 (upper part), we saw the pure description of a one-dimensional coor-
dinate system in which the position of a point, \( P \), is determined in relation to
an origin, \( A \). It is, it seems, such a system that the figurative representation of
time as “a line progressing to infinity, in which the manifold constitutes a
series that is of only one dimension” invokes, where the moments of time
are points on this line, positioned in relation to an origin. In the pure consid-
eration of time, this origin is not fixed by reference to empirical reality; rather,
we are only dealing with a general procedure for determining a position in
relation to an arbitrary origin. If we want to make empirical determinations
temporal positions, however, we need both a fixed origin (such as the Birth
of Christ) and a measure (such as the year).

The unicity and infinity of time should not, I would argue, be understood
as phenomenological facts about our experience of time, but as properties of
this pure representation of time (which is not a possible object of experience).
Let me recapitulate what was said about the unicity and infinity of space
above, but applied to a one-dimensional space. First, this representation is
singular, since every relation between things in the domain can be determined
in relation to an origin and the axis that organizes the domain; every relation

\[ 144 \text{Ibid., A33/B50: “eine ins Unendliche fortgehende Linie.”} \]

zum Grunde liegenden Zeit möglich sei.”} \]

\[ 146 \text{See Kant, Metaphysik Dohna, AA XXVIII, 646; Metaphysik von Schön, AA XXVIII, 521; Metaphysik
Mrongovius, AA XXIX, 840.} \]

\[ 147 \text{Kant, Metaphysik Mrongovius, AA XXIX, 840.} \]

\[ 148 \text{Kant, Kritik der reinen Vernunft, A33/B50: “eine ins Unendliche fortgehende Linie [...], in welcher
das Mannigfaltige eine Reihe ausmacht, die nur von einer Dimension ist”} \]
it part of one system. Secondly, the representation is infinite or boundless, since the domain is represented through a coordinate axis that expresses only the general extendedness of the domain, and does not itself have any determinate magnitude. The axis presents the possibility of determining the position of a point, and the procedure for doing so is without limits: any point, however distant from the origin, will always be encompassed by the domain itself.

This is the very same conception of the ‘timeline’ as a boundless whole of which different segments of time are parts that we witness in the works of the mid-eighteenth-century chronographers. And it was for this reason that they were identified as paradigmatic proponents of a spatialized conception of time above. Since they share with Kant the same fundamental conception of time, their works can be used as illustrative examples to explain Kant’s way of thinking. I will use Joseph Priestley’s biographical chart below to clarify Kant’s conception of time.

The Timeline

In 1765, the scientist and theologian Joseph Priestley published one of the most influential timelines in the eighteenth century, his Chart of Biography.149 In a guide supplemented to this chart, Priestley describes the principles by which his chart has been constructed. Time, Priestley says, is an abstract idea and is therefore neither an object of our senses, nor something of which we can properly form an image. But because it has real quantity, and we can say a greater or less space of time, it admits of a natural and easy representation in our minds by the idea of a measurable space, and particularly that of a line; which, like time, may be extended in length, without giving any idea of breadth or thickness. And thus a longer or a shorter space of time may be most commodiously and advantageously represented by a longer or shorter line.150

Priestley appeals to the principle that quantities can be represented spatially through lines. He represents different “spaces of time” by means of line segments that are proportional to the respective quantity of time, and these lines are said to represent limitations of “universal time.” If we know the time of someone’s birth and death, these moments can be marked as points (boundaries) on the chart, and the line drawn between them represents “the situation of that life, and every part of it in universal time, and the proportion it bears to the whole period which the chart comprises.”151

149 On Priestley’s chronography, see Rosenberg, “Joseph Priestley and the Graphic Invention of Modern Time”.
150 Priestley, A Description of a Chart of Biography, 5.
151 Ibid., 9.
An example of this practice of representing chronological information is given in fig. 3.13, which is a chart that represents the lives of famous scholars and politicians. "TIME is continually suggested to us, by the view of this chart, under the idea of a river, flowing uniformly on, without beginning or end," Priestley writes in a closing comment in his booklet. "If we compare the lives of men with that portion of it [time] which this chart represents, they are little more than so many small straws swimming on the surface of this immense river." The chart presents history as a dynamic process in a boundless one-dimensional ‘space’ of time.

The procedure that Priestley describes for representing the “situation” of a life is the same procedure that was used in the account of the schematization of time above (see fig. 3.12). The one-dimensional coordinate axis in Priestley’s chart seems to be a perfect illustration of what Kant calls a ‘formal’ intuition of time, that is, time itself represented as an object. It is the axis, specifically, and not the lines representing individual lives, that expresses this formal intuition, the order of composition of a temporal manifold. This order is not a thing with an existence of its own, but “a fixed law” (certa leges), as Kant says in his inaugural dissertation, by which empirical reality is coordinated according to the relations of simultaneity and succession.

Kant’s understanding of this procedure for representation of time is expressed clearly in his inaugural dissertation, and, as far as I can tell, he does not change his mind regarding these issues. In the dissertation, where Kant first expressed the idea that space and time are forms of intuition, he writes that “space is also applied as an imaged to the concept of time itself, representing it by a line and its limits (moments) by points.” And a bit earlier, he even describes time as a fourth dimension (recall Burtt’s characterization above), added to the three of dimensions of regular space:

For simultaneous things are joined together at the same moment of time, just as successive things are joined together by different moments. Accordingly, though time has only one dimension, yet the ubiquity of time (to speak with Newton), in virtue of which all the things which can be thought sensitively are at some time, adds a further dimension to the magnitude of actual things, in so far as they hang, so to speak, from the same point of time. For, if you were to represent time by a straight line extended to infinity, and simultaneous things at any point of time by ordinate lines [per lineas ordinatim applicatas], the surface thus generated would represent the phenomenal world.

tempus designes linea recta in infinitum producta, et simultanea in quolibet temporis puncto per lineas ordinatim applicatas: superficies, quae ita generatur, repraesentabit mundum phaenomenon[...]."
The ubiquity of time means that each and every event in space also has a temporal coordinate.\textsuperscript{156} We can therefore plot simultaneous events on the timeline by drawing \textit{ordinate lines} from this axis. Recall that ‘ordinate line’ is a technical term in analytic geometry, designating the second coordinate axis (for example \textit{PM} in fig. 3.8), which is perpendicular to the abscissa. Evidently, Kant conceives of time as the axis in a coordinate system.\textsuperscript{157} These perpendicular lines represent the way that time permeates all of space (the “phenomenal world”), and the points that are placed on these perpendicular lines represent simultaneous events in time.

Now, this is precisely how Priestley’s chart works. In it, the turn of centuries are marked by ordinate lines that cut through the ‘phenomenal world.’ And generally, any ordinate line drawn perpendicular to a point on the time axis will cut through all lives that exist simultaneously at this moment in time. Priestley’s chart thus provides an elaborate illustration of the kind of representation of time that Kant has in mind.

This is not how we \textit{experience} time in a phenomenological sense, but a way of ordering temporal relations. Following Cassirer, it could be described as a “method of objectification,” that is, a procedure for determining the temporal magnitudes and relations of objects. As Kant explains:

\begin{quote}
no time is thought of except as a part of the same one boundless time. If you think of two years, you can only represent them to yourself as being in a determinate position in relation to each other; and if they should not immediately succeed each other, you can only represent them to yourself as joined to one another by some intermediate time. […] Moreover, you conceive all actual things as situated within time, and not as contained under the general notion of time, as under a common mark.\textsuperscript{158}
\end{quote}

Kant is clear that this is how we \textit{think} time, not how we experience it. His idea can be explained by means of Priestley’s chart. If you think of two lives (say, Thales’s and Pindar’s), you can only represent them to yourself as being in a determinate position in relation to each other (in this case, succeeding each other), and if they do not immediately succeed each other (as Thales’s and Pindar’s do not), you can only represent them to yourself as joined by some intermediate time (represented by the space between them in the chart). This exemplifies the ‘fixed law’ that underlies how we think, imagine and know temporal relations.

\textsuperscript{156} In the passage to which Kant refers, Newton says that “each and every particle of space is \textit{always}, and each and every indivisible moment of duration is \textit{everywhere [ubique].}” (Newton, \textit{Philosophiae naturalis principia mathematica}, 2:762/587)


\textsuperscript{158} Kant, \textit{De mundi sensibilis atque intelligibilis forma et principiis}, AA II, 399 (trans. mod.): “Tempus […] quodlibet non cogitatur, nisi tanquam pars unius eiusdem temporis immensi. Duos annos si cogitas, non potes tibi repraesentare, nisi determinato erga se invicem positu, et, si immediate se non sequuntur, nonnisi tempore quodam intermedio sibimet iunctos. […] Praeterea omnia concipis actualia in tempore posita, non \textit{sub} ipsius notione generali, tanquam nota communi, contenta.”
The Concrete Measure of Time

Philip Turetzky has argued that the history of thought about time, from the Greeks down to the end of the nineteenth century, is characterized by a gradual separation of time from movement. In this narrative, Kant is said to complete “the inversion in priority of movement over time” that Newton had begun by making absolute and mathematical time independent of its sensible measure. But, as we will see, this is not really the case; to the contrary, all determinations of time rely on motion, according to Kant.

It is true that Kant says that “the concept of alteration and, with it, the concept of motion (as alteration of place), is only possible through and in the representation of time.” But this is a question of an empirical determination of motion. He also says that motion, as an act of the productive imagination – a pure description of motion –, “first produces the concept of succession at all.” Only by relying on a pure description of motion can the general procedure for making temporal determinations be explained. This procedure is independent of any particular empirical motion, but this is only because it provides a general account of the procedure for using empirical motions in determining temporal magnitudes and relations. For this procedure to provide knowledge, imagined motion has to be replaced with the actual motion of an empirical object, that is, used as a concrete measure of time. Let me expand upon this point.

In the transcendental consideration of temporal magnitudes above, the intuitive representation of time was considered in a completely pure manner, in abstraction from empirical reality. In this kind of consideration, the unit used to determine temporal magnitudes is always an imagined unit in general. That is, this kind of consideration is concerned only with possible objects of knowledge, and serves to show, in a general way, how empirical knowledge is possible. A ‘schema,’ we saw, is a general procedure for acquiring a certain kind of knowledge, and must therefore be considered in a pure manner. Still, this procedure can only provide knowledge of objects by being empirically instantiated:

That something is a magnitude (quantum) may be known from the thing itself, without any comparison with another; if, that is, a multitude of homogeneous elements together constitute a unity. But how great it is always requires something else, which is also a magnitude, as its measure. However, since in the judging of magnitude not merely the multitude (number) but also the magnitude of the unit (of the measure) is involved, and the magnitude of this latter in turn always needs something else as a measure with which it can be compared, we see that any determination of the magnitude of appearances is absolutely incapable of affording

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159 Turetzky, Time, 85.
160 Kant, Kritik der reinen Vernunft, B48: “der Begriff der Veränderung und mit ihm der Begriff der Bewegung (als Veränderung des Orts) nur durch und in der Zeitvorstellung möglich ist[…]”
161 Ibid., B155: “bringt sogar den Begriff der Succession zuerst hervor.”
an absolute concept of a magnitude but can afford at best only a comparative concept.162

The schema is pure because it only describes the general procedure for determining the magnitude of an object by means of an arbitrary unit. For this procedure to be realized and provide knowledge of actually existing things, however, a concrete unit is always required. “In this mathematical estimation of magnitude,” Kant writes, “the intellect is equally well served and satisfied whether the imagination chooses for its unit a magnitude that can be grasped in a single glance, e.g., a foot or a rod, or whether it chooses a German mile or even a diameter of the earth.”163 To say that the imagination ‘chooses’ a unit is simply to say that some empirical magnitude is prescribed as the empirical instantiation of the arbitrary unit in the general procedure.

The same reference to empirical reality is required for determining temporal magnitudes and positions. Time can only be made representable by means of spatial analogies. But this is not only the case for the pure consideration of time; in our knowledge of temporal relations and magnitudes, we depend, not only upon pure space, but furthermore upon concrete things in space. Only in this way does the concept time attain empirical significance. According to Kant, we can perceive “all time-determination only through the change in outer relations (motion) relative to that which persists in space (e.g., the motion of the sun with regard to the objects on the earth).”164 That is, the mere imagining of a moving point in the temporal schematization of magnitude must be replaced with an empirical process of alteration instantiating the schema, such as the motion of the sun. This process is used as a comparative measure to determine magnitudes of and positions in time. We cannot compare something with ‘time’ in general, but only with an actual empirical process such as the movement of the sun.

In Lectures on History (1788), which is the published version of lectures that he gave from the beginning of the 1760s, and for which his Chart of Biography


163 Ibid., AA V, 254 (trans. mod.): “Der Verstand wird in dieser mathematischen Größenschätzung eben so gut bedient und befriedigt, ob die Einbildungskraft zur Einheit eine Größe, die man in einem Blick fassen kann, z.B. einen Fuß oder Ruthe, oder ob sie eine deutsche Meile, oder gar einen Erdurchmesser[…].”

164 Kant, *Kritik der reinen Vernunft*, B277–78: “alle Zeitbestimmung nur durch den Wechsel in äußeren Verhältnissen (die Bewegung) in Beziehung auf das Beharrliche im Raume (z.B. Sonnenbewegung in Ansehung der Gegenstände der Erde)[…].”
was created, Priestley likewise describes the concrete practice of coordinating and measuring time:

Time is commodiously divided by any equal motions, or the regular return of any appearances, in the heavens or on the earth, that strike the senses of all persons; and there are three of these, so particularly conspicuous, that they have been made use of for this purpose by all mankind. They are the changes of day and night, the course of the moon, and the return of the seasons of the year.165

By means of such natural processes, we order events in time and measure the magnitude of time spans. Such quantitative measures, as we saw, are the ground for Priestley’s charts, since it is the quantitative nature of these measures that allows them to be represented as lines. And the same applies for Kant. Time’s dependence upon space thus goes deeper than merely being a convenient mode of presentation. Time can only be known by means of processes in space:

we must always derive the determination of the length of time or also of the positions in time for all inner perceptions from that which presents external things to us as alterable; hence we must order the determinations of inner sense as appearances in time in just the same way as we order those of outer sense in space.166

Absolute and mathematical time, independent of all motion, is a hypostatization of a pure representation of time as a coordinate system in which events are located.167 This pure representation of time is not a possible object of empirical knowledge, and we therefore cannot compare things with ‘time’ in general, only with some process of alteration. Pure time only expresses the formal procedure for ordering an empirical manifold, and has ‘reality’ only in its empirical us as a principle for ordering such a manifold.

To think of anything – including ourselves – as being in time, requires that we think of it as having a determinate position in this all-encompassing temporal framework (which is not the same as knowing this position). But since this temporal framework can attain empirical significance only by relying on concrete processes in space, what we ultimately have to do is to think all things, including ourselves, as being part of a world.168 It is only in relation to

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165 Priestley, Lectures on History, 92. Cf. Descartes, Principia philosophiae, AT VIIIA, 27: “in order to measure the duration of all things, we compare their duration with the duration of the greatest and most regular motions which give rise to years and days, and we call this duration ‘time.’”

166 Kant, Kritik der reinen Vernunft, B156: “wir die Bestimmung der Zeitlänge, oder auch der Zeitstellen für alle innere Wahrnehmungen immer von dem hernehmen müssen, was uns äußere Dinge Veränderliches darstellen, folglich die Bestimmungen des inneren Sinnes gerade auf dieselbe Art als Erscheinungen in der Zeit ordnen müssen, wie wir die der äußeren Sinne im Raume ordnen[…].”

167 See Ibid., A429/B457, n.

168 Cf. Beiser, German Idealism, 128.
the alterations of the world – the regular return of appearances in the heavens or on earth – that things can be coordinated or ordered in time.

The Experience of Time

It was argued above that Kant’s account of the pure intuition of time should not be understood as a description of our ‘experience’ of time. Following Cassirer, the pure intuition of time has instead been described as a “method of objectification,” that is, as a pure procedure for determining the temporal magnitudes and positions of empirical objects. As we saw, Cassirer contrasts this method of objectification to “psychologically experienceable [erlebbaren] time,”169 which is something altogether different. Is there any place, one could ask, for the ‘experience’ of time (and space) in Kant’s thinking, given the account that has been presented above? Below, I will show that there is, although we have to look for it elsewhere than in the Transcendental Aesthetic.

Psychologists and philosophers have been investigating the ‘subjective experience’ (in the sense of Erlebnis) of time since the nineteenth century: how the experience of time varies between young and old, attentive and distracted, sober and intoxicated, etcetera. In such investigations, parallel orders of time are postulated: the time of physical events, on the one hand, and the psychological time of individual human beings, on the other. “The hands or numbers on a clock move at a steady rate,” Jon E. Roeckelein writes in a description of this conceptualization of time, “but humans’ sense of time passage is variable. One’s ‘subjective clock’ may be slower or faster than objective time and is influenced, also, by the existing stimulus situation.”170 The relation between the two can thus be investigated to establish how different factors influence their relationship.171 This notion of time is formed, we see, by an identification of appearance with subjective being: how something appears – that is, how it is estimated without the aid of our usual criteria for establishing what is the case – is identified as a mode of being in its own right; how it is for the perceiving subject.

Contrary to what one would perhaps have expected, Kant – the proponent of homogeneous time – also touches upon issues of this kind. In his writings and lectures on anthropology and moral philosophy, Kant repeatedly returns to a discussion of Langeweile and Kurzweil, which are translated as ‘boredom’ and ‘amusement,’ respectively, but literally mean ‘long while’ and ‘short

171 A psychological dictionary explains ‘psychological time’ as “time subjectively estimated, i.e., without the aid of clocks and without direct guidance by such external factors as the position of the sun.” (English and English, A Comprehensive Dictionary of Psychological and Psychoanalytical Terms, s.v. “time/psychological”)
while. Kant says in one of his lectures, and continues:

He who looks at the clock, for example, finds time long. But he who has something to do is not aware of time, and it appears all the shorter to him. If we direct our attention to objects, we do not notice time, and then it seems short to us, but as soon as we think about the measuring of time, and attend to it, it becomes empty for us. Our life is therefore the longer, the more filled it is. Observation: All miles in the proximity of a city seem shorter, and longer further off; for to anyone going there, and seeing nothing along the way, the miles appear long as he travels them; but once he has covered them, and thinks about it, they seem short to him, because in all that distance he has nothing to recall, since he did not perceive anything; whereas close to the city there is more to see and take note of, than farther away.

Langeweile and Kurzweil got their names, Kant thinks, because time spans seem longer or shorter, respectively, in these conditions. This is how time seems at the moment, however. When we look back upon our lives, Kant observes, things often seem the other way around: an empty, boring life seems long at the moment but short in retrospect, and a life full of events – in which time flies by – seems short at the moment and long when looking back.

In this linguistic register, the ‘length’ and ‘brevity’ of time refer to how time seems to us. And as we see from Kant’s ‘observation,’ we could just as well speak – although we are perhaps not as inclined to do so – of contractions and expansions of space (the ‘mile’ that he gave above as an example of what the imagination can choose as its measure when estimating magnitudes can also seem longer or shorter under certain conditions). The crucial difference between Kant’s understanding of this issue and that of many later investigators of the experience of time is that Kant classifies this as mere illusion. Phenomena of this kind are illusory to the extent that they are conflated with experience, that is, with knowledge of what something is like, for instance, that the (psychological) time span actually is longer or shorter.

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172 See, for example, Kant, *Anthropologie in pragmatischer Hinsicht*, AA VII, 233–34; *Anthropologie Morgenovius*, AA XXV, 1316–19.

173 Kant, *Moralphilosophie Collins*, AA XXVII, 383 (trans. mod.): “Es gibt viele Ausdrücke und Mittel die Zeit zu verkürzen, in der der Mensch ist, z.E. wer nach der Uhr sieht, dem wird die Zeit lang. Wer aber was zu thun hat, der wird die Zeit nicht gewahr, und desto kürzer kommt sie ihm vor. Wenn wir unsere Aufmerksamkeit auf Gegenstände richten, so werden wir die Zeit nicht gewahr, und denn ist sie uns kurz, so bald wir aber auf die Ausmessung der Zeit denken und sie beobachten, so ist sie uns leer. Unser Leben ist also länger, jemehr es angefüllt ist. Beobachtung. Alle Meilen an der Hauptstadt scheinen kleiner zu sein, und weiter davon länger; denn der da reiset, und nichts darin sieht, dem kommt die Meile lang vor, wenn er sie fährt; hat er sie aber zurückgelegt, und besinnt sich darauf, so kommt sie ihm kurz vor, weil er in dem Raum nichts hat, worauf er sich besinnen kann, indem er nichts wahrgenommen hat; nun ist nahe an der Hauptstadt mehr zu seh'n und wahrzunehmen als weit davon.”

On Kant’s account, it makes no sense to think of time and space themselves as expanding or contracting, although we would occasionally be inclined to describe things in this way. This is not because time and space, as such, are phenomenologically homogeneous, but because homogeneity is a characteristic of the procedure for measuring time and space. Homogeneity is not a fact about some ‘thing’ – either about the world itself or our experience of it – but a characteristic of our procedure for knowing things. And a procedure for measuring time should not be hypostasized as the regular rhythm of the external world, and distinguished from the irregular flow of mental life. The events of the world and those of inner life are measured and coordinated by the same framework.

Conclusion

In this chapter, I have examined Kant’s conception of space and time. The primary aim was to investigate time, but, since Kant’s theory of time is derivative of his theory of space, a good deal of this chapter has been devoted to the analysis of space. In the first section, I introduced the problem of the spatialization of time. I began by briefly revisiting the thesis of the geometrization of space and time in the Early Modern period. I suggested that this geometrization did not draw on traditional Euclidean geometry, but that the conception of geometric space applied in the investigation of nature was actually an innovation of this period itself. I continued by proposing that we read Kant in light of this historical trajectory, and his ‘spatialized’ conception of time as invoking this newly developed conception of geometric space.

To approach this issue, I turned, in the second section, to Kant’s conception of mathematics. I started off by examining the issues of geometrical construction and the schematization of categories, and argued that schemata should be understood as procedures for the application of concepts to appearances. Furthermore, I argued that these procedures function autonomously to prescribe standards for what should count as knowledge. Finally, after having explained what it is to represent an object corresponding to an ordinary mathematical concept such as a line or a triangle, I asked what it could mean to represent space itself as an object.

My answer was that, as a pure representation, space is represented like a coordinate system. This pure space is not something that is experienced, as some of Kant’s contemporary phenomenological interpreters would have it, but something that is constructed. In making this argument, I turned, in the third section, to the mathematician Leonhard Euler, and used his constructions of coordinate systems to illustrate what it means to represent space as an object. I argued that Kant’s claims about the infinite and all-encompassing nature of space make perfect sense as claims about this type of geometrical
representation, and that this can also shed light on Kant’s distinction between conceptual and intuitive containment in the Transcendental Aesthetic.

In the last section, I applied this interpretation of the representation of space to Kant’s theory of time. I began by revisiting the issue of schematization, and examined Kant’s claim that the schematization of concepts in time requires the support of spatial intuition in the form of motion in space. Next, I argued that Kant’s description of time as a line progressing to infinity, his claim that all periods of time are limitations on such a line, and that moments in time are points on this line, all suggest a conception of time as an axis, and, more specifically, that time is represented as a one-dimensional geometric space. I used the chronographic works of Joseph Priestley to illustrate what this representation of time could look like.

Representations of this kind are generated rather than experienced, and it is this generated nature that explains how we can have insight into the properties of such objects. As pure representations, however, space and time are ‘ideal’: the representations of space and time as three- and one-dimensional coordinate systems are not depictions of some real, existing object, but products of the imagination. For these representation to provide knowledge of actual objects, they have to be empirically instantiated. For time, this means that we have to rely on concrete movements of ordinary objects as our sensible measures of time. Finally, I ended by showing that if we want to find an account of the ‘experience’ of time in Kant’s philosophy, we should turn to his lectures on anthropology and moral philosophy, where he gives an account of the speeding up and slowing down of time in states of boredom and amusement.
Modern philosophy has often been understood as characterized by a turn to the subject, where the self-awareness of the ‘I’ becomes the first secure ground from which knowledge can begin. But what do we mean when we call the ‘I’ a ‘subject?’ The modern philosophical conception of the subject is usually taken to combine an ‘I’ functioning as the subject to which acts of thought, sensation, feeling, etcetera is attributed as psychological predicates with an ‘I’ that has the ability to perceive of itself immediate as the subject of such acts.

In the present chapter, I will investigate the role of this conception of the subject in Kant’s philosophy, which often is considered a philosophy of the subject par excellence. Kant ostensibly not only places the subject at the center of philosophical thought, but furthermore takes this subject to be constitutive of the object of knowledge. But is ‘the subject’ really the object of transcendental philosophy? Are the constitutive functions of the schemata discussed in the previous chapter, for example, properties, in some sense, of the subject? That is, when we describe such functions, are we then describing some mental structure inhering in the subject? To come to terms with these questions, I will study the role of the so-called ‘transcendental subject’ in Kant’s thought. I will argue that this subject should not be understood as that to which the operations described by transcendental philosophy is attributed; rather, it is itself one of those operations.

I approach the issue from the perspective of the history of the modern subject. Specifically, I draw on Alain de Libera’s recent works on the medieval origins of the ‘modern’ conception of the subject. De Libera’s account seems perfectly tailored in many ways for an analysis of the specific problems that Kant grappled with. This is a consequence of the fact that de Libera sees Kant as the philosopher who first projected the concept ‘subject’ upon Descartes’s cogito, and thereby helped create the narrative of a modern turn to the subject. Since de Libera traces the history of just this Kantian conception, his story leads directly to Kant.

I set the stage for my reading of Kant by giving a brief account of the pre-modern origins of the conception of the subject. In the first section, I begin by giving an account of the Aristotelian tradition, and its introduction of the notion of the subject into the discussion of the soul. Next, I turn to the Augustinian problem of self-awareness. Finally, I examine the synthesis of these
two rival traditions in the philosophy of Peter John Olivi. In this section, I follow de Libera’s account, and recount those elements that will prove essential in the subsequent discussion of the question of the ‘subject’ in the thought of Kant and his predecessors.

In the second section, I analyze the more immediate background to Kant’s conception of the subject in German Enlightenment philosophy. I begin with Christian Wolff and the psychological tradition that came in his wake. I return here to Wolff’s influential conception of awareness, studied in Chapter One, and investigate how the issue of self-awareness is understood on the basis of this conception. I maintain that the notion of the ‘subject’ invoked in these discussions still operates in the traditional ontological register, and that the ‘I’ does not have a privileged place in Wolff’s conception of self-awareness.

In the third section, I finally turn to Kant. I begin with Kant’s pre-critical understanding of the ‘I’ as the subject of thought. At this point in his intellectual development, Kant conceived of the ‘I’ as a mental substance that has an immediate intuitive awareness of itself as the substrate of its acts. This position, it seems, is a paradigmatic case of what de Libera calls the ‘modern subject.’ Although Kant develops his account in his lectures on Alexander Baumgarten, the position he presents seems to be of his own creation, projected back upon the tradition. For this reason, Kant’s subsequent critique of the views of his predecessors looks more like a self-critique than anything.

Next, I turn to Kant’s mature conception of the subject. Whereas de Libera sees Kant, in his critical period, as distancing himself from the modern conception of the subject and reverting to an older, Thomistic position, I argue that Kant is at one and the same time a proponent of the ‘modern’ conception of the subject and a fierce critic of the ontological claims made on its behalf. Kant conceives of the ‘I’ as both the vehicle of self-awareness and the subject of predication, but denies that, through the thought ‘I,’ we have an experience or intuition of the substrate in which all our states inhere. Furthermore, I argue that Kant’s notion of apperception does not constitute a separate form of primitive self-awareness, but can be accounted for through a unified account of awareness as presented in Chapter One. Pure self-awareness, or apperception, does not precede all other representations, but is rather the act of unifying such representations in the thought of a common subject in which they inhere. This unity is not perceived, but is completely intellectual – it is a unity of thought.

The ‘Violent Synthesis’ of the Modern Subject

In traditional philosophical narratives, Modernity is often taken to be, not only a period in which humanity frees itself from the yoke of religious dogma, but moreover one in which the problem of the subject and subjectivity emerges and migrates into the center of philosophical thought, with René
Descartes often portrayed as the main protagonist. Martin Heidegger describes the situation in the following way:

Until Descartes every thing present-at-hand for itself was a ‘subject’; but now the ‘I’ becomes the special subject, that with regard to which all the remaining things first determine themselves as such. [...] The word objectum now passes through a corresponding change of meaning. For up to then the word objectum denoted what was thrown up opposite one’s mere imagining: I imagine a golden mountain. This thus represented – an objectum in the language of the Middle Ages – is, according to the usage of language today, merely something ‘subjective’; for ‘a golden mountain’ does not exist ‘objectively’ in the meaning of the changed linguistic use. This reversal of the meaning of the words subjectum and objectum is no mere affair of usage; it is a radical change of Dasein.1

From Descartes onward, Heidegger argues, we witness a reversal of the meaning of ‘subject’ and ‘object’ in Western thought – whereby subjectum and ego become identical – followed a century later by a corresponding reversal of the adjective forms. This reversal is “no mere affair of usage,” he says, but a significant event in the history of Being.

Recently, Alain de Libera has taken on this Heideggerian narrative of the emergence of the modern subject, and subjected it to an ‘archaeological critique’2 aiming to uncover the historical conditions and transformations that actually made this conception of the subject possible. According to de Libera, the ‘Cartesian subject’ must be said to be either much older or more recent than the works of Descartes. It is more recent in the sense that Descartes himself hardly ever called the ‘I’ a ‘subject.’ In fact, Descartes explicitly avoided applying this concept, since he took ‘subject’ to be an “absolutely concrete” word, and therefore ill-suited for an inquiry of thought.3 Instead, it has been proposed that it was rather Kant who invented the ‘Cartesian subject,’ since he was the one who applied the logical concept ‘subject’ to the Cartesian cogito in his critique of the paralogisms of rational psychology, and as an unforeseen consequence established this as a dominant interpretation of Descartes’s own concerns.4 In this way, Kant gave birth to a tradition where Descartes is read as someone fundamentally concerned with ‘the subject.’

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2 de Libera, “Où va la philosophie médiévale?,” §33.
3 Descartes, *Meditationes de prima philosophia*, AT VII, 174: “quammaxime concretis”. See Moriarty, *Early Modern French Thought*, 11–13. As Moriarty correctly notes, “Descartes is quite happy to use ‘subject’ in a very traditional way, in conformity with ordinary usage and even with standard scholastic usage: whatever is new in his philosophy, he feels no need to inflect the term ‘subject’ in order to capture its specificity” (Ibid., 13).
4 de Libera writes that “The ‘Cartesian subject’ is the result of a retrospective projection that started with Kant.” (de Libera, “When Did the Modern Subject Emerge?” 194) In a similar vein, Étienne Balibar argues, also in opposition to Heidegger, that we have to turn to Kant in order “to discover the origin of the projection of a transcendent category of the ‘subject’ upon the Cartesian text.” (Balibar, “Citoyen sujet,” 39/36) See also Boulnois, *Généalogies du sujet*, 12–13.
In Kant’s own philosophy, the notion of the subject does have a central standing, and Kant is to a large extent responsible for giving it its specific meaning and central place in philosophy. It is in the second half of the eighteenth century that we witness a reconfiguration of the relationship between subject and object in German philosophy, and this event was, if not a direct consequence of Kantian philosophy, then at least intensified by its immense impact. Prior to the nineteenth century, the term ‘subject’ had primarily a logical meaning (the subject of attribution) and a physical (the subject of inherence) one. Although the opposition between the subject and the object might seem obvious to us looking back at these developments – even inscribed in the very construction of these nouns – the original opposites of the subject were predicate and accident.

When Johann Georg Walch, early in the eighteenth century, mentions the ‘subject of knowledge’ (subiectum cognitionis) in the entry on ‘Subiectum’ in his *Philosophisches Lexicon*, he does not have the knowing subject in our sense in mind, but the subject-matter that a discipline or science is concerned with, also called its ‘object.’ In the wake of Kantian philosophy, however, we see the appearance of the now familiar use of ‘subject’ to designate a thinking, knowing and willing being. The *Brockhaus Enzyklopädie* (1812–19), for example, added to the logical and grammatical meaning of the term a “philosophical meaning,” according to which “the ‘subject’ is opposed to the ‘object,’” and refers to “the representing and knowing being” in its activity of performing these acts. It is around this time that an understanding of subject and object as antonyms begin to stabilize, and this new opposition is a sign of a fundamental conceptual change.

But if we set aside the Kantian projection of the subject onto Descartes, as well as the subsequent development whereby this new ‘philosophical’ meaning of the term signifying a thinking, knowing and willing being became the prevalent one outside specialized areas of study, then the philosophical conception harbored by this term, and propagated across the world, is actually a product of Medieval philosophy. De Libera argues, to my mind convincingly, that the theory of the soul that Kant presents and opposes in his critique

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5 In addition, we also have the ‘grammatical subject,’ the ‘political subject’ (the subject of law,’ which is *subject* in Latin, not *subiectum*) etcetera, which are not relevant to the present discussion.

6 This is apparent in Wolff’s German vocabulary, since his name for *subiectum* is derived from its role in syllogistic inference. A proposition must be composed of at least two words, he writes, one expressing the thing, the other expressing the property. “The former is called the ‘anterior term’ [Fürderglied], the latter, the ‘posterior term’ (Hinterglied)” (Wolff, *Vernünfftige Gedancken von den Kräfften des menschlichen Verstandes*, chap. 3, §3; my trans.). In a syllogistic inference, the anterior term and the posterior term are connected through a middle term.


8 Macklot, *Conversation-Lexicon*, s.v. “Subject, Subjectiv, Subjectivität” (my trans.); “philosophischer Bedeutung”; “das Subiect dem Object entgegengesetzt”; “das vorstellende und erkennende Wesen”. Cf. Littré, *Dictionnaire de la langue française*, s.v. “Sujet” (my trans.): “Term of philosophy. The being which is aware of itself, in opposition to object. The subject and the object.”
of rational psychology emerged already in the Middle Ages, “thanks to a violent synthesis of two models that went on arguing over the theory of the soul until the fourteenth century.” This was a synthesis between the Aristotelian model of ‘subjecthood,’ to which the Heideggerian analysis is limited, and the Augustinian Trinitarian model of the soul, which, de Libera says, “has been overlooked by almost all historians of the ‘subject.’”9 In this synthesis, two different philosophical problems are joined together: the Peripatetic problem of the subject of thought (what thought inheres in) and the Augustinian problem of the certainty of self-awareness (that it is I that think).10

I will briefly review some of the main components of this pre-modern history of the modern subject. De Libera’s account is significant for its detailed and careful analysis of the subsequent steps of the development of what eventually became part of philosophical common sense. Moreover, his historical account in many ways seems perfectly tailored for an analysis of the specific problems that Kant grappled with. This is because, as we saw above, de Libera sees Kant as the true author of the ‘Cartesian subject’ in its modern form. It was Kant who created the image of the subject that is typically projected onto Descartes and, since de Libera studies the archaeology of this conception, his history leads directly up to Kant. It is a story of the pre-modern origins of rational psychology, at least as Kant portrays this discipline.

But as we will see, de Libera argues that Kant breaks with this tradition, and reverts to an earlier, Thomistic position. Against this reading, I will argue that Kant actually seeks to develop a ‘modern’ account that unites subjecthood and self-awareness, but also to free it from the presuppositions of his predecessors. The self-awareness that we express by saying ‘I’ is not an experience of the self in any way, Kant argues, but purely intellectual (a pure thought). In this first section, I will set the historical stage for this reading. First, I will give an account of the Aristotelian tradition and its introduction of the notion of the subject into the discussion of the soul. Secondly, I will turn to the Augustinian problem of self-awareness. Lastly, I will study the synthesis of these two traditions in the philosophy of Peter Olivi. In this account, I follow de Libera quite closely, and recount those elements of his history of the modern subject that will later be important for my discussion of Kant and his predecessors.

Aristotelian Subjecthood

Following Heidegger, de Libera calls the Aristotelian model ‘subjecthood’ (Subjektheit). Subjecthood, in late ancient and medieval philosophy, was composed of two components: predication and inherence. “The notion of subjecthood,” de Libera explains, “links that of which there can be predicates, the

10 Ibid., 1237/1074.
so-called ‘logical subject,’ and that in which there are accidents, the so-called ‘physical subject.’”  

The Latin term subiectum was used to translate the Aristotelian term hupokeímenon, and the distinction between the two components of subjecthood is abundantly evident in the Greek commentaries on Aristotle, through the medieval distinction between ‘subject of attribution’ and ‘subject of inherence,’ down to the Early Modern Age. Between the two notions, an “onto-logical” relationship is established “in that it allows being and ‘being said’ to coincide.”

The question of the ‘subject of thought’ was the issue in the medieval quarrels between Averroists and Thomists. Averroes (Ibn Rushd) argued that there are two subjects involved in intellectual knowledge: the image of the imagination and the material intellect. The first of these two is linked to the individual human being, but the material intellect is supra-individual, and therefore one and the same for all human knowers. According to this two-subject model, every act of apprehension involves two subjects: a subject of existence and a subject of truth. The subject of existence is the power in which the apprehended ‘form’ comes to exist: the sense organ is the subject of existence in an act of sensation, when it is actualized by a sensible form; the faculty of imagination is the subject of existence in an act of imagination, when it receives an image that persists even in the absence of the sensible object; and the material intellect is the subject of existence in an act of intellectual knowledge, when it receives the intelligible form abstracted from the image of the imagination.

In such acts of apprehension, the subject of truth is that to which the act refers and which, consequently, determines its truth. In sensible apprehension, the extra-mental thing in which a quality inheres is the subject of truth of the sensible form, whereas the sense organ, when it receives the same form, is its subject of existence. The same relation holds also for intellectual knowledge: the image of the imagination is the subject of truth for the intelligible species, which provides the relation to the extra-mental thing, whereas the subject of existence of the same intelligible form (abstracted from the image) is the supra-individual material or potential intellect, which receives it.

In his critique of Averroes, Thomas Aquinas argues that this model entails that we cannot say that it is the individual human being who knows or comprehends, but only that his ‘phantasms’ – that is, the images of his imagination, are known or comprehended (by something else), a consequence he

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11 de Libera, “When Did the Modern Subject Emerge?,” 194.
12 Ibid. See also de Libera, Naissance du sujet, 59–79.
14 The latter was called ‘material’ or ‘possible’ because it was thought to be pure potentiality, receptive of the forms of things, abstracted from sensations, just as matter itself is receptive of form.
finds absurd. This link to the individual through his phantasms, Aquinas says, “does not sufficiently explain the fact that the act of the intellect is the act of Socrates.”16 Invoking Aristotle, he argues that the relation between the phantasms and the intellect is like the relation between color and sight: the species of colors are to sight what the species of phantasms are to the material intellect. And just as we do not attribute an act of seeing to a wall just because its colors are in sight, we cannot attribute an act of comprehension to Socrates just because the species of his phantasms are in the (supra-individual) material intellect. Rather, the wall is seen, and Socrates’s phantasms would be comprehended, but not by Socrates himself. Knowledge can only be accounted for, Aquinas argues, if we side with Aristotle, and say that this man thinks or comprehends because the intellect is his form.17 That is, the individual human being can be said to know or comprehend because the intellect, which receives the form or species, belongs to him.

Properly speaking, neither the intellect nor the soul is the subject of thought: rather man is. We could say “that the soul comprehends, as the eye sees,” Aquinas writes, “but it is more correct to say that man comprehends through the soul.”18 In Scholastic terminology, the soul is the subject ‘by which’ (quo) man comprehends, whereas man is the subject ‘that’ (quod) comprehends.19 Thought is only in the soul “as if in a subject,” and this is because thought inheres in man by means of the soul.20 “Now actions belong to suppositos and wholes and, properly speaking, not to parts and forms or powers, for we do not say properly that the hand strikes, but a man with his hand.”21 What is here called a ‘supposit’ (suppositum) is a primary substance, that is, an individual of the genus substance: a man, a horse or a tree.22 These are the proper subjects of actions. Man is the subject of knowledge.

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16 Aquinas, *Summa Theologiae*, Ia q. 76 a. 1 co.: “non sufficit ad hoc quod actio intellectus sit actio Socratis.”
17 Ibid., Iq. 76 a. 1 co.
18 Ibid., Iq. 75 a. 2 ad 2 (trans. mod.): “quod anima intelligit, sicut oculus videt, sed magis propriè dicitur quod homo intelligat per animam.”
19 de Libera explains the distinction in the following way: “The man who receives philosophy through the intermediary of the mind is the subject QUOD. The subject QUO (instrumental ablative), the subject by which, is what immediately receives the accident: here the mind, for philosophy.” (de Libera, *L'invention du sujet moderne*, 74)
20 Aquinas says that things are “as if [sic] in a subject” when “one accident inheres to substance by means of another.” (Aquinas, *Summa Theologiae*, I–IIae q. 56 a. 1 ad 3; trans. mod.)
21 Ibid., II–IIae q. 58 a. 2 co.: “Actiones autem sunt suppositorum et totorum, non autem, propriè loquendo, partium et formarum, seu potentiarum, non enim propriè dicitur quod manus percutiat, sed homo per manum[...].”
22 See Ibid., Iq. 29 a. 2 co. On the principle ‘actions belongs to suppositos,” see de Libera, “When Did the Modern Subject Emerge?” 210–16. The Latin *suppositum* translates the Greek word *hupóstasis*, which was not a central term for Aristotle, but was introduced later on in history. Its introduction causes confusion, since *substantia*, which is the standard translation of *ousia*, is almost a literal translation of *hupóstasis*. This is why Aquinas says that *substantia* is used in two different ways: as *essentia* and as *suppositum*. See Aquinas, *Summa Theologiae*, Iq. 29 a. 2 co. On these issues, see Kosman, “Translating *Ousia*.”
As we will soon see, Aquinas’s view was itself criticized for not being able to give a sufficient account of who or what the subject of thought actually is, and thus for not being able to present a satisfactory argument against the Averroists. This critique was raised from an Augustinian perspective, and, as we saw above, Augustine’s model of the soul was the second component of the ‘synthesis’ that constitutes the modern subject. Before turning to the synthesis itself, let us therefore take a brief look at Augustine.

Augustinian Self-Certainty

Augustine’s contribution to this discussion consists in the ‘perichoretic’ model of the soul, in which the Christian doctrine of the soul as the image of God is developed through a comparison between the human soul and the triune nature of God. In *De Trinitate* (On the Trinity), Augustine explicitly opposes subjecthood as a model for understanding the relationship between the mind and its acts. Love and knowledge, he writes, are not in the soul “as in a subject, like color or shape in a body, or any other quality or quantity.”

The acts of the mind are not accidents inhering in a subject, since such acts would not have any subsistence on their own. Instead, Augustine approaches the problem through the idea of a mutual indwelling, what was later called the *perichōrēsis* or ‘circumincession’ of persons, which had been developed in Trinitarian theology in order to explain how something can be simple and multiple at once (since the doctrine says that God is one substance and three persons). The persons of the trinity were seen as mutually present in each other, thus being both distinguishable and united.

The model of subjecthood is inapt, Augustine thinks, because goodness does not exist in God as a subject; rather, God is his goodness. Analogously, love is not in the mind as in a subject, but the mind is a lover. God is one essence having three substantial parts (Father, Son and Holy Spirit), and, by analogy, the mind is one essence composed of memory, understanding and love:

> These three, memory, understanding and love, are mine, not their own; and whatever they do, they do it for me and not for themselves – or rather, I do it through them. It is I who remember with memory, understand with understanding, love with love.

23 Augustine, *De Trinitate*, bk. IX, iv, 5: “non tamquam in subiecto ut color aut figura in corpore aut ulla alia qualitas aut quantitas.”


26 Ibid., bk. XV, xxii, 42: “Tria ista, memoria, intellectus et amor mea sunt, non sua; nec sibi sed mihi agunt quod agunt, immo ego per illa. Ego enim memini per memoriam, intellego per intellegentiam, amo per amorem.”
When I know, my knowledge is not an act that accidentally determines my mind; I gain knowledge since I am present in this knowledge. We might say that the mind, in so far as it knows, is this act of knowing. Although it is right to say, Augustine tells us, that I have memory, understanding and love and not that we are these things, they are all nonetheless mutually indwelling in me and in each other: I can understand that I remember, remember that I understand, and love what I remember.

This mutual indwelling of the mind and its acts means that one does not gain knowledge of oneself by reasoning back from objects to acts, and from acts to the mind as the subject of those acts (as many Peripatetics would have it); rather, the opposite is true: “nothing is more present to the mind than itself.” My knowledge of myself – that it is I who understands, remembers or loves – is not mediated by any sensory image. Self-knowledge should therefore not be modelled on sensory knowledge of external things, which is prone to error:

For if I am mistaken, I exist. He who does not exist clearly cannot be mistaken; and so, if I am mistaken, then, by the same token, I exist. And since, if I am mistaken, it is certain that I exist, how can I be mistaken in supposing that I exist? Since, therefore, I would have to exist even if I were mistaken, it is beyond doubt that I am not mistaken in knowing that I exist.

Even if I am deceived by sensory images, I exist; and this I can be certain of – that if I am mistaken, I am the one who is mistaken. The senses may deceive me, but my knowledge of myself is not mediated by them. I am immediately aware of myself.

Having given a brief account of the two rival conceptions of the soul, one concerned with the subject of through, the other with self-certainty, let us not turn to their medieval ‘synthesis.’ It is when the Augustinian certainty of one’s own existence is coupled with subjecthood that the theory of the subject mutates into a theory of the certainty of the subject. This synthesis of self-certainty and subjecthood, where my indubitable self-awareness becomes an awareness of myself as the subject of my acts, is found in the thought of Peter Olivi, to which we now will turn.

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27 Cf. Hölscher, The Reality of the Mind, 188–89.
28 Augustine, De Trinitate, bk. XIV, iv, 7: “nec menti magis quidquam praesto est quam ipsa sibi[…]”
29 See Augustine, De civitate Dei, bk. XI, chap. 26
30 Ibid.: “Si enim fallor, sum. Nam qui non est, utique nec falli potest; ac per hoc sum, si fallor. Quiargo sum si fallor, quo modo esse me fallor, quando certum est me esse, si fallor? Quia igitur essem qui falleret, etiamsi falleret, procul dubio in eo, quod me noui esse, non fallor.” It should be noted that it is precisely with respect to the issue of self-knowledge, or self-certainty, that a possible Augustinian influence on Descartes is often pointed out. The most comprehensive comparison of Augustine and Descartes is Janowski, Augustinian-Cartesian Index.
Peter Olivi and the Certainty of the Subject

Around the turn of the second millennium, a short text known as *Impugnatio quorundam articulorum Arnaldi Gaillardii* (Attack on Some Articles by Arnaud Gaillard, 1282) by the Franciscan friar Peter John Olivi came to be identified as a central event in the history of Western philosophy. First out was Olivier Boulnois, who saw in it an early conception of the founding role of subjective certainty. He was followed a few years later by de Libera, who went further, and cautiously advanced the hypothesis that what we witness in this text is perhaps the first formulation of the ‘modern subject,’ that is, a combination of subjecthood and certain self-awareness. In this text, specifically, in its nineteenth article, Olivi opposes the peripatetic doctrine that the intellect knows itself in the same way as it knows other things, and formulates a conception of the ‘subject’ that draws heavily on Augustine. Although Olivi’s immediate opponent is the otherwise unknown Franciscan Arnaud Gaillard, Aquinas is certainly looming in the background of Olivi’s attack.

According to the Peripatetic view that Olivi opposes, one gains knowledge of one’s own mind through a process of reasoning, working one’s way back from objects to the acts of which those objects are objects, and arriving at the subject in which these acts inhere. Such an account was defended by Aquinas, who wrote:

Concerning the actual knowledge by which one actually considers that he has a soul, I say that the soul is known through its acts. For one perceives that he has a soul, that he lives, and that he exists, because he perceives that he senses, comprehends, and carries on other vital activities of this sort. [...] But one perceives that he comprehends only from the fact that he comprehends something. For to comprehend something is prior to comprehending that one comprehends. Therefore, through that which it comprehends or senses the soul arrives at actual perception of the fact that it exists.

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33 See Aristotle, *On the Soul*, 430*: “Thought is itself thinkable in exactly the same way as its objects are.” On the reception of this doctrine in the thirteenth century, see Cory, *Aquinas on Human Self-Knowledge*, 26–29.
34 Aquinas, *Quaestiones disputatae de veritate*, q. 10 a. 8 co. (trans. mod.): “Quantum igitur ad actualem cognitionem, qua aliquis se in actu considerat animam habere, sic dico, quod anima cognoscitur per actus suos. In hoc enim aliquis percipit se animam habere, et vivere, et esse, quod percipit se sentire et intelligere, et alia huiusmodi vitae opera exercere; [...] Nullus autem percipit se intelligere nisi ex hoc quod aliquid intelligit: quia prius est intelligere aliquid quam intelligere se intelligere; et ideo anima pervenit ad actualiter percipiendum se esse, per illud quod intelligit, vel sentit.”
The process presented here is one of reasoning one’s way back to knowledge of oneself. The problem with this view, according to Olivi, is that it fails to convey certainty as to who it is that thinks or senses. He says that

if someone examines this way of reasoning carefully, he will realize, not only that it leaves room for doubt to some extent, but also that we could, in this way, never be certain that we exist and that we live and comprehend. For although we would indeed be certain that these acts originate from some power and exist in some subject, how are we to know, by means of this, that we are this subject and that this power is ours?35

The inference of the Peripatetics would only succeed, Olivi thinks, in proving that there is a subject of these acts, not that I am this subject. That is, the Peripatetics are unable to refute the Averroists, since the inference leaves unsettled what the nature of this subject of thought actually is. The root of the problem, according to Olivi, is the assimilation of self-knowledge with other forms of knowledge.

Olivi takes seriously the Augustinian remark that “nothing is more present to the mind than itself.”36 But at the same time, he betrays Augustine by importing the notion of subjecthood into the discussion, saying that “the subject is apprehended before the predicate is attributed to it as such.”37 In self-knowledge, we do not have to infer ourselves as the subjects in which our acts inhere, but have a direct awareness of ourselves as the subjects of our acts.38 Olivi explains it in the following way:

For I never apprehend my acts, that is to say, acts of seeing and of speaking, and so on, except by this, that I apprehend myself seeing, hearing, thinking, and so on. And in this apprehension, the apprehension of the subject itself seems to precede, in the natural order of things. And hence, when we want to convey this to others we put the subject [suppositum] itself first by saying: “I think this” or “I see this,” and so on. […] But our acts are not apprehended by us except as being predicated or attributed to us. Indeed, when we apprehend our acts through a certain inner sense, we almost experientially distinguish between the acts themselves and the substance from which they originate and in which they exist. And thus, we sensibly perceive that they originate from and depend on it, not it on

35 Olivi, Impugnatio quorundam articulorum, 457 (my trans.): “Si quis autem bene inspexerit istum modum, reperiet quod non solum potest in eo contingere aliqua dubietas, sed etiam quod nuncquam per hanc viam possimus esse certi nos esse et nos vivere et intelligere. Licet enim certi simus quod illi actus manant ab aliqua potentia et sunt in aliquo subiecto, unde per hoc sciemus quod illud subiectum sumus nos et quod illa potentia est nostra?”
36 Augustine, De Trinitate, bk. XIV, iv, 7: “nec menti magis quidquam praesto est quam ipsa sibi[…]”
37 Olivi, Impugnatio quorundam articulorum, 457–58 (my trans.): “prius apprehenditur subiectum quam predicatum ei attributum in quantum tale.”
38 It should be noted that arguments defending a primitive form of self-awareness preceding reflection are found in medieval philosophy at least as far back as Avicenna. See for example Kaukua, Self-Awareness in Islamic Philosophy, 72–75.
them, and that it is fixed and permanent in itself, whereas the acts themselves are in a continuous state of becoming.\(^{39}\)

In the model of the soul presented by Olivi, we see the ‘synthesis’ of the Peripatetic conception of acts as predicates attributed to subjects and the perichoretic principle of the immediate and certain knowledge of myself as the one who has these acts. The result is a model in which I can be certain of myself as the subject of my acts. In the soul, there is a specific form of relation between the subject and its acts that must be distinguished from both knowledge of external things and introspection.\(^{40}\) Through this self-relations, the soul has knowledge of its acts “by means of the immediate inward turn of its intellectual gaze.”\(^{41}\)

This non-introspective awareness is two-fold: the awareness of one’s states and the awareness of oneself as the subject of one’s states. When I see something, I am aware both of seeing (the act) the object, and that I (the subject) am the one seeing it. Aside from being directed at an object, I am aware both of the act and of being the subject of the act. And this awareness of oneself runs through one’s acts:

For no one is certain in knowledge of anything unless he knows himself to know it; that is, unless he knows that he himself is the one who knows it. And this certainty concerning the subject [supposito] flows universally through every apprehension of our acts.\(^{42}\)

The certitude of oneself as the subject or ‘supposit’ of one’s acts is a universal aspect of all our acts. And, as we saw Olivi saying above, we express this relation between act and subject through the first person pronoun. When I want to report my mental states to others, I put the ‘subject’ first, saying ‘I think this’ (ego hoc cogito) or ‘I see this’ (ego hoc video). In this way, I predicate the

\(^{39}\) Olivi, \textit{Impugnatio quorundam articulorum}, 457–58 (my trans.): “Nunquam enim apprehendo actus meas, actus scilicet videndi et loquendi et sic de aliis, nisi per hoc quod apprehendo me videre, audire, cogitare et sic de aliis. Et in hac apprehensione videtur naturali ordine preire apprehensionem ipsius suppositi. Unde et quando volumus hoc aliis annunciaire, premittimus ipsum suppositum dicentes : ego hoc cogito vel ego hoc video, et sic de aliis. […] Actus autem nostri non apprehenduntur a nobis nisi tamquam predicata vel nobis attributa ; quando etiam nos apprehendimus nostros actus quoddam interno sensu et quasi experimentaliter distinguimus inter substantiam a qua manant et in qua existunt et inter ipsos actus ; unde et sensibiliter percipimus quod ipsi manant et dependent ab ea, non ipsa ab eis et quod ipsa est quoddam fixum et in se manens, ipsi vero actus in quodam continuo fieri.”

\(^{40}\) On the distinction between self-awareness and introspection in Olivi, see Brower-Toland, “Olivi on Consciousness and Self-Knowledge,” pt. 2.

\(^{41}\) Olivi, \textit{Quaestiones in secundum librum sententiarum}, q. 76, 146 (my trans.): “per immediatam conversionem sui intellectualis aspectus[…]”

\(^{42}\) Olivi, \textit{Impugnatio quorundam articulorum}, 457 (my trans.): “Nullus enim est certus scientialiter de aliquo nisi sciat se scire illud, hoc est nisi sciat quod ipse est ille quod hoc scit. Et hec certitudine de supposito currit universaliter in omni apprehensione actuum nostrorum.”
act to myself as the subject in which it exists. The grammatical habit of indicating the person (which is not required in Latin, since it is contained in the verb) is thus assigned a metaphysical significance by being understood as an indication of the substance in which something inheres. What we have here, then, is a theory of mind in which the ‘I’ functions both as a subject of attribution (‘I see this’) and as a subject of inherence (that in which the act exists), and furthermore in which the apprehension of this subject precedes the apprehension of the act. As we will see, all these aspects are crucial in the Kantian theory of the subject.

To summarize, we find in Olivi’s fusion of subjecthood and the certitude of self-awareness a clear example of what de Libera calls the modern subject. In the next section, we will begin to move towards the Kantian analysis of this subject. Contrary to de Libera, who sees in Kant a reversion to an older, Thomistic position on these issues, I will argue that Kant is at one and the same time a proponent of this ‘modern’ conception of the subject and a fierce critic of the ontological claims made on its behalf. Kant conceives of the ‘I’ as both the vehicle of self-awareness and as the subject of predication, but denies that we express an apprehension, experience or intuition of the substrate in which all our mental states inhere through the little word ‘I’.

The Subject of Thought

In this section, I will analyze the more immediate background to Kant’s conception of the subject. First, I will begin by arguing that the pre-critical Kant is a proponent of ‘the modern subject,’ and I will then briefly consider de Libera’s claim that Kant later rejected this position and instead became a proponent of a Thomistic conception of the subject of thought. Secondly, I will briefly survey Early Modern problematizations of the ‘subject of thought,’ which were concerned with the problem of materialism. Thirdly, I analyze how the problems of self-awareness and subjecthood are conceived by Christian Wolff, Andreas Rüdiger, Johann Nicolas Tetens, and Alexander Baumgarten. I will return here to Wolff’s influential conception of awareness in order to study how the issue of self-awareness is understood on the basis of this conception. Further, I will argue that the notion of the ‘subject’ invoked in these discussions still operated in a traditional ontological register. Moreover, we will see that the ‘I’ does not have a privileged place in Wolff’s conception of self-awareness.

Is the Pre-Critical Kant a Proponent of the ‘Modern Subject?’

De Libera claimed that the model of the soul opposed by Kant in his critique of rational psychology is the model that emerged in the Middle Ages as a synthesis of the rival Aristotelian and Augustinian conceptions of the soul. In
this model, we recall, the ‘I’ was understood in a double way, as both the subject of which a thought or sensation is predicated and as the subject in which that which is predicated inheres as an accident. The ‘I’ is thus interpreted through the lens of what de Libera calls ‘subjecthood.’ But this is only one side of the story, for this ‘I’ which is the subject of its acts or accidents is at the same time also a subject that is able to apprehend itself, in an almost experiential way, as the subject of its acts: that is, a subject not inferred by means of reason as a necessary substrate, but one which is immediately present to itself.

Up to and throughout the 1770s, the pre-critical Kant himself used to offer his students exactly the kinds of arguments about the nature of the soul that he later rejected; his critique is thus also a self-critique. A quick look at the pre-critical Kant’s lectures on psychology corroborates de Libera’s claim that the model of the soul that Kant later criticizes is that of the ‘modern subject.’ First of all, we find Kant applying the language of subjecthood, saying that the ‘I’ is “an absolute subject, to which all accidents and predicates belong” and, furthermore, that it is a “substrate in which all accidents inhere.” Secondly, Kant conceives the relation between this I-subject and its accidents or predicates in a perceptual manner, saying that “in myself I intuit the substance immediately.”43 We will return to this pre-critical position more extensively below, but from this brief account we can at least draw the conclusion that in the 1770s, Kant was a clear proponent of the ‘modern subject,’ combining a subject of psychological predicates with a quasi-perceptual relation between this subject and its acts.

It is precisely the metaphysical foundation of this doctrine of the soul that Kant rejects in his critique of rational psychology (to which de Libera refers) in the *Kritik der reinen Vernunft*:

> At the ground of this doctrine we can place nothing but the simple and in content for itself wholly empty representation ‘I,’ of which one cannot even say that it is a concept, but a mere awareness that accompanies every concept. Through this I, or He, or It (the thing), which thinks, nothing further is represented than a transcendental subject of thoughts = X, which is known only through the thoughts that are its predicates.44

One could read this as saying that the ‘I’ in which all our thoughts inhere cannot be known in itself, but only through the acts or accidents it exhibits.

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43 Kant, *Metaphysik L1*, AA XXVIII, 225–26: “ein absolutes Subject, dem alle Accidenzen und Prädicate zukommen können”; “Substratum, was allen Accidenzen inhäriret”; “in mir schaue ich die Substanz unmittelbar an.”

44 Kant, *Kritik der reinen Vernunft*, A345–46/B403–4 (trans. mod.): “Zum Grunde derselben können wir aber nichts anderes legen, als die einfache und für sich selbst an Inhalt gänzlich leere Vorstellung: Ich, von der man nicht einmal sagen kann, daß sie ein Begriff sei, sondern ein bloßes Bewußtsein, das alle Begriffe begleitet. Durch dieses Ich oder Er oder Es (das Ding), welches denkt, wird nun nichts weiter als ein transscendentales Subject der Gedanken vorgestellt = X, welches nur durch die Gedanken, die seine Prädicate sind, erkannt wird[…].”
On such a reading, our relation to ourselves as substances would be the same as our relation to all other substances, since substances generally can only be known through their positive features. Kant would then be seen as rejecting the immediate relation that he had earlier taken us to have in relation to ourselves. This is how de Libera interprets Kant, and he proposes that “Kant in fact sustains a certain medieval theory: the theory of the knowledge of the subject through its acts, the Thomistic or Thomistic theory, based on the epistemic principle of ‘knowledge of the soul through its acts’.”

This would mean that we can only conjecturally infer the ‘I’-substrate as the subject in which all our representations inhere. Kant’s position would then come close to that of Catharine Trotter Cockburn, for example, who argues, in a critique of Isaac Watts, that “actions and abilities […] seem unavoidably to imply some subject of them, some being, that exerts its power in different ways of acting.” Although confessing her ignorance of “what the substance of that being is,” she nevertheless considers it necessary to assume its existence.

I believe that this is an incorrect reading of what Kant is proposing when he rejects the view that we can intuit the substantiality and unity of the ‘I.’ There are surely passages where Kant ponders the possibility of a shared substrate of matter and thought (a substrate of which both matter and thought would be appearances) which would constitute man as a unified being. Such a substrate would lie beyond the limits of possible experience. Kant’s point in these considerations, however, is that those of his predecessors who advance arguments for the simplicity of the soul to counter materialism make the mistake of considering matter to be a thing in itself. “If matter were a thing in itself, then as a composite being it would be completely distinguished from the soul as a simple being.” But it is not; and just as matter is not a thing in itself, the unity of thought is not that of a unitary substance. Both notions trade on a misconception.

I will argue that such a substrate of appearances is not what Kant has in mind when he invokes the ‘I’ as a transcendental subject, and that de Libera’s interpretation consequently fails to recognize the specific way in which Kant actually furthers the modern subject by proposing an intellectual conception of

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45 de Libera, L’invention du sujet moderne, 175.
46 Trotter, “Remarks upon Some Writers,” 101. Trotter took Watts to be denying the need to posit a subject for every act or power. Actually, Watts did not deny the need for a subject per se, but only one that is distinct from extension and thought. That is, he opposed the idea of an “unknown Cause and Subject” responsible for the subsistence of the properties of spirit and matter (Watts, Philosophical Essays on Various Subjects, 51–53).
47 Kant, Kritik der reinen Vernunft, A359: “Wäre Materie ein Ding an sich selbst, so würde sie als ein zusammengesetztes Wesen von der Seele als einem einfachen sich ganz und gar unterscheiden.” On the issue of materialism in Kant’s paralogisms, see Wunderlich, “Kant’s Second Paralogism in Context”; and on materialism in Germany more generally, see Rumore, “Mechanism and Materialism in Early Modern German Philosophy”.

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the self-relation that man has to his acts (as opposed to the experiential self-relation that his predecessors and he himself earlier had defended).

This alternative conception of the awareness that the subject has of itself is expressed in Kant’s doctrine of pure apperception. The literature on what pure apperception amounts to for Kant can be divided roughly into three main categories: (i) those who argue that apperception is not an act of knowledge, but rather an expression of thought; 48 (ii) those who argue that apperception is a form of empirical knowledge; 49 and (iii) those who argue that apperception is a form of non-empirical knowledge, close to (or in fact the same as) an intellectual intuition. 50 In what follows, I will argue that the ‘I’ of self-awareness does not express an empirical or intuitive awareness, but a purely intellectual awareness. 51 In the interpretation proposed in the remainder of this chapter, I align myself with those who read pure apperception as an expression of thought only; it is fundamentally discursive, although, as we will see, the status of the ‘I’ as a concept remains problematic. But to get to there, we need a better understanding of the intellectual setting in which Kant’s thought was formed. To this context we will now turn.

Materialism and the Question of the Subject of Thought

The Early Modern period had its own debate on the question of the ‘subject of thought.’ This was not a quarrel between the followers of Aquinas and Averroes, but was an argument over the validity of materialism. It asked the question: Can matter think? From Thomas Hobbes’s early invocation of matter as the subject of thought in his ‘Objections’ to Descartes’s Meditationes, through John Locke’s reflections on the possibility of thinking matter, and down to Kant’s notion of the ‘transcendental subject,’ the notion of ‘subject’ was repeatedly applied in relation to thought (in the comprehensive sense used by Descartes). 52 The notion of ‘subject’ invoked in these discussions is not the notion with which we are familiar, however; for them, the question of the ‘subject’ of thought is one of the substrate of thought. And this substrate can only be understood within the traditional logical, physical or ontological framework, where a subject is that in which something inheres as an accident. The disagreement between them concerned whether this subject-substrate is

48 See, for example, Allison, Kant’s Transcendental Idealism, 1983, 273–78; Bossart, Apperception, Knowledge, and Experience, 24–25
49 See, for example, Kitcher, Kant’s Transcendental Psychology, 139–40.
50 See, for example, Frank, “Fragmente einer Geschichte der Selbstdbewußtseins-Theorie von Kant bis Sartre,” 424–26; Henrich, Identität und Objektivität, 58–59.
51 See Kant, Kritik der reinen Vernunft, Bxl.
52 For Hobbes’s objection, see Descartes, Meditationes de prima philosophia, AT VII, 172–74; and for Locke’s discussion, see Locke, An Essay Concerning Humane Understanding, bk. 4, chap. 3, §6. On the intellectual climate in which both Hobbes’s and Locke’s views on the soul were formed, see Thom-son, Bodies of Thought, chap. 2.
material or immaterial, composite or simple, destructible or indestructible. Given the nature of thought, they asked, what must its subject be like?

When we come to Kant, it may seem as if the notion of ‘subject’ has been transformed into our modern-day notion. But what Kant calls the ‘transcendental subject’ is crucially different from that of Edmund Husserl, for example. For Husserl, transcendental subjects are individual and yet at the same time responsible for “the constitution of the world.”53 Kant’s transcendental subject is not constitutive in this sense; it is not that which is responsible for the constitutive operations described by transcendental philosophy, but is itself one of those operations. To my knowledge, Kant never uses the expression ‘the transcendental I,’ but rather says that the operation expressed through the everyday word ‘I’ functions as the transcendental subject of all our thoughts. In saying this, Kant explicitly uses the logical sense of ‘subject’: the transcendental subject is a transposition of the question of the substrate of thought from the physical or ontological level to the transcendental level, that is, to the level of conditions of thought and knowledge.

But just as we should beware of reading the Kantian subject as pointing in the direction of his successors (such as the phenomenologists), so should we be careful not to read his predecessors as directed towards him.54 The relation between the ‘I’ and the ‘subject of thought’ is not a given. First of all, with what is the ‘subject’ to be identified? Does it refer to the soul (or mind) or to the body? That is, is the soul itself the subject of thought or is the body the subject of the soul? Or does ‘soul’ in fact refer to the body itself, or some part of it (such as the brain)? Depending on the position that one takes on these issues, we could be said either to be souls or to have souls (or minds), and the soul could either be the subject of thought or else have the body, or some part of it, as its subject.55 Secondly, it is not given that such discussions of the relation between thought and its subject must invoke the question of the ‘I.’ One can treat the question the nature of the subject of thought without taking this to be a question of about the ‘I.’56 Thirdly, even self-awareness need not be approached through the ‘I.’ When Wolff treats self-awareness, for exam-

54 Udo Thiel, who knows these discussions better than most, notes that “in eighteenth-century thought, there is no development ‘towards’ a Kantian notion of apperception as the goal. Rather, there is a variety of views, and there is a lively discussion about the notion of apperception” (Thiel, “Kant’s Notion of Self-Consciousness in Context,” 474).
55 For such a complicated discussion of the ‘thinking subject,’ see for example Hennings, *Geschichte von den Seelen der Menschen und Thiere*.
56 See, for example, Knutzen, *Philosophische Abhandlung von der immateriellen Natur der Seele*, pt. 1. Martin Knutzen’s objective is to refute materialism, and he argues that awareness requires a unitary subject, which is incompatible with it being material. On Knutzen’s argument, see Thiel, *The Early Modern Subject*, 329–30; Wunderlich, *Kant und die Bewussteinstheorien des 18. Jahrhunderts*, 47–49.
ple, he writes in terms of a ‘we,’ presumably because he takes himself to express things that anyone can recognize. As we will see, for Wolff, self-awareness is a matter of the mind’s knowledge of itself, and he does not seem to think that the word ‘I’ is of much importance in this context. He does not, as Kant later did, single out the ‘I’ as the very expression of self-awareness.

It was only around 1770 that the expression *das Ich* became common in German. Before that time, the nominalization is rarely encountered. Ten years later, however, *das Ich* is everywhere – in anthropology, literature, psychology and philosophy. It became part of a conception of selfhood that opposed the ‘I’ as the core of the person to all his other features. In this broad discussion, Kant should be read as trying to formulate a conception of what it is to be a person. In so doing, he connects the issue of the subject of thought, that of the unity of self-awareness (which had been used in arguments against materialism) and the ‘I’ as the centerpiece that holds everything together.

There are, however, several stages in this development of Kant’s conception of the ‘I’, two of which are worth mentioning in this context. First, we have Kant’s discovery of the question of the ‘I’ as a unitary subject of thought, which probably happened sometime in the early 1770s. At this early stage, Kant took the ‘I’ to refer to a mental substance. In the second stage, Kant discovered the paralogisms – that is, the illusion involved in his former reification of the ‘I’ as a substance – and this required a notion of apperception freed from the notion of a substantial ‘I.’ This probably occurred sometime between 1779 and 1780, and it is this view that is presented in *Kritik der reinen Vernunft.*

As Corey W. Dyck has convincingly argued, Kant’s critique of the paralogisms of rational psychology should not be read as primarily in opposition to rationalist titans such as Descartes or Leibniz, but should rather be understood as an engagement with the vibrant psychological discussion that came in the wake of Wolff’s dual project of empirical and rational psychology. This tradition is not only important for understanding the model of the soul that Kant opposes, and thus how his arguments against it are to be read, but

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57 See also his proof that ‘we exist’ (Wolff, *Vernünftige Gedanken von Gott*, §§5–6; *Psychologia empirica*, §§14, 16).


59 See Klemme, “Kants Wende Zum Ich”. Peter Baumanns argues that Kant was concerned with the relation between the ‘I,’ judgment and knowledge already in the early 1760s (see Baumanns, *Kants Philosophie der Erkenntnis*, esp. 53–56), but as Heiner F. Klemme notes, the evidence that Baumanns adduces only mentions ‘inner sense,’ not the ‘I’ (see Klemme, “Kants Wende Zum Ich,” 509, n. 5).

60 On Kant’s ontological conception of the ‘I’ in the 1770s, see, for example, Carl, *Der schweigende Kant*, 88–102; Zobrist, *Subjekt und Subjektivität in Kants theoretischer Philosophie*, chap. 1.

61 See Brandt, *Die Urteilstafel*, 107; Carl, *Der schweigende Kant*, 116–18.

it is also crucial for understanding Kant’s alternative conception. In the remainder of this chapter, I will examine the development leading up to Kant’s mature conception of the ‘I.’ I will start with Wolff’s influential conception of awareness, to see how the issue of self-awareness is construed. I will also investigate what role, if any, the notions of the ‘subject’ and the ‘I’ have in this discussion.

Christian Wolff on Self-Awareness and the Subject

In the aftermath of Kantian philosophy, as we saw above, the notion of the ‘subject’ increasingly came to acquire the meaning of a sensing, knowing and willing being, and this drift of the traditional logical or ontological notion towards a psychological notion seems to have been driven, to a great extent, by the immense impact of Kantian philosophy. The opposition of the subject to the object has become almost second nature to us today; yet, in the broad psychological tradition emanating from Wolff’s dual project of empirical and rational psychology, the notion ‘subject’ did not have a privileged place in relation to the soul or mind, although it was used in its traditional sense.63

When Wolff first presented his psychology, the soul was identified as a ‘substance’ (that is, “a thing subsisting for itself”64), but not as a ‘subject.’ The latter was perhaps implied, since later, in his Latin works, Wolff defines a substance as a “perdurable and modifiable subject.”65 However that might be, the notion of ‘subject’ here is still working in a traditional ontological register, identifying the substance in which accidents or modifications inhere. Wolff therefore has no problem identifying the body as “the subject (subiectum) of sickness.”66 For him, the soul is simply a subject to the extent that it is a substance among other substances. Yet, it is a subject with the capacity for both awareness and self-awareness (but subjecthood has no privileged relation to self-awareness).

As we saw in Chapter One, Wolff formulated a conception of awareness (Bewusstsein) that became widely influential in the eighteenth century. On this account, awareness is always an awareness of objects, and we become aware of an object when we distinguish it from other objects. This means that awareness is not a primitive property of representations, but differential; that is, one can never be aware of something in isolation, since things must be related so as to be distinguished from each other. On the basis of this model, self-awareness is conceived as being attained through a continuous process

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63 On this tradition, see Ibid.
64 Wolff, Vernünfftige Gedancken von Gott, §743 (my trans.): “ein vor sich bestehendes Ding”. This is Wolff’s German expression for substantia, according to the book’s register of technical terms.
65 Wolff, Philosophia prima, sive Ontologia, §768 (my trans.): “Subjectum perdurabile & modifiable[...].”
66 Wolff, Gesammelte kleine philosophische Schrifffen, 484 (my trans.): “der Unterwurff (subiectum) der Krankheit[...].”
of differentiation. First, we become aware of an object by distinguishing it from other objects. Secondly, we become aware of the act of distinguishing itself. Thirdly, we become aware of ourselves as the subject in which this act inheres as a modification.\(^\text{67}\) “The soul is aware of itself insofar as it is aware of its modifications,” Wolff writes.\(^\text{68}\)

This awareness that the soul has of itself is achieved through what Wolff, borrowing a term from Leibniz, calls ‘apperception’ or occasionally ‘inner sense.’\(^\text{69}\) “The mind is said to ‘perceive’ when it represents some object to itself,” Wolff explains, and it apperceives “insofar as it is aware of its perception.”\(^\text{70}\) Whereas perception is awareness of an object, apperception is awareness of this act of perceiving as an act. Next, “we perceive […] apperception” itself as an act and thereby “we […] distinguish ourselves as the perceiving subject from objects that are perceived, recognizing undoubtedly the perceiving subject to be something different from the perceived thing.”\(^\text{71}\) In other words, when we become aware of this act, we also become aware of ourselves as the ones performing the act, as the subject of the act (in the ontological sense), and thereby distinguish ourselves from the objects we perceive insofar as we are a subject or substance that perceives objects.

Andreas Rüdiger

It becomes evident that the notion of ‘subject’ here is still working in a physical or ontological rather than a psychological framework when we turn to one of Wolff’s early critics, the Pietist physician Andreas Rüdiger, who wrote a page by page commentary on Wolff’s rational psychology.\(^\text{72}\) In an argument that brings Hobbes’s early critique of Descartes to mind, Rüdiger rejects Wolff’s conception of the soul as an immaterial substance or ‘subject,’ arguing that his opponent has mistaken an abstraction for a substance. Invoking Aristotle, Rüdiger argues that the soul is not a substance, but the form of the


\(^\text{68}\) Wolff, Psychologia rationalis, §12 (my trans.): “Anima sibi sui conscia est, quatenus sibi conscia est suarum mutationum”.

\(^\text{69}\) Wolff, Philosophia rationalis sive Logica, pt. 1, §31 (my trans.): “The mind is aware of that which takes place in itself – if not of everything, then at least of some things – and thus it perceives itself as if by an inner sense.”

\(^\text{70}\) Wolff, Psychologia empirica, §§24–25 (my trans.): “Mens percipere dicitur, quando sibi objectum aliquod repraesentat”; “quatenus perceptionis sue sibi conscia est.” For Leibniz’s corresponding distinction, see, for example, Leibniz, Principes de la Nature et de la Grace, fondés en raison, 600; and for a discussion of the difference between Leibniz and Wolff on this matter, see Dyck, “A Wolff in Kant’s Clothing,” 45–46.

\(^\text{71}\) Wolff, Psychologia rationalis, §12 (my trans.): “apperceptionem […] percipimus”; “nos […] tanquam subjectum percipiendi ab objectis, quae percipientur, distinguimus, agnoscentes utique percipiendos subjectum esse quid diversum a re perpecta.”

\(^\text{72}\) That is, on the fifth chapter of Wolff’s Vernünfftige Gedanken von Gott, der Welt und der Seele des Menschen.
body. When considered only as a form or power, the soul can be said to be immaterial, since it is then considered in abstraction from its material substrate. But under this mode of consideration, it is neither a substance nor subject, but “a mere thought.” When the soul is considered as an essential part of man, however, it is material because it is the form of man as a bodily being. “Thus, I no doubt regard the subject of the soul as material, but the soul itself, insofar as it is taken for the form of the body, I regard [...] as immaterial.”

For Rüdiger, the soul is simply an immaterial power of a material being, and the fault of the immaterialists is that they fail to see that, considered apart from the body, the soul is a mere abstraction and thus cannot subsist for itself. Furthermore, this hypostatization is responsible for the problem of the interaction of soul and body, since it is incomprehensible how an immaterial substance (if there ever was such a thing) could affect or be affected by a material substance. Rüdiger thinks that this is the reason why Wolff has to opt for the hypothesis of pre-established harmony. Since the soul is abstracted from matter, the problem of connecting it with the latter is illusory. In the end, it is not the interaction between a material and immaterial subject that is incomprehensible, but rather the very notion of an ‘immaterial subject’ itself.

In this dispute, both Wolff and Rüdiger can speak in terms of the ‘subject’ of our mental capacities, since ‘subject’ is used in the traditional ontological register. For both, there must be some subject in which these capacities inhere, although they disagree over its precise nature. There is no privileged relation between the notion of the subject and the capacities of mind, and moreover, neither of them sees the need to invoke the ‘I’ in the discussion.

Johann Nicolaus Tetens

If we move forward a few decades, to Johann Nicolaus Tetens’s Philosophische Versuche über die menschliche Natur und ihre Entwicklung (Philosophical Essays on Human Nature and Its Development, 1777), we find the ‘I’ introduced into the discussion of the subject of thought. In the spirit of the time, having just discovered the question of das Ich, Tetens asks: “What is the ‘I,’ which senses, thinks and wills?” Were we to attempt to answer this question only by means of experience, unaided by reason, he writes, our best answer would be that

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73 Rüdiger, Herrn Christian Wolffens Meinung von dem Wesen der Seele und eines Geistes überhaupt, und D. Andreas Rüdigers Gegen-Meinung, §8 (my trans.): “eine blosse Gedancke[…].”
74 Ibid., §26 (my trans.): “Ich halte also zwar das Subjectum der Seele pro materiali, die Seele selbst, aber, so ferne sie pro forma corporis genommen wird, halte ich [...] pro immateriali […].”
75 Ibid., §27.
76 Ibid., §13. For a discussion of Rüdiger’s notion of substance, see Schepers, Andreas Rüdigers Methodologie und ihre Voraussetzungen, 63–72. On Wolff’s reception of the idea of pre-established harmony, see Lorini, “Receptions of Leibniz’s Pre-Established Harmony”.

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“it is a human being, the sensing, thinking and willing whole, the ensouled brain.”77 In other words, the natural thing for us is to identify man as the sensing, thinking and willing being. Only through the combined use of reason and experience can we infer that, in addition to the organs of our body, there is in us also “a being that no doubt works in connection with the former, but is an individual thing that subsists for itself, or a substance, which we call the ‘soul’ in the psychological sense or the ‘I.’”78 Through reason, we can identify a second sense of ‘I,’ the immaterial soul, and only in this way can we distinguish the material from the immaterial, and identify the dual nature of man. Every representation has two sides to it: it exists as a “modification of my ‘I’” and, at the same time, as a “modification in my brain,” Tetens explains, and concluding that “the soul is thus a thing wherein something is as a property in a subject.”79

Yet, even when Tetens calls the soul – “my ‘I’” – a ‘subject,’ he still invokes the concept in a traditional ontological register. “As soon as we represent a property of a thing to ourselves as something actual, we think of it as a subject, or thing, to which the property, that is to say the actuality, belongs.”80 Beginning from experience, the natural thing would thus be to identify man as the subject of thought, as the ‘thing’ to which the actuality of thought belongs. Only through the use of reason can the soul, as an individual substance distinct from the body, be identified as the subject of thought. But it is a ‘subject’ only in the sense of being the thing in which thought, properly speaking, inheres “as a property in a subject.”

Wolff, Rüdiger and Tetens all exemplify the general tendency in eighteenth-century German psychology to use the concept subject in discussions of the soul or mind. But as we have also seen, the concept thus applied still works in the traditional ontological or physical register, identifying a substrate of accidents or modifications. This is evident from the fact that the concept can just as well be applied to bodies. Among the three, Tetens stands out as someone who explicitly invokes the ‘I’ in the discussion. That Tetens is writing in the 1770s is significant, since, as we saw above, it was only at this time that the nominalization of the ‘I’ became common in German.

77 Tetens, Philosophische Versuche, 2:169 (my trans.): “Was ist das Ich, welches empfindet, denket, will?”; “es ist ein Mensch, das empfindende, denkende und vollende Ganze, das beseelte Gehirn.”
78 Ibid., 2:158 (my trans.): “ein Wesen, das zwar in Vereinigung mit jenen wirkt, aber für sich ein eigenes bestehendes Ding oder eine Substanz ist, die wir die Seele in psychologischer Bedeutung oder unser Ich nennen.”
79 Ibid., 2:218 (my trans.): “Modifikation meines Ichs”; “Modifikation in meinem Gehirn.”; “Die Seele ist also ein Ding, worinn etwas ist, als eine Beschaffenheit in einem Subjekt.” Both of these – my ‘I’ and my brain – are called mine in the everyday sense in which ‘I’ refers to the whole human being.
80 Ibid., 1:396 (my trans.); “so bald wir auch eine Beschaffenheit einer Sache, als etwas wirkliches uns vorstellen, gedenken wir sie als ein Subjekt, oder Ding, dem eine Beschaffenheit, die Wirklichkeit nemlich, zukommt[…].”
Retrospectively, this last development might seem inevitable to us, but Wolff, Rüdiger and others in the earlier generation apparently saw no need for the ‘I’ in these discussions. As we saw above, when describing the capacities of the mind or soul in his empirical psychology, Wolff usually speaks in the plural (“we distinguish”) or simply of the mind itself (“the mind perceives”), even if he occasionally uses ‘I,’ such as when he describes the process of awareness in general (“I am aware that I see the mirror”). The notion of the ‘I’ seems to play no significant role in these discussions, and there is no sign in Wolff’s discussion of self-awareness that he would, like Kant, single out the ‘I’ as the very vehicle of self-awareness and personhood.

Alexander Baumgarten

When we arrive at Baumgarten, whose *Metaphysica* (Metaphysics, 1757) Kant used in his lectures on psychology, something seems to have changed. In his empirical psychology, Baumgarten uses ‘I’ instead of ‘we,’ and Dyck argues therefore that whereas Wolff had focused “on what we can observe of the soul […], Baumgarten limits observation to the case of the I (ego), or my soul, in particular.” Dyck thinks that “The I, its nature, various effects, and relation to the body, are the proper topics of empirical psychology.” But is writing in the first-person singular the same as having the ‘I’ as one’s object of study? And if that is so, would not Wolff have had the ‘we’ as his object?

Baumgarten defines psychology as “the science of the general predicates of the soul” and divides it into empirical and rational psychology. The former, he says, bases its knowledge on the “experience that is nearest to hand,” whereas the latter derives its knowledge from “the concept of the soul.” Both disciplines share the same object – the soul – but approach it in different ways. Now, the intimate ‘I’ disappears as soon as Baumgarten turns from empirical to rational psychology, where he instead speaks of “the human soul.” Speaking in the first-person singular in empirical psychology thus seems to be an expression of the fact that it deals with that which is “nearest to hand.” It is Baumgarten’s language of observation, so to speak; but does this mean that the ‘I’ itself is the object of study? Not necessarily. If it is an expression of Baumgarten’s language of observation, then it does not really affect the object studied. Compare it to someone describing what he sees during a walk in the woods: ‘I see a fallen tree’ etcetera. This is not a description of the ‘I’ but of the object (the tree), although conveyed in the first-person singular. Baumgarten likewise speaks in the voice of the ‘I,’ but this does not mean that he speaks of the ‘I.’

81 Dyck, *Kant and Rational Psychology*, 46.
83 See Ibid., pt. 2, chap. 2, sect. 1: “anima humana”.

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Nevertheless, Kant reads Baumgarten precisely as Dyck does. In a reference to Baumgarten’s empirical psychology when introducing the topic of self-awareness and personhood in one of his lectures, Kant says that “our author here begins with the investigation of the ‘I,’ and we wish to follow him in this.” Kant then presents a view where the ‘I’ is seen as the expression of self-awareness, which is also constitutive of personhood. There is no indication of such a conception in Baumgarten’s text, however, and this is emblematic of how the question of self-awareness was retrospectively read through the notion of ‘the I.’ Although Baumgarten clearly think that the ‘I’ refers to the soul, this does not mean that the ‘I’ is the vehicle of self-awareness.

The Kantian Subject

In the third and final section of this chapter, I will turn to Kant. First, I will begin with Kant’s pre-critical understanding of the ‘I’ as the subject of thought. We will see that, in the 1770s, Kant conceived of the ‘I’ as a mental substance capable of having an intuitive awareness of itself as the substance or subject of its own acts. Kant’s position is a paradigmatic expression of the view that de Libera calls the ‘modern subject.’ While Kant develops this account when lecturing on Baumgarten’s Metaphysica, the position he presents seems to be of his own creation, projected back onto the tradition. In this respect, Kant’s later critique of the tradition thus seems to be a form of self-critique.

Secondly, I will turn to Kant’s mature conception of the subject. I will argue, against de Libera, who maintains that Kant assumes a Thomistic position on the nature of the subject of thought, that Kant continues to present something like a ‘modern’ conception of the subject. Further, I will argue that because he has a unified account of awareness, apperception does not constitute a separate form of primitive self-awareness. Pure self-awareness, or apperception, does not precede other representations, but is rather the act of unifying our representations in the thought of them as inhering in a common subject. This is not a perceived unity, but a unity of thought – it is completely intellectual.

84 Kant, Anthropologie Mrogoisis, AA XXV, 1215: “Unser Autor fängt hier mit der Untersuchung des Ichs an und wir wollen ihm darinn folgen[…].” Baumgarten’s discussion opens in the following way: “If there is something in a being that can be aware of something, that is a SOUL. Something exists in me that can be aware of something. Therefore a soul exists in me (I, a soul, exist).” (Baumgarten, Metaphysica, §504; trans. mod.)
The Pre-Critical Period

As the previous section has shown, one should not expect to find a unitary account of the subject even in the Wolffian tradition of psychology. The notion of the subject still operated in its traditional ontological register and the question of the ‘I’ was introduced only late into the discussion. Moreover, even when the ‘I’ is invoked, it is not conceived as an expression of self-awareness. In his critique of rational psychology, Kant is perhaps reacting more than anything to his own earlier view, which he projects onto the tradition. In this sense, Kant is perhaps both the inventor and the destroyer of this specific conception of the ‘modern subject’ in the German context.

Let us return to Kant’s lectures on psychology from the 1770s, where he presents arguments for the substantial nature of the soul, which I claimed made him a clear proponent of what de Libera calls the ‘modern subject.’ Here is what Kant says in more detail:

Substance is the first subject of all inhering accidents. But this ‘I’ is an absolute subject, to which all accidents and predicates can belong, and which cannot at all be a predicate of another thing. Thus the ‘I’ expresses the substantial; for that substrate in which all accidents inhere is the substantial. This is the only case where we can immediately intuit the substance. Of no thing can we intuit the substrate and the first subject; but in myself I intuit the substance immediately. The ‘I’ thus expresses not only the substance, but rather also the substantial itself. Indeed, what is still more, from this ‘I’ we have borrowed the concept which we have in general of all substances. This is the original concept of substances.85

We see clearly how the notion of subject is first invoked in its logical function, and then related to that of substance and substrate. Subject and substance are not identical concepts, however; subject and predicate express a formal relation between two concepts. Considered from a purely logical point of view, anything can function as a subject or predicate: although ‘green’ is the logical subject of the proposition ‘green is a color,’ this does not make it a substance (the judgment instead specifies its genus). When considered as a concept of something real, however, ‘green’ cannot be a subject, and here is where the categories substance and accident enter. Kant explains that they are “taken from the logical concepts of subject and predicate,” but specify them in a

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85 Kant, *Metaphysik L1*, AA XXVIII, 225–26: “Substanz ist das erste Subject aller inhärirenden Accidenzen. Es ist dieses Ich aber ein absolutes Subject, dem alle Accidenzen und Prädicate zukommen können, und was gar kein Prädicat von einem andern Dinge seyn kann. Also drückt das Ich das Substantiale aus; denn dasjenige Substratum, was allen Accidenzen inhäriert, ist das Substantiale. Dieses ist der einzige Fall, wo wir die Substanz unmittelbar anschauen können. Wir können von keinem Dinge das Substratum und das erste Subject anschauen; aber in mir schaue ich die Substanz unmittelbar an. Es drückt also das Ich nicht allein die Substanz, sondern auch das Substantiale selbst aus. Ja was noch mehr ist, den Begriff, den wir überhaupt von allen Substanzen haben, haben wir von diesem Ich entlehnt. Dieses ist der ursprüngliche Begriff der Substanzen.”
certain respect: “That which cannot exist otherwise than as subject is substance, what cannot exist otherwise than as predicate is accident.”

From the purely logical point of view, the nature of ‘green’ is irrelevant for the possibility of using it in judgments. But when it is subsumed under the genus of accident, it is identified with respect to its mode of existence. The categories specify different ways of being, and the subsumption of a concept under a category establishes a rule for how it can function in judgments directed at reality, or, as Kant says in the Kritik, a concept of experience is “nothing but a concept of the intellect in concreto.” Thus, whereas subject and predicate identify a logical relation, substance and accident identify ways of being; the substance is the “substrate of accidents” and accidents are “modes of the existence of substance.” Kant notes that ‘inherence’ might suggest an image of “the substance carrying the accidents, as if they were separate existences, but requiring a basis […] like a book in a bookcase.” They do not have an existence of their own, but are simply ways in which substances exist.

Generally, Kant argues that substances can only be known, or even thought, through their positive features; if we were to subtract all features, we would end up annihilating the concept itself. “For our intellect knows everything through predicates; we never know that which underlies the predicate.” In his pre-critical period, however, Kant made one significant exception to this rule: the case of the ‘I.’ While all other substances can only be recognized through their positive features, the ‘I’ is intuited in itself, prior to such determinations. Moreover, this ‘I’ is intuited in such a way that all of its modifications – thoughts, impressions, imaginations, etcetera – are intuited as modifications of this underlying substrate, as Kant argues in the passage cited above. The ‘I’ is the Urbild (‘original image’) of the concept of substance, and all other substances are only substances in a comparative sense. From our direct intuition of ourselves, we abstract a concept of the ‘I’ as a substance or substrate that underlies all modification, and by means of this concept other thinking beings or bodies can then be represented as substances.

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86 Kant, Metaphysik Morgenstern, AA XXIX, 769–70: “aus den logischen Begriffen des subiects und praedicats hergenommen”; “Das was nicht anders existiren kann wie das subject, ist substanz, was nicht anders existiren kann wie das praedicat, ist accidens.”
87 Kant, Kritik der reinen Vernunft, A567/B595 (trans. mod.): “nichts als ein Verstandesbegriff in concreto.”
88 Kant, Metaphysik Morgenstern, AA XXIX, 769–70: “substrat der accidentien”; “modi der Existenz der substanz”; “trüge die substanz die accidentien, sie wären aparte existentien, die nur einer basis bedürfen […] wie ein Buch im Bücherschrank.”
89 Ibid., AA XXIX, 771 (trans. mod.): “Denn unser Verstand erkennt alles durch praedicate; das, was dem praedicat zu Grunde liegt, erkennen wir nie.”
90 See also Kant, Kant’s handschriftlicher Nachlaß: Metaphysik, R3921.
91 See Zobrist, Subjekt und Subjektivität in Kants theoretischer Philosophie, 26.
It is this combination that makes the pre-critical Kant a clear proponent of a version of the ‘modern subject,’ combining subjecthood with self-awareness in such a way that the ‘I’ can perceive itself as the subject of its acts. But this is also the conception of the ‘I’ that Kant later rejects by questioning the intuitive or experiential relation that we supposedly have to this ‘I’-substrate.

The Critical Period

As we saw in Chapter One, like many of his contemporaries, Kant followed Wolff in taking awareness to be achieved by making distinctions. On Wolff’s account, self-awareness is thought to be attained through a continuous process of differentiation. First, we become aware of an object by distinguishing it from other objects. Secondly, we become aware of the act of distinguishing itself. Thirdly, we become aware of ourselves as the subject in which this act of distinguishing inheres as a modification. Wolff calls the awareness that the mind has of its acts ‘apperception’ or ‘inner sense,’ and apperception should therefore not be confused with an awareness of the subject performing the acts. This latter form of awareness – self-awareness – has no name of its own in Wolff’s system; rather, Wolff says, as we saw above, that self-awareness is achieved when “we perceive apperception” itself as an act, and thereby “distinguish ourselves as the perceiving subject from objects that are perceived, recognizing the perceiving subject to be something different from the perceived thing.” In other words, when we become aware of this act, we also become aware of ourselves as the ones performing the act, as the subject of the act, and thereby distinguish ourselves from the objects we perceive. The mind is a subject or substance that perceives objects.

Whereas Wolff and the tradition following him work with only one notion of apperception (the awareness of an act as an act), Kant distinguishes between ‘empirical’ and ‘pure’ apperception. What Kant calls empirical apperception seems close to what Wolff calls ‘apperception’ or ‘inner sense,’ whereby, as he says, “the mind is aware of that which takes place in itself.” Kant characterizes it in the following way:

The awareness of oneself in accordance with the determinations of our state in internal perception is merely empirical, forever variable; it can provide no standing or abiding self in this stream of inner appearances, and is customarily called ‘inner sense’ or ‘empirical apperception.’

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92 See Kant, Kritik der reinen Vernunft, B132.
93 Wolff, Philosophia rationalis sive Logica, pt. 1, §31 (my trans.): “Mens etiam sibi conscia est eorum, quae in ipsa contingunt…”
94 Kant, Kritik der reinen Vernunft, A107 (trans. mod.): “Das Bewußtsein seiner selbst nach den Bestimmungen unseres Zustandes bei der inneren Wahrnehmung ist bloß empirisch, jederzeit wandelbar, es kann kein stehendes oder bleibendes Selbst in diesem Flusse innerer Erscheinungen geben, und wird gewöhnlich der innre Sinn genannt, oder die empirische Apperception.”
We see that Kant here compares this form of apperception with what is “customarily called” inner sense, and describes it as an awareness of “our state in internal perception.” The states of which we are aware are in this respect simply modifications of ourselves. We are these states.

In this empirical awareness that we have of ourselves as objects of inner sense, “everything is in continual flux,” Kant writes, and empirical awareness in general, whether through inner or outer sense, “is by itself dispersed and without relation to the identity of the subject.” We are aware of different mental states through inner sense, and through outer sense we are aware of object, but in neither case do we experience an abiding self. What Kant denies is that we have any intuition or experience of an ‘I’-substrate in this flux of inner sense. The view he opposes is expressed well by his contemporary Tetens, who claims that we have an impression of the ‘I’ as that which “is the same throughout all of the particular changes that occur in the impression and the representation.” It is precisely this view of an intuitive relation to the ‘I’ that Kant rejects when he says that empirical perception “can provide no standing or abiding self in this stream of inner appearances.” This does not mean, however, that all we have is a Humean ‘bundle self,’ for empirical awareness itself “has a necessary relation to transcendental awareness (preceding all particular experience), namely, the awareness of myself, as original apperception.” The Humean characterization is only valid if we remain at the level of sensation.

‘Original’ Apperception

But now a problem emerges. The characterization of this transcendental awareness as both “original” and as “preceding all particular experience” seems to imply that this form of awareness is primitive, and does not arise from an act of distinguishing oneself from other acts. If, as we said in Chapter One, there can be no awareness in isolation, since awareness is constituted by making distinctions, then it seems as if this “original” awareness must of a particular kind, some immediate awareness that we have of ourselves, prior to all ‘modifications.’

95 Ibid., A381: “ist alles im continuirlichen Flusse”.
96 Ibid., B133: “ist an sich zerstreut und ohne Beziehung auf die Identität des Subjects”.
97 Tetens, Philosophische Versuche, 1:394/370: “ist bey allen besonderen Veränderungen, in der Empfindung und in der Vorstellung eben derselbige.”
98 Kant, Kritik der reinen Vernunft, A117, n. (trans. mod.): “hat aber eine nothwendige Beziehung auf ein transscendentales (vor aller besonderen Erfahrung vorhergehendes) Bewußtsein, nämlich das Bewußtsein meiner selbst als die ursprüngliche Apperception.”
99 This is how Dieter Henrich, for example, reads Kant: “It is not difficult to understand the sense in which this consciousness is original: it demonstrates the evidence of being beyond any doubt and of not being derivable from any other consciousness. It is this evidence which Descartes first claimed for the self-certainty of his thinking substance and which we are on that account accustomed to calling, for the sake of brevity, ‘Cartesian evidence.’” (Henrich, Identität und Objektivität, 58–59/164)
Although this may seem to be an obvious reading, the matter is more complicated. Kant also says that “without any empirical representation, which provides the material for thinking, the act ‘I think’ would not take place, and the empirical is only the condition of the application, or use of the pure intellectual faculty.” This suggests that there can be no occasion for the act of self-awareness, expressed through the ‘I,’ without some content of thought. Does the ‘I’ of self-awareness perhaps involve a differentiation from such empirical contents? The ‘originality’ of the awareness of pure apperception would not then be independent of other forms of awareness.

I would suggest that we understand ‘original’ in the same way as when Kant calls the categories “original pure concepts of synthesis,” in distinction from empirical concepts. Throughout the 1770s, in line with his predecessors, Kant conceived of the ‘I’ as an empirical concept acquired through intuition. And this is the view Kant opposes in the critical period. ‘Original’ means here that the concept is not derived from sensation. But this neither means that the ‘I’ is some primitive awareness over and above all states of inner perception, nor that the ‘I’ is inferred as the substrate of these states, as de Libera interprets Kant as saying. The character of originality attributed to the ‘I’ refers instead to its purely intellectual nature: “The awareness of myself in the representation ‘I’ is no intuition at all, but a merely intellectual representation of the self-activity of a thinking subject.” The ‘I’ is a pure “act of spontaneity.” I would therefore argue that Kant wants to retain something like the traditional structure of the ‘modern subject,’ combining subjecthood with self-awareness, while replacing the ‘perceived’ unity of this subject (as previously understood by himself and his predecessors) with a purely intellectual unity.

The ‘I’ must be an act of spontaneity because no combination or ‘synthesis’ of a manifold, whether of intuitions or concepts, can “come to us through the senses.” Combination is never perceived, but always brought about by the intellect: “we can represent nothing as combined in the object without having previously combined it ourselves.” This combination “can be executed only

100 Kant, *Kritik der reinen Vernunft*, B423, n.: “ohne irgend eine empirische Vorstellung, die den Stoff zum Denken abgibt, würde der Actus: Ich denke, doch nicht stattfinden, und das Empirische ist nur die Bedingung der Anwendung oder des Gebrauchs des reinen intellectuellen Vermögens.”
101 This has been pointed out by Thiel, who draws attention to the fact that Kant takes the synthetic unity of apperception to be fundamental, which presupposes that there is something to be synthesized. See Thiel, “Kant’s Notion of Self-Consciousness in Context,” 475.
103 See Kant, *Metaphysik L2*, AA XXVIII, 265.
104 For the same suggestion, see Wunderlich, *Kant und die Bewusstseintheorien des 18. Jahrhunderts*, 179.
105 Kant, *Kritik der reinen Vernunft*, B278: “Das Bewußtsein meiner selbst in der Vorstellung Ich ist gar keine Anschauung, sondern eine bloß intellectuelle Vorstellung der Selbstthätigkeit eines denkenden Subjekts.”
by the subject itself, since it is an act of its self-activity.”107 It may seem as if Kant is here treating the (transcendental) subject as the thing that performs these operations in some real sense, but we should rather understand the transcendental subject as itself one of these operations, namely, the operation that unites all operations and all representations in the thought of a subject in which all of them inhere. The ‘I’ combines representations as much as other acts of judgment, and must therefore also be an act of spontaneity rather than receptivity:

For the empirical awareness that accompanies different representations is by itself dispersed and without relation to the identity of the subject. The latter relation therefore does not yet come about by my accompanying each representation with awareness, but rather by my adding one representation to the other and being aware of their synthesis. Therefore it is only because I can combine a manifold of given representations in one awareness that it is possible for me to represent the identity of the awareness in these representations itself, i.e., the analytical unity of apperception is only possible under the presupposition of some synthetic one.108

The question is not whether all of my representations are part of a substantial unity in some ontological sense, but rather what being aware of them as together constituting a unity amounts to. For Tetens and the early Kant, the awareness of their connectedness was taken to be acquired by an intuition or experience of the substrate of which they are modifications. But in the critical period, Kant does not take the unity of awareness to be predicated on a discovery or perception of the substantial unity of all these states or representations; rather, this unity is something that is brought about. When we think ‘I see this,’ ‘I want this,’ ‘I feel this,’ we conceive all these states as predicates attributed to the same ‘I’ (which has them); in so doing, all these dispersed forms of awareness – of seeing, wanting, feeling – are brought together in a train of thought, which conceives them as all being features of one and the same subject (in the logical sense), the ‘I.’

Kant’s predecessors all agree that we have representations of all sorts, and that we conceive of them as inhering in something. Furthermore, they all concede that they can recognize the representations they have, which they also...

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identify as their representations. What they argue over is whether this ‘something’ – this subject – in which the representations inhere is material or immaterial, simple or composite, or if it perhaps is beyond the reach of our knowledge. As I read him, Kant’s point is that the very form of this thought – conceiving these representations as being properties of a subject – is what self-awareness amounts to. This is what it is to think the ‘I.’ We think of ourselves when we think of all our states as united in a subject, and the subject in which they are thus united, we call ‘I.’

We could compare the act of encompassing all these different states in the thought of an ‘I’ or a ‘soul’ to how we can think of all the changes that we perceive through our external senses as changes that ‘the world’ undergoes. We have no experience of the world as such, only of different objects in the world. But we can encompass these changing objects in thought, and think of them collectively as constituting the changing state of the world. The ‘world’ is then simply an idea of that which unifies all these objects; likewise, the soul or the ‘I’ is simply an idea of that which unites all the changing states of inner sense.

Intellectually, this is what we do when we become self-aware, whatever the substrate of this operation might be. Kant thinks that philosophers have mistaken the formation of a thought of such a subject or substrate in which all representations are united for the actual intuition of such a substrate. He addresses this mistake (which, as we have seen, was also his own) in his paralogisms. Regarding the paralogism of the substantiality of the soul, he writes that it:

imposes on us an only allegedly new insight when it passes off the constant logical subject of thinking as knowledge of a real subject of inherence, with which we do not and cannot have the least acquaintance, because awareness is the one single thing that makes all representations into thoughts, and in which, therefore, as in the transcendental subject, our perceptions must be encountered; and apart from this logical significance of the ‘I,’ we have no acquaintance with the subject in itself that grounds this ‘I’ as a substratum, just as it grounds all thoughts.109

Here Kant divorses the logical subject from the subject of inherence, saying that one cannot infer from the mere fact that something (the ‘I’) functions as the logical subject of a thought that it also is a ‘real’ subject of inherence, that is, an existing substrate in which the thoughts that are attributed to the ‘I’ exist as accidents or modifications. But why does Kant say that we have “no

109 Ibid., A350 (trans. mod.): “uns nur eine verm eintliche neue Einsicht aufhefte, indem er das beständige logische Subject des Denkens für die Erkenntniß des realen Subjects der Inhärenz aus- gibt, von welchem wir nicht die mindeste Kenntniß haben, noch haben können, weil das Bewußt- sein das einzige ist, was alle Vorstellungen zu Gedanken macht, und worin mithin alle unsere Wahr- nehmungen als dem transscendentalen Subjecte müssen angetroffen werden, und wir außer dieser logischen Bedeutung des Ich keine Kenntniß von dem Subjecte an sich selbst haben, was diesem so wie allen Gedanken als Substratum zum Grunde liegt.”
acquaintance” with the subject? Do we not know this subject precisely in its manner of appearing, through thoughts, perceptions and feelings? We saw earlier that Kant takes substances to be known through their positive features; are not these thoughts, perceptions and feelings precisely such positive features by which the substance of the soul can be known? Kant wants to distinguish here between perceiving a ‘state,’ such as a feeling or thought, and perceiving the ‘I’ itself. To understand why he says that we have no acquaintance with the subject, we have to understand how he conceives of our regular knowledge of empirical substances.

Knowing Substances

When we identify ordinary empirical substances, such as trees or houses, there are some features that we use to identify them as just trees or houses and other features that we consider to be changes that these trees or houses undergo: “If I declare a thing to be a substance in appearance, predicates of its intuition must be given to me previously, in which I distinguish the substratum (the thing itself) from that which merely depends on it.” The substance has to reveal itself empirically through its features and, as Robert Howell explains, this means that “a feature or property becomes or functions as a subject (and, correlatively, other features become predicates) simply by taking on a special role, namely, the role of being thought only as a subject or of being unchanging.” Which concept I use to think an object is not determined by the intuition itself, but is rather an act of thought, because the same intuition could be thought, say, by having the concept body or tree as the subject term of a judgment. Depending on which concept one chooses as the subject, certain features will take on the role of unchanging or essential features. This does not meant that these features cannot change, physically speaking, but only that they cannot change without the substance itself perishing. A tree destroyed by fire is no longer a tree, although the same thing, subsumed under the concept body, would remain a body.

If we return now to the ‘I,’ Kant’s problem is the following: the ‘I’ has no unchanging features of the kind just described, by which it can be identified. All thoughts, perceptions, impressions can undergo change. There is nothing in this ‘flux,’ as Kant called it, that is permanent throughout these changes by which the ‘I’ itself can be identified. It is like the idea of ‘the world’ described above, which also has no abiding features by which it can be identified, over and above the changes it undergoes. For this reason, Kant says that the ‘I’ “is

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110 Ibid., A399-400: “Wenn ich ein Ding für eine Substanz in der Erscheinung erkläre, so müssen mir vorher Prädicate seiner Anschauung gegeben sein, an denen ich das Beharrliche vom Wandeln von demjenigen, was ihm blos anhängt, unterscheide.” See also Kant, Kant’s handschriftlicher Nachlaß: Metaphysik, R4634, R4676; Prolegomena, AA IV, 333.

111 Howell, Kant’s Transcendental Deduction, 284. For a discussion of these issues, see Ibid., 283-85.
like the substantial, which remains behind after I have taken away all the accidents that inhere in it,” and which cannot itself be known in any way “since the accidents were precisely that whereby I was able to know its nature.”

Note that Kant does not say that the ‘I’ is a substrate in this sense, but only that it is empty in the same way that the thought of a substrate without any positive features is empty.

The reason why our thinking of the ‘I’ as a logical subject does not entail that the ‘I’ is a real substance is because the application of the concept substance requires something permanent (as specified in the schema). It is through permanent marks, as Howell explains above, that something is thought of as a substance. Without anything permanent, we cannot, so to speak, lay hold of the ‘thing’ that is supposed to undergo changes, and, consequently, we have no basis for applying the concept.

Is the ‘I’ a Concept?

But is the ‘I’ a concept, or at least discursive in some sense? Somewhat contradictorily, Kant sometimes describes the ‘I’ as a concept (or judgment) and sometimes as a representation that is “in content for itself wholly empty,” and about which one “cannot even say that it is a concept, but a mere awareness that accompanies every concept.” Hence, it seems uncertain if the ‘I’ is to be considered a concept at all, or if its emptiness makes it something other than a concept, perhaps some other kind of primitive awareness. There is, I think, a way to account for both of these claims, whereby the ‘I’ belongs to the field of the discursive, while not itself being a concept in the full sense.

Let us recall that passage, quoted above, where Kant said that the ‘I’ is a mere “transcendental subject of thought = x, which is known only through the thoughts that are its predicates.” Now, if the ‘I’ in some way inhabits the position of the subject in a judgment, then it must be discursive in some sense. And if we turn to one of Kant’s Reflections (from the late 1760s or early 1770s), I think we can better understand in what sense. In his Reflection, Kant writes that:

112 Kant, *Welches sind die wirklichen Fortschritte?*, AA XX, 270: “es ist gleichsam, wie das Substanziale, was übrig bleibt, wenn ich alle Accidenzen, die ihm inhbiren, weggelassen habe”; “weil die Accidenzen gerade das waren, woran ich seine Natur erkennen konnte.”

113 See Kant, *Kritik der reinen Vernunft*, A144/B183: “The schema of substance is the persistence of the real in time, i.e., the representation of the real as a substratum of empirical time-determination in general, which therefore endures while everything else changes.”

114 Ibid., A342/B400.

115 Ibid., A345–46/B404: “für sich selbst an Inhalt gänzlich leere”; “nicht einmal sagen kann, daß sie ein Begriff sei, sondern ein bloßes Bewußtsein, das alle Begriffe begleitet.” For similar passages, see also Kant, *Metaphysische Anfangsgründe der Naturwissenschaft*, AA IV, 543; *Prolegomena*, AA IV, 334.

116 Erich Adickes dates this Reflection to 1769, but there are good reasons to think that it must rather be from the early 1770s. See Klemme, “Kants Wende Zum Ich,” 519–20, n. 26.
in every judgment the subject in general is something = \( x \) which, known under the mark \( a \), is compared with another mark. Hence it is also no wonder that we do not know a subject prior to all predicates except the ‘I,’ which nevertheless is no concept but rather an intuition. […] The idea of substance actually comes from the representation of oneself, insofar as we represent that something is separate from us, and predicates cannot be thought without a subject and without an ultimate subject; the constant predicates together are then called the subject.117

In this quote, we see that Kant uses the expression “something = \( x \)” as a placeholder for any concept whatsoever. The \( x \) is merely the expression for an empty subject position in a categorical judgment. Kant is obviously comparing the form of a judgment to an algebraic function, where \( x \) is the variable and \( a \) is some determinate number.

How are we to understand this relationship? One way would be to read it quite literally. As we saw in the previous chapter, Euler took a variable to represent the genus quantity, and this was how variables were generally conceived in the eighteenth century.118 Furthermore, we saw that Euler considered something to be a function of a variable, \( x \), if it is a formula composed of that variable, constants and operations symbols (such as \( x^2 + a \)). One could read Kant as saying that the categorical judgment ‘\( x \) is \( y \)’ is a formula composed of two variables and an operational symbol (‘is’), in a similar way as ‘\( x - y \)’ is an algebraic formula. The former is a logical operation of predication and the latter a mathematical operation of subtraction.

The logical formula, however, is at a higher level of abstraction. Whereas the variable of the algebraic formula is the genus of quantity, that of the logical formula is a mere ‘something’ in general. To call this \( x \) a mere ‘something’ is to say that it has no determinate marks whatsoever (as opposed to being a quantity, for example). As we recall from Chapter One, the highest concept in a Porphyrian Tree is that of a mere ‘something.’ I said that this concept expresses merely the form of a concept in general, without any determinate content (no marks). It is therefore not positively distinguished from anything at all, but only from that which is self-contradictory, and thus nothing more than an empty sign of a thought. This is, it seems, precisely the variable of the logical expression.

Since any concept can function as the subject of a categorical judgment, as we saw above, the mere fact that something is in the subject position of a judgment tells us absolutely nothing of its nature. The only thing that we learn

117 Kant, *Kant’s handschriftlicher Nachlaß: Metaphysik*, R3921 (trans. mod.): “in jedem Urtheile das subiect überhaupt Etwas ist = \( x \), welches, unter dem Merkmal \( a \) erkannt, mit einem andern Merkmal verglichen wird. Daher auch kein Wunder ist, daß wir kein subiect vor allen Prädicaten erkennen, als bloß das Ich, welches gleichwohl kein Begrif, sondern eine Anschauung ist. […] Die idee der substantz kommt eigentlich von der representatione sui ipsius her, so fern wir uns vorstellen, daß etwas von uns unterschieden sey, und prædicatc ohne subiect und ohne letztes subiect nicht gedacht werden können, die bestandigen Prädicate heißen alsdenn zusammen das subiect.”

from this is what kind of relation this ‘something’ (the subject) has to another concept (the predicate), just as the formula ‘x – y’ does not tell us anything about the variables contained in it, only the operations performed on them. Now, this is also what accounts for the vacuous nature of the ‘I’ of the transcendental subject. It expresses only a thought that connects a manifold of representations in an empty ‘something.’ And in this thought, the subject – ‘I’ – in which they are united is not positively determined in any way. It has no marks, but is merely determined by its position as a subject in the judgment. When Kant says that the ‘I’ is “in content for itself wholly empty,” the emphasis should be on “for itself.” Because separated from its position in the judgment, the ‘I for itself’ has no positive features at all that distinguish it from other concepts. It is constituted precisely in the judgment ‘I think,’ which brings representations together in a ‘something,’ that is, predicates them to this subject.119

This does not mean that this act of self-awareness fails to specify what the real substrate of these acts is, for it does not seek to know anything, but only to intellectually encompass the acts in a thought of them as united. And the ability to encompass intellectually all the states of inner sense, that is, to think them as constituting an intellectual unity, rather than to intuit them as constituting a sensible unity, is what makes a being into a person, as Kant sees it: one is not merely able to feel oneself, but also to think oneself.120

Conclusion

In this chapter, I have examined a specific period in the history of the formation of the ‘modern subject.’ I began by touching briefly on the medieval roots of this conception in the ‘synthesis’ of Aristotelian and Augustinian conceptions of the soul. Following de Libera, I identified subjecthood and self-awareness as the two key components that constitute this conception of the subject. What has been called the ‘modern subject’ in this chapter is the philosophical conception that combines an ‘I’ that functions as the subject to which mental acts are attributed with an ‘I’ that as the ability to perceive or intuit itself immediately as the subject of its acts.

Contrary to de Libera, who argues that Kant departs from this conception of the subject and reverts to an older, Thomistic position, I have argued that Kant actually sought to formulate a version of the original position that replaces the perceptual or intuitive relation that this ‘subject’ was taken to have to itself, as the substrate of its acts, with a purely intellectual self-relation. This means that, for Kant, the unity of the ‘I’ is not a perceived unity, but a unity

119 Cf. Kant, Kritik der reinen Vernunft, A341/B399: “the concept – or rather, if one prefers, the judgment – ‘I think.’”

120 See Kant, Anthropologie in pragmatischer Hinsicht, AA VII, 127.
brought about by the intellect: we *think* our acts as all being united in a subject. According to Kant, it is the ability to intellectually embrace one’s acts in this way that renders a being a person.
Concluding Remarks

This dissertation opened with the issue of a turn to the subject of knowledge in modern philosophy, and then proceeded from the question of knowledge toward the problem of the subject. In these concluding remarks, let us move in the opposite direction – back from the subject to knowledge.

In the last chapter, we finally came to the question of the subject in Kant’s thought. This is not a matter of the ‘self’ in some broad and transhistorical sense, but a specific philosophical conception of the human. Following Alain de Libera, two key components that constitute this conception were identified: subjecthood and self-awareness. What has been called the ‘modern subject’ in the preceding chapter is the philosophical conception that combines an ‘I’ that functions as the subject to which mental acts are attributed as psychological predicates with an ‘I’ that has the ability to perceive itself immediately as the subject of its acts. As we have seen, Kant was himself a proponent of such a conception of the human soul in the 1770s, before turning against it in the following decades. I have argued that even in the critical period, Kant nonetheless continues to promote a version of the ‘modern subject,’ but replaces the perceptual or intuitive relation that this subject has to itself with a purely intellectual self-relation. The unity of the ‘I’ is not a perceived unity but a unity of thought.

What, then, is this subject? As we have seen, in the tradition preceding Kant, philosophers argued over the nature of the ‘subject’ or ‘substrate’ of thought; they asked, is this substrate material or immaterial, simple or composite? Is the soul, the body or the brain the subject in which thought inheres? I have argued that, for Kant, the very form in which the object of this quarrel is expressed – the thought of one’s states as inhering in something, whatever its nature – is actually what constitutes self-awareness. In other words, self-awareness is the ability to form the thought of one’s states as united in a subject, and we call this subject ‘I.’ But, Kant argues, we must not mistake the thought of our states as united in a subject for a perception or intuition of them as inhering in a real substrate. We have no knowledge of the ‘I’ itself; we know only the states we attribute to it. For there is nothing permanent in the flux of our mental life by which the ‘I’ can be identified. In this sense, the ‘I’ is completely devoid of content, like the thought of a substrate separated from all its positive features. There is nothing to lay hold of in thought.
This lack of determinate identity, however, is not the expression of a lack of knowledge, properly speaking. The ‘I’ is not an unknown substrate, something that exists, but whose nature escapes us; rather, the ‘I’ is empty because it only functions as the point of unity to which states are referred. The thought that expresses the act of self-awareness – ‘I think’ – is one that connects a manifold of thoughts, feelings, sensations, etcetera in an empty ‘something.’ The ‘I’ that is the subject of this thought, and to which they are attributed, is not positively determined in any way in itself. It is only determined by its position as the subject-term of the judgment: as the subject to which the states are predicated. Apart from this position as the subject to which states are predicated, however, the ‘I’ is a nonentity.

This does not mean, however, that the act of self-awareness somehow fails to specify what the substrate of these acts is; it does not seek to know anything, but only to embrace these acts intellectually in the thought of them as belonging to one and the same subject. And, according to Kant, it is precisely this ability to think one’s states as united in a subject that constitutes self-awareness, and it is this ability that renders a being a person. In this sense, while Kant is still a proponent of a version of the ‘modern subject,’ he transposes its structure into a mere form of thought: we think ourselves as the subjects our acts.

What, then, is the relation between Kant’s account of the conditions of knowledge examined in the first three chapters and this subject? Is the transcendental investigation of the conditions of knowledge an investigation of the subject? And when we come to know these conditions, do we gain knowledge about the subject? The answer, it would seem, has to be: no. To provide an account of what it is that we do when we make judgments is not to assert something about what the soul, mind or subject is like as a ‘thing.’ It is not to describe some structure or disposition of the subject, but merely the conditions necessary for knowledge to be possible.

In the first three chapters, I explicitly postponed the question of the subject, and instead emphasized what might be called the practical side of Kant’s theory of knowledge. I stressed that schemata function as procedures or methods for applying concepts to appearances, and thus as conditions for reading the Book of Nature. I also argued that, for Kant, an ‘appearance’ identifies, not a mental phenomenon, but the as of yet undetermined object of our senses. It is by means of schemata that we can acquire knowledge from such undetermined objects, and thereby transition, as Kant would say, from appearance to experience – to acquire empirical knowledge.

As we saw in Chapter One, Kant understands the activity of philosophy itself as a form of recollection: a coming to awareness of something that we, in a sense, already know, but of which we are as yet unaware. It is a matter of reminding us of what it is that we do; it is a reflection on the practice of the intellect and reason, one could say. Philosophy, then, is a form of self-

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1 Cf. Pippin, _Kant’s Theory of Form_, 219.
knowledge of the spontaneous activity of the intellect in its production of concepts. While it does not actually teach us anything new, it offers reminders.

For this reason, philosophy is always a secondary activity. Temporally speaking, Kant argues, empirical knowledge comes first, for it is only by being “prompted by sensible impressions” that the activity of intellect is first awakened. It is only on the occasion of the influence of an object on our senses that even the categories themselves are brought about by the intellect: “Pure intellect produces concepts, but they would not occur if there was no stuff.” It is only in the act of acquiring empirical knowledge that both the conceptual and intuitive conditions of knowledge are first brought about. This is what Kant has in mind when he calls both the categories and the pure intuitions of space and time ‘originally acquired’: they do not lie ready-made in our minds, but are brought about, in one way or another, in the act of acquiring knowledge.

Empirical knowledge is therefore “a composite of that which we receive through impressions and that which our own faculty of knowledge […] provides out of itself,” and it is only after “long practice” that we become able to separate the two, and isolate what the intellect has contributed on its own. As Kant sees it, the geometrical representations of space that we saw in Chapter Three are thus originally extracted from our empirical knowledge. They were first brought about in our empirical knowledge of the world, and only later could they be abstracted from such knowledge, and purified in geometrical diagrams. What we isolate in this way is something that was originally brought about by the intellect in its knowledge of empirical objects. It is of our own creation.

Such products of the intellect should not be referred to the ‘subject of knowledge,’ as if they were structures inscribed in it. The pure intuitions of space and time as a coordinate systems, I argued, are methods of objectification, that is, procedures that makes empirical knowledge of objects possible. And to account for what we do when we organize empirical reality spatially or temporally is not to affirm something about the subject or soul. Since we can have no knowledge of the ‘I,’ the object of transcendental philosophy cannot be the ‘subject’ to which schematic procedures or pure intuitions are referred; rather, transcendental philosophy should instead account for the subject of thought, the ‘I,’ as itself one such operation: what we do when we form the thought ‘I.’

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2 Kant, *Kritik der reinen Vernunft*, B1: “durch sinnliche Eindrücke […] veranlaß”.
3 Kant, *Metaphysik Mrongovius*, AA XXIX, 762 (trans. mod.): “Der reine Verstand bringt die Begriffe hervor, aber sie würden nicht statt finden, wenn kein Stof da wäre.”
4 See, for example, Kant, *Über eine Entdeckung*, AA VIII, 222–23.
5 Kant, *Kritik der reinen Vernunft*, B1: (trans. mod.): “ein Zusammengesetztes aus dem sei, was wir durch Eindrücke empfangen, und dem, was unser eigenes Erkenntnifvermögen […] aus sich selbst hergiebt”; “lange Übung”.

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I have chosen to call this study *Scientifically Minded*, because I view Kant’s account of the conditions of knowledge, the ideals to which reason aspires and the reflexive activity of the ‘I’ as all part of an account of *mind* in a broad sense, but not as a description of the nature of some ‘thing.’
Illustrations


3.2. Figurative representation of time. In Galileo Galilei, *Discorsi e dimostrazioni matematiche, intorno à due nuove scienze*, 1638 (Leiden: Elzevir, 1638), 152. Courtesy of Uppsala University Library. CC BY 2.5.

3.3. Diagram expressing the relationship between time, speed and space. In Galileo Galilei, *Discorsi e dimostrazioni matematiche, intorno à due nuove scienze* (Leiden: Elzevir, 1638), 170. Courtesy of Uppsala University Library. CC BY 2.5.

3.4. The movement of a point in a two-dimensional geometric space. In Leonhard Euler, *Theoria motus corporum solidorum seu rigidorum* (Greifswald: A. F. Röse, 17790), tab. 1. Courtesy the National Library of Sweden. CC BY 2.5.

3.5. The distress signal ‘SOS’ in international Morse code.

3.6. A line measured through the successive addition of a unit.

3.7. A proof that ‘2 + 2 = 3 + 1’ by means of a diagram.

3.8. Geometrical representation of a variable quantity (upper part) and a two-dimensional coordinate system (lower part). In Leonhard Euler, *Introductio in analysin infinitorum* (Lausanne: Marcum-Michaelem Bousquet & socios, 1748), tab. 1. Courtesy of Uppsala University Library. CC BY 2.5.


3.11. The movement of time.
3.12. The homogeneous movement of time.


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